DOCUMENT RESUME

ED 384 675 TM 023 997

AUTHOR	Reynolds, Anne; And Others
TITLE	Beginning Teacher Knowledge of Education in the Elementary School: A National Survey. The Praxis Series: Professional Assessments for Beginning Teachers. EES Final Report.
INSTITUTION	Educational Testing Service, Princeton, N.J.
REPORT NO	ETS-RR-92-71
PUB DATE	Sep 92
NOTE	156p.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC07 Plus Postage.
DESCRIPTORS	Administrators; *Beginning Teachers; Classroom Techniques; Curriculum; Elementary Education; *Elementary School Teachers; *Knowledge Level; National Surveys; Teacher Educators; *Teaching Methods; *Test Construction
IDENTIFIERS	*Praxis Series; *Subject Content Knowledge; Test Specifications

ABSTRACT

The job analysis study described in this report was conducted to serve as one of the bases for documenting the content validity of the Praxis II: Subject Assessment in Elementary Education, one of a series of assessments for beginning teachers being developed by the Educational Testing Service. Two inventories of knowledge elementary school teachers need to teach the elementary school curriculum were constructed through an iterative process by a national group of teachers, teacher educators, and administrators. Form 1 covered content area and Form 2 detailed pedagogy specific to the areas most often taught. Each inventory was sent to 510 teachers, 255 teacher educators, and 52 state administrators across the country. A cutpoint was set to differentiate important and unimportant knowledge, and three types of analysis of survey responses were conducted. Without qualifications, 72% of the Form 1 knowledge statements and 82% of the Form 2 statements may be used to develop test specifications. Fifteen tables present survey results. Thirteen appendixes provide supplemental details about the survey including: demographic characteristics of respondents, means by job category, and knowledge statements rated less than 2.50 by relevant subgroups for Forms 1 and 2. (Contains 13 references.) (SLD)

THE PRAXIS SERIES
Professional Assessments for Beginning Teachers™

Beginning Teacher Knowledge of Education in the Elementary School: A National Survey

Anne Reynolds
Richard J. Tannenbaum
Michael Rosenfeld

September 1992

RR. 92-71

Educational Testing Service

Beginning Teacher Knowledge of Education in the Elementary School: A National Survey

Anne Reynolds, Ph.D.
Division of Cognitive and Instructional Science

Richard J. Tannenbaum, Ph.D.
Michael Rosenfeld, Ph.D.
Division of Applied Measurement Research

Educational Testing Service
Princeton, NJ

September 1992

Acknowledgments

We would like to thank the many people who helped make this study a significant contribution to the field of educational research. Terry Salinger, Pam Smith, and John Baer of ETS provided expertise and guidance in the development of the initial draft of the inventory. They were also invaluable in identifying and contacting educators for the External Review Panel and Advisory/Test Development Committee. Furthermore, Terry, Pam, and John played key roles in making the Advisory/Test Development Committee meeting both productive and pleasurable. We would also like to thank the members of the External Review Panel and the Advisory/Test Development Committee for their significant contribution to the construction of the inventory. Finally, we thank the teachers, teacher educators, and school and state administrators who gave their time and consideration to the completion of the survey.

Table of Contents

Beginning Teacher Knowledge of Education in the Elementary School: A National Survey

Executive Summary

Anne Reynolds, Ph.D.
Richard J. Tannenbaum, Ph.D.
Michael Rosenfeld, Ph.D.

The job analysis study described in this report was conducted to serve as one of the bases for documenting the content validity of the Praxis II: Subject Assessment in Elementary Education. Praxis II is part of The Praxis Series: Professional Assessments for Beginning Teachers™. The purpose of the study was to describe the most important knowledge domains needed by newly licensed (certified) elementary school teachers in order to perform their jobs in a competent manner.

Two inventories of knowledge elementary school teachers need to teach the elementary school curriculum (Education in the Elementary School: Form 1 and Form 2) were constructed through an iterative process by a national group of teachers, teacher educators, and administrators familiar with elementary school teaching. Form 1 covered the content areas most often taught in the elementary school curriculum; Form 2 detailed pedagogy specific to the content areas most often taught in the elementary school curriculum. Both inventories included identical sections that covered knowledge of elementary school students and knowledge of professional issues.

Each knowledge inventory was sent in survey form to 510 teachers, 255 teacher educators, and 52 state administrators across the country. While teachers and teacher educators received either Form 1 or Form 2 of the inventory, state department officials were sent both forms. Respondents were asked to rate the individual knowledge statements using a 5-point importance scale.

Three types of analyses were conducted: (1) frequency distributions across background information categories (e.g., sex, years of teaching experience, school level); (2) mean importance ratings by relevant subgroups (job category, sex, race/ethnicity, geographic location, years of teaching experience); and (3) correlations of mean importance ratings within relevant subgroups. A cutpoint of 2.50 (midway between *Moderately Important* and *Important*) was set to differentiate between important knowledge and unimportant knowledge for purposes of test development. Knowledge statements that received a mean rating of less than 2.50 by any of the relevant subgroups of respondents were identified. The Test Development/Advisory Committee members were advised to use knowledge statements that were rated above the 2.50 cutpoint for purposes of setting test specifications. To include knowledge statements that fell below the cutpoint, the committee was requested to provide compelling written justification.

In the analysis of the Form 1 responses, 40 knowledge statements proved problematic to one or more of the designated subgroups; that is, subgroups rated the statement below the cutpoint of 2.50. These knowledge areas represent 28% of the inventory. Before they may be used in test specifications, these knowledge areas need written rationales from the Advisory/Test Development Committee. Without qualifications, 72% (n=105) of the knowledge areas may be used to develop test specifications.

In the analysis of the Form 2 responses, subgroups rated 30 knowledge statements below the cutpoint of 2.50. These knowledge areas represented 18% of the inventory. As with the knowledge areas identified in the Form 1 analysis, the knowledge statements rated below the cutpoint in the Form 2 analysis need written rationales from the Advisory/Test Development Committee before they may be used in test specifications. Without qualifications, 82% (n=134) of the knowledge areas in the Form 2 inventory may be used to develop test specifications.

The knowledge statements that were identified to be important by the surveyed elementary school educators should be used as the foundation for the development of test specifications. Test specifications that are linked to the results of a job analysis provide support for the content validity of the derived assessment measures and may be considered as part of an initial step in ensuring the fairness of the derived assessment measures to subgroups of elementary school teacher candidates. It is reasonable to assume that, due to testing and psychometric constraints (e.g., time limits, ability to measure some content reliably), not all of the identified content may be included on assessment measures. One source of information that may be used to guide the test development committee in their decision of what content to include on the assessment measures is the mean importance rating. Although a rank ordering of the content by mean importance rating is not implied, it is recommended that initial consideration be given to content that is well above the cutpoint and represents the appropriate breadth of content coverage.

On both surveys, correlations for relevant subgroups were in the .90s, which suggests that there is substantial agreement among various subgroups of respondents with respect to the relative importance of the content knowledge and content-specific pedagogical knowledge needed by newly licensed elementary school teachers.

Included on both Form 1 and Form 2 were the same two domains: Domain A (Elementary Students) and Domain B (Professional Issues). Comparisons of means indicated that the same six knowledge statements were judged to be below the cutpoint of 2.50 on both Forms 1 and 2. Additionally, correlations between relevant subgroups who responded to each form were high (above .96), indicating that there was agreement between respondent subgroups regarding the relative importance of the knowledge statements in Domains A and B. These analyses suggest that if the surveys were administered to other groups of teachers selected in the same way, results would be similar across these two domains.

Evidence was also provided in this study of how well each domain was covered by the specific knowledge statements and the overall importance of each knowledge domain. The results suggest that all of the domains were either adequately or well covered by the specific knowledge statements. Additionally, results indicate that all of the knowledge domains were judged to be at least moderately important for the newly licensed elementary school teacher. Finally, suggestions were offered regarding the relative weights each domain should receive in test specifications for the Praxis II assessment in Elementary Education.

All of the findings reported above should be considered during the development of the Praxis II assessment of Elementary Education.

List of Tables

Beginning Teacher Knowledge of Education in the Elementary School: A National Survey

Introduction

New developments in psychological and educational research, measurement, and technology, as well as recent national discussions about the preparedness and effectiveness of teachers, have spurred Educational Testing Service (ETS) to develop a new generation of teacher assessments (Dwyer, 1989). This new assessment system, called The Praxis Series: Professional Assessments for Beginning Teachers™, is designed to be used by states as part of the process they employ to license or certify their teachers. The new system will consist of three stages. Praxis I: Academic Skills Assessments are designed to be used by states to decide whether prospective teachers have the basic academic skills that serve as the foundation for teacher development and practice. Basic academic skills (e.g., reading, writing, mathematics) are judged to be important for teachers regardless of school level or subject matter taught (Rosenfeld & Tannenbaum, 1991). Praxis II: Subject Assessments measure knowledge of subject matter (e.g., biology, social studies, Spanish), general principles of teaching and learning, and, where appropriate, content-specific pedagogy. Praxis III: Classroom Performance Assessments are performance-based measures of the beginning teacher's application of teaching knowledge and skills.

This report presents the job analysis study that was conducted to serve as one of the bases for documenting the content validity of the Praxis II assessment in Elementary Education. The purpose of the study was to describe the most important knowledge domains needed by newly licensed (certified) elementary school teachers in order to perform their jobs in a competent manner. The report presents the methods used to define the job-related knowledge, the statistical analyses conducted, the results of these analyses, and implications of the results for test development.

Standards for Educational and Psychological Testing

The Standards for Educational and Psychological Testing (1985) is a comprehensive technical guide that provides criteria for the evaluation of tests, testing practices, and the effects of test use. It was developed jointly by the American Psychological Association (APA), the American Educational Research Association (AERA), and the National Council on Measurement in Education (NCME). The guidelines presented in the Standards have, by professional consensus, come to define the necessary components of quality testing. As a consequence, a testing program that adheres to the Standards is more likely to be judged to be valid (defensible) than one that does not.

Criteria designated as "primary" within the Standards should be met by all tests...unless a sound professional reason is available to show why it is not necessary, or technically feasible, to do so in a particular case. Test developers and users...are expected to be able to explain why any primary standards have not been met" (AERA/APA/NCME, 1985, p. 2). One of the primary standards is that the content domain of a licensure or certification test should be defined in terms of the importance of the content for competent performance in an occupation. "Job analyses provide the primary basis for defining the content domain" (p. 64).

The use of job analysis to define the content domain is a critical component in establishing the content validity of licensure and certification examinations. Content validity is the principle validation strategy used for these examinations. It refers to the extent to which the content covered by an examination overlaps with the important components (tasks, knowledge, skills, or abilities) of a job (Arvey & Faley, 1988). Demonstration of content validity is accomplished through the judgments of subject-matter experts. It is enhanced by the inclusion of large numbers of subject-matter experts who represent the diversity of the relevant areas of expertise (Ghiselli, Campbell, & Zedeck, 1981). The lack of a well-designed job analysis is frequently cited by the courts as a major cause of test invalidity.

Job Analysis

Job analysis refers to procedures designed to obtain descriptive information about the tasks performed on a job and/or the knowledge, skills, and abilities thought necessary to perform adequately those tasks (Gael, 1983). The specific type of job information collected by a job analysis is determined by the purpose for which the information will be used. For purposes of developing licensure and certification examinations, a job analysis should identify the important knowledge or abilities necessary to protect the public--interpreted as the importance of the content for competent performance in an occupation (AERA/APA/NCME, 1985). In addition, a well-designed job analysis should include the participation of various subject-matter experts (Mehrens, 1987); and the data collected should be representative of the diversity within the job. Diversity refers to regional or job context factors and to subject-matter expert factors such as race/ethnicity, experience, and sex (Kuehn, Stallings, & Holland, 1990). The job analysis conducted in this study was designed to be consistent with the Standards and current professional practices.

Objectives of the Job Analysis Study

The objectives of this study were: (1) to construct comprehensive domains of content and content-specific pedagogical knowledge that are important for elementary school teachers; and then (2) to obtain, using survey methodology, the independent judgments of a national sample of elementary school educational professionals (teachers, teacher educators, school and state administrators) to identify knowledge important for newly licensed elementary school teachers. This identification component serves a critical role of ensuring that the domain (in whole or in part) is judged to be relevant to the job of a newly licensed (certified) elementary school teacher by a wide range of educational professionals. It is the knowledge that is identified to be important that will be used in the development of test specifications for the Elementary Education assessment.

Methods

Two major activities constituted the methodology used in this study: 1) defining the important knowledge domain for elementary school teaching; and 2) evaluating the domain for its importance to the newly licensed teacher. Table 1 illustrates these activities and their related job analysis steps.

Table 1. Steps in the Job Analysis Process

Activities	Steps
Defining the Domain for Elementary School Teaching	1. Draft Job Analysis Inventory 2. Content Area Specialists 3. External Review Panel 4. Advisory/Test Development Committee
Evaluating the Domain for its Importance to Newly Licensed Teachers	1. Administration of the Job Analysis Inventory 2. Data Analysis

The inventory of knowledge for elementary school teachers was developed through an iterative process involving a national group of experts in the field of elementary education. These practicing professionals included elementary school teachers, elementary school teacher educators, school administrators with responsibility for evaluating beginning elementary school teachers, and state department officials with responsibility for overseeing elementary school teacher credentialing.

Defining the Domain for Elementary School Teaching

Defining the knowledge domain consisted of four steps. The first step involved constructing a draft job analysis inventory. Next, the draft was sent to subject matter area specialists for review. Third, a revised draft was sent to practicing professionals and interviews were held with each individual. Fourth, an advisory committee meeting was held to further review and refine the draft. More detailed information about each of these steps is provided below.

Draft job analysis inventory. A draft inventory of the knowledge needed by elementary school teachers was constructed by ETS test development specialists and the job analysis project director. It was based on a review of relevant literature (e.g., NCTM Commission on Standards for School Mathematics, 1989), state requirements for teacher licensure in elementary school teaching (e.g., California elementary subject matter assessments; Klem, 1990), recommendations for preparing elementary school teachers (e.g., National Council for Accreditation of Teacher Education, 1989), college textbooks for specific elementary school subjects, and the specifications for the current NTE test for Education in the Elementary School. This draft functioned as the initial definition of the knowledge domain of elementary school teaching.

The draft inventory contained three major domains: knowledge of elementary school students; knowledge of content taught in elementary school (reading/language arts; mathematics; social studies; science; physical education/health; and fine arts); and knowledge of content-specific pedagogy (a domain devoted to the pedagogical knowledge needed to teach each of the subject-matter areas). There were 164 specific knowledge statements in the initial draft of the inventory.

Content area specialists. The initial draft inventory was mailed to five elementary school content area specialists--university teacher educators who were nominated by peer recommendation (see Appendix A for the list of specialists). The specialists were asked to review the content area of their expertise and to comment on the inventory's coverage of the domain and organization. In phone interviews, the specialists gave suggestions regarding ways to define the various subject areas more comprehensively. These suggestions were compiled, discussed with test development staff, and used to reorganize the draft inventory to map each knowledge domain more completely.

The revised draft inventory contained four major domains: knowledge of elementary school students; knowledge of content-specific pedagogy (with subsections for each content area--reading/language arts, mathematics, social studies, science, physical education/health, fine arts); knowledge of professional issues; and knowledge of content (with subsections for each content area listed above). At this point in the process, due to the broader explication of the content areas by the content area specialists and the reorganization of content-specific pedagogy from one section to subsections for each content area, the number of knowledge statements grew to 257.

External Review Panel. The newly revised inventory was mailed to a group of 12 elementary school teaching professionals (see Appendix B for the list of professionals), consisting of three elementary school teachers, two school district curriculum specialists, one state department curriculum specialist, two state department teacher education officials, and four teacher educators. Individuals were considered for membership through a process of peer recommendation. All of the review panelists had experience either teaching elementary school students or supervising elementary school teachers. Generally, the panel members were prominent and active in professional associations and/or teacher licensure. The panel was formed so that there was representation by geographic location, race/ethnicity, sex, and subject-matter expertise.

The External Review Panel members were asked to review the draft and make modifications they felt necessary in order to adequately cover the important aspects of teaching elementary school students. They were further instructed that these modifications could include the addition of important knowledge statements, deletion of unimportant statements, elaboration of statements with relevant examples, and revision of statements into language that was clearer and more appropriate. ETS research staff interviewed the panelists by telephone to obtain their suggested modifications. These comments were compiled and used at the Advisory/Test Development Committee meeting, which is described below.

Advisory/Test Development Committee. A meeting was held October 11-14, 1990 in Princeton, New Jersey with a national advisory committee of ten elementary education specialists (see Appendix C for a list of committee members). The committee was charged with developing a final version of the job analysis inventory and with developing the specifications for the new test. Like the External Review Panelists, members of the Advisory/Test Development Committee had representation by sex, ethnicity, geographic location, and subject matter expertise. The committee included five teachers and five teacher educators.

Prior to the October meeting, copies of the draft inventory were mailed to the committee members. The instructions given to committee members regarding the job analysis were essentially the same as those given to the External Review Panel. They were asked to review the draft and make modifications necessary in order to adequately cover the knowledge areas they felt were important for teaching elementary school students. Advisory/Test Development Committee members were further instructed that these modifications could include the addition of important knowledge statements, deletion of unimportant statements, elaboration of statements with relevant examples, and revision of statements into language that was clearer and more appropriate. The group interaction during the meeting fostered excellent discussions that generated suggestions not made during the individual interviews with members of the External Review Panel.

Using the comments of the External Review Committee as a reference, the Advisory/Test Development Committee members reworked the inventory. They felt the size of the domains was large enough to warrant dividing the inventory into two forms that could be sent to separate groups of educators. Form 1 included 163 statements that were divided into nine domains: elementary school students; professional issues; and the content areas of reading/language arts/literature, mathematics, social studies, science, health, physical education, visual and performing arts. Form 2 comprised 182 statements that were separated into nine knowledge domains: elementary school students; professional issues; and knowledge of content-specific pedagogy in the aforementioned seven content domains (reading/language arts/literature, mathematics, social studies, science, health, physical education, visual and performing arts). Identical sections (knowledge of elementary school students, knowledge of professional issues) were included in each of the forms to provide an opportunity to compare the results obtained from different groups of respondents in the study.

During the meeting, the Advisory/Test Development Committee reviewed the proposed rating scale for the inventory. The rating scale required respondents to make judgments regarding importance to the newly licensed teacher. The use of an importance scale is consistent with professional standards set forth in the Standards for Educational and Psychological Testing (AERA/APA/NCME, 1985). The rating scale is shown in Table 2.

Table 2. Rating Scale Used in the Job Analysis Inventory

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?	
(0)	Not important
(1)	Slightly important
(2)	Moderately important
(3)	Important
(4)	Very important

The committee also reviewed items concerning respondent background information (e.g., sex, years of teaching experience, geographic location). Such items were included in the inventory to describe the respondents and to provide an opportunity for conducting subgroup analyses where appropriate. After the meeting, the revised job analysis inventory (consisting of the two forms) was mailed to each committee member for final approval. Advisory committee members approved of the final version of the inventory.

Pilot testing of the inventory. Both forms of the inventory were pilot tested on a group of four classroom teachers, two school administrators, and two teacher educators (see Appendix D for a list of pilot test participants). The purpose of the pilot test was to ensure that the instructions were clear and that the survey forms were readily understood and could be completed by respondents. Pilot participants were asked to review the survey for clarity of wording and instruction, ease of use, and comprehensiveness of content coverage. They were asked to make their comments on a questionnaire that accompanied the survey and to mail the questionnaire and survey back to ETS in a postage-paid envelope. The pilot test indicated that no one had difficulty completing the inventory and that no additional changes were necessary.

Final survey format. Copies of Form 1 and Form 2 are found in Appendix E. Both forms consisted of five sections:

- Part I was the introduction, which described the inventory's purpose and gave directions for completing the inventory.
- Part II contained nine knowledge domains and their respective knowledge statements[1]. In addition, Part II contained the rating scale used for determining the importance of each knowledge statement for newly licensed elementary school teachers.

  In Form 1 the nine knowledge domains were:

  Knowledge of Elementary School Students;
  Knowledge of Professional Issues;
  Knowledge of Reading, Language Arts, and Literature;
  Knowledge of Mathematics;
  Knowledge of Social Studies;
  Knowledge of Science;
  Knowledge of Physical Education;
  Knowledge of Health; and
  Knowledge of Visual and Performing Arts.

  In Form 2, the nine knowledge domains were:

  Knowledge of Elementary School Students;
  Knowledge of Professional Issues;
  Knowledge of Pedagogy Specific to Reading, Language Arts, and Literature;
  Knowledge of Pedagogy Specific to Mathematics;
  Knowledge of Pedagogy Specific to Social Studies;
  Knowledge of Pedagogy Specific to Science;
  Knowledge of Pedagogy Specific to Physical Education;
  Knowledge of Pedagogy Specific to Health; and
  Knowledge of Pedagogy Specific to Visual and Performing Arts.
- Part III asked respondents to list any important knowledge domains they believed were not included in the inventory.
- Part IV asked respondents to allocate 100 points across domains covered in the inventory to show how much emphasis they believed should be placed on each domain in the resulting test. These ratings are used to help assist test development committees in deciding how many test questions to put in each relevant knowledge domain.
- Part V asked respondents to complete background information questions (e.g., grade level taught, school setting, sex); responses to these questions were used to characterize the survey respondents and, where appropriate, to conduct subgroup analyses.

Evaluating the Domain for its Importance to Newly Licensed Elementary School Teachers

Once the content domain had been defined by the iterative process described above, it was evaluated in terms of its importance for competent job performance for the newly licensed elementary school teacher. The evaluation was carried out in two steps: 1) an

[1]Form I contained a total of 145 knowledge statements; there were also a content coverage question and an overall domain importance question for each knowledge domain, bringing the total number of questions in Form 1 to 163. Form 2 consisted of a total of 164 knowledge statements; there were also a content coverage question and an overall domain importance question for each knowledge domain, bringing the total number of questions in Form 2 to 182.

administration of the job analysis inventory to a larger group of practicing professionals; and 2) an analysis of the data from this administration.

Administration of the job analysis inventory. Both forms of the inventory were mailed with an accompanying cover letter (Appendix F) and post-paid return envelope to national groups of practicing professionals, which included classroom teachers, college faculty, and state department officials. Table 3 shows the numbers and types of educators who were sent the inventory.

Table 3. Respondent Groups and Number of Inventories Mailed

Respondent Group	Form 1	Form 2
Teachers (10 per state plus the District of Columbia)	510	510
Teacher Educators (5 per state plus the District of Columbia)	255	255
State Department Officials (1 per state plus the District of Columbia and the Department of Overseas Dependent Schools)	52	52
Advisory/Test Development Committee Members	11	11
Total Mailed	828	828

The names of the teachers and teacher educators were drawn at random from mailing lists obtained through Market Data Retrieval Services (MDRS). MDRS is a survey research organization whose data base contains the names of over 90% of all the public school teachers and college faculty in the United States. The names of state department officials were identified by phone calls to members of the National Association of State Directors of Teacher Education and Certification (NASDTEC). While teachers and teacher educators received either Form 1 or Form 2 of the inventory, state department officials were sent both forms to gather their judgments on the entire domain of elementary school teaching.

A follow-up postcard (see Appendix G) requesting completion of the inventory was sent approximately two weeks after the initial mailing. A follow-up inventory was mailed approximately four weeks after the initial mailing to each teacher who had not returned the inventory.

Data analysis. Since Forms 1 and 2 comprised, for the most part, different content, each form was analyzed separately; however, the same analyses were conducted on both forms. Three types of analyses were conducted: (1) frequencies of responses to the background information questions (e.g., age, number of years of teaching experience, ethnicity); (2) mean importance ratings by relevant subgroups of respondents (e.g., teachers, teacher educators, females); and (3) correlations of mean importance ratings within relevant subgroups.

Frequencies of responses to the background information questions were computed to describe the group of educators who responded to the survey. Five of these background questions were important for purposes of analyzing the data of this study: job category; geographic location; sex; race/ethnicity; and years of teaching experience. Job category (teacher, teacher educator, state administrator) was analyzed separately to determine if these groups of respondents had similar perceptions regarding the important knowledge needed by the newly licensed elementary school teacher. Geographic location was considered relevant in order to determine if educators from different areas of the country had similar perceptions. The four geographic regions (South, Far West, Northeast, Central)[2] used in the analysis are consistent with the categories used by the National Association of State Directors of Teacher Education and Certification. Sex and race/ethnicity were considered relevant subgroups because they represent protected "classes" under Title VII of the Civil Rights Act of 1964. Years of teaching experience was included to determine if perceptions of importance differed by years of teaching experience. An analysis by relevant subgroups is an important part of the data analysis, for it is used to determine a core of knowledge that all relevant subgroups agree is important for the newly licensed (certified) elementary school teacher.

Mean importance ratings were computed for each statement by relevant subgroups that numbered 30 or more--this number is necessary to ensure an accurate estimate of the population mean (Walpole, 1974). The comparison of mean ratings provides an absolute measure of importance attributed to the knowledge statements by the various subgroups (e.g., teachers, teacher educators, females). Knowledge statements that meet or go beyond a critical mean value (discussed later in the report) by all relevant subgroups of respondents may be considered for inclusion in the development of test specifications. Means were also computed for responses to the content coverage and the recommendations for test content sections of the inventory. These mean analyses were computed using the aggregate of the respondents to provide overall indicators of relevance for consideration by test development staff.

Correlation coefficients were computed to determine the extent to which subgroups had similar patterns of mean importance ratings across the knowledge statements. Similar patterns reflect agreement in the relative importance of each knowledge statement. For example, the profile of the 145 Form 1 mean importance ratings for females was correlated with the profile of the 145 Form 1 mean importance ratings for males. The greater the similarity between the two profiles, the closer the correlation coefficient value will be to 1.0.

Criteria for selecting content for purposes of test development. To aid the Advisory/Test Development Committee in determining which knowledge areas should be considered for purposes of defining the content domain for a test of multi-subjects and which knowledge areas should not be included, a mean rating of 2.50 was chosen as the cutpoint. The mean of 2.50 is the midpoint between *Moderately Important* and *Important*

---

[2]The states within these regions are:
South--Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, West Virginia;
Far West--Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, Wyoming;
Northeast--Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont; and
Central--Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, Wisconsin.

on the 5-point rating scale and is consistent with the intent of content validity, which is to include important knowledge and exclude unimportant knowledge from the assessment measures.

Members of the Advisory/Test Development Committee were advised to consider knowledge areas that received a mean importance rating of 2.50 or higher as eligible for inclusion in the test specifications; knowledge areas that fell below the 2.50 cutpoint were not to be considered for inclusion. However, because survey participants were not involved in the development of the content domain, they may lack certain insights that the Advisory/Test Development Committee members have due to their high level of involvement in the definition of the domain. Consequently, if the committee believed that a knowledge area that did not meet the cutpoint should be included in the specifications, they were requested to provide a compelling and documented rationale for its inclusion.

Since each of the forms (Form 1 and Form 2) was analyzed separately, the results are also reported individually.

Results of the Form 1 Analysis

Response Rate: Form 1

Form 1 was sent to a national group of respondents. Of the 828 Form 1 surveys mailed out, 16 were returned not completed due to a variety of reasons (e.g., incorrect address, individual had retired, individual declined to participate). Of the remaining 812, 394 were completed and returned. Of these 394 surveys, 303 were analyzed; those that were not analyzed had been returned after the due date (n=31) or the respondent did not fit the job categories of teacher/full-time substitute, school administrator, state administrator, or teacher educator (n=60). The overall response rate (including nonusable surveys) was 50% (n=410).

Demographic Characteristics: Form 1

Appendix H shows the numerical distribution of respondents across all the background information categories. Sixty-one percent of the respondents were teachers; 23% college faculty; 4% school administrators; and 10% state administrators. Twenty-nine percent of the respondents came from the South; 23% were from the Far West; 23% were from the Northeast; and 25% were from the Central region of the country. Seventy-seven percent were female; 23% were male. The majority of the respondents were White (80%). Nine percent had five or fewer years of teaching experience; 53% had taught from six to twenty years; and 38% had taught 21 years or more.

Mean Importance Ratings of Knowledge Statements: Form 1

The mean importance rating on each knowledge statement for all respondents, broken down by job category (teachers, teacher educators) is found in Appendix I[3]. Knowledge statements rated less than 2.50 are identified in boldface on this table. Mean importance ratings were also computed for each of the relevant subgroups. Appendix J

[3]State administrators were omitted from this table because they numbered fewer than 30. Analyses were not conducted for subgroups with a membership less than 30.

displays the knowledge statements that did not meet the 2.50 cutpoint for relevant subgroups of respondents.

Of the 145 knowledge statements on the inventory, 40 statements (28%) fell below the 2.50 cutpoint for one or more relevant subgroups. Thirty-four statements were rated below 2.50 by respondents by job category; six additional statements were rated below 2.50 by the analyses of other relevant subgroups (e.g., male, Whites). Table 4 shows the total number and percent of statements that fell below 2.50 in each domain. For 12 knowledge statements, one or more subgroups gave ratings of less than 2.00 (*Moderately Important*).

Table 4. Number and Percent of Statements below 2.50 by Domain: Form 1

KNOWLEDGE DOMAIN	NUMBER OF STATEMENTS IN THE DOMAIN	STATEMENTS RATED BELOW 2.50	
		number	percent of the domain
Elementary School Students	15	4	27%
Professional Issues	5	2	40%
Reading, Language Arts, and Literature	16	1	6%
Mathematics	24	2	8%
Social Studies	30	13	43%
Science	27	3	11%
Physical Education	2	0	0%
Health	11	0	0%
Visual and Performing Arts	15	15	100%

Correlations of the Mean Importance Ratings: Form 1

Correlation coefficients were computed between relevant subgroups numbering at least 30 to assess the extent of similarity in ratings among relevant subgroups of respondents. The correlation between teachers (n=167) and teacher educators (n=64) was .92. The correlation between females (n=214) and males (n=64) was .95. The correlations between Whites (n=236) and people of color (n=60) was .96. The correlations for geographic region are shown in Table 5. The correlations between teachers with fewer than 10 years of teaching experience (n=53) and those with eleven or more years of experience (n=216) was .98. All of the correlations were in the .90s, indicating a high level of agreement in perceived relative importance of the knowledge statements among the various subgroups.

Table 5. Correlations by Geographic Location: Form 1

	SOUTH n=85	FAR WEST n=69	NORTHEAST n=69	CENTRAL n=75
SOUTH	1.00			
FAR WEST	.97	1.00		
NORTHEAST	.97	.95	1.00	
CENTRAL	.97	.97	.97	1.00

Together, the results of the mean and correlational analyses suggest strong support for a core of important knowledge that is relevant for elementary school teachers. As discussed earlier, the Advisory/Test Development Committee is advised to consider for inclusion in the development of test specifications only those knowledge statements that received a mean importance rating of 2.50 or greater. To include knowledge statements that fall below the cutpoint, the committee is requested to provide compelling written justification.

Evaluation of the Content Domain: Form 1

Respondents were asked two questions on the inventory to determine the extent to which the inventory covered knowledge judged to be important for the newly licensed elementary school teacher: a question on content coverage and a question on the overall importance of each knowledge domain.

Content coverage. Survey respondents were asked to indicate, using a 5-point rating scale, how well each major knowledge domain was covered by the specific knowledge statements. The scale values ranged from a low of 1 (*Very Poorly*) to a high of 5 (*Very Well*); the midpoint of the scale was a value of 3 (*Adequately*). Table 6 shows the means and standard deviations of these ratings for respondents by job category. Most of the sections received ratings close to or above 4.00, except for the rating teacher educators gave to the section on Knowledge of Physical Education (3.26). This analysis indicates that respondents judged the knowledge domains to be well-covered.

Table 6. Content Coverage of Knowledge Domains: Form 1

KNOWLEDGE DOMAINS	TEACHERS n=167		TEACHER EDUCATORS n=64	
	mean	standard deviation	mean	standard deviation
Elementary School Students	3.94	.77	3.97	.65
Professional Issues	3.84	.80	3.65	.79
Reading, Language Arts, and Literature	4.36	.69	3.95	.80
Mathematics	4.33	.69	4.15	.81
Social Studies	4.04	.81	3.82	.81
Science	4.20	.73	3.93	.89
Physical Education	3.56	.88	3.26	1.06
Health	4.29	.69	4.08	.65
Visual and Performing Arts	3.99	.78	3.79	.75

Mean ratings for the overall importance of the knowledge domains. Respondents were asked to give ratings for the overall importance of each knowledge domain. The scale values for this question ranged from a low of 0 (*Not Important*) to a high of 4 (*Very Important*); the midpoint of the scale was a value of 2 (*Moderately Important*). As seen in Table 7, when the means are rounded, all but one of the domains were rated by teachers and teacher educators as being important for newly licensed elementary school teachers. Knowledge of Visual and Performing Arts was rated as only moderately important. The domains rated as being very important by teachers and teacher educators were Knowledge of Reading, Language Arts, and Literature, Knowledge of Mathematics, and Knowledge of Health.

Table 7. Mean Importance Ratings of Knowledge Domains: Form 1

KNOWLEDGE DOMAIN	TEACHERS n=167		TEACHER EDUCATORS n=64	
	Mean	Standard Deviation	Mean	Standard Deviation
Elementary School Students	3.16	.72	3.47	.63
Professional Issues	2.91	.72	3.10	.73
Reading, Language Arts, and Literature	3.54	.62	3.75	.47
Mathematics	3.51	.65	3.57	.57
Social Studies	2.97	.83	3.33	.64
Science	3.17	.70	3.31	.64
Physical Education	2.89	.80	2.87	.79
Health	3.49	.63	3.47	.61
Visual and Performing Arts	2.30	.92	2.71	.83

Mean Percentage Weights for Test Content Emphasis: Aggregate of Survey Respondents

In addition to asking respondents to rate each knowledge statement, they were asked to indicate how many test questions (out of 100) should be included from each of the knowledge domains. Table 8 shows the mean percentage weights allocated by teachers and teacher educators. Overall, Knowledge of Reading, Language Arts, and Literature received the highest rating (18.54%). Knowledge of Elementary School Students received the second highest rating (16.50%). Knowledge of Social Studies (11.42%) and Knowledge of Science (11.88%) were similarly weighted. Knowledge of Visual and Performing Arts (5.21%) and Knowledge of Physical Education (5.88%) received the lowest number of percentage points. As they set the final test specifications, the Advisory/Test Development Committee should consider the weightings given by respondents.

Table 8. Mean Percentage Weights for Test Content Emphasis: Form 1[4]

KNOWLEDGE DOMAIN	TEACHERS n=167		TEACHER EDUCATORS n=64		OVERALL	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Elementary School Students	16.54	8.75	16.46	7.29	16.50	8.20
Professional Issues	8.85	7.90	10.27	5.02	9.36	6.96
Reading, Language Arts, and Literature	19.01	6.64	17.70	6.24	18.54	6.31
Mathematics	15.73	4.99	13.69	4.64	14.97	4.80
Social Studies	11.17	3.92	11.37	3.50	11.42	3.76
Science	11.88	6.23	11.69	3.55	11.88	5.19
Physical Education	6.20	4.44	5.70	2.90	5.88	3.77
Health	8.22	6.34	7.54	3.54	7.81	5.24
Visual and Performing Arts	4.68	3.05	5.60	3.00	5.21	5.12

Results of the Form 2 Analysis

The Inventory of Education in the Elementary School: Fonn 2 covered the knowledge domains of elementary school students, professional issues, and knowledge of content-specific pedagogy in seven content domains (reading/language arts/literature, mathematics, social studies, science, health, physical education, visual and performing arts).

Response Rate: Form 2

Form 2 was sent to a national group of respondents. Of the 828 Form 2 surveys mailed out, 18 were returned not completed due to a variety of reasons (e.g., incorrect address, individual had retired, individual declined to participate). Of the remaining 810, 303 were completed and returned. Of these 303 surveys, 245 were analyzed; those that were not analyzed had been returned after the due date (n=9) or the respondent did not fit the job categories of teacher/full-time substitute, school administrator, state administrator, or teacher educator (n=49). The overall response rate (including nonusable surveys) was 39% (n=321).

Demographic Characteristics: Form 2

Appendix K shows the numerical distribution of respondents across all the background information categories. The distribution of respondents according to job category was: 60% teachers; 34% college faculty; 2% school administrator; and 4% state administrator. Twenty-nine percent of the respondents came from the South; 25% were

[4]Rounded, the sum of percentages may not equal 100 because some respondents wrote in totals that were greater than or less than 100.

from the Far West; 17% were from the Northeast; and 30% were from the Central region of the country. Seventy-five percent were female; 25% were male. The majority of the respondents were White (90%). Eleven percent had five or fewer years of teaching experience; 54% had taught from six to twenty years; and 36% had taught 21 years or more.

Mean Importance Ratings of Knowledge Statements: Form 2

The mean importance rating on each knowledge statement for all respondents, broken down by job category (teachers, teacher educators) is found in Appendix L[5]. Knowledge statements rated less than 2.50 are identified in boldface on this table. Mean importance ratings were also computed for each of the relevant subgroups. Appendix M displays the knowledge statements that did not meet the 2.50 cutpoint for relevant subgroups of respondents.

Of the 164 knowledge statements on the inventory, 30 statements (18%) fell below the 2.50 cutpoint for one or more relevant subgroups. Twenty-two statements were rated below 2.50 by respondents by job category; eight additional statements were rated below 2.50 by the analyses of other relevant subgroups (e.g., male, 0-10 years of teaching experience). Table 9 shows the total number and percent of statements that fell below 2.50 in each domain. For 6 knowledge statements, one or more subgroups gave ratings of less than 2.00 (*Moderately Important*).

Table 9. Number and Percent of Statements below 2.50 by Domain: Form 2

KNOWLEDGE DOMAIN	NUMBER OF STATEMENTS IN THE DOMAIN	STATEMENTS RATED BELOW 2.50	
		number	percent
Elementary School Students	15	4	27%
Professional Issues	5	2	40%
Pedagogy Specific to Reading, Language Arts, and Literature	21	2	10%
Pedagogy Specific to Mathematics	20	2	10%
Pedagogy Specific to Social Studies	20	2	10%
Pedagogy Specific to Science	22	2	9%
Pedagogy Specific to Physical Education	20	7	35%
Pedagogy Specific to Health	21	3	14%
Pedagogy Specific to Visual and Performing Arts	20	6	30%

tate administrators were omitted from this table because they numbered fewer than 30. Analyses were not conducted for subgroups with a membership less than 30.

Correlations of the Mean Importance Ratings: Form 2

Correlation coefficients were computed between relevant subgroups numbering at least 30 to assess the extent of similarity in ratings among relevant subgroups of respondents. The correlation between teachers (n=139) and teacher educators (n=78) was .92. The correlation between females (n=183) and males (n=60) was .94. Correlations were not run for ethnicity because the number of non-White respondents was fewer than 30. The correlations between teachers with fewer than 10 years of teaching experience (n=58) and those with eleven or more years of experience (n=183) was .94. The correlations for geographic region are shown in Table 10. All of the correlations were in the .90s, indicating a high level of agreement in perceived relative importance of the knowledge statements among the various subgroups.

Table 10. Correlations by Geographic Location: Form 2

	SOUTH n=69	FAR WEST n=59	NORTHEAST n=41	CENTRAL n=71
SOUTH	1.00			
FAR WEST	.91	1.00		
NORTHEAST	.94	.91	1.00	
CENTRAL	.94	.95	.95	1.00

Together, the results of the mean and correlational analyses suggest strong support for a core of important knowledge that is relevant for elementary school teachers. As discussed earlier, the Advisory/Test Development Committee is advised to consider for inclusion in the development of test specifications only those knowledge statements that received a mean importance rating of 2.50 or greater. To include knowledge statements that fall below the cutpoint, the committee is requested to provide compelling written justification.

Evaluation of the Content Domain: Form 2

Respondents were asked two questions on the inventory to determine the extent to which the inventory covered knowledge judged to be important for the newly licensed elementary school teacher: a question on content coverage and a question on the overall importance of each knowledge domain.

Content coverage. Survey respondents were asked to indicate, using a 5-point rating scale, how well each major knowledge domain was covered by the specific knowledge statements. The scale values ranged from a low of 1 (*Very Poorly*) to a high of 5 (*Very Well*); the midpoint of the scale was a value of 3 (*Adequately*). Table 11 shows the means and standard deviations of these ratings for respondents by job category. All the mean ratings were above 3.50. Most of the sections received ratings close to or above 4.00. This analysis indicates that respondents judged the knowledge domains to be well-covered.

Table 11. Content Coverage of Knowledge Domains: Form 2

KNOWLEDGE DOMAINS	TEACHERS n=139		TEACHER EDUCATORS n=78	
	Mean	Standard Deviation	Mean	Standard Deviation
Elementary School Students	3.92	.81	3.91	.89
Professional Issues	3.79	.75	3.79	.85
Pedagogy Specific to Reading, Language Arts, and Literature	4.16	.72	4.17	.81
Pedagogy Specific to Mathematics	4.24	.68	4.24	.76
Pedagogy Specific to Social Studies	4.08	.73	4.18	.78
Pedagogy Specific to Science	4.10	.74	4.15	.82
Pedagogy Specific to Physical Education	3.91	.87	4.04	.82
Pedagogy Specific to Health	3.87	.76	4.19	.78
Pedagogy Specific to Visual and Performing Arts	3.78	.87	4.07	.85

Mean ratings for the overall importance of the knowledge domains. Respondents were asked to give ratings for the overall importance of each knowledge domain. The scale values for this question ranged from a low of 0 (*Not Important*) to a high of 4 (*Very Important*); the midpoint of the scale was a value of 2 (*Moderately Important*). As seen in Table 12, when the means are rounded, all of the domains were rated as being important for newly licensed elementary school teachers by teachers and teacher educators.

Table 12. Mean Importance Ratings of Knowledge Domains: Form 2

KNOWLEDGE DOMAIN	TEACHERS n=139		TEACHER EDUCATORS n=78	
	Mean	Standard Deviation	Mean	Standard Deviation
Elementary School Students	3.23	.78	3.33	.73
Professional Issues	2.95	.70	3.22	.67
Pedagogy Specific to Reading, Language Arts, and Literature	3.39	.67	3.52	.58
Pedagogy Specific to Mathematics	3.41	.52	3.43	.60
Pedagogy Specific to Social Studies	3.15	.65	3.47	.59
Pedagogy Specific to Science	3.22	.71	3.40	.64
Pedagogy Specific to Physical Education	2.84	.91	2.70	1.09
Pedagogy Specific to Health	2.88	.82	3.00	.89
Pedagogy Specific to Visual and Performing Arts	2.65	.92	2.79	.96

Mean Percentage Weights for Test Content Emphasis: Aggregate of Survey Respondents

In addition to asking respondents to rate each knowledge statement, they were asked to indicate how many test questions (out of 100) should be included from each of the knowledge domains. Table 13 shows the mean percentage weights allocated by teachers and teacher educators. Overall, Knowledge of Pedagogy Specific to Reading, Language Arts, and Literature received the highest rating (17.24%). Knowledge of Elementary School Students received the second highest rating (16.96%). Knowledge of Pedagogy Specific to Social Studies (11.02%) and Knowledge of Pedagogy Specific to Science (11.61%) were similarly weighted. Knowledge of Pedagogy Specific to Visual and Performing Arts (5.81%) received the lowest number of percentage points. As they set the final test specifications, the Advisory/Test Development Committee should consider the weightings given by respondents.

Table 13. Mean Percentage Weights for Test Content Emphasis: Form 2[6]

KNOWLEDGE DOMAIN	TEACHERS n=139		TEACHER EDUCATORS n=78		OVERALL	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Elementary School Students	16.71	8.01	17.83	9.36	16.96	8.50
Professional Issues	8.93	5.65	10.69	5.42	9.44	5.59
Pedagogy Specific to Reading, Language Arts, and Literature	17.78	6.08	15.68	4.55	17.24	5.65
Pedagogy Specific to Mathematics	15.55	4.61	13.58	4.06	14.89	4.47
Pedagogy Specific to Social Studies	10.54	3.64	11.41	3.24	11.02	3.59
Pedagogy Specific to Science	11.25	3.89	12.09	3.79	11.61	3.85
Pedagogy Specific to Physical Education	6.43	3.05	5.86	2.89	6.15	2.97
Pedagogy Specific to Health	7.32	3.44	6.71	3.30	7.04	3.42
Pedagogy Specific to Visual and Performing Arts	5.73	3.17	6.21	3.40	5.81	3.21

[6]Rounded, the sum of percentages may not equal 100 because some respondents wrote in totals that were greater than or less than 100.

Comparison of Knowledge Domains Included on Both Forms 1 and 2

Knowledge domains A (Elementary Students) and B (Professional Issues) were included on both Forms 1 and 2 in order to compare the ratings given by the two independent groups of respondents. Results indicate that one or more subgroups of respondents to each survey rated the same six knowledge statements below the 2.50 cutpoint. These knowledge statements are listed below:

11	theories of language development
13	stages of language acquisition and development
14	second language learning
15	principles of linguistics
19	professional and scholarly organizations
20	professional and scholarly literature

Correlation coefficients were also computed between relevant subgroups numbering at least 30 to assess the extent of similarity in ratings given for the knowledge statements in Domains A and B . The correlation between Form 1 teachers and Form 2 teachers was .99, and the correlation for teacher educators was .96. Correlations between Form 1 and 2 respondents by geographic location were: .96 for South; .97 for Far West; .96 for Northeast; and .99 for Central. Correlations for race/ethnicity in the category of "people of color" could not be computed because fewer than 30 people of color responded to the Form 2 survey; however, between White Form 1 respondents and White Form 2 respondents, the correlation was .99. The correlation between Form 1 and 2 teachers with fewer than 10 years of experience was .97; and the correlation for teachers with eleven or more years of teaching experience was .99. By sex, the correlation between Form 1 and 2 females was .99, and for males was .96. These results indicate that there was a high level of agreement in perceived relative importance of the knowledge statements in Domains A and B among the various subgroups who responded to Forms 1 or 2.

Conclusions

The job analysis study described in this report was conducted to serve as one of the bases for documenting the content validity of the Praxis II: Subject Assessment in Elementary Education. This report describes the results of a study conducted to provide the Education in the Elementary School Advisory/Test Development Committee with information regarding the most important knowledge domains needed by newly licensed (certified) elementary school teachers.

Two inventories of knowledge elementary school teachers need to teach the elementary school curriculum (Education in the Elementary School: Form 1 and Form 2) were constructed through an iterative process by a national group of teachers, teacher educators, and administrators familiar with elementary school teaching. Form 1 covered the content areas most often taught in the elementary school curriculum; Form 2 detailed pedagogy specific to the content areas most often taught in the elementary school curriculum. Both inventories included identical sections that covered knowledge of elementary school students and knowledge of professional issues.

Each knowledge inventory was sent in survey form to 510 teachers, 255 teacher educators, and 52 state administrators across the country. While teachers and teacher educators received either Form 1 or Form 2 of the inventory, state department officials

were sent both forms. Respondents were asked to rate the individual knowledge statements using a 5-point importance scale.

Three types of analyses were conducted: (1) frequency distributions across background information categories (e.g., sex, years of teaching experience, school level); (2) mean importance ratings by relevant subgroups (job category, sex, race/ethnicity, geographic location, years of teaching experience); and (3) correlations of mean importance ratings within relevant subgroups. A cutpoint of 2.50 (midway between *Moderately Important* and *Important*) was set to differentiate between important knowledge and unimportant knowledge for purposes of test development. Knowledge statements that received a mean rating of less than 2.50 by any of the relevant subgroups of respondents were identified. Test development staff were advised to use knowledge statements that fell above the 2.50 cutpoint for purposes of setting test specifications. However, if it was determined that the inclusion of particular knowledge statements that fell below 2.50 was necessary, then the Advisory/Test Development Committee was requested to provide a written and compelling rationale for the inclusion of the statements.

Results of the Form 1 Analysis

In the Form 1 inventory, 40 knowledge statements (28%) proved problematic to one or more of the designated subgroups; that is, one or more subgroups rated the statement below the cutpoint of 2.50. These knowledge areas are shown in Table 14. Before they may be used in test specifications, these knowledge areas need written rationales from the Advisory/Test Development Committee. Without qualifications, 72% (n=105) of the knowledge areas may be used to develop test specifications.

Table 14. Knowledge Statements that Failed to Meet the 2.50 Cutpoint: Form 1

DOMAIN A: KNOWLEDGE OF ELEMENTARY STUDENTS	
11	theories of language development
13	stages of language acquisition and development
14	second language learning
15	principles of linguistics
DOMAIN B: KNOWLEDGE OF PROFESSIONAL ISSUES	
19	professional and scholarly organizations
20	professional and scholarly literature
DOMAIN C: KNOWLEDGE OF READING, LANGUAGE ARTS, AND LITERATURE	
34	adult literature
DOMAIN D: KNOWLEDGE OF MATHEMATICS	
62	statistics and probability
66	historical, cultural, and ongoing development of math principles
DOMAIN E: KNOWLEDGE OF SOCIAL STUDIES	
76	interregional relationships over time
79	traditional political institutions
83	market as distribution and information system
84	individual and the market
85	effects of economic and historical forces on humans and nature
86	government and the market
87	economic systems
90	belief systems in various cultures
91	socialization and acculturation
94	impact of cultural evolution on different civilizations
95	physical anthropology
96	logic
98	philosophical traditions in diverse cultures
DOMAIN F: KNOWLEDGE OF SCIENCE	
117	classification system
119	relationships of structure and functions
127	ethics in science
DOMAIN I: KNOWLEDGE OF VISUAL AND PERFORMING ARTS	
147	basic elements of music
148	genres of music
149	various music media
150	basic elements of visual arts
151	genres of visual arts
152	various visual arts media
153	basic elements of dance
154	genres of dance
155	basic elements and components of drama
156	genres of drama
157	elements common to the arts
158	human need for expression through the arts
159	affective influence of a work of art on the viewer, listener, perceiver
160	works of music, dance, drama, and the visual arts across cultures
161	works of music, dance, drama, and the visual arts, from various periods of history

Correlations for relevant subgroups were in the .90s, which suggests that there is substantial agreement among various subgroups of respondents with respect to the relative importance of the multi-disciplinary knowledge needed by newly licensed elementary school teachers.

Results of the Form 2 Analysis

Thirty knowledge statements (18%) proved problematic to one or more of the designated subgroups; that is, one or more subgroups rated the statement below the cutpoint of 2.50. These knowledge areas are shown in Table 15. Before they may be used in test specifications, these knowledge areas need written rationales from the Advisory/Test Development Committee. Without qualifications, 82% (n=134) of the knowledge areas may be used to develop test specifications.

Table 15. Knowledge Statements that Failed to Meet the 2.50 Cutpoint: Form 2

DOMAIN A: KNOWLEDGE OF ELEMENTARY STUDENTS	
11	theories of language development
13	stages of language acquisition and development
14	second language learning
15	principles of linguistics
DOMAIN B: KNOWLEDGE OF PROFESSIONAL ISSUES	
19	professional and scholarly organizations
20	professional and scholarly literature
DOMAIN C: KNOWLEDGE OF PEDAGOGY SPECIFIC TO READING, LANGUAGE ARTS, AND LITERATURE	
42	nonstandard language forms in reading, la, lit
45	standardized measures of achievement in reading, la, lit
DOMAIN D: KNOWLEDGE OF PEDAGOGY SPECIFIC TO MATHEMATICS	
56	pedagogical implications of child development theories in math
67	standardized measures of achievement in math
DOMAIN E: KNOWLEDGE OF PEDAGOGY SPECIFIC TO SOCIAL STUDIES	
78	pedagogical implications of child development theories in social studies
89	standardized measures of achievement in social studies
DOMAIN F: KNOWLEDGE OF PEDAGOGY SPECIFIC TO SCIENCE	
110	errors in science that may arise from cultural, dialect, or language differences
113	standardized measures of achievement in science
DOMAIN G: KNOWLEDGE OF PEDAGOGY SPECIFIC TO PHYSICAL EDUCATION	
118	relationships among topics in p.e.
122	resource persons in p.e.
123	media and instructional technologies in p.e.
131	how to communicate orally and in writing about p.e.
133	common student misconceptions in p.e.
134	formative and summative assessment strategies in p.e.
135	standardized measures of achievement in p.e.
DOMAIN H: KNOWLEDGE OF PEDAGOGY SPECIFIC TO HEALTH	
154	inaccuracies in student work in health
155	errors that may arise from cultural, dialect, or language differences in health
158	standardized measures of achievement in health
DOMAIN I: KNOWLEDGE OF PEDAGOGY SPECIFIC TO VISUAL AND PERFORMING ARTS	
170	prior knowledge students bring to visual and performing arts
176	problems in student work in visual and performing arts
177	errors that may arise from cultural, dialect, or language differences in visual and performing arts
178	common student misconceptions in visual and performing arts
179	formative and summative assessment strategies in the arts
180	standardized measures of achievement in visual and performing arts

Correlations for relevant subgroups were in the .90s, which suggests that there is substantial agreement among various subgroups of respondents with respect to the relative importance of the content-specific pedagogical knowledge needed by newly licensed elementary school teachers.

Similarities between Responses to Forms 1 and 2 on Domains A and B

Included on both Form 1 and Form 2 were the same two domains: Domain A (Elementary Students) and Domain B (Professional Issues). Comparisons of mean ratings indicated that the same six knowledge statements were judged to be below the cutpoint of 2.50 on both Forms 1 and 2. Additionally, correlations between relevant subgroups who responded to each form were high (above .95), indicating that there was substantial agreement between respondent subgroups regarding the relative importance of the knowledge statements in Domains A and B. These analyses suggest that if the surveys were administered to other groups of teachers selected in the same way, results would be similar across these two domains.

Using the Findings from the Job Analysis

The knowledge statements that were identified to be important by the surveyed elementary school educators should be used as the foundation for the development of test specifications for Praxis II: Subject Assessment in Elementary Education. Test specifications that are linked to the results of a job analysis provide support for the content validity of the derived assessment measures and may be considered as part of an initial step in ensuring the fairness of the derived assessment measures to subgroups of elementary school teacher candidates. It is reasonable to assume that, due to testing and psychometric constraints (e.g., time limits, ability to measure some content reliably), not all of the identified content may be included on assessment measures. One source of information that may be used to guide the test development committee in their decision of what content to include on the assessment measures is the mean importance rating. Although a rank ordering of the content by mean importance rating is not implied, it is recommended that initial consideration be given to content that is well above the cutpoint and represents the appropriate breadth of content coverage. Should the Advisory/Test Development Committee find it necessary to use content rated below the cutpoint, then they should provide a written and compelling rationale for the use of such content.

Evidence was also provided in this study of the comprehensiveness of the content domain and the judged importance of the major content areas. These two pieces of information have implications for the adequacy of the content domain. If the domain was adequately defined, then the knowledge statements should be judged to have been well covered by each major content area. The results support the adequacy of the defined content domain and the relative importance of the various domains. Additionally, suggestions were offered regarding the relative weights each domain should receive in test specifications.

All of the findings reported above should be considered during the development of the Praxis II: Subject Assessment in Elementary Education.

References

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1985). Standards for educational and psychological testing. Washington, DC: American Psychological Association.

Arvey, R. D., & Faley, R. H. (1988). Fairness in selecting employees. Reading, MA: Addison-Wesley.

Civil Rights Act of 1964, Title VII, 42 U.S. C. Section 2000e.

Dwyer, C. A. (1989). A new generation of tests for licensing beginning teachers. In New directions for teacher assessment (1988 Invitational Conference Proceeding). Princeton, NJ: Educational Testing Service.

Gael, S. (1983). Job analysis: A guide to assessing work activities. San Francisco: Jossey-Bass.

Ghiselli, E. E., Campbell, J. P., & Zedeck, S. (1981). Measurement theory for the behavioral sciences. San Francisco, CA: W. H. Freeman.

Klem, L. (1990, April). The challenge of understanding state content area requirements for the licensing of teachers. Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.

Kuehn, P. A., Stallings, W. M., & Holland, C. L. (1990). Court-defined job analysis requirements for validation of teacher certification tests. Educational Measurement: Issues and Practice, 9, 21-24.

Mehrens, W. A. (1987). Validity issues in teacher licensure tests. Journal of Personnel Evaluation in Education, 1, 195-229.

National Council for Accreditation of Teacher Education. (1989, May). Guidelines for basic elementary education programs. Unpublished manuscript.

NCTM Commission on Standards for School Mathematics (1989). Curriculum and Evaluation Standards for School Mathematics. Reston, Virginia: The National Council of Teachers of Mathematics.

Rosenfeld, M., & Tannenbaum, R. J. (1991). Identification of a core of important enabling skills for the NTE Successor Stage I examination. (Research Rep. No. 91-37). Princeton, NJ: Educational Testing Service.

Walpole, R. E. (1974). Introduction to statistics (2nd ed.). New York: Macmillan.

Appendix A

Subject-Matter Specialists

Janice M. Bibik
Assistant Professor (Physical Education)
University of Delaware

Claire M. Nanis
Associate Professor (Music)
University of Delaware

Larry W. Peterson
Associate Professor (Music)
University of Delaware

Deborah C. Smith
Director, Curriculum Development Lab (Science)
University of Delaware

Stephen J. Thornton
Assistant Professor (Social Studies)
University of Delaware

Appendix B

External Review Panel

Irma H. Collins
Professor of Music/Music Education
Murray State University

Phyllis E. Huff
Professor
College of Education
University of Tennessee--Knoxville

Barbara Kapinus
Specialist in Reading and
Communication Skills
Maryland State Department
of Education

Jane M. Luhn
Teacher
Knox County Schools--Kentucky

Joan Marie Marsh
Curriculum Specialist/Language Arts
Stockton Unified School District--California

Jane Newman
Coordinator, Provisional Teacher
Program
New Jersey State Department of Education

P. David Pearson
Dean
College of Education
University of Illinois--
Urbana/Champaign

Melissa A. Richardson
Teacher
Knox County Schools--Kentucky

Elizabeth B. Ridenour
Teacher
Knox County Schools--Kentucky

Mary Browning Schulman
Reading Specialist
Keene Mill Elementary/Fairfax County
Public Schools--Virginia

Richard L. Simms
Teacher Education Specialist
Minnesota Department of Education/Minnesota
Board
of Teaching

Peter Winograd
Professor
College of Education
University of Kentucky

Appendix C

Advisory/Test Development Committee

Patricia A. Antonacci
Yonkers Public Schools
Yonkers, New York
White female

John Attinasi
Indiana University Northwest
Gary, Indiana
Hispanic male

Anna Austin
National-Louis University
Evanston, Illinois
Black female

Sylvia Boyd
Toledo Public Schools
Toledo, Ohio
(resigned from the committee due to personal reasons after the advisory committee meeting)
Black female

Susan Farstrup
Fred S. Engle Middle School
West Grove, Pennsylvania
White female

Joan Janis
University of California
La Jolla, California
White female

Denise M. Kenny
Readington Township School District
Readington, New Jersey
White female

Steven Reuter
Mankato State University
Mankato, Minnesota
White male

Linda Shadiow
Northern Arizona University
Flagstaff, Arizona
White female

Eleanor A. Uehling
Wakefield Forest Elementary School
Fairfax, Virginia
White female

Appendix D

Pilot Test Participants

Keith C. Figgs
Principal
Dr. John H. Winslow School
Vineland, New Jersey

Laurel Ashlock
Vice Princiapl
Fresno Unified Schools
Clovis, California

Sharon Kane
Assistant Professor
SUNY College at Oswego
Oswego, New York

Pamela Michel
Assistant Professor
SUNY College at Oswego
Oswego, New York

Florence D. Musiello
Ardsley Public Schools
Ardsley, New York

Karen Matuskovic
Yonkers School District
Yonkers, New York

Carol Ryan
Hendrick Hudson School District
Montrose, New York

Valerie Alvarez
Resource Specialist
Fresno Unified School District
Fresno, CA

Appendix E

Job Analysis Inventory of Education in the Elementary School

(Form 1 and Form 2)

were sent both forms. Respondents were asked to rate the individual knowledge statements using a 5-point importance scale.

Three types of analyses were conducted: (1) frequency distributions across background information categories (e.g., sex, years of teaching experience, school level); (2) mean importance ratings by relevant subgroups (job category, sex, race/ethnicity, geographic location, years of teaching experience); and (3) correlations of mean importance ratings within relevant subgroups. A cutpoint of 2.50 (midway between *Moderately Important* and *Important*) was set to differentiate between important knowledge and unimportant knowledge for purposes of test development. Knowledge statements that received a mean rating of less than 2.50 by any of the relevant subgroups of respondents were identified. Test development staff were advised to use knowledge statements that fell above the 2.50 cutpoint for purposes of setting test specifications. However, if it was determined that the inclusion of particular knowledge statements that fell below 2.50 was necessary, then the Advisory/Test Development Committee was requested to provide a written and compelling rationale for the inclusion of the statements.

Results of the Form 1 Analysis

In the Form 1 inventory, 40 knowledge statements (28%) proved problematic to one or more of the designated subgroups; that is, one or more subgroups rated the statement below the cutpoint of 2.50. These knowledge areas are shown in Table 14. Before they may be used in test specifications, these knowledge areas need written rationales from the Advisory/Test Development Committee. Without qualifications, 72% (n=105) of the knowledge areas may be used to develop test specifications.

Table 14. Knowledge Statements that Failed to Meet the 2.50 Cutpoint: Form 1

DOMAIN A: KNOWLEDGE OF ELEMENTARY STUDENTS	
11	theories of language development
13	stages of language acquisition and development
14	second language learning
15	principles of linguistics
DOMAIN B: KNOWLEDGE OF PROFESSIONAL ISSUES	
19	professional and scholarly organizations
20	professional and scholarly literature
DOMAIN C: KNOWLEDGE OF READING, LANGUAGE ARTS, AND LITERATURE	
34	adult literature
DOMAIN D: KNOWLEDGE OF MATHEMATICS	
62	statistics and probability
66	historical, cultural, and ongoing development of math principles
DOMAIN E: KNOWLEDGE OF SOCIAL STUDIES	
76	interregional relationships over time
79	traditional political institutions
83	market as distribution and information system
84	individual and the market
85	effects of economic and historical forces on humans and nature
86	government and the market
87	economic systems
90	belief systems in various cultures
91	socialization and acculturation
94	impact of cultural evolution on different civilizations
95	physical anthropology
96	logic
98	philosophical traditions in diverse cultures
DOMAIN F: KNOWLEDGE OF SCIENCE	
117	classification system
119	relationships of structure and functions
127	ethics in science
DOMAIN I: KNOWLEDGE OF VISUAL AND PERFORMING ARTS	
147	basic elements of music
148	genres of music
149	various music media
150	basic elements of visual arts
151	genres of visual arts
152	various visual arts media
153	basic elements of dance
154	genres of dance
155	basic elements and components of drama
156	genres of drama
157	elements common to the arts
158	human need for expression through the arts
159	affective influence of a work of art on the viewer, listener, perceiver
160	works of music, dance, drama, and the visual arts across cultures
161	works of music, dance, drama, and the visual arts, from various periods of history

Correlations for relevant subgroups were in the .90s, which suggests that there is substantial agreement among various subgroups of respondents with respect to the relative importance of the multi-disciplinary knowledge needed by newly licensed elementary school teachers.

Results of the Form 2 Analysis

Thirty knowledge statements (18%) proved problematic to one or more of the designated subgroups; that is, one or more subgroups rated the statement below the cutpoint of 2.50. These knowledge areas are shown in Table 15. Before they may be used in test specifications, these knowledge areas need written rationales from the Advisory/Test Development Committee. Without qualifications, 82% (n=134) of the knowledge areas may be used to develop test specifications.

Table 15. Knowledge Statements that Failed to Meet the 2.50 Cutpoint: Form 2

DOMAIN A: KNOWLEDGE OF ELEMENTARY STUDENTS	
11	theories of language development
13	stages of language acquisition and development
14	second language learning
15	principles of linguistics
DOMAIN B: KNOWLEDGE OF PROFESSIONAL ISSUES	
19	professional and scholarly organizations
20	professional and scholarly literature
DOMAIN C: KNOWLEDGE OF PEDAGOGY SPECIFIC TO READING, LANGUAGE ARTS, AND LITERATURE	
42	nonstandard language forms in reading, la, lit
45	standardized measures of achievement in reading, la, lit
DOMAIN D: KNOWLEDGE OF PEDAGOGY SPECIFIC TO MATHEMATICS	
56	pedagogical implications of child development theories in math
67	standardized measures of achievement in math
DOMAIN E: KNOWLEDGE OF PEDAGOGY SPECIFIC TO SOCIAL STUDIES	
78	pedagogical implications of child development theories in social studies
89	standardized measures of achievement in social studies
DOMAIN F: KNOWLEDGE OF PEDAGOGY SPECIFIC TO SCIENCE	
110	errors in science that may arise from cultural, dialect, or language differences
113	standardized measures of achievement in science
DOMAIN G: KNOWLEDGE OF PEDAGOGY SPECIFIC TO PHYSICAL EDUCATION	
118	relationships among topics in p.e.
122	resource persons in p.e.
123	media and instructional technologies in p.e.
131	how to communicate orally and in writing about p.e.
133	common student misconceptions in p.e.
134	formative and summative assessment strategies in p.e.
135	standardized measures of achievement in p.e.
DOMAIN H: KNOWLEDGE OF PEDAGOGY SPECIFIC TO HEALTH	
154	inaccuracies in student work in health
155	errors that may arise from cultural, dialect, or language differences in health
158	standardized measures of achievement in health
DOMAIN I: KNOWLEDGE OF PEDAGOGY SPECIFIC TO VISUAL AND PERFORMING ARTS	
170	prior knowledge students bring to visual and performing arts
176	problems in student work in visual and performing arts
177	errors that may arise from cultural, dialect, or language differences in visual and performing arts
178	common student misconceptions in visual and performing arts
179	formative and summative assessment strategies in the arts
180	standardized measures of achievement in visual and performing arts

Correlations for relevant subgroups were in the .90s, which suggests that there is substantial agreement among various subgroups of respondents with respect to the relative importance of the content-specific pedagogical knowledge needed by newly licensed elementary school teachers.

Similarities between Responses to Forms 1 and 2 on Domains A and B

Included on both Form 1 and Form 2 were the same two domains: Domain A (Elementary Students) and Domain B (Professional Issues). Comparisons of mean ratings indicated that the same six knowledge statements were judged to be below the cutpoint of 2.50 on both Forms 1 and 2. Additionally, correlations between relevant subgroups who responded to each form were high (above .95), indicating that there was substantial agreement between respondent subgroups regarding the relative importance of the knowledge statements in Domains A and B. These analyses suggest that if the surveys were administered to other groups of teachers selected in the same way, results would be similar across these two domains.

Using the Findings from the Job Analysis

The knowledge statements that were identified to be important by the surveyed elementary school educators should be used as the foundation for the development of test specifications for Praxis II: Subject Assessment in Elementary Education. Test specifications that are linked to the results of a job analysis provide support for the content validity of the derived assessment measures and may be considered as part of an initial step in ensuring the fairness of the derived assessment measures to subgroups of elementary school teacher candidates. It is reasonable to assume that, due to testing and psychometric constraints (e.g., time limits, ability to measure some content reliably), not all of the identified content may be included on assessment measures. One source of information that may be used to guide the test development committee in their decision of what content to include on the assessment measures is the mean importance rating. Although a rank ordering of the content by mean importance rating is not implied, it is recommended that initial consideration be given to content that is well above the cutpoint and represents the appropriate breadth of content coverage. Should the Advisory/Test Development Committee find it necessary to use content rated below the cutpoint, then they should provide a written and compelling rationale for the use of such content.

Evidence was also provided in this study of the comprehensiveness of the content domain and the judged importance of the major content areas. These two pieces of information have implications for the adequacy of the content domain. If the domain was adequately defined, then the knowledge statements should be judged to have been well covered by each major content area. The results support the adequacy of the defined content domain and the relative importance of the various domains. Additionally, suggestions were offered regarding the relative weights each domain should receive in test specifications.

All of the findings reported above should be considered during the development of the Praxis II: Subject Assessment in Elementary Education.

References

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1985). Standards for educational and psychological testing. Washington, DC: American Psychological Association.

Arvey, R. D., & Faley, R. H. (1988). Fairness in selecting employees. Reading, MA: Addison-Wesley.

Civil Rights Act of 1964, Title VII, 42 U.S. C. Section 2000e.

Dwyer, C. A. (1989). A new generation of tests for licensing beginning teachers. In New directions for teacher assessment (1988 Invitational Conference Proceeding). Princeton, NJ: Educational Testing Service.

Gael, S. (1983). Job analysis: A guide to assessing work activities. San Francisco: Jossey-Bass.

Ghiselli, E. E., Campbell, J. P., & Zedeck, S. (1981). Measurement theory for the behavioral sciences. San Francisco, CA: W. H. Freeman.

Klem, L. (1990, April). The challenge of understanding state content area requirements for the licensing of teachers. Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.

Kuehn, P. A., Stallings, W. M., & Holland, C. L. (1990). Court-defined job analysis requirements for validation of teacher certification tests. Educational Measurement: Issues and Practice, 9, 21-24.

Mehrens, W. A. (1987). Validity issues in teacher licensure tests. Journal of Personnel Evaluation in Education, 1, 195-229.

National Council for Accreditation of Teacher Education. (1989, May). Guidelines for basic elementary education programs. Unpublished manuscript.

NCTM Commission on Standards for School Mathematics (1989). Curriculum and Evaluation Standards for School Mathematics. Reston, Virginia: The National Council of Teachers of Mathematics.

Rosenfeld, M., & Tannenbaum, R. J. (1991). Identification of a core of important enabling skills for the NTE Successor Stage I examination. (Research Rep. No. 91-37). Princeton, NJ: Educational Testing Service.

Walpole, R. E. (1974). Introduction to statistics (2nd ed.). New York: Macmillan.

Appendix A

Subject-Matter Specialists

Janice M. Bibik
Assistant Professor (Physical Education)
University of Delaware

Claire M. Nanis
Associate Professor (Music)
University of Delaware

Larry W. Peterson
Associate Professor (Music)
University of Delaware

Deborah C. Smith
Director, Curriculum Development Lab (Science)
University of Delaware

Stephen J. Thornton
Assistant Professor (Social Studies)
University of Delaware

Appendix B

External Review Panel

Irma H. Collins
Professor of Music/Music Education
Murray State University

Barbara Kapinus
Specialist in Reading and
Communication Skills
Maryland State Department
of Education

Joan Marie Marsh
Curriculum Specialist/Language Arts
Stockton Unified School District--California

P. David Pearson
Dean
College of Education
University of Illinois--
Urbana/Champaign

Elizabeth B. Ridenour
Teacher
Knox County Schools--Kentucky

Richard L. Simms
Teacher Education Specialist
Minnesota Department of Education/Minnesota
Board
of Teaching

Phyllis E. Huff
Professor
College of Education
University of Tennessee--Knoxville

Jane M. Luhn
Teacher
Knox County Schools--Kentucky

Jane Newman
Coordinator, Provisional Teacher
Program
New Jersey State Department of Education

Melissa A. Richardson
Teacher
Knox County Schools--Kentucky

Mary Browning Schulman
Reading Specialist
Keene Mill Elementary/Fairfax County
Public Schools--Virginia

Peter Winograd
Professor
College of Education
University of Kentucky

Appendix C

Advisory/Test Development Committee

Patricia A. Antonacci
Yonkers Public Schools
Yonkers, New York
White female

John Attinasi
Indiana University Northwest
Gary, Indiana
Hispanic male

Anna Austin
National-Louis University
Evanston, Illinois
Black female

Sylvia Boyd
Toledo Public Schools
Toledo, Ohio
(resigned from the committee due to personal reasons after the advisory committee meeting)
Black female

Susan Farstrup
Fred S. Engle Middle School
West Grove, Pennsylvania
White female

Joan Janis
University of California
La Jolla, California
White female

Denise M. Kenny
Readington Township School District
Readington, New Jersey
White female

Steven Reuter
Mankato State University
Mankato, Minnesota
White male

Linda Shadiow
Northern Arizona University
Flagstaff, Arizona
White female

Eleanor A. Uehling
Wakefield Forest Elementary School
Fairfax, Virginia
White female

Appendix D

Pilot Test Participants

Keith C. Figgs
Principal
Dr. John H. Winslow School
Vineland, New Jersey

Laurel Ashlock
Vice Princiapl
Fresno Unified Schools
Clovis, California

Sharon Kane
Assistant Professor
SUNY College at Oswego
Oswego, New York

Pamela Michel
Assistant Professor
SUNY College at Oswego
Oswego, New York

Florence D. Musiello
Ardsley Public Schools
Ardsley, New York

Karen Matuskovic
Yonkers School District
Yonkers, New York

Carol Ryan
Hendrick Hudson School District
Montrose, New York

Valerie Alvarez
Resource Specialist
Fresno Unified School District
Fresno, CA

Appendix E

Job Analysis Inventory of Education in the Elementary School

(Form 1 and Form 2)

JOB ANALYSIS INVENTORY

OF

EDUCATION

IN THE

ELEMENTARY SCHOOL

FORM 1

By

Educational Testing Service
Princeton, New Jersey

PART I -- INTRODUCTION

Educational Testing Service (ETS) is developing a new generation of assessments for the purpose of licensing (certifying) teachers. The inventory that follows is part of our development effort and is designed to gather information concerning the entry-level elementary school teacher's job. It was developed by teachers, college faculty, and state department of education officials, along with ETS staff.

The inventory asks you to respond to a list of knowledge statements and to rate each statement as to its importance for a newly licensed (certified) teacher. Please do not relate each statement to your own job but rather to what you believe an entry-level elementary school teacher should know.

The information you provide will guide the development of the Education in the Elementary School examination offered in the new generation of teacher assessments. It is expected that the new examination will differ from the current examination in both content and design. In addition to the development of a new examination, this study will also contribute to our understanding of education as a profession. We expect the results of the study to be widely disseminated and to have ramifications for teacher preparation.

The inventory has been mailed to a sample of approximately 1600 professionals. The value of the results is directly related to the number of individuals who return their completed inventories. Because you represent a large number of professionals, your responses are extremely important. Please take the time to complete and return the inventory. Thank you.

PART II -- INVENTORY OF KNOWLEDGE OF EDUCATION IN THE ELEMENTARY SCHOOL

This section focuses on the knowledge of students, professional issues, and subject matter that elementary school teachers draw on as they perform their work. On the following pages you will find nine broad domains:

A. **Knowledge of Elementary School Students**

B. **Knowledge of Professional Issues**

C. **Knowledge of Reading, Language Arts, and Literature**

D. **Knowledge of Mathematics**

E. **Knowledge of Social Studies**

F. **Knowledge of Science**

G. **Knowledge of Physical Education**

H. **Knowledge of Health**

I. **Knowledge of Visual and Performing Arts**

Within each domain is a list of topics. For each topic you will be asked to make your judgment using the following scale:

> How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?
>
> (0) Not important
> (1) Slightly important
> (2) Moderately important
> (3) Important
> (4) Very important

To familiarize yourself with the domains and topics, you may wish to glance through the inventory before making your rating judgments. Please note that many topics are followed by examples (e.g.) or clarifying statements (i.e.). These items are included in parentheses in order to assist you; they are not meant to be read as sample test items.

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

A. KNOWLEDGE OF ELEMENTARY SCHOOL STUDENTS

IMPORTANCE

The following statements refer to knowledge of human growth, development, and learning of all students that an elementary school teacher needs to know in order to teach children of elementary school age.

Understand the physical, psychosocial, and cognitive factors that influence growth, development, and learning

1. Biological (e.g., genetic maturation) 0 1 2 3 4
2. Familial (e.g., parental child-rearing attitudes, sibling relationships, birth order, single-parent families, socio-economic level) 0 1 2 3 4
3. Nutritional/hygienic (e.g., the effects of diet and eating behaviors, sleep patterns, exercise, immunization) 0 1 2 3 4
4. Cultural (e.g., gender roles; the effects of the dominant cultural values; the effects of regional, ethnic, and religious influences; the role of primary transmitters of culture) 0 1 2 3 4
5. Educational context (e.g., student, parent, and teacher expectations; school climate; out of school context; community impact) 0 1 2 3 4
6. Students' learning styles (e.g., visual, auditory, field dependent/independent kinesthetic) 0 1 2 3 4

Understand theories of cognitive, physical, and psychosocial development from prenatal through adolescence stages

7. Cognitive development (e.g., logical reasoning, perceptual, causal reasoning, information processing, constructivism) 0 1 2 3 4
8. Physical development (e.g., gross and fine motor development, visual discrimination, auditory discrimination, kinesiology) 0 1 2 3 4
9. Affective development (e.g., self-concept and self-esteem, motivation to learn) 0 1 2 3 4
10. Social development (e.g., social conventions and social judgments, play behavior) 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

A. KNOWLEDGE OF ELEMENTARY SCHOOL STUDENTS (cont.) — IMPORTANCE

Understand the nature of language development from prenatal through adolescence stages

11. Theories of language development (e.g., Bruner, Vygotsky, Skinner, Chomsky) 0 1 2 3 4
12. How early language acquisition can affect the development of language in the classroom 0 1 2 3 4
13. Stages of language acquisition and development (e.g., phonology, syntax, semantics, conventions of print, conventions of language) 0 1 2 3 4
14. Second language learning (i.e., the cross-cultural nature of second language learning and the importance and impact of dialects and familial language patterns) 0 1 2 3 4
15. Principles of linguistics, psycholinguistics, sociolinguistics (e.g., various language structures, effects of prior knowledge, standard/nonstandard dialects) 0 1 2 3 4

16. **Overall evaluation of the importance of Knowledge of Elementary School Students?** 0 1 2 3 4

17. How well do the statements in section A cover the important aspects of Knowledge of Elementary School Students?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

B. KNOWLEDGE OF PROFESSIONAL ISSUES

IMPORTANCE

Understand current educational practices in the United States as affected by

18. Major trends of curriculum theory 0 1 2 3 4

19. Professional and scholarly organizations for elementary school teachers (e.g., IRA, local reading or math councils, NCTM, NAST, ACEI, NABE) 0 1 2 3 4

20. Professional and scholarly literature relevant to elementary school teaching (e.g., *The Reading Teacher, The Arithmetic Teacher, Childhood Education*) 0 1 2 3 4

21. Understand the effects of one's teaching style on learning and instruction (e.g., expectations, choice of materials, classroom management) 0 1 2 3 4

22. Understand the variety of parent-school collaborations (e.g., parents as partners in learning, as advocates, as volunteers) 0 1 2 3 4

23. **Overall evaluation of the importance of Knowledge of Professional Issues?** 0 1 2 3 4

24. How well do the statements in section B cover the important aspects of Knowledge of Professional Issues?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

The following sections (C-I) refer to the subject matter that an elementary school teacher needs to know in order to teach content areas most often covered in an elementary school program. NOTE: The examples given are not all inclusive.

C. KNOWLEDGE OF READING, LANGUAGE ARTS, AND LITERATURE	IMPORTANCE
25. Conventions of language (e.g., spelling, capitalization, punctuation, handwriting)	0 1 2 3 4
26. Language structure (e.g., parts of speech, verb tenses, plurals, figurative language, sentence types)	0 1 2 3 4
27. Word recognition strategies (e.g., sight vocabulary, phonic analysis, structural analysis)	0 1 2 3 4
28. Comprehension strategies (e.g., text structure, vocabulary, and metacognitive strategies; activating prior knowledge)	0 1 2 3 4
29. Text structure (e.g., expository text, narrative text, organizational patterns, vocabulary and concept load)	0 1 2 3 4
30. Language usage (e.g., interpretive and communicative aspects, requesting, questioning, nonverbal communication)	0 1 2 3 4
31. Library skills (e.g., catalogue and search systems, reference materials)	0 1 2 3 4
32. Study skills (e.g., note taking, organizing materials and time, planning, outlining, dictionary usage, issues in reading in the content areas)	0 1 2 3 4
33. Children's literature (e.g., the range of nonfiction and fiction, poetry, drama, myths, multicultural literature, Caldecott and Newbery award winners)	0 1 2 3 4
34. Adult literature (e.g., various genres of fiction and nonfiction, Western and non-Western authors)	0 1 2 3 4
35. Functional literacy (e.g., documents, advertisements, newspapers, magazines)	0 1 2 3 4
36. Graphic literacy (e.g., illustrations, photographs, charts, media)	0 1 2 3 4
37. Oral communication and presentation skills (e.g., voice modulation, public speaking, storytelling, leading group discussions)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

C. KNOWLEDGE OF READING, LANGUAGE ARTS, AND LITERATURE (cont.) — IMPORTANCE

38. Creative dramatics (e.g., spontaneous dramatics, role playing, puppetry, play production) 0 1 2 3 4

39. Composing processes (i.e., prewriting/planning, drafting, revising, editing, publishing) 0 1 2 3 4

40. Types of writing (e.g., expressive, personal, informational, poetic, imaginative) 0 1 2 3 4

41. **Overall evaluation of the importance of Knowledge of Reading, Language Arts, and Literature?** 0 1 2 3 4

42. How well do the statements in section C cover the important aspects of Knowledge of Reading, Language Arts, and Literature?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

D. KNOWLEDGE OF MATHEMATICS — IMPORTANCE

Mathematical concepts and how to use them

43. Prenumeration (e.g., classification, patterns, sets) 0 1 2 3 4

44. Numeration (e.g., place value, cardinal and ordinal numbers, number bases) 0 1 2 3 4

45. Number theory (e.g., prime, composite, greatest common factor) 0 1 2 3 4

46. Patterns and functions 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

D. KNOWLEDGE OF MATHEMATICS (cont.)

		IMPORTANCE
47.	Number sense (i.e., number meaning and use, operation sense)	0 1 2 3 4
48.	Techniques for computational estimation	0 1 2 3 4
49.	Mental mathematics	0 1 2 3 4
50.	Calculator	0 1 2 3 4
51.	Computer	0 1 2 3 4
52.	Paper/pencil computation	0 1 2 3 4
53.	Whole numbers	0 1 2 3 4
54.	Rational numbers (fractions, decimals)	0 1 2 3 4
55.	Percents	0 1 2 3 4
56.	Inequalities	0 1 2 3 4
57.	Integers	0 1 2 3 4
58.	Geometry and spatial sense (e.g., area and perimeter, square and cube, symmetry, congruence)	0 1 2 3 4
59.	Measurements to describe and compare phenomena (e.g., length, capacity, weight, area, volume, time, temperature, angle measure, perimeter, mass)	0 1 2 3 4
60.	Organizing and interpreting data (e.g., tables, charts, graphs)	0 1 2 3 4
61.	Algebraic methods to solve a variety of real world and other mathematical problems	0 1 2 3 4
62.	Statistics and probability (e.g., measures of central tendency, dispersion, prediction)	0 1 2 3 4

Mathematical reasoning

63.	Methods of using mathematics to make sense of the world (e.g., solving real world problems, seeking patterns, organizing data in useful ways)	0 1 2 3 4
64.	Methods of mathematical investigation (e.g., collaborating with others, applying a variety of strategies and pathways, multiple solutions)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

D. KNOWLEDGE OF MATHEMATICS (cont.)

IMPORTANCE

65. Strategies for problem solving (e.g., acting it out, making a list, drawing a picture, guess and check) 0 1 2 3 4

66. Historical, cultural, and ongoing development of major mathematical concepts and principles 0 1 2 3 4

67. **Overall evaluation of the importance of Knowledge of Mathematics?** ... 0 1 2 3 4

68. How well do the statements in section D cover the important aspects of Knowledge of Mathematics?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

E. KNOWLEDGE OF SOCIAL STUDIES

IMPORTANCE

69. Methods of inquiry and validation of evidence in social studies (e.g., map skills, graphs, statistical information, reports, simulations, primary sources) 0 1 2 3 4

Major concepts in geography

70. Interdependence of humans and physical environment (e.g., climate, landforms, vegetation) 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

E. KNOWLEDGE OF SOCIAL STUDIES (cont.)

		IMPORTANCE
71.	World cultures	0 1 2 3 4
72.	National territories (e.g., political and physical boundaries)	0 1 2 3 4
	Major concepts in history	
73.	Chronology, sequence, change	0 1 2 3 4
74.	Major events and movements in United States history up to the present	0 1 2 3 4
75.	Major events and movements in global history (e.g., Renaissance, population migration, space exploration, independence movements)	0 1 2 3 4
76.	Interregional relationships over time (e.g., economic/historical effects of colonialism, Common Market, OPEC)	0 1 2 3 4
	Major concepts in political science	
77.	Nature and purpose of government	0 1 2 3 4
78.	Forms of government (e.g., democracy, oligarchy, monarchy)	0 1 2 3 4
79.	Traditional political institutions among diverse cultural groups (e.g., matriarchy, chieftainship)	0 1 2 3 4
80.	United States Constitution	0 1 2 3 4
81.	Rights and responsibilities of citizens (e.g., voting, naturalization process, civil rights)	0 1 2 3 4
82.	Relations among nations (e.g., alliances, wars, treaties, the United Nations)	0 1 2 3 4
	Major concepts in economics	
83.	Market as distribution and information system (e.g., demand, supply, production, inflation, international relations)	0 1 2 3 4
84.	Individual and the market (e.g., employment, labor movement, composition and distribution of income and allocation of resources)	0 1 2 3 4
85.	Effects of economic and historical forces on human populations and natural resources	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

E. KNOWLEDGE OF SOCIAL STUDIES (cont.)	IMPORTANCE
86. Government and the market	0 1 2 3 4
87. Economic systems (e.g., capitalism, socialism)	0 1 2 3 4
Major concepts in anthropology, psychology, and sociology	
88. Culture	0 1 2 3 4
89. World view (e.g., self, other, relationship between self and other, time, space, causality)	0 1 2 3 4
90. Belief systems in various cultures (e.g., major organized religions and traditional practices, child-rearing beliefs)	0 1 2 3 4
91. Socialization and acculturation	0 1 2 3 4
92. Political, social, and economic conditions of ethnic groups in the United States and worldwide	0 1 2 3 4
93. Cross-cultural phenomena (e.g., communication, racism, sexism)	0 1 2 3 4
94. Impact of cultural evolution on different civilizations	0 1 2 3 4
95. Physical anthropology (e.g., human origins and variations)	0 1 2 3 4
Major concepts in philosophy	
96. Logic	0 1 2 3 4
97. Ethics	0 1 2 3 4
98. Philosophical traditions in diverse cultures (e.g., idealism, pragmatism, yoga, Vedic philosophy, Zen)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

E. KNOWLEDGE OF SOCIAL STUDIES (cont.) — IMPORTANCE

99. **Overall evaluation of the importance of Knowledge of Social Studies?** .. 0 1 2 3 4

100. How well do the statements in section E cover the important aspects of Knowledge of Social Studies?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

F. KNOWLEDGE OF SCIENCE — IMPORTANCE

Basic concepts in physical science

101. Molecules, atoms, and chemical change 0 1 2 3 4
102. Physical change 0 1 2 3 4
103. Heat and temperature 0 1 2 3 4
104. Sound 0 1 2 3 4
105. Light 0 1 2 3 4
106. Energy sources 0 1 2 3 4
107. Transformation of energy 0 1 2 3 4
108. Machines 0 1 2 3 4
109. Magnetism and electricity 0 1 2 3 4
110. Flight and space travel 0 1 2 3 4

Basic concepts in earth science

111. Surface features of the earth and changes in these features (e.g., erosion, mountain building) 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

F. KNOWLEDGE OF SCIENCE (cont.)

		IMPORTANCE
112.	Air and weather	0 1 2 3 4
113.	Sun and planets	0 1 2 3 4
114.	Stars and the universe	0 1 2 3 4
115.	History of the earth, solar system, and universe	0 1 2 3 4
	Basic concepts in life science and ecology (plants and animals)	
116.	Origins of life	0 1 2 3 4
117.	Classification systems	0 1 2 3 4
118.	Human anatomy and physiology	0 1 2 3 4
119.	Relationships of structure and functions	0 1 2 3 4
120.	Reproduction and nurturing of the young	0 1 2 3 4
121.	Habitat and climate, including adaptation and population dynamics	0 1 2 3 4
122.	Food chains and interdependence	0 1 2 3 4
	Inquiry in science	
123.	Scientific processes and problem solving (e.g., kinds of data gathering, controlling variables, reasoning, organization of information, application of the findings, communication)	0 1 2 3 4
124.	Methods of inquiry (e.g., validation of evidence, seeing patterns, making inferences, drawing conclusions, generalizations)	0 1 2 3 4
125.	Unifying themes/concepts in science (e.g., change over time, scale and structure, energy)	0 1 2 3 4
126.	The impact of science and technology on society (e.g., bio-engineering, pollution)	0 1 2 3 4
127.	Ethics in science (e.g., animal experimentation, human-subject research, genetic engineering)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

F. KNOWLEDGE OF SCIENCE (cont.)

128. **Overall evaluation of the importance of Knowledge of Science?** 0 1 2 3 4

129. How well do the statements in section F cover the important aspects of Knowledge of Science?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

G. KNOWLEDGE OF PHYSICAL EDUCATION — IMPORTANCE

130. Basic elements and components of physical education (e.g., movement experiences, open/limited space activities, sports skills and rules, safety, cooperation and competition between teams and individuals) 0 1 2 3 4

131. Progression of motor learning (e.g., simple to complex skill development) 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

G. KNOWLEDGE OF PHYSICAL EDUCATION

		IMPORTANCE
132.	**Overall evaluation of the importance of Knowledge of Physical Education?**	0 1 2 3 4

133. How well do the statements in section G cover the important aspects of Knowledge of Physical Education?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

H. KNOWLEDGE OF HEALTH

		IMPORTANCE
134.	Effects of physical, emotional, and social health on learning	0 1 2 3 4
135.	Effects of environmental factors on the health of individuals (e.g., pollution, lead-based paint, asbestos)	0 1 2 3 4
136.	Basic scientific information about a variety of health content areas (e.g., substance abuse, sex education, AIDS)	0 1 2 3 4
137.	Basic information about personal care (e.g., nutrition, dental health, hygiene)	0 1 2 3 4
138.	Characteristics of the healthy person and signs and symptoms of unhealthy conditions	0 1 2 3 4
139.	Signs and symptoms of child abuse	0 1 2 3 4
140.	Health personnel: their functions, responsibilities, and usefulness to the teacher	0 1 2 3 4
141.	Laws, policies, and procedures in schools regarding health matters (e.g., emergencies, accidents, disease control, child abuse)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

H. KNOWLEDGE OF HEALTH (cont.)

		IMPORTANCE
142.	Basic emergency care (e.g., CPR, first aid, AIDS precautions)	0 1 2 3 4
143.	Hazardous conditions on the playground, in the classroom, and elsewhere in the school	0 1 2 3 4
144.	Liability issues pertinent to playground, classroom, and elsewhere in school (e.g., related to leaving students unattended)	0 1 2 3 4
		0 1 2 3 4

145. Overall evaluation of the importance of Knowledge of Health? . . . . . .

146. How well do the statements in section H cover the important aspects of Knowledge of Health?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

I. KNOWLEDGE OF VISUAL AND PERFORMING ARTS

		IMPORTANCE
147.	Basic elements of music (e.g., melody, harmony, texture, timbre, form, rhythm)	0 1 2 3 4
148.	Genres of music (e.g., classical, jazz, popular)	0 1 2 3 4
149.	Various music media (e.g., voice, instrumental, recorded)	0 1 2 3 4
150.	Basic elements of visual arts (e.g., line, color, shape)	0 1 2 3 4
151.	Genres of visual arts (e.g., drawing, sculpture, photography)	0 1 2 3 4
152.	Various visual arts media (e.g., paint, clay, fabric, jewelry)	0 1 2 3 4
153.	Basic elements of dance	0 1 2 3 4
154.	Genres of dance (e.g., classical ballet, modern dance, folk dancing)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

I. KNOWLEDGE OF VISUAL AND PERFORMING ARTS (cont.)		IMPORTANCE
155.	Basic elements and components of drama (e.g., stage directions, affect, voice projection, body language)	0 1 2 3 4
156.	Genres of drama (e.g., musical, comedy)	0 1 2 3 4
157.	Elements common to the arts (e.g., repetition, contrast, imitation)	0 1 2 3 4
158.	The human need for expression through the arts	0 1 2 3 4
159.	The affective influence of a work of art on the viewer/ listener/perceiver	0 1 2 3 4
160.	Works of music, dance, drama, and the visual arts across cultures	0 1 2 3 4
161.	Works of music, dance, drama, and the visual arts from various periods of history	0 1 2 3 4
162.	**Overall evaluation of the importance of Knowledge of Visual and Performing Arts?**	0 1 2 3 4

163. How well do the statements in section I cover the important aspects of Knowledge of Visual and Performing Arts?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

PART III -- ADDITIONAL COMMENTS

Please use this space to list any important **KNOWLEDGE DOMAINS** that you believe were **NOT** included in this inventory. Also, use the space for any additional comments about the inventory itself.

PART IV -- RECOMMENDATIONS FOR TEST CONTENT

Listed below are nine content domains that may be covered on the new Education in the Elementary School examination. If the examination were to contain 100 questions, how many questions do you believe should be included from each content domain?

Please indicate your response using whole numbers (no fractions). If you believe a content domain should not be included in the examination, put a 0 in the space provided. Please make sure that your responses sum to 100.

CONTENT DOMAIN	NUMBER OF EXAM QUESTIONS (out of 100)
A. KNOWLEDGE OF ELEMENTARY SCHOOL STUDENTS	_____
B. KNOWLEDGE OF PROFESSIONAL ISSUES	_____
C. KNOWLEDGE OF READING, LANGUAGE ARTS, AND LITERATURE	_____
D. KNOWLEDGE OF MATHEMATICS	_____
E. KNOWLEDGE OF SOCIAL STUDIES	_____
F. KNOWLEDGE OF SCIENCE	_____
G. KNOWLEDGE OF PHYSICAL EDUCATION	_____
H. KNOWLEDGE OF HEALTH	_____
I. KNOWLEDGE OF VISUAL AND PERFORMING ARTS	_____
	TOTAL = 100

PART V - BACKGROUND INFORMATION

The information that you provide in this section is completely confidential and will be used for research purposes only. Please answer the questions by circling the number that most closely describes you or your professional activities. Unless otherwise indicated, please circle only one response for each question.

164. Where do you work?

1. Alabama
2. Alaska
3. Arizona
4. Arkansas
5. California
6. Colorado
7. Connecticut
8. Delaware
9. District of Columbia
10. Florida
11. Georgia
12. Hawaii
13. Idaho
14. Illinois
15. Indiana
16. Iowa
17. Kansas
18. Kentucky
19. Louisiana
20. Maine
21. Maryland
22. Massachusetts
23. Michigan
24. Minnesota
25. Mississippi
26. Missouri
27. Montana
28. Nebraska
29. Nevada
30. New Hampshire
31. New Jersey
32. New Mexico
33. New York
34. North Carolina
35. North Dakota
36. Ohio
37. Oklahoma
38. Oregon
39. Pennsylvania
40. Puerto Rico
41. Rhode Island
42. South Carolina
43. South Dakota
44. Tennessee
45. Texas
46. Utah
47. Vermont
48. Virginia
49. Washington
50. West Virginia
51. Wisconsin
52. Wyoming

165. Which of the following best describes the area in which you practice?

1. Urban
2. Suburban
3. Rural

166. What is your age?

1. Under 25
2. 25-34
3. 35-44
4. 45-54
5. 55-64
6. 65 and over

(THE SURVEY CONTINUES ON THE NEXT PAGE.)

167. What is your sex?

1. Female
2. Male

168. How do you describe yourself?

1. American Indian, Inuit, or Aleut
2. Asian, Asian American, or Pacific Islander
3. Black or African American
4. Mexican American or Chicano
5. Puerto Rican
6. Latin American, South American, Central American, or other Hispanic
7. White
8. Combination (please specify) _____
9. Other (please specify) _____

169. What is the highest professional degree you hold?

1. Less than a bachelor's
2. Bachelor's
3. Bachelor's + additional credits
4. Master's or equivalent
5. Master's + additional credits
6. Doctorate

170. Which of the following best describes your current employment status?

1. Temporary substitute (assigned on a daily basis)
2. Permanent substitute (assigned on a longer term basis)
3. Regular teacher (not a substitute)
4. Principal or assistant principal
5. School administrator
6. Curriculum supervisor
7. State administrator
8. College faculty
9. Other (please specify)_____

(THE SURVEY CONTINUES ON THE NEXT PAGE.)

171. Which of the following best describes the type of school in which you teach? (Circle ALL that apply.)

1. Elementary
2. Middle
3. Junior high
4. Senior high
5. Comprehensive secondary (7-12)
6. College/university
7. Do not currently teach -- administrator/supervisor
8. Do not currently teach -- retired
9. Other (please specify)_____

172. Which of the following areas best describes your primary teaching assignment? (Circle only ONE answer.)

1. All or most elementary school subjects
2. All or most middle school subjects
3. Special education for handicapped or other exceptional students, including the gifted and talented
4. Arts (e.g., visual arts, music, theater)
5. Language arts and communication (e.g., English, foreign language, speech, literature)
6. Mathematics and computer science (e.g., arithmetic, logic, statistics)
7. Physical and biological sciences (e.g., general science, biology, physics, chemistry, geology)
8. Social sciences (e.g., social studies, psychology, sociology, economics, history, government)
9. Home economics
10. Business and vocational education (e.g., accounting, shop, craft skills, agriculture)
11. Health and physical education
12. Curriculum and instruction
13. Counseling/educational psychology
14. Educational foundations
15. Do not currently teach -- administrator/supervisor
16. Do not currently teach -- retired
17. Other (please specify) _____

(THE SURVEY CONTINUES ON THE NEXT PAGE.)

173. What grade(s) are you currently teaching? (Circle ALL that apply.)

1. Preschool
2. Kindergarten
3. First
4. Second
5. Third
6. Fourth
7. Fifth
8. Sixth
9. Seventh
10. Eighth
11. Ninth
12. Tenth
13. Eleventh
14. Twelfth
15. Undergraduate
16. Graduate
17. Do not currently teach -- administrator/supervisor
18. Do not currently teach -- retired
19. Other (please specify) _____

174. How many years, including the current school year, have you taught?

1. Less than a year
2. 1 to 2 years
3. 3 to 5 years
4. 6 to 10 years
5. 11 to 15 years
6. 16 to 20 years
7. 21 or more years
8. Never taught

THANK YOU FOR PARTICIPATING IN THIS STUDY. PLEASE RETURN THE SURVEY WITHIN *10 DAYS* IN THE ENCLOSED ENVELOPE.

JOB ANALYSIS INVENTORY

OF

EDUCATION

IN THE

ELEMENTARY SCHOOL

FORM 2

By

Educational Testing Service
Princeton, New Jersey

PART I -- INTRODUCTION

Educational Testing Service (ETS) is developing a new generation of assessments for the purpose of licensing (certifying) teachers. The inventory that follows is part of our development effort and is designed to gather information concerning the entry-level elementary school teacher's job. It was developed by teachers, college faculty, and state department of education officials, along with ETS staff.

The inventory asks you to respond to a list of knowledge statements and to rate each statement as to its importance for a newly licensed (certified) teacher. Please do not relate each statement to your own job but rather to what you believe an entry-level elementary school teacher should know.

The information you provide will guide the development of the Education in the Elementary School examination offered in the new generation of teacher assessments. It is expected that the new examination will differ from the current examination in both content and design. In addition to the development of a new examination, this study will also contribute to our understanding of education as a profession. We expect the results of the study to be widely disseminated and to have ramifications for teacher preparation.

The inventory has been mailed to a sample of approximately 1600 professionals. The value of the results is directly related to the number of individuals who return their completed inventories. Because you represent a large number of professionals, your responses are extremely important. Please take the time to complete and return the inventory. Thank you.

PART II -- INVENTORY OF KNOWLEDGE OF EDUCATION IN THE ELEMENTARY SCHOOL

This section focuses on the knowledge of students, professional issues, and pedagogy specific to a given subject matter that elementary school teachers draw on as they perform their work. On the following pages you will find nine broad domains:

A. **Knowledge of Elementary School Students**

B. **Knowledge of Professional Issues**

C. **Knowledge of Pedagogy Specific to Reading, Language Arts, and Literature**

D. **Knowledge of Pedagogy Specific to Mathematics**

E. **Knowledge of Pedagogy Specific to Social Studies**

F. **Knowledge of Pedagogy Specific to Science**

G. **Knowledge of Pedagogy Specific to Physical Education**

H. **Knowledge of Pedagogy Specific to Health**

I. **Knowledge of Pedagogy Specific to Visual and Performing Arts**

Within each domain is a list of topics. For each topic you will be asked to make your judgment using the following scale:

> How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?
>
> (0) Not important
> (1) Slightly important
> (2) Moderately important
> (3) Important
> (4) Very important

To familiarize yourself with the domains and topics, you may wish to glance through the inventory before making your rating judgments. Please note that many topics are followed by examples (e.g.) or clarifying statements (i.e.). These items are included in parentheses in order to assist you; they are not meant to be read as sample test items.

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

A. KNOWLEDGE OF ELEMENTARY SCHOOL STUDENTS — IMPORTANCE

The following statements refer to knowledge of human growth, development, and learning of all students that an elementary school teacher needs to know in order to teach children of elementary school age.

Understand the physical, psychosocial, and cognitive factors that influence growth, development, and learning

1.	Biological (e.g., genetic maturation)	0 1 2 3 4
2.	Familial (e.g., parental child-rearing attitudes, sibling relationships, birth order, single-parent families, socio-economic level)	0 1 2 3 4
3.	Nutritional/hygienic (e.g., the effects of diet and eating behaviors, sleep patterns, exercise, immunization)	0 1 2 3 4
4.	Cultural (e.g., gender roles; the effects of the dominant cultural values; the effects of regional, ethnic, and religious influences; the role of primary transmitters of culture)	0 1 2 3 4
5.	Educational context (e.g., student, parent, and teacher expectations; school climate; out of school context; community impact)	0 1 2 3 4
6.	Students' learning styles (e.g., visual, auditory, field dependent/independent kinesthetic)	0 1 2 3 4

Understand theories of cognitive, physical, and psychosocial development from prenatal through adolescence stages

7.	Cognitive development (e.g., logical reasoning, perceptual, causal reasoning, information processing, constructivism)	0 1 2 3 4
8.	Physical development (e.g., gross and fine motor development, visual discrimination, auditory discrimination, kinesiology)	0 1 2 3 4
9.	Affective development (e.g., self-concept and self-esteem, motivation to learn)	0 1 2 3 4
10.	Social development (e.g., social conventions and social judgments, play behavior)	0 1 2 3 4

How <u>important</u> is it for a <u>newly licensed (certified)</u> elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

A. <u>KNOWLEDGE OF ELEMENTARY SCHOOL STUDENTS (cont.)</u> **IMPORTANCE**

Understand the nature of language development from prenatal through adolescence stages

11.	Theories of language development (e.g., Bruner, Vygotsky, Skinner, Chomsky)	0 1 2 3 4
12.	How early language acquisition can affect the development of language in the classroom	0 1 2 3 4
13.	Stages of language acquisition and development (e.g., phonology, syntax, semantics, conventions of print, conventions of language)	0 1 2 3 4
14.	Second language learning (i.e., the cross-cultural nature of second language learning and the importance and impact of dialects and familial language patterns)	0 1 2 3 4
15.	Principles of linguistics, psycholinguistics, sociolinguistics (e.g., various language structures, effects of prior knowledge, standard/nonstandard dialects)	0 1 2 3 4
16.	**Overall evaluation of the importance of Knowledge of Elementary School Students?**	0 1 2 3 4

17. How well do the statements in section A cover the important aspects of Knowledge of Elementary School Students?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

B. KNOWLEDGE OF PROFESSIONAL ISSUES — IMPORTANCE

Understand current educational practices in the United States as affected by

18. Major trends of curriculum theory 0 1 2 3 4

19. Professional and scholarly organizations for elementary school teachers (e.g., IRA, local reading or math councils, NCTM, NAST, ACEI, NABE) 0 1 2 3 4

20. Professional and scholarly literature relevant to elementary school teaching (e.g., *The Reading Teacher, The Arithmetic Teacher, Childhood Education*) 0 1 2 3 4

21. Understand the effects of one's teaching style on learning and instruction (e.g., expectations, choice of materials, classroom management) 0 1 2 3 4

22. Understand the variety of parent-school collaborations (e.g., parents as partners in learning, as advocates, as volunteers) 0 1 2 3 4

23. **Overall evaluation of the importance of Knowledge of Professional Issues?** 0 1 2 3 4

24. How well do the statements in section B cover the important aspects of Knowledge of Professional Issues?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

The following sections (C-I) ask for your judgments about pedagogy specific to the content areas most often covered in an elementary school program. NOTE: The examples are not all inclusive.

C. KNOWLEDGE OF PEDAGOGY SPECIFIC TO READING, LANGUAGE ARTS, AND LITERATURE

		IMPORTANCE
Curriculum: Organization, Materials, and Resources		
25.	Purposes for teaching reading, language arts, and literature (e.g., communication, self-expression, aesthetic experience)	0 1 2 3 4
26.	Purposes for teaching a particular concept or skill within reading, language arts, and literature (e.g., phonics, noun-verb agreement, plot)	0 1 2 3 4
27.	Relationships among concepts within reading, language arts, and literature	0 1 2 3 4
28.	Interrelationships between concepts in reading, language arts, and literature and concepts in other content areas (e.g., mathematics, social studies)	0 1 2 3 4
29.	Developmentally appropriate concepts and activities in reading, language arts, and literature for a given group of students and justifications for their selection	0 1 2 3 4
30.	Curricular materials and physical resources appropriate for a given group of students and topics in reading, language arts, and literature (e.g., basal readers, personal experience, plays, informational texts, children's literature, newspapers)	0 1 2 3 4
31.	Resource persons appropriate for a given group of students and topics in reading, language arts, and literature (e.g., librarian, family, community elders)	0 1 2 3 4
32.	Media and instructional technologies (e.g., film, television, video, computer) appropriate for a given group of students and topics in reading, language arts, and literature	0 1 2 3 4
Instruction		
33.	Pedagogical implications of child development principles eading, language arts, and literature (e.g., attribution theory, language acquisition and development)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

C. KNOWLEDGE OF PEDAGOGY SPECIFIC TO READING, LANGUAGE ARTS, AND LITERATURE (cont.)

		IMPORTANCE
34.	Prior knowledge, personal and cultural experience, and skills that elementary school students bring to learning topics in reading, language arts, and literature	0 1 2 3 4
35.	Knowledge, experience, and skills that elementary school students need for various topics in reading, language arts, and literature	0 1 2 3 4
36.	How to prepare, evaluate, and justify lesson plans in reading, language arts, and literature for a given group of students	0 1 2 3 4
37.	Ways of presenting/explaining subject matter (e.g., examples, metaphors, analogies, explanations, performance) appropriate for a given group of students and topics in reading, language arts, and literature	0 1 2 3 4
38.	Teaching strategies appropriate for a given group of students and particular topics in reading, language arts, and literature (e.g., modeling and demonstration, direct instruction, reciprocal teaching, cooperative learning, guided oral and silent reading)	0 1 2 3 4
39.	Strategies for motivating and encouraging students to succeed in reading, language arts, and literature (e.g., independent reading, reading aloud, creative dramatics)	0 1 2 3 4
40.	How to communicate orally and in writing about reading, language arts, and literature	0 1 2 3 4

Assessment

41.	Problems in a student's work (e.g., errors, patterns of error, inaccuracies) in reading, language arts, and literature	0 1 2 3 4
42.	Nonstandard language forms that may arise from cultural, dialect, or language differences (e.g., invariant be, dropped endings, the sound ch as in choose *vs.* sh as in shoes)	0 1 2 3 4
43.	Students' common misconceptions in reading, language arts, and literature (e.g., overextensions of phonic rules)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

C. KNOWLEDGE OF PEDAGOGY SPECIFIC TO READING, LANGUAGE ARTS, AND LITERATURE (cont.) — IMPORTANCE

44. Formative and summative classroom-based assessment strategies appropriate for a given group of students and topics in reading, language arts, and literature (e.g., observation, IRI, oral reports, performances, running records, interest inventories) 0 1 2 3 4

45. Standardized measures of achievement in reading, language arts, and literature (e.g., norm-referenced tests, criterion-referenced tests, diagnostic reading tests) 0 1 2 3 4

46. **Overall evaluation of the importance of Knowledge of Pedagogy Specific to Reading, Language Arts, and Literature?** 0 1 2 3 4

47. How well do the statements in section C cover the important aspects of Knowledge of Pedagogy Specific to Reading, Language Arts, and Literature?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

D. KNOWLEDGE OF PEDAGOGY SPECIFIC TO MATHEMATICS — IMPORTANCE

Curriculum: Organization, Materials, and Resources

48. Purposes for teaching mathematics (e.g., to solve problems, for communication, to develop critical thinking) 0 1 2 3 4

49. Purposes for teaching a particular topic within mathematics (e.g., equivalent fractions, measurement) 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

D. KNOWLEDGE OF PEDAGOGY SPECIFIC TO MATHEMATICS (cont.)	IMPORTANCE
50. Relationships among topics within mathematics	0 1 2 3 4
51. Interrelationships between topics in mathematics and topics in other content areas (e.g., language arts, social studies)	0 1 2 3 4
52. Organization of topics and activities in mathematics for a given group of students and justifications for the organization	0 1 2 3 4
53. Curricular materials and physical resources appropriate for a given group of students and topics in mathematics (e.g., textbooks, base ten blocks, computer software, calculator, found objects)	0 1 2 3 4
54. Resource persons appropriate for a given group of students and topics in mathematics (e.g., peer tutors, professionals who use mathematics)	0 1 2 3 4
55. Media and instructional technologies (e.g., television programs, computer software) appropriate for a given group of students and topics in mathematics	0 1 2 3 4
Instruction	
56. Pedagogical implications of child development principles in mathematics (e.g., constructivism, Piaget's theory of cognitive development)	0 1 2 3 4
57. Prior knowledge, experience, and skills that elementary school students bring to learning topics in mathematics	0 1 2 3 4
58. Knowledge, experience, and skills that elementary school students need for various topics in mathematics	0 1 2 3 4
59. How to prepare, evaluate, and justify lesson plans in mathematics for a given group of students	0 1 2 3 4
60. Ways of presenting/explaining subject matter in a context appropriate for a given group of students and topics in mathematics (e.g., diagrams, analogies, concrete examples like money, demonstrations)	0 1 2 3 4
61. Teaching strategies appropriate for a given group of students and particular topics in mathematics (e.g., supervised practice, cooperative/collaborative learning, questioning techniques, independent study)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

D. KNOWLEDGE OF PEDAGOGY SPECIFIC TO MATHEMATICS (cont.) — IMPORTANCE

62. Strategies for motivating and encouraging students to succeed in mathematics 0 1 2 3 4

63. How to communicate orally and in writing about mathematics (e.g., graphs, reflective writing, group projects) 0 1 2 3 4

Assessment

64. Problems in a student's work (e.g., patterns of errors, inaccuracies) in mathematics 0 1 2 3 4

65. Students' common misconceptions in mathematics 0 1 2 3 4

66. Formative and summative classroom-based assessment strategies appropriate for a given group of students and topics in mathematics (e.g., teacher-made tests, student self-report, performance assessment, think aloud) 0 1 2 3 4

67. Standardized measures of achievement in mathematics (e.g., norm-referenced tests, criterion-referenced tests) 0 1 2 3 4

68. **Overall evaluation of the importance of Knowledge of Pedagogy Specific to Mathematics?** 0 1 2 3 4

69. How well do the statements in section D cover the important aspects of Knowledge of Pedagogy Specific to Mathematics?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____ _____

_____

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

E. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SOCIAL STUDIES

		IMPORTANCE
Curriculum: Organization, Materials, and Resources		
70.	Purposes for teaching social studies (e.g., to educate citizens, to learn reflective inquiry, to broaden an awareness of the world, to heighten multicultural awareness, to engage in positive social interactions)	0 1 2 3 4
71.	Purposes for teaching particular concepts and topics within social studies (e.g., westward movement, map skills)	0 1 2 3 4
72.	Relationships among concepts and topics within social studies	0 1 2 3 4
73.	Interrelationships between concepts and topics in social studies and concepts in other content areas (e.g., mathematics, visual and performing arts)	0 1 2 3 4
74.	Organization of concepts, topics, and activities in social studies for a given group of students and justification for the organization	0 1 2 3 4
75.	Curricular materials and physical resources appropriate for a given group of students and topics in social studies (e.g., textbooks, maps, globes, graphs, tables, artifacts, photographs, cartoons, posters, literature, trade books)	0 1 2 3 4
76.	Resource persons appropriate for a given group of students and topics in social studies (e.g., elders, elected officials, community leaders)	0 1 2 3 4
77.	Media and instructional technologies (e.g., student made media, film, television programs, video, computer software) appropriate for a given group of students and topics in social studies	0 1 2 3 4
Instruction		
78.	Pedagogical implications of child development principles in social studies (e.g., Piaget, Bruner, theories of moral development)	0 1 2 3 4
79.	Prior knowledge, personal and cultural experience, and skills that elementary school students bring to learning topics in social studies	0 1 2 3 4
80.	Knowledge, experience, and skills that elementary school students need for various topics in social studies	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

E. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SOCIAL STUDIES (cont.)	IMPORTANCE
81. How to prepare, evaluate, and justify lesson plans in social studies for a given group of students	0 1 2 3 4
82. Ways of presenting/explaining subject matter (e.g., examples, metaphors, analogies, explanations, performance) appropriate for a given group of students and topics in social studies	0 1 2 3 4
83. Teaching strategies appropriate for a given group of students and particular topics in social studies (e.g., modeling, demonstrations, independent study, cooperative groups, simulations, role playing)	0 1 2 3 4
84. Strategies for motivating and encouraging students to succeed in social studies	0 1 2 3 4
85. How to communicate orally and in writing about social studies	0 1 2 3 4
Assessment	
86. Problems in a student's work (e.g., interpreting maps, graphs, and directions) in social studies	0 1 2 3 4
87. Students' common misconceptions of issues related to social studies (e.g., ethnic, racial, and cultural stereotypes; ethnocentrism)	0 1 2 3 4
88. Formative and summative assessment strategies appropriate for a given group of students and topics in social studies (e.g., teacher-made tests, oral reports, observation, writing and projects)	0 1 2 3 4
89. Standardized measures of achievement in social studies (e.g., norm-referenced tests, criterion-referenced tests)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

E. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SOCIAL STUDIES (cont.)

IMPORTANCE

90. **Overall evaluation of the importance of Knowledge of Pedagogy Specific to Social Studies?** 0 1 2 3 4

91. How well do the statements in section E cover the important aspects of Knowledge of Pedagogy Specific to Social Studies?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

F. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SCIENCE

IMPORTANCE

Curriculum: Organization, Materials, and Resources

92. Purposes for teaching science (e.g., to explain the world, to develop orderly processes for thought) 0 1 2 3 4

93. Purposes for teaching a particular topic within science (e.g., electricity, migration, experimental procedures) 0 1 2 3 4

94. Relationships among topics within science 0 1 2 3 4

95. Interrelationships between topics in science and in other content areas (e.g., mathematics, art) 0 1 2 3 4

96. Organization of topics and activities in science for a given group of students and justifications for the organization 0 1 2 3 4

97. Curricular materials and physical resources appropriate for a given group of students and topics in science (e.g., print materials, computer software, laboratory materials, objects, science kits) 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

F. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SCIENCE (cont.)	IMPORTANCE
98. Resource persons appropriate for a given group of students and topics in science	0 1 2 3 4
99. Media and instructional technologies (e.g., film, television programs, video, computer software) appropriate for a given group of students and topics in science	0 1 2 3 4
Instruction	
100. Pedagogical implications of child development principles in science (e.g., Piaget's theory of conservation, constructivism, information processing)	0 1 2 3 4
101. Prior knowledge, experience, and skills that elementary school students bring to learning topics in science	0 1 2 3 4
102. Knowledge, experience, and skills that elementary school students need for various topics in science	0 1 2 3 4
103. How to prepare, evaluate, and justify lesson plans in science for a given group of students	0 1 2 3 4
104. Ways of presenting/explaining subject matter (e.g., metaphors, experiments, examples, demonstrations) appropriate for a given group of students and topics in science	0 1 2 3 4
105. Teaching strategies appropriate for a given group of students and particular topics in science (e.g., laboratory work, group work, simulation, inquiry, setting up discrepant events)	0 1 2 3 4
106. Strategies for motivating and encouraging students to succeed in science	0 1 2 3 4
107. How to communicate orally, graphically, and in writing about science	0 1 2 3 4
108. Laboratory safety	0 1 2 3 4
Assessment	
109. Problems in a student's work (e.g., errors, patterns of error, inaccuracies) in science	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

F. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SCIENCE (cont.) — IMPORTANCE

110. Errors that may arise from cultural, dialect, or language differences 0 1 2 3 4

111. Students' common misconceptions in science 0 1 2 3 4

112. Formative and summative classroom-based assessment strategies appropriate for a given group of students and topics in science (e.g., teacher-made tests, informal observation, performance, experiments, journals) 0 1 2 3 4

113. Standardized measures of achievement in science (e.g., norm-referenced tests, criterion-referenced tests) 0 1 2 3 4

114. **Overall evaluation of the importance of Knowledge of Pedagogy Specific to Science?** 0 1 2 3 4

115. How well do the statements in section F cover the important aspects of Knowledge of Pedagogy Specific to Science?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

G. KNOWLEDGE OF PEDAGOGY SPECIFIC TO PHYSICAL EDUCATION — IMPORTANCE

Curriculum: Organization, Materials, and Resources

116. Purposes for teaching physical education (e.g., to promote positive attitudes towards physical fitness and mental health, to develop cooperation/competition among individuals and groups) 0 1 2 3 4

117. Purposes for teaching a particular topic within physical education (e.g., ball handling skills, movement exploration) 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

G. KNOWLEDGE OF PEDAGOGY SPECIFIC TO PHYSICAL EDUCATION (cont.)

		IMPORTANCE
118.	Relationships among topics within physical education	0 1 2 3 4
119.	Interrelationships between topics in physical education and topics in other content areas (e.g., mathematics, health)	0 1 2 3 4
120.	Organization of topics and activities in physical education for a given group of students and justifications for the organization	0 1 2 3 4
121.	Curricular materials and physical resources appropriate for a given group of students and topics in physical education (e.g., sports equipment)	0 1 2 3 4
122.	Resource persons appropriate for a given group of students and topics in physical education	0 1 2 3 4
123.	Media and instructional technologies (e.g., film, television programs, video, computer software) appropriate for a given group of students and topics in physical education	0 1 2 3 4
	Instruction	
124.	Pedagogical implications of child development principles in physical education (e.g., motor development)	
125.	Prior knowledge, experience, and skills that elementary school students bring to learning topics in physical education	0 1 2 3 4
126.	Knowledge, experience, and skills that elementary school students need for various topics in physical education	0 1 2 3 4
127.	How to prepare, evaluate, and justify lesson plans in physical education for a given group of students	0 1 2 3 4
128.	Ways of presenting/explaining subject matter (e.g., metaphors, analogies, explanations, demonstrations) appropriate for a given group of students and topics in physical education	0 1 2 3 4
129.	Teaching strategies appropriate for a given group of students and particular topics in physical education (e.g., supervised practice, team work, discovery, whole/part/whole, nonbiased instruction)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

G. KNOWLEDGE OF PEDAGOGY SPECIFIC TO PHYSICAL EDUCATION (cont.)

		IMPORTANCE
130.	Strategies for motivating and encouraging students to succeed in physical education	0 1 2 3 4
131.	How to communicate orally and in writing about physical education	0 1 2 3 4
	Assessment	
132.	Problems in a student's performance in physical education	0 1 2 3 4
133.	Students' common misconceptions in physical education	0 1 2 3 4
134.	Formative and summative classroom-based assessment strategies appropriate for a given group of students and topics in physical education (e.g., teacher-made tests, performances)	0 1 2 3 4
135.	Standardized measures of achievement in physical education (e.g., President's Physical Fitness Tests)	0 1 2 3 4
136.	**Overall evaluation of the importance of Knowledge of Pedagogy Specific to Physical Education?**	0 1 2 3 4

137. How well do the statements in section G cover the important aspects of Knowledge of Pedagogy Specific to Physical Education?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

H. KNOWLEDGE OF PEDAGOGY SPECIFIC TO HEALTH

Curriculum: Organization, Materials, and Resources

138.	Purposes for teaching health (e.g., to promote general health and well-being, to create an awareness of health issues in society)	0 1 2 3 4
139.	Purposes for teaching a particular topic within health (e.g., basic first aid, personal hygiene)	0 1 2 3 4
140.	Relationships among topics within health	0 1 2 3 4
141.	Interrelationships between topics in health and topics in other content areas (e.g., science, language arts)	0 1 2 3 4
142.	Organization of topics and activities in health for a given group of students and justifications for the organization	0 1 2 3 4
143.	Curricular materials and physical resources appropriate for a given group of students and topics in health (e.g., anatomical models, wall charts)	0 1 2 3 4
144.	Resource persons appropriate for a given group of students and topics in health	0 1 2 3 4
145.	Media and instructional technologies (e.g., film, television programs, video, computer software) appropriate for a given group of students and topics in health	0 1 2 3 4

Instruction

146.	Pedagogical implications of child development principles in health (e.g., physical development)	0 1 2 3 4
147.	Prior knowledge, experience, and skills that elementary school students bring to learning topics in health	0 1 2 3 4
148.	Knowledge, experience, and skills that elementary school students need for various topics in health	0 1 2 3 4
149.	How to prepare, evaluate, and justify lesson plans in health for a given group of students	0 1 2 3 4
150.	Ways of representing/explaining subject matter (e.g., metaphors, analogies, explanations, performance) appropriate for a given group of students and topics in health	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

H. KNOWLEDGE OF PEDAGOGY SPECIFIC TO HEALTH (cont.)

		IMPORTANCE
151.	Teaching strategies appropriate for a given group of students and particular topics in health (e.g., direct instruction, cooperative learning, nonbiased instruction)	0 1 2 3 4
152.	Strategies for motivating and encouraging students to succeed in health	0 1 2 3 4
153.	How to communicate orally and in writing about health	0 1 2 3 4
Assessment		
154.	Inaccuracies in a student's work in health	0 1 2 3 4
155.	Errors that may arise from cultural, dialect, or language differences	0 1 2 3 4
156.	Students' common misconceptions in health	0 1 2 3 4
157.	Formative and summative classroom-based assessment strategies appropriate for a given group of students and topics in health (e.g., teacher-made tests, oral reports)	0 1 2 3 4
158.	Standardized measures of achievement in health (e.g., norm-referenced tests, criterion-referenced tests)	0 1 2 3 4
159.	**Overall evaluation of the importance of Knowledge of Pedagogy Specific to Health?**	0 1 2 3 4

160. How well do the statements in section H cover the important aspects of Knowledge of Pedagogy Specific to Health?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

I. KNOWLEDGE OF PEDAGOGY SPECIFIC TO VISUAL AND PERFORMING ARTS

IMPORTANCE

Curriculum: Organization, Materials, and Resources

161. Purposes for teaching the visual and performing arts (e.g., to provide aesthetic experiences, to develop creativity, to understand various cultures) 0 1 2 3 4

162. Purposes for teaching a particular topic within the visual and performing arts 0 1 2 3 4

163. Relationships among topics within each area of the visual and performing arts 0 1 2 3 4

164. Interrelationships between topics in the visual and performing arts and in other content areas (e.g., language arts, physical education) 0 1 2 3 4

165. Organization of topics and activities in the visual and performing arts for a given group of students and justifications for the organization 0 1 2 3 4

166. Curricular materials and physical resources appropriate for a given group of students and topics in the visual and performing arts (e.g., recorders, piano, computer software, paints, construction paper) 0 1 2 3 4

167. Resource persons appropriate for a given group of students and topics in the visual and performing arts (e.g., visiting artists, field trips) 0 1 2 3 4

168. Media and instructional technologies (e.g., film, TV programs, video, computer software) appropriate for a given group of students and topics in the visual and performing arts 0 1 2 3 4

Instruction

169. Pedagogical implic[illegible] child development principles in the visual and performing arts (e.g., [illegible]pment of musical skills, development of listening skills, deve[illegible]t of symbol making in drawing) 0 1 2 3 4

170. Prior knowledge, ex[illegible]rience, and skills that elementary school students bring to learning topics in the visual and performing arts 0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

I. KNOWLEDGE OF PEDAGOGY SPECIFIC TO VISUAL AND PERFORMING ARTS (cont.)

		IMPORTANCE
171.	Knowledge, experience, and skills that elementary school students need for various topics in the visual and performing arts	0 1 2 3 4
172.	How to prepare, evaluate, and justify lesson plans in the visual and performing arts for a given group of students	0 1 2 3 4
173.	Ways of presenting/explaining subject matter (e.g., metaphors, analogies, explanations, performance) appropriate for a given group of students and topics in the visual and performing arts	0 1 2 3 4
174.	Teaching strategies appropriate for a given group of students and particular topics in the visual and performing arts (e.g., independent study, cooperative learning, direct instruction)	0 1 2 3 4
175.	How to communicate orally and in writing about the visual and performing arts	0 1 2 3 4

Assessment

176.	Problems in a student's work (e.g., errors, patterns of error, inaccuracies) in the visual and performing arts	0 1 2 3 4
177.	Errors that may arise from cultural, dialect, or language differences	0 1 2 3 4
178.	Students' common misconceptions in the visual and performing arts	0 1 2 3 4
179.	Formative and summative classroom-based assessment strategies appropriate for a given group of students and topics in the visual and performing arts (e.g., teacher-made tests, projects, performances)	0 1 2 3 4
180.	Standardized measures of achievement in the visual and performing arts (e.g., norm-referenced tests, criterion-referenced tests)	0 1 2 3 4

How important is it for a newly licensed (certified) elementary school teacher to know the following in order to perform his/her job in a competent manner?

(0) Not important
(1) Slightly important
(2) Moderately important
(3) Important
(4) Very important

I. **KNOWLEDGE OF PEDAGOGY SPECIFIC TO VISUAL AND PERFORMING ARTS (cont.)** — **IMPORTANCE**

181. **Overall evaluation of the importance of Knowledge of Pedagogy Specific to Visual and Performing Arts?** 0 1 2 3 4

182. How well do the statements in section I cover the important aspects of Knowledge of Pedagogy Specific to Visual and Performing Arts?

1	2	3	4	5
Very Poorly	Poorly	Adequately	Well	Very Well

What important aspects, if any, are not covered?

_____

_____

PART III -- ADDITIONAL COMMENTS

Please use this space to list any important **KNOWLEDGE DOMAINS** that you believe were **NOT** included in this inventory. Also, use the space for any additional comments about the inventory itself.

PART IV -- RECOMMENDATIONS FOR TEST CONTENT

Listed below are nine content domains that may be covered on the new Education in the Elementary School examination. If the examination were to contain 100 questions, how many questions do you believe should be included from each content domain?

Please indicate your response using whole numbers (no fractions). If you believe a content domain should not be included in the examination, put a 0 in the space provided. Please make sure that your responses sum to 100.

CONTENT DOMAIN	NUMBER OF EXAM QUESTIONS (out of 100)
A. KNOWLEDGE OF ELEMENTARY SCHOOL STUDENTS	_____
B. KNOWLEDGE OF PROFESSIONAL ISSUES	_____
C. KNOWLEDGE OF PEDAGOGY SPECIFIC TO READING, LANGUAGE ARTS, AND LITERATURE	_____
D. KNOWLEDGE OF PEDAGOGY SPECIFIC TO MATHEMATICS	_____
E. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SOCIAL STUDIES	_____
F. KNOWLEDGE OF PEDAGOGY SPECIFIC TO SCIENCE	_____
G. KNOWLEDGE OF PEDAGOGY SPECIFIC TO PHYSICAL EDUCATION	_____
H. KNOWLEDGE OF PEDAGOGY SPECIFIC TO HEALTH	_____
I. KNOWLEDGE OF PEDAGOGY SPECIFIC TO VISUAL AND PERFORMING ARTS	_____
	TOTAL = 100

PART V - BACKGROUND INFORMATION

The information that you provide in this section is completely confidential and will be used for research purposes only. Please answer the questions by circling the number that most closely describes you or your professional activities. Unless otherwise indicated, please circle only one response for each question.

183. Where do you work?

1. Alabama
2. Alaska
3. Arizona
4. Arkansas
5. California
6. Colorado
7. Connecticut
8. Delaware
9. District of Columbia
10. Florida
11. Georgia
12. Hawaii
13. Idaho
14. Illinois
15. Indiana
16. Iowa
17. Kansas
18. Kentucky
19. Louisiana
20. Maine
21. Maryland
22. Massachusetts
23. Michigan
24. Minnesota
25. Mississippi
26. Missouri
27. Montana
28. Nebraska
29. Nevada
30. New Hampshire
31. New Jersey
32. New Mexico
33. New York
34. North Carolina
35. North Dakota
36. Ohio
37. Oklahoma
38. Oregon
39. Pennsylvania
40. Puerto Rico
41. Rhode Island
42. South Carolina
43. South Dakota
44. Tennessee
45. Texas
46. Utah
47. Vermont
48. Virginia
49. Washington
50. West Virginia
51. Wisconsin
52. Wyoming

184. Which of the following best describes the area in which you practice?

1. Urban
2. Suburban
3. Rural

185. What is your age?

1. Under 25
2. 25-34
3. 35-44
4. 45-54
5. 55-64
6. 65 and over

(THE SURVEY CONTINUES ON THE NEXT PAGE.)

186. What is your sex?

1. Female
2. Male

187. How do you describe yourself?

1. American Indian, Inuit, or Aleut
2. Asian, Asian American, or Pacific Islander
3. Black or African American
4. Mexican American or Chicano
5. Puerto Rican
6. Latin American, South American, Central American, or other Hispanic
7. White
8. Combination (please specify) _____
9. Other (please specify) _____

188. What is the highest professional degree you hold?

1. Less than a bachelor's
2. Bachelor's
3. Bachelor's + additional credits
4. Master's or equivalent
5. Master's + additional credits
6. Doctorate

189. Which of the following best describes your current employment status?

1. Temporary substitute (assigned on a daily basis)
2. Permanent substitute (assigned on a longer term basis)
3. Regular teacher (not a substitute)
4. Principal or assistant principal
5. School administrator
6. Curriculum supervisor
7. State administrator
8. College faculty
9. Other (please specify)_____

(THE SURVEY CONTINUES ON THE NEXT PAGE.)

190. Which of the following best describes the type of school in which you teach? (Circle ALL that apply.)

1. Elementary
2. Middle
3. Junior high
4. Senior high
5. Comprehensive secondary (7-12)
6. College/university
7. Do not currently teach -- administrator/supervisor
8. Do not currently teach -- retired
9. Other (please specify)_____

191. Which of the following areas best describes your primary teaching assignment? (Circle only ONE answer.)

1. All or most elementary school subjects
2. All or most middle school subjects
3. Special education for handicapped or other exceptional students, including the gifted and talented
4. Arts (e.g., visual arts, music, theater)
5. Language arts and communication (e.g., English, foreign language, speech, literature)
6. Mathematics and computer science (e.g., arithmetic, logic, statistics)
7. Physical and biological sciences (e.g., general science, biology, physics, chemistry, geology)
8. Social sciences (e.g., social studies, psychology, sociology, economics, history, government)
9. Home economics
10. Business and vocational education (e.g., accounting, shop, craft skills, agriculture)
11. Health and physical education
12. Curriculum and instruction
13. Counseling/educational psychology
14. Educational foundations
15. Do not currently teach -- administrator/supervisor
16. Do not currently teach -- retired
17. Other (please specify) _____

(THE SURVEY CONTINUES ON THE NEXT PAGE.)

192. What grade(s) are you currently teaching? (Circle ALL that apply.)

1. Preschool
2. Kindergarten
3. First
4. Second
5. Third
6. Fourth
7. Fifth
8. Sixth
9. Seventh
10. Eighth
11. Ninth
12. Tenth
13. Eleventh
14. Twelfth
15. Undergraduate
16. Graduate
17. Do not currently teach -- administrator/supervisor
18. Do not currently teach -- retired
19. Other (please specify) _____

193. How many years, including the current school year, have you taught?

1. Less than a year
2. 1 to 2 years
3. 3 to 5 years
4. 6 to 10 years
5. 11 to 15 years
6. 16 to 20 years
7. 21 or more years
8. Never taught

THANK YOU FOR PARTICIPATING IN THIS STUDY. PLEASE RETURN THE SURVEY WITHIN *10 DAYS* IN THE ENCLOSED ENVELOPE.

Appendix F

Cover Letter to Survey Participants

EDUCATIONAL TESTING SERVICE PRINCETON, N.J. 08541

609-921-9000
CABLE-EDUCTESTSVC

DIVISION OF COGNITIVE
AND ASSESSMENT RESEARCH

January, 1991

Dear Colleague:

I am writing to ask your cooperation in a study that should be of importance to teachers, college faculty, administrators, and other professionals in the field of education. As you are undoubtedly aware, the profession is receiving increasing national press as new plans and programs are proposed for assessing teaching. Our response to this call for improvements is to revamp the existing teacher assessment tests offered by Educational Testing Service.

One of the steps we're taking in this renovation project is to conduct a series of studies that looks closely at the knowledge and skills beginning teachers need in order to be licensed (certified). In some of our studies, we've asked respondents to share their judgments about important enabling skills (e.g., reading comprehension), tasks of teaching (e.g., lesson planning), and knowledge of general principles of teaching and learning that may be important for all beginning teachers to know, regardless of their grade level or subject matter. In this study, we're focusing on the knowledge needed by beginning elementary school teachers.

As part of the development process, ETS worked closely with teachers, college faculty, and school administrators to identify four potentially important knowledge areas for elementary school teachers: students, professional issues, subject matter, and pedagogy specific to a particular subject matter. Since the number of knowledge statements covered by these four knowledge areas was so large, we separated the statements into two inventories. Form 1 covers knowledge of students, knowledge of professional issues, and knowledge of subject matter. Form 2 covers knowledge of students, knowledge of professional issues, and knowledge of pedagogy specific to a particular subject matter. We've included only one form for you to complete.

Your opinion is very important. We are sampling only 1600 professionals, therefore the value of the survey results is directly related to the number of responses we get. Your responses are confidential. The inventory request for background information about you is solely for purposes of describing this study's respondents. The code number on the back of the inventory is for our record-keeping purposes.

A postage-paid envelope is enclosed for the return of your completed inventory. Please return the inventory within ten days. If you have any questions about the study or about your participation in it, feel free to call me collect at (609) 921-9000 Ext. 5795. Thank you for your time and participation in this important project.

Cordially,

Anne Reynolds

Anne Reynolds, Ph.D.
Associate Research Scientist

Enclosures (2)

Appendix G

Follow-up Postcard

JOB ANALYSIS INVENTORY OF EDUCATION IN THE ELEMENTARY SCHOOL

Dear Colleague:

I recently sent you an inventory to obtain your opinions of what a newly-licensed teacher should know and be able to do. If you have not already done so, please complete the inventory and return it in the postage-paid envelope to:

Educational Testing Service, 16-R
Princeton, NJ 08541

If you have already returned the inventory, please accept my thanks for your help in this important project.

Sincerely,

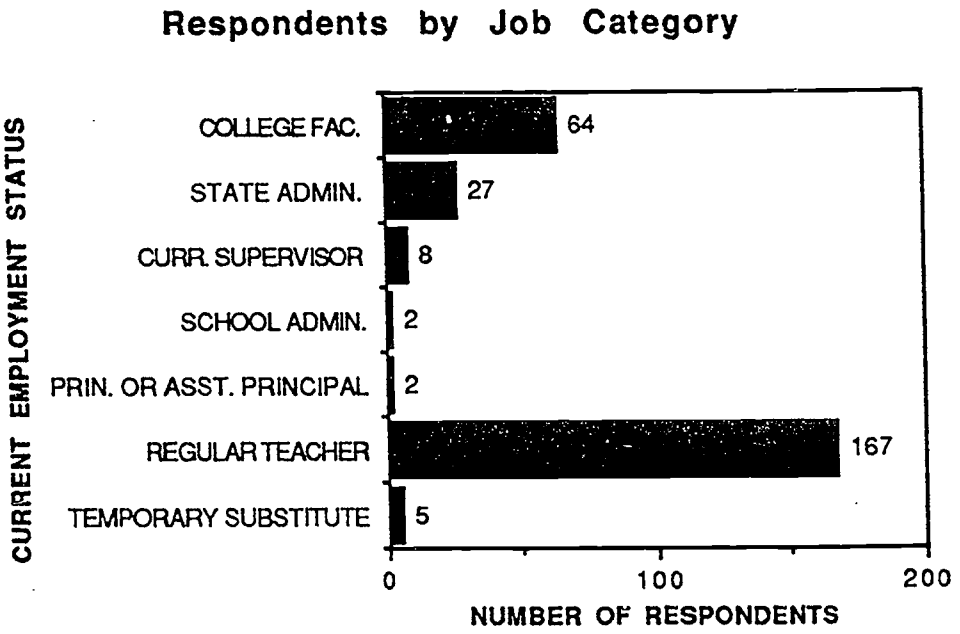
Anne Reynolds

Anne Reynolds, Ph.D.
Associate Research Scientist

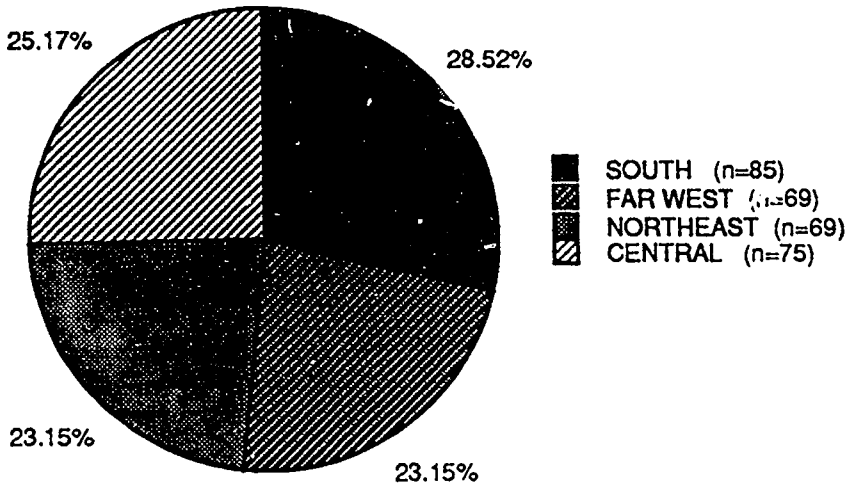
Appendix H

Demographic Characteristics of Respondents: Form 1

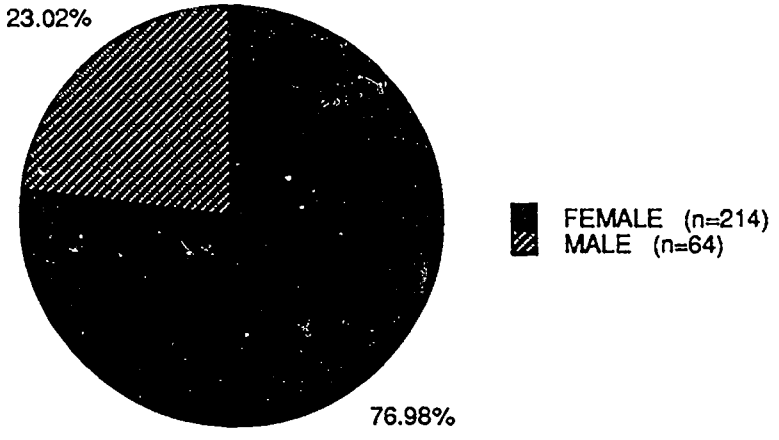
NOTE: Some totals sum to less than 303, the total number of surveys analyzed. On these particular background questions some respondents gave multiple responses and others gave no response. These two types of responses were omitted from the analyses.



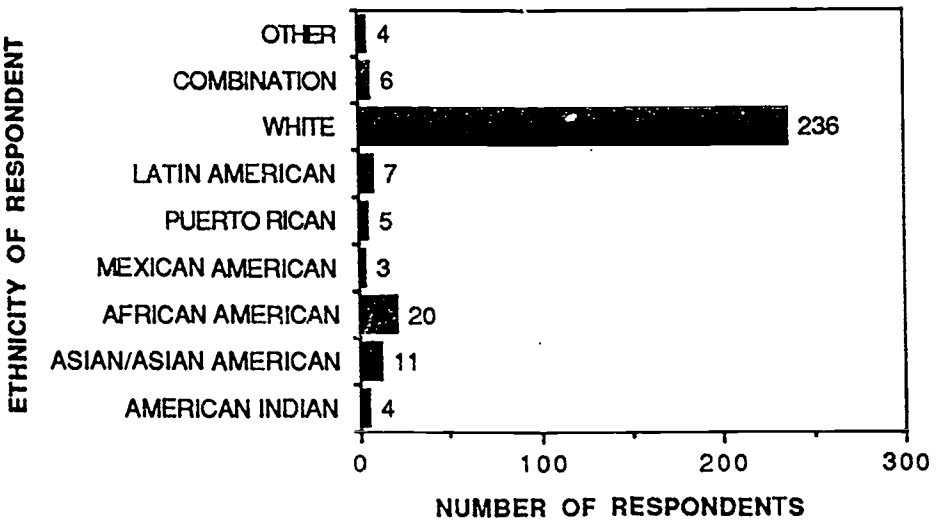
Respondents by Geographic Location



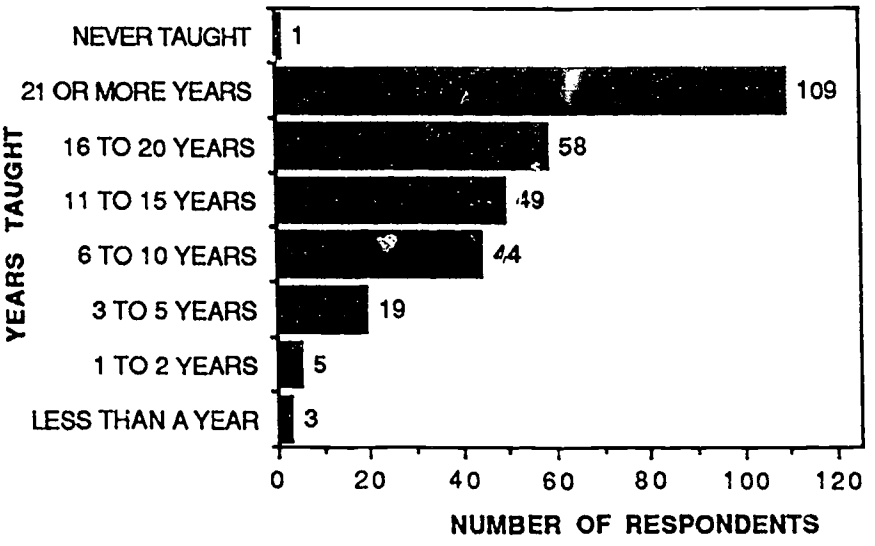
Respondents by Sex



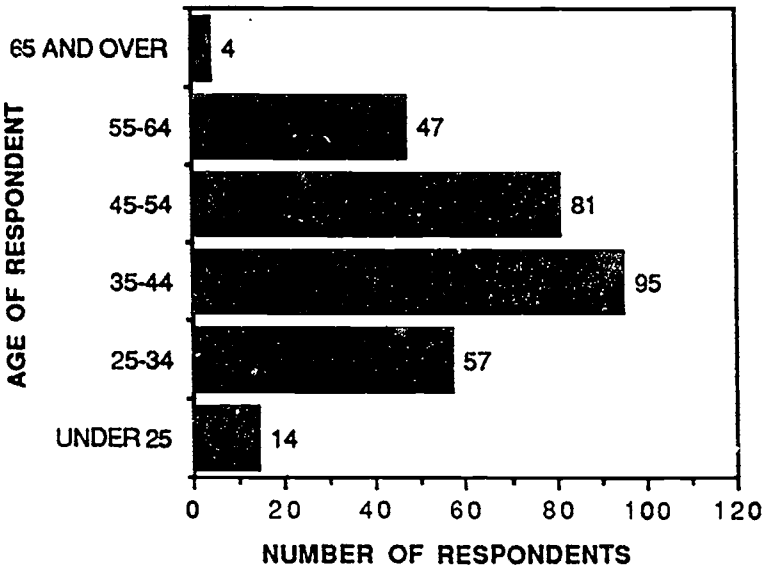
Respondents by Ethnicity



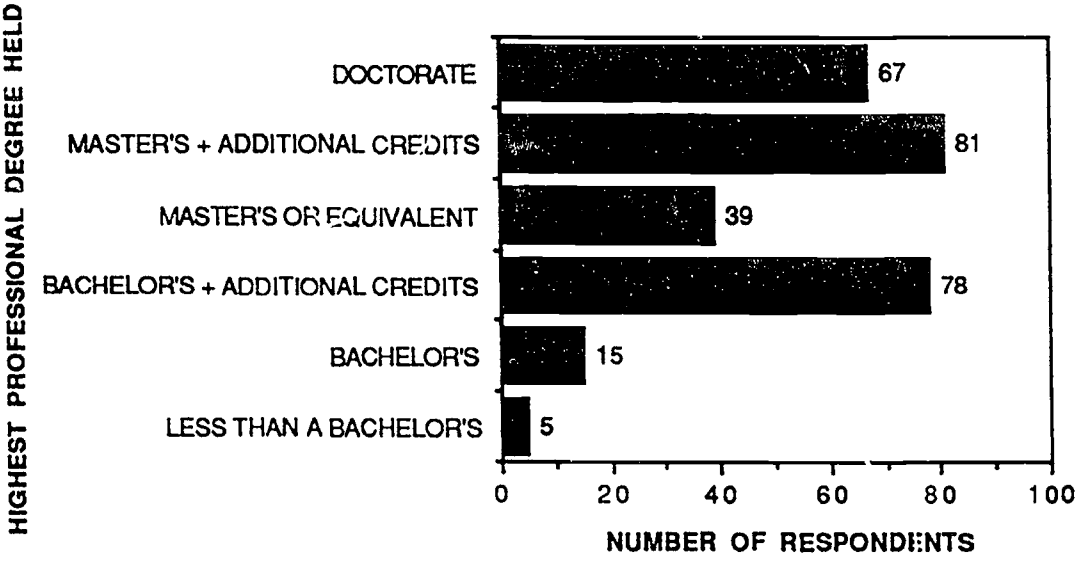
Respondents by Years of Teaching Experience



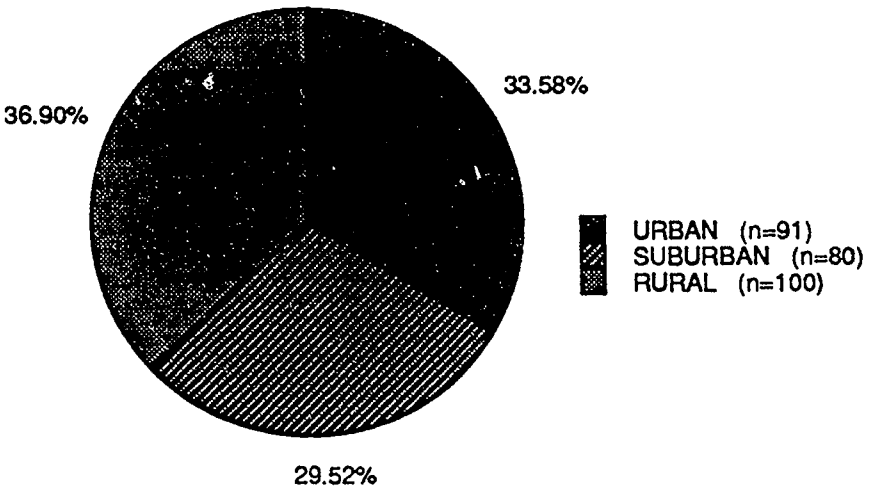
Respondents by Age



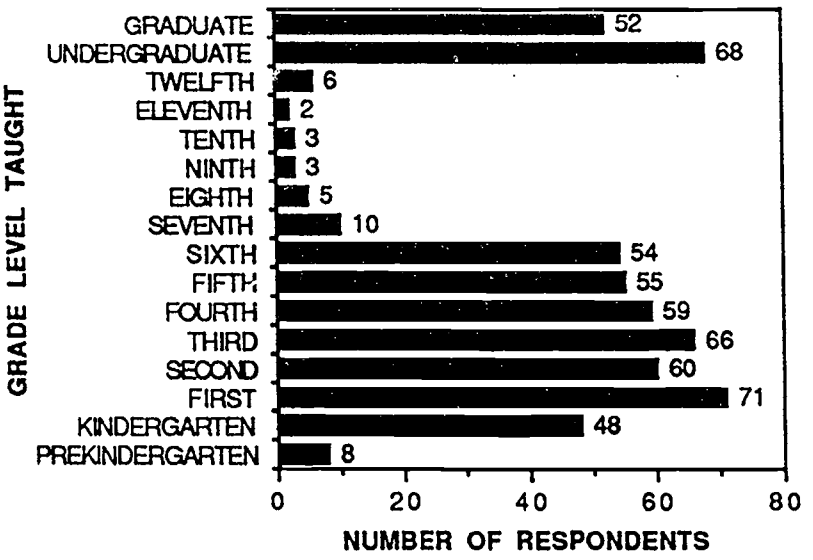
Respondents by Highest Professional Degree Held



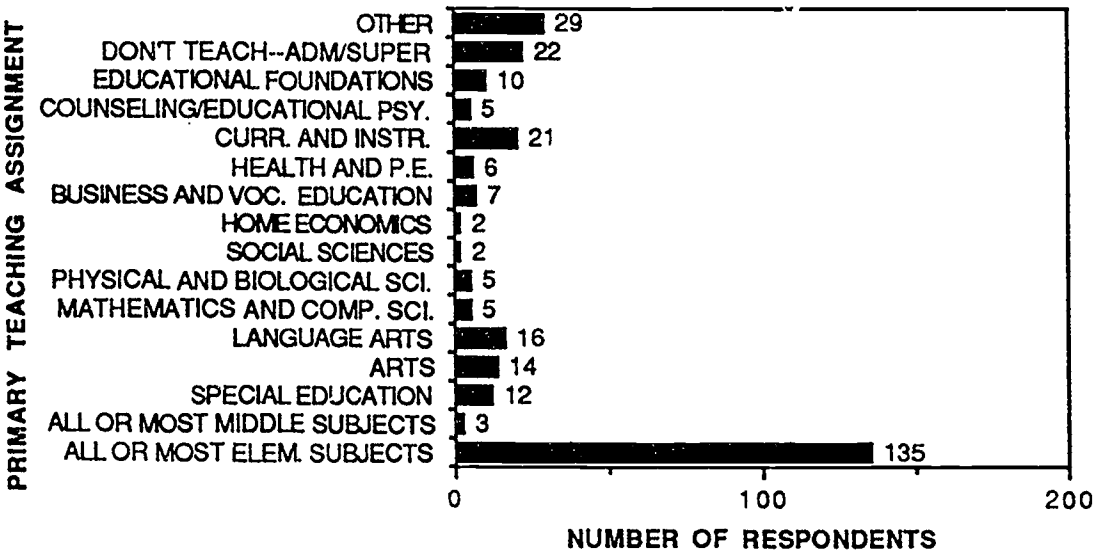
Respondents by School Location



Respondents by Grade Level Taught



Respondents by Subject Area Taught



Appendix I

Means by Job Category: Form 1

NOTE: This table includes respondents who considered themselves elementary school teachers (and those who teach elementary school and another school level) and teacher educators. The respondents do not include people who indicated that they were retirees or temporary substitutes. The table also does not include people who indicated that they were school or state administrators, because these groups numbered less than 30.

* denotes content coverage questions for which a 5 point scale was used: 1=Very Poorly; 2=Poorly; 3=Adequately; 4=Well; 5=Very Well.

	QUESTION	TEACHERS N=167	TEACHER EDUCATORS N=64
1	biological factors	2.84	2.78
2	familial factors	3.10	3.14
3	nutritional/hygienic factors	2.87	2.89
4	cultural factors	2.79	3.48
5	educational context	3.22	3.50
6	learning styles	3.57	3.22
7	cognitive development	3.18	3.58
8	physical development	3.22	3.06
9	affective development	3.55	3.62
10	social development	3.08	3.28
11	theories of language development	**2.15**	2.66
12	early language acquisition's affect on classroom language	2.58	3.03
13	stages of language acquisition and development	**2.44**	2.85
14	second language learning	**2.16**	2.66
15	principles of linguistics	**2.01**	**2.49**
16	*OVERALL IMPORTANCE OF ELEMENTARY SCHOOL STUDENTS*	3.16	3.47
17*	CONTENT COVERAGE OF ELEMENTARY SCHOOL STUDENTS	3.94	3.97
18	major trends in curriculum theory	2.67	2.71
19	professional and scholarly organizations	**2.18**	2.61

QUESTION		TEACHERS N=167	TEACHER EDUCATORS N=64
20	professional and scholarly literature	**2.46**	3.06
21	the effects of teaching style on learning and teaching	3.60	3.65
22	variety of parent-school collaborations	3.20	3.11
23	*IMPORTANCE OF PROFESSIONAL ISSUES*	2.91	3.10
24*	**CONTENT COVERAGE OF PROFESSIONAL ISSUES**	3.84	3.65
25	conventions of language	3.77	3.68
26	language structure	3.60	3.35
27	word recognition strategies	3.63	3.41
28	text structure	3.61	3.75
29	comprehension strategies	3.06	3.11
30	language usage	3.29	3.37
31	library skills	3.04	3.06
32	study skills	3.40	3.19
33	children's literature	3.27	3.54
34	adult literature	**2.21**	**2.30**
35	functional literacy	2.92	3.00
36	graphic literacy	2.83	3.02
37	oral communication and presentation skills	3.45	3.63
38	creative dramatics	2.59	2.98
39	composing processes	3.22	3.51
40	types of writing	3.04	3.13
41	*IMPORTANCE OF KNOWLEDGE OF READING, LANGUAGE ARTS, LITERATURE*	3.54	3.75
42*	**CONTENT COVERAGE OF READING, LANGUAGE ARTS, LITERATURE**	4.36	3.95
43	prenumeration	3.37	3.42
44	numeration	3.48	3.59
45	number theory	3.07	3.21
46	patterns and functions	3.28	3.34
47	number sense	3.53	3.75

QUESTION		TEACHERS N=167	TEACHER EDUCATORS N=64
48	techniques for computational estimation	3.23	3.32
49	mental mathematics	3.30	3.12
50	calculator	2.78	3.11
51	computer	3.16	3.18
52	paper/pencil computation	3.56	3.27
53	whole numbers	3.54	3.62
54	rational numbers	3.36	3.66
55	percents	3.24	3.59
56	inequalities	2.95	3.12
57	integers	2.85	3.12
58	geometry and spatial sense	2.98	3.28
59	measurements	3.23	3.52
60	organizing and interpreting data in math	3.41	3.49
61	algebraic methods	2.60	2.89
62	statistics and probability	**2.26**	2.59
63	methods of using mathematics	3.54	3.78
64	methods of mathematical investigation	3.34	3.48
65	strategies for problem solving in mathematics	3.52	3.73
66	historical, cultural, and ongoing development of math principles	**2.12**	**2.25**
67	*IMPORTANCE OF MATHEMATICS*	3.51	3.57
68*	CONTENT COVERAGE OF MATHEMATICS	4.33	4.15
69	methods of inquiry in social studies	3.39	3.55
70	interdependence of humans and physical environment	3.24	3.50
71	world cultures	2.92	3.32
72	national territories	2.82	2.95
73	chronology, sequence, change	2.88	3.10

	QUESTION	TEACHERS N=167	TEACHER EDUCATORS N=64
74	major events and movements in u.s. history	3.20	3.24
75	major events and movements in global history	2.70	2.90
76	interregional relationships over time	**2.45**	2.79
77	nature and purpose of government	3.18	3.46
78	forms of government	2.93	3.19
79	traditional political institutions	**2.33**	2.67
80	united states constitution	3.25	3.40
81	rights and responsibilities of citizens	3.44	3.60
82	relations among nations	2.90	3.02
83	market as distribution and information system	**2.49**	3.00
84	individual and the market	**2.37**	2.84
85	effects of economic and historical forces on humans and nature	2.54	3.00
86	government and the market	**2.33**	2.58
87	economic systems	**2.44**	2.81
88	culture	2.80	3.28
89	world view	2.78	3.44
90	belief systems in various cultures	**2.47**	3.03
91	socialization and acculturation	**2.39**	3.03
92	political, social, and economic conditions of ethnic groups in the u.s.	2.58	3.21
93	cross-cultural phenomena	2.67	3.22
94	impact of cultural evolution on different civilizations	**2.35**	2.80
95	physical anthropology	**2.06**	**2.30**
96	logic	2.51	2.84

QUESTION		TEACHERS N=167	TEACHER EDUCATORS N=64
97	ethics	2.62	3.16
98	philosophical traditions in diverse cultures	**1.61**	**2.09**
99	*IMPORTANCE OF SOCIAL STUDIES*	2.97	3.33
100*	**CONTENT COVERAGE OF SOCIAL STUDIES**	4.04	3.82
101	molecules, atoms, and chemical change	2.66	2.95
102	physical change	2.98	3.21
103	heat and temperature	3.07	3.25
104	sound	3.01	3.17
105	light	3.00	3.15
106	energy sources	3.17	3.35
107	transformation of energy	2.79	3.13
108	machines	2.99	3.12
109	magnetism and electricity	3.00	3.20
110	flight and space travel	2.97	3.13
111	surface features of the earth	3.18	3.19
112	air and weather	3.19	3.37
113	sun and planets	3.25	3.25
114	stars and the universe	3.02	3.10
115	history of the earth, solar system, and universe	2.76	2.77
116	origins of life	2.64	2.72
117	classification system	2.67	2.62
118	human anatomy and physiology	2.84	2.95
119	relationships of structure and functions	2.52	2.85
120	reproduction and nurturing of the young	2.88	2.98
121	habitat and climate	2.95	3.05
122	food chains and interdependence	3.10	3.23
123	scientific processes and problem solving	3.16	3.59
124	methods of inquiry in science	3.23	3.70
125	unifying themes/concepts in science	2.67	3.26

	QUESTION	TEACHERS N=167	TEACHER EDUCATORS N=64
126	impact of science and technology on society	2.98	3.15
127	ethics in science	2.55	2.90
128	*IMPORTANCE OF SCIENCE*	3.17	3.31
129*	**CONTENT COVERAGE OF SCIENCE**	4.20	3.93
130	basic elements and components of physical education	3.07	3.02
131	progression of motor learning	3.15	3.00
132	*IMPORTANCE OF PHYSICAL EDUCATION*	2.89	2.87
133*	**CONTENT COVERAGE OF PHYSICAL EDUCATION**	3.56	3.26
134	effects of physical, emotional, and social health on learning	3.40	3.52
135	effects of environmental factors on health of individuals	2.99	3.20
136	basic scientific information about health content areas	3.35	3.44
137	basic information about personal care	3.48	3.58
138	characteristics of the healthy person	3.46	3.44
139	signs and symptoms of child abuse	3.78	3.75
140	health personnel	3.07	3.02
141	laws, policies, and procedures in schools regarding health matters	3.50	3.42
142	basic emergency care	3.43	3.42
143	hazardous conditions in school	3.48	3.52
144	liability issues pertinent to school	3.62	3.42
145	*IMPORTANCE OF HEALTH*	3.49	3.47
146*	**CONTENT COVERAGE OF HEALTH**	4.29	4.08
147	basic elements of music	**2.29**	2.81
148	genres of music	**2.07**	**2.42**

	QUESTION	TEACHERS N=167	TEACHER EDUCATORS N=64
149	various music media	**2.18**	**2.44**
150	basic elements of visual arts	**2.44**	2.90
151	genres of visual arts	**2.22**	2.61
152	various visual arts media	**2.32**	2.58
153	basic elements of dance	**1.85**	**2.28**
154	genres of dance	**1.85**	**2.15**
155	basic elements and components of drama	**1.97**	**2.48**
156	genres of drama	**1.79**	**2.19**
157	elements common to the arts	**1.99**	**2.43**
158	human need for expression through the arts	2.54	3.06
159	affective influence of a work of art on the viewer, listener, perceiver	**2.13**	2.64
160	works of music, dance, drama, and the visual arts across cultures	**2.16**	2.76
161	works of music, dance, drama, and the visual arts from various periods of history	**2.04**	**2.37**
162	*IMPORTANCE OF VISUAL AND PERFORMING ARTS*	2.30	2.71
163*	**CONTENT COVERAGE OF VISUAL AND PERFORMING ARTS**	3.99	3.79

Appendix J

Knowledge Statements Rated Less than 2.50 by Relevant Subgroups: Form 1

NOTE: This table includes respondents who considered themselves elementary school teachers (and those who teach elementary school and another school level) and teacher educators. The respondents do not include people who indicated that they were retirees or temporary substitutes. Only subgroups which numbered 30 or more are included in this table.

T=Teacher (includes full-time substitutes); TED=Teacher Educator
S=South; FW=Far West; NE=Northeast; C=Central
W=White; PC=People of Color
0-10=0-10 years of teaching experience; 11+=11 or more years of teaching experience
F=Female; M=Male

QUESTION		RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				RESPONDENTS BY RACE/ ETHNICITY		TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
		T n=167	TED n=64	S n=85	FW n=69	NE n=69	C n=75	W n=236	PC n=60	0-10 n=53	11+ n=216	F n=214	M n=64
DOMAIN A: KNOWLEDGE OF ELEMENTARY STUDENTS													
11	theories of language development	2.15		2.46	2.21		2.25	2.29		2.02	2.23	2.34	2.49
13	stages of language acquisition and development	2.44			2.42					2.42	2.44		
14	second language learning	2.16		2.40	2.44	2.33	2.25	2.27		2.13	2.17	2.31	2.49
15	principles of linguistics	2.01	2.49	2.40	2.17	2.30	2.07	2.13		1.98	2.02	2.16	2.44

QUESTION	RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				RESPON-DENTS BY RACE/ ETHNICITY		TEACHERS BY YEARS OF TEACHING EXPERI-ENCE		RESPON-DENTS BY SEX	
	T n=167	TED n=64	S n=85	FW n=69	NE n=69	C n 75	W n=236	PC n=60	0-10 n=53	11+ n=216	F n=214	M n=64
DOMAIN B: KNOWLEDGE OF PROFESSIONAL ISSUES												
19 professional and scholarly organizations	2.18		2.39	2.21	2.24	2.29	2.23		2.15	2.20	2.24	2.44
20 professional and scholarly literature	2.46									2.43		
DOMAIN C: KNOWLEDGE OF READING, LANGUAGE ARTS, AND LITERATURE												
34 adult literature	2.21	2.30	2.17	2.23	2.26	2.31	2.22	2.28	2.08	2.25	2.19	2.37
DOMAIN D: KNOWLEDGE OF MATHEMATICS												
62 statistics and probability	2.26		2.40	2.37		2.38	2.31		2.04	2.37	2.34	
66 historical, cultural, and ongoing development of math principles	2.12	2.25	2.26	2.15	2.22	2.18	2.14	2.45	1.96	2.19	2.22	2.11

QUESTION		RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				RESPON-DENTS BY RACE/ ETHNICITY		TEACHERS BY YEARS OF TEACHING EXPERI-ENCE		RESPON-DENTS BY SEX	
		T n=167	TED n=64	S n=85	FW n=69	NE n=69	C n=75	W n=236	PC n=60	0-10 n=53	11+ n=216	F n=214	M n=64
DOMAIN E: KNOWLEDGE OF SOCIAL STUDIES													
76	interregional relationships over time	2.45					2.46			2.33	2.49		
79	traditional political institutions	2.33					2.39	2.43		2.19	2.36	2.42	
83	market as distribution and information system	2.49					2.49			2.35			
84	individual and the market	2.37			2.45		2.44	2.48		2.27	2.41	2.44	
85	effects of economic and historical forces on humans and nature									2.38			
86	government and the market	2.33			2.39	2.36	2.47	2.44	2.43	2.21	2.39	2.39	
87	economic systems	2.44		2.47					2.43	2.35	2.47		
90	belief systems in various cultures	2.47								2.46	2.46		
91	socialization and acculturation	2.39								2.33	2.40	2.49	
94	impact of cultural evolution on different civilizations	2.35		2.46	2.35			2.42		2.37	2.33	2.39	
95	physical anthropology	2.06	2.30	2.16	2.18	2.21	2.08	2.12	2.26	1.92	2.10	2.14	2.31
96	logic				2.47				2.47	2.42			
98	philosophical traditions in diverse cultures	1.61	2.09	1.82	1.70	1.87	1.78	1.72	2.02	1.40	1.69	1.73	1.87

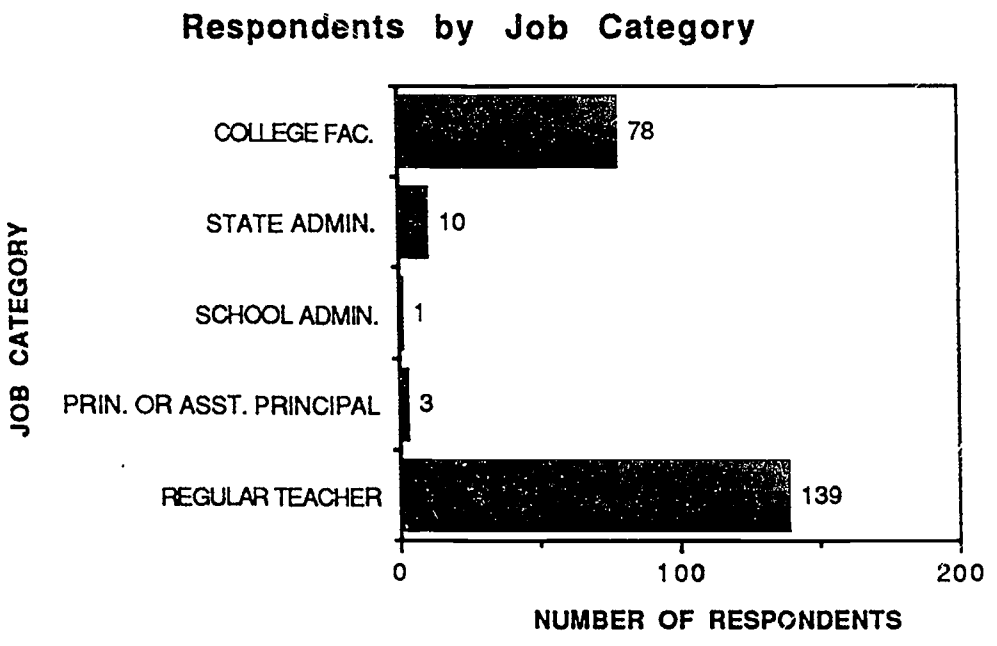
QUESTION	RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				RESPONDENTS BY RACE/ ETHNICITY		TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
	T n=167	TED n=64	S n=85	FW n=69	NE n=69	C n=75	W n=236	PC n=60	0-10 n=53	11+ n=216	F n=214	M n=64
DOMAIN F: KNOWLEDGE OF SCIENCE												
117 classification system									2.45			
119 relationships of structure and functions									2.34			
127 ethics in science				2.48					2.49			

QUESTION		RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				RESPONDENTS BY RACE/ ETHNICITY		TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
		T n=167	TED n=64	S n=85	FW n=69	NE n=69	C n=75	W n=236	PC n=60	0-10 n=53	11+ n=216	F n=214	M n=64
DOMAIN I: KNOWLEDGE OF VISUAL AND PERFORMING ARTS													
147	basic elements of music	2.29				2.29	2.29	2.41		2.23	2.34	2.37	
148	genres of music	2.07	2.42	2.23	2.26	2.06	2.09	2.13	2.28	1.98	2.09	2.12	2.34
149	various music media	2.18	2.44	2.43	2.33	2.14	2.19	2.24	2.41	2.08	2.23	2.23	2.38
150	basic elements of visual arts	2.44				2.39	2.47			2.25			
151	genres of visual arts	2.22		2.32		2.19	2.21	2.28	2.46	2.13	2.25	2.26	2.48
152	various visual arts media	2.32			2.49	2.22	2.23	2.36	2.39	2.15	2.38	2.37	2.43
153	basic elements of dance	1.85	2.28	2.18	2.15	1.78	1.88	1.94	2.25	1.75	1.92	1.88	2.35
154	genres of dance	1.85	2.15	2.07	2.09	1.72	1.87	1.89	2.14	1.72	1.92	1.87	2.13
155	basic elements and components of drama	1.97	2.48	2.20	2.24	1.99	2.08	2.10	2.22	1.96	1.95	2.03	2.41
156	genres of drama	1.79	2.19	2.02	1.99	1.84	1.81	1.90	1.98	1.81	1.78	1.90	1.94
157	elements common to the arts	1.99	2.43	2.05	2.18	2.13	2.13	2.08	2.27	1.92	2.02	2.01	2.35
158	human need for expression through the arts									2.28			
159	affective influence of a work of art on the viewer, listener, perceiver	2.13		2.31	2.36	2.34	2.17	2.28	2.36	1.96	2.21	2.27	2.39
160	works of music, dance, drama, and the visual arts across cultures	2.16		2.34	2.46	2.16	2.20	2.27	2.41	2.09	2.20	2.28	2.43
161	works of music, dance, drama, and the visual arts, from various periods of history	2.04	2.37	2.23	2.22	2.04	2.08	2.12	2.29	1.94	2.10	2.10	2.29

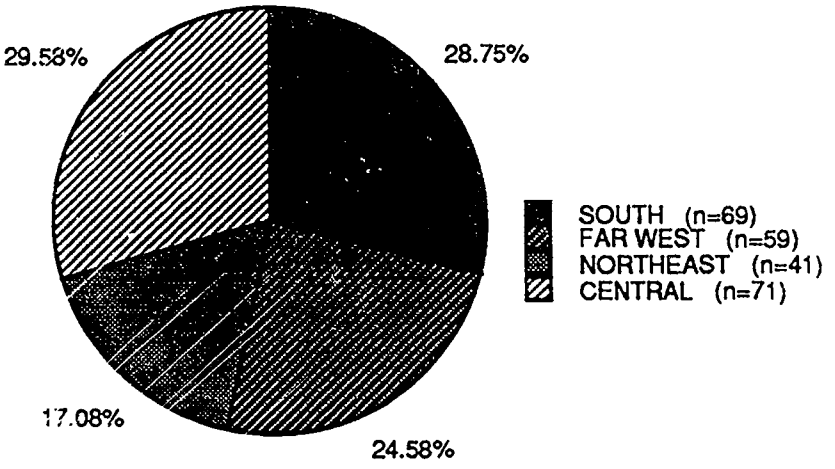
Appendix K

Demographic Characteristics of Respondents: Form 2

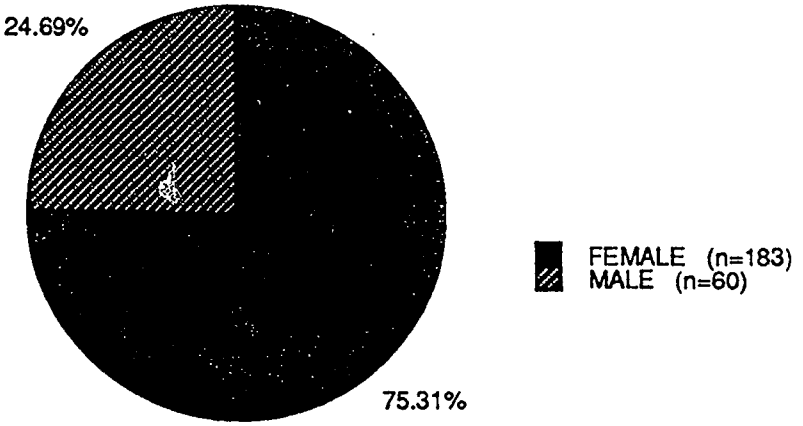
NOTE: Some totals sum to less than 245, the total number of surveys analyzed. On these particular background questions some respondents gave multiple responses and others gave no response. These two types of responses were omitted from the analyses.



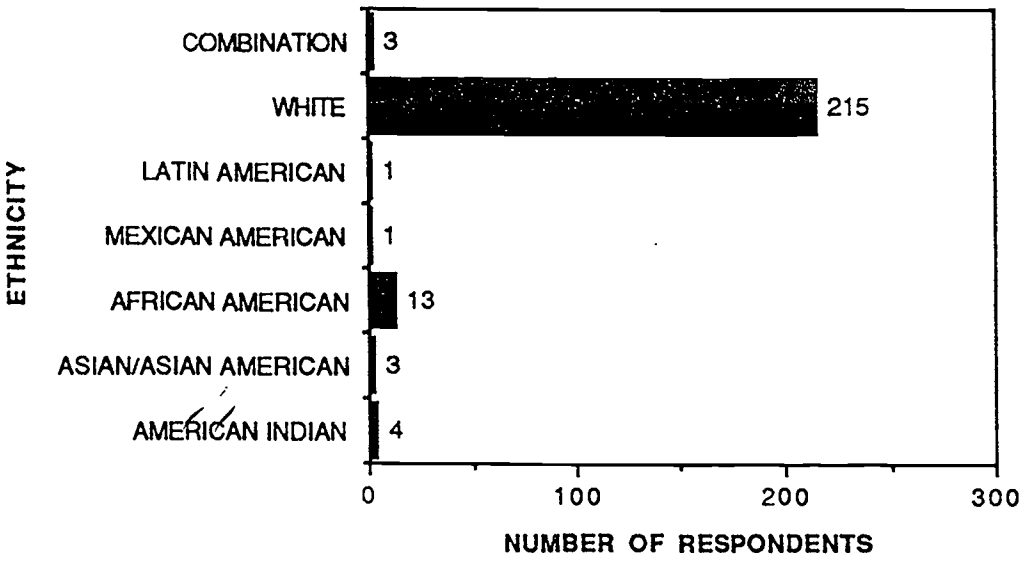
Respondents by Geographic Location



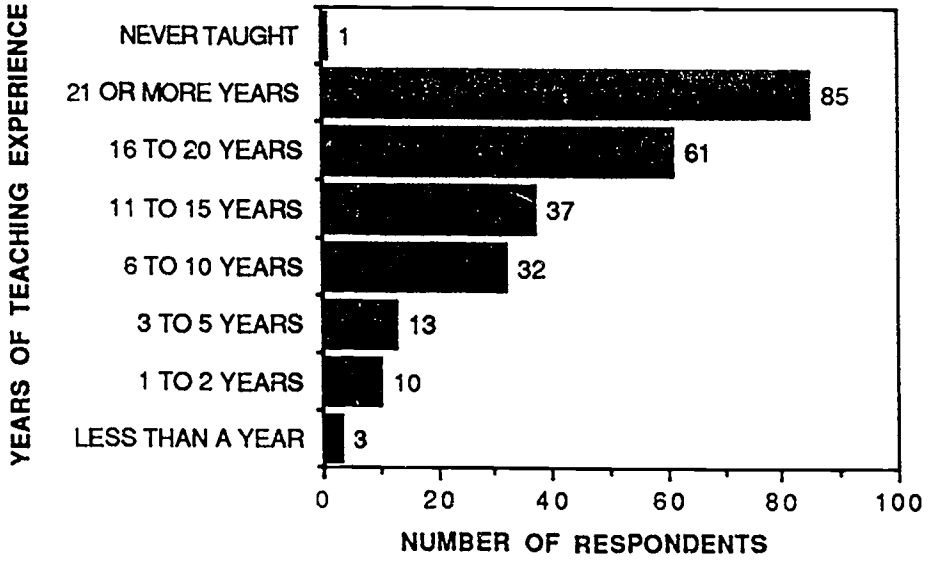
Respondents by Sex



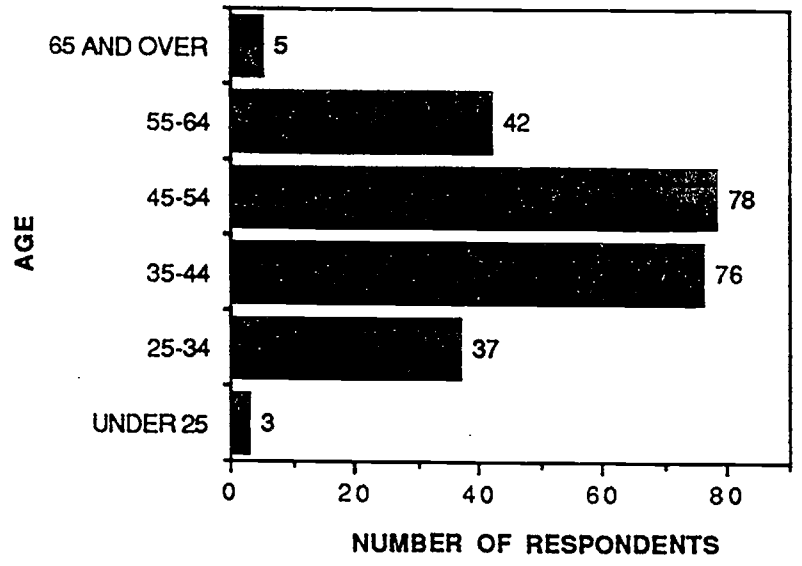
Respondents by Ethnicity



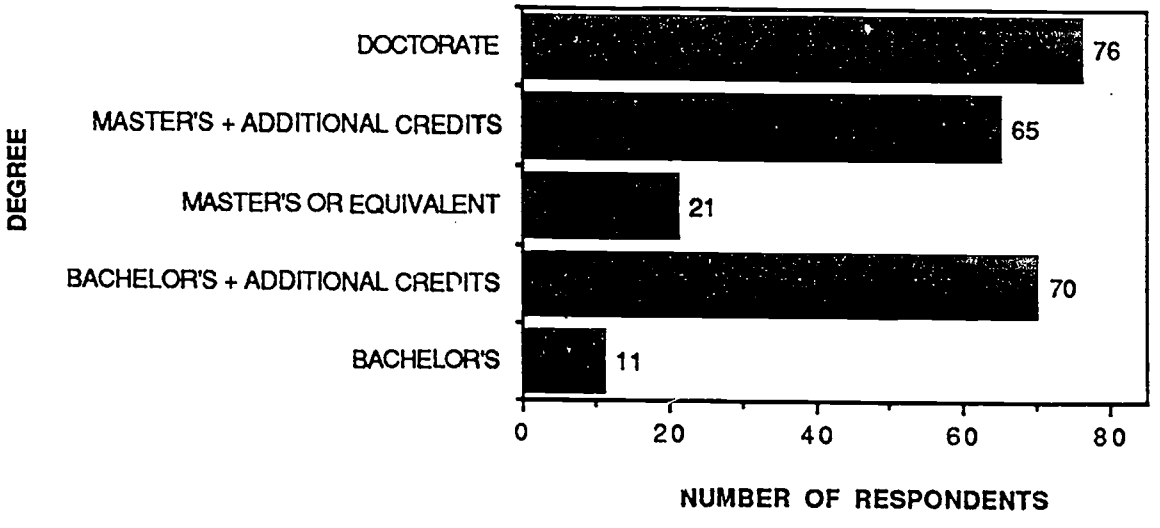
Respondents by Years of Teaching Experience



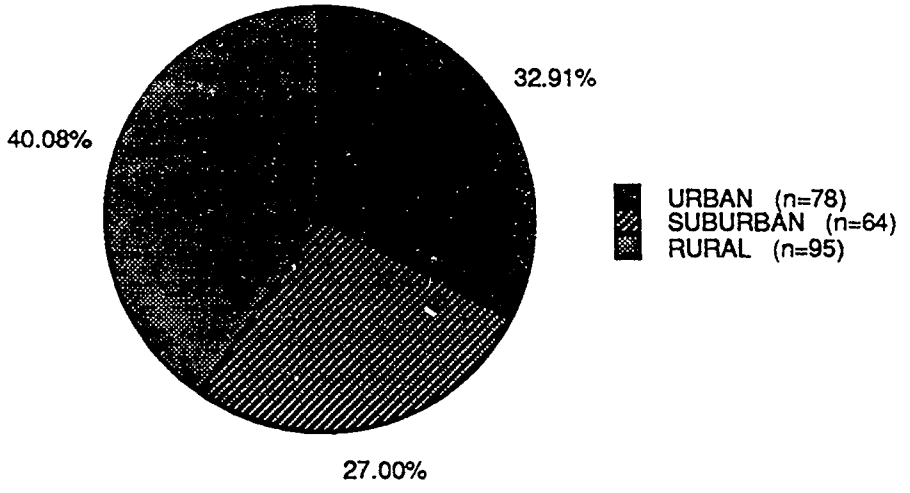
Respondents by Age



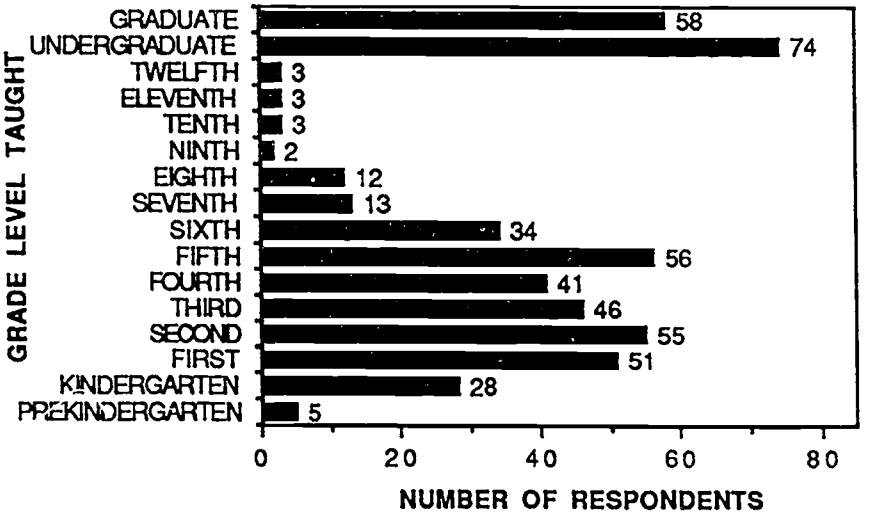
Respondents by Highest Professional Degree Held



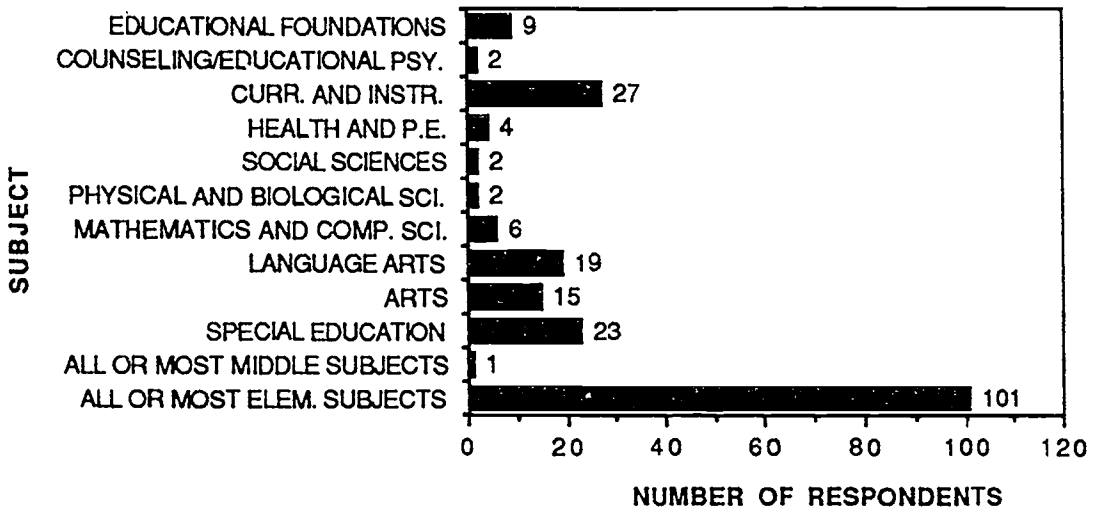
Respondents by School Location



Respondents by Grade Level Taught



Respondents by Subject Area Taught



Appendix L

Means by Job Category: Form 2

NOTE: This table includes respondents who considered themselves elementary school teachers (and those who teach elementary school and another school level) and teacher educators. The respondents do not include people who indicated that they were retirees or temporary substitutes. The table also does not include people who indicated that they were school or state administrators, because these groups numbered less than 50.

NOTE: * denotes content coverage questions for which a 5 point scale was used: 1=Very Poorly; 2=Poorly; 3=Adequately; 4=Well; 5=Very Well.

	QUESTION	TEACHERS n=139	TEACHER EDUCATORS n=78
1	biological factors	2.83	2.88
2	familial factors	2.93	2.95
3	nutritional/ hygienic factors	2.93	2.88
4	cultural factors	2.75	3.26
5	educational context	3.25	3.35
6	learning styles	3.62	3.36
7	cognitive development	3.26	3.42
8	physical development	3.30	3.09
9	affective development	3.52	3.42
10	social development	3.14	3.22
11	theories of language development	**2.10**	2.66
12	early language acquisition's affect on classroom language	2.62	2.99
13	stages of language acquisition and development	**2.47**	2.87
14	second language learning	**2.22**	**2.47**
15	principles of linguistics	**1.99**	**2.31**
16	*OVERALL IMPORTANCE OF KNOWLEDGE OF ELEMENTARY SCHOOL STUDENTS*	3.23	3.33
17*	**CONTENT COVERAGE OF ELEMENTARY SCHOOL STUDENTS**	3.92	3.91
18	major trends in curriculum theory	2.70	2.71
19	professional and scholarly organizations	**2.15**	2.56

	QUESTION	REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
20	professional and scholarly literature	2.46	2.92
21	the effects of teaching style on learning and teaching	3.60	3.64
22	variety of parent-school collaborations	3.12	3.10
23	*OVERALL IMPORTANCE OF KNOWLEDGE OF PROFESSIONAL ISSUES*	2.95	3.22
24*	**CONTENT COVERAGE OF PROFESSIONAL ISSUES**	3.79	3.79
25	purposes for teaching reading, language arts, literature	3.35	3.33
26	purposes for teaching particular concept in reading, la, lit	3.37	3.15
27	relationships among concepts within reading, la, lit	3.36	3.38
28	interrelationships between concepts in reading, la, lit	3.30	3.31
29	developmentally appropriate concepts and activities in reading, la, lit	3.50	3.44
30	curricular materials in reading, la, lit	3.44	3.42
31	resource persons in reading, la, lit	2.98	2.90
32	media and instructional technologies in reading, la, lit	3.04	2.81
33	pedagogical implications of child development principles in reading, la, lit	2.89	3.32
34	prior knowledge students bring to study of reading, la, lit	2.98	3.19
35	knowledge students need to study reading, la, lit	3.41	3.34

	QUESTION	REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
36	lesson plans in reading, la, lit	3.49	3.56
37	ways of presenting subject matter in reading, la, lit	3.63	3.48
38	teaching strategies in reading, la, lit	3.70	3.55
39	motivational strategies in reading, la, lit	3.74	3.63
40	how to communicate orally about reading, la, lit	3.53	3.37
41	problems in student work in reading, la, lit	3.38	3.47
42	nonstandard language forms in reading, la, lit	2.64	2.78
43	student misconceptions in reading, la, lit	2.69	2.92
44	formative and summative assessment strategies in reading, la, lit	3.01	3.38
45	standardized measures of achievement in reading, la, lit	2.64	2.78
46	*OVERALL IMPORTANCE OF KNOWLEDGE OF READING, LANGUAGE ARTS, LITERATURE PEDAGOGY*	3.39	3.52
47*	**CONTENT COVERAGE IN READING, LANGUAGE ARTS, LITERATURE PEDAGOGY**	4.16	4.17
48	purposes for teaching math	3.40	3.43
49	purposes for teaching a topic in math	3.26	3.31
50	relationships among topics in math	3.13	3.19
51	interrelationships between topics in math and other subjects	3.18	3.23
52	organization of topics in math	3.07	3.16
53	curricular materials in math	3.46	3.50

	QUESTION	REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
54	resource persons in math	2.76	2.76
55	media and instructional technologies in math	2.92	2.90
56	pedagogical implications of child development theories in math	2.63	3.27
57	prior knowledge students bring to math	2.87	3.19
58	knowledge students need for math	3.35	3.44
59	lesson plans in math	3.40	3.53
60	ways of presenting math	3.72	3.63
61	teaching strategies in math	3.68	3.63
62	motivational strategies for math	3.69	3.55
63	how to communicate orally and in writing about math	3.24	3.24
64	problems in student work in math	3.29	3.45
65	student misconceptions in math	3.13	3.32
66	formative and summative assessment strategies in math	3.23	3.35
67	standardized measures of achievement in math	2.61	2.77
68	*OVERALL IMPORTANCE OF KNOWLEDGE OF MATH PEDAGOGY*	3.41	3.43
69*	**CONTENT COVERAGE IN MATH PEDAGOGY**	4.24	4.24
70	purposes for teaching social studies	3.31	3.36
71	purposes for teaching particular concepts in social studies	3.21	3.23
72	relationships among concepts within social studies	3.17	3.34

QUESTION		REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
73	interrelationships between concepts in social studies and others	3.19	3.33
74	organization of concepts in social studies	3.03	3.26
75	curricular materials in social studies	3.50	3.55
76	resource persons in social studies	2.97	2.95
77	media and instructional technologies in social studies	3.07	3.05
78	pedagogical implications of child development theories in social studies	**2.37**	3.04
79	prior knowledge students bring to social studies	2.93	3.22
80	knowledge students need for social studies	3.12	3.34
81	lesson plans in social studies	3.25	3.54
82	ways of presenting social studies	3.53	3.53
83	teaching strategies in social studies	3.58	3.63
84	motivational strategies in social studies	3.56	3.55
85	how to communicate orally and in writing about social studies	3.24	3.22
86	problems in student work in social studies	3.11	3.31
87	common student misconceptions in social studies	3.05	3.30
88	formative and summative assessment strategies in social studies	3.11	3.27
89	standardized measures of achievement in social studies	**2.46**	2.62

	QUESTION	REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
90	*OVERALL IMPORTANCE OF KNOWLEDGE OF SOCIAL STUDIES PEDAGOGY*	3.15	3.47
91*	**CONTENT COVERAGE IN SOCIAL STUDIES PEDAGOGY**	4.08	4.18
92	purposes for teaching science	3.37	3.40
93	purposes for teaching topics in science	3.23	3.27
94	relationships among topics in science	3.15	3.37
95	interrelationships between topics in science and other areas	3.24	3.36
96	organization of topics in science	3.04	3.18
97	curricular materials in science	3.42	3.41
98	resource persons in science	2.90	2.78
99	media and instructional technologies in science	3.12	2.99
100	pedagogical implications of child dev theories in science	2.54	3.18
101	prior knowledge students bring to science	2.85	3.22
102	knowledge students need for science	3.23	3.37
103	lesson plans in science	3.36	3.57
104	ways of presenting science subject matter	3.66	3.61
105	teaching strategies for science	3.63	3.68
106	motivational strategies for science	3.65	3.54
107	how to communicate orally, graphically, and in writing about science	3.27	3.28
108	laboratory safety	3.45	3.43
109	problems with student work in science	3.00	3.12

	QUESTION	REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
110	errors in science that may arise from cultural, dialect, or language differences	2.51	2.72
111	common student misconceptions in science	2.83	3.22
112	formative and summative assessment strategies in science	3.08	3.24
113	standardized measures of achievement in science	**2.45**	2.63
114	*OVERALL IMPORTANCE OF KNOWLEDGE OF SCIENCE PEDAGOGY*	3.22	3.40
115*	**CONTENT COVERAGE OF SCIENCE PEDAGOGY**	4.10	4.15
116	purposes for teaching physical education	3.13	3.01
117	purposes for teaching topics within p.e.	2.96	2.68
118	relationships among topics in p.e.	**2.42**	**2.35**
119	interrelationships between topics in p.e. and other subject areas	2.72	2.72
120	organization of topics in p.e.	2.77	2.64
121	curricular materials in p.e.	2.91	2.79
122	resource persons in p.e.	**2.44**	**2.40**
123	media and instructional technologies in p.e.	**2.27**	**2.37**
124	pedagogical implications of child development theory in p.e.	3.10	3.07
125	prior knowledge students bring to p.e.	2.74	2.75
126	knowledge students need for p.e.	2.88	2.77
127	lesson plans in p.e.	2.82	2.91

QUESTION		REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
128	ways of presenting subject matter in p.e.	2.91	2.82
129	teaching strategies for p.e.	3.16	3.03
130	motivational strategies for p.e.	3.29	3.05
131	how to communicate orally and in writing about p.e.	**2.45**	**2.48**
132	problems in student performance in p.e.	2.78	2.89
133	common student misconceptions in p.e.	**2.47**	**2.41**
134	formative and summative assessment strategies in p.e.	**2.47**	2.51
135	standardized measures of achievement in p.e.	**2.34**	**2.24**
136	*OVERALL IMPORTANCE OF KNOWLEDGE OF PHYSICAL EDUCATION PEDAGOGY*	2.84	2.70
137*	**CONTENT COVERAGE OF PHYSICAL EDUCATION PEDAGOGY**	3.91	4.04
138	purposes for teaching health	3.16	3.24
139	purposes for teaching topics within health	3.16	3.12
140	relationships among topics within health	2.94	2.86
141	interrelationships between topics in health and other subject areas	2.99	3.07
142	organization of topics in health	2.88	2.84
143	curricular materials in health	3.05	3.07
144	resource persons in health	2.87	2.79
145	media and instructional technologies in health	2.87	2.75
146	pedagogical implications of child development theory in health	2.99	3.22

	QUESTION	REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
147	prior knowledge students bring to health	2.72	2.79
148	knowledge students need for health	2.98	3.03
149	lesson plans for health	3.01	3.15
150	ways of presenting subject matter in health	3.25	3.22
151	teaching strategies for health	3.19	3.22
152	motivational strategies for health	3.31	3.18
153	how to communicate orally and in writing about health	2.76	2.75
154	inaccuracies in student work in health	2.57	2.63
155	errors that may arise from cultural, dialect, or language differences in health	2.50	2.58
156	common student misconceptions in health	2.78	2.96
157	formative and summative assessment strategies in health	2.76	2.78
158	standardized measures of achievement in health	**2.12**	**2.27**
159	*OVERALL IMPORTANCE OF KNOWLEDGE OF HEALTH PEDAGOGY*	2.88	3.00
160*	**CONTENT COVERAGE IN HEALTH PEDAGOGY**	3.87	4.19
161	purposes for teaching visual and performing arts	2.82	3.05
162	purposes for teaching particular topic in visual and performing arts	2.62	2.80

QUESTION		REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
163	relationships among topics within visual and performing arts	2.57	2.82
164	interrelationships between topics in visual and performing arts and other subject areas	2.79	3.04
165	organization of topics in visual and performing arts	2.66	2.82
166	curricular materials in visual and performing arts	3.02	2.97
167	resource persons in visual and performing arts	2.93	2.68
168	media and instructional technologies in visual and the arts	2.81	2.67
169	pedagogical implications of child development theory in arts	2.81	2.99
170	prior knowledge students bring to visual and performing arts	2.53	2.73
171	knowledge students need for visual and performing arts	2.75	2.93
172	lesson plans for visual and performing arts	2.79	3.00
173	ways of presenting subject matter in visual and the arts	2.99	3.12
174	teaching strategies for visual and performing arts	2.99	3.14
175	how to communicate orally and in writing about the arts	2.65	2.76
176	problems in student work in visual and performing arts	**2.31**	**2.38**

	QUESTION	REGULAR TEACHERS n=139	TEACHER EDUCATORS n=78
177	errors that may arise from cultural, dialect, or language differences in visual and performing arts	2.24	2.35
178	common student misconceptions in visual and performing arts	2.28	2.41
179	formative and summative assessment strategies in the arts	2.45	2.49
180	standardized measures of achievement in visual and performing arts	1.71	1.85
181	*OVERALL IMPORTANCE OF KNOWLEDGE OF VISUAL AND PERFORMING ARTS PEDAGOGY*	2.65	2.79
182*	**CONTENT COVERAGE IN VISUAL AND PERFORMING ARTS PEDAGOGY**	3.78	4.07

Appendix M

Knowledge Statements Rated Less than 2.50 by Relevant Subgroups: Form 2

NOTE: This table includes respondents who considered themselves elementary school teachers (and those who teach elementary school and another school level) and teacher educators. The respondents do not include people who indicated that they were retirees or temporary substitutes. Only subgroups which numbered 30 or more are included in this table.

T=Teacher (includes full-time substitutes); TED=Teacher Educator
S=South; FW=Far West; NE=Northeast; C=Central
0-10=0-10 years of teaching experience; 11+=11 or more years of teaching experience
F=Female; M=Male

QUESTION	RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
	T n=139	TED n=78	S n=69	FW n=59	NE n=41	C n=71	0-10 n=58	11+ n=183	F n=183	M n=60
DOMAIN A: KNOWLEDGE OF ELEMENTARY STUDENTS										
1 1 theories of language development	2.10			2.26	2.33	2.14	1.90	2.23	2.30	2.47
1 3 stages of language acquisition and development	2.47					2.41	2.31			
1 4 second language learning	2.22	2.47	2.35	2.44	2.40	2.25	2.17	2.26	2.41	2.16
1 5 principles of linguistics	1.99	2.31	2.32	2.00	2.25	2.04	1.94	2.03	2.17	2.10

QUESTION		RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
		T n=139	TED n=78	S n=69	FW n=59	NE n=41	C n=71	0-10 n=58	11+ n=183	F n=183	M n=60
DOMAIN B: KNOWLEDGE OF PROFESSIONAL ISSUES											
19	professional and scholarly organizations	2.15		2.43	2.34	2.17	2.33	1.83	2.33	2.33	2.36
20	professional and scholarly literature	2.46						2.25			
DOMAIN C: KNOWLEDGE OF PEDAGOGY SPECIFIC TO READING, LANGUAGE ARTS, AND LITERATURE											
42	nonstandard language forms in reading, la, lit						2.45				
45	standardized measures of achievement in reading, la, lit				2.42			2.42			
DOMAIN D: KNOWLEDGE OF PEDAGOGY SPECIFIC TO MATHEMATICS											
56	pedagogical implications of child development theories in math							2.48			
67	standardized measures of achievement in math				2.27			2.24			

QUESTION		RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
		T n=139	TED n=78	S n=69	FW n=59	NE n=41	C n=71	0-10 n=58	11+ n=183	F n=183	M n=60
DOMAIN E: KNOWLEDGE OF PEDAGOGY SPECIFIC TO SOCIAL STUDIES											
78	pedagogical implications of child development theories in social studies	2.37			2.48		2.46	2.30	2.39		
89	standardized measures of achievement in social studies	2.46			2.20		2.38	2.37			2.40
DOMAIN F: KNOWLEDGE OF PEDAGOGY SPECIFIC TO SCIENCE											
110	errors in science that may arise from cultural, dialect, or language differences				2.46		2.45	2.43			
113	standardized measures of achievement in science	2.45			2.23		2.32	2.17			

QUESTION		RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
		T n=139	TED n=78	S n=69	FW n=59	NE n=41	C n=71	0-10 n=58	11+ n=183	F n=183	M n=60
DOMAIN G: KNOWLEDGE OF PEDAGOGY SPECIFIC TO PHYSICAL EDUCATION											
118	relationships among topics in p.e.	2.42	2.35		2.49	2.46	2.28	2.28	2.49	2.49	2.27
122	resource persons in p.e.	2.44	2.40		2.36		2.24	2.38	2.48		2.29
123	media and instructional technologies in p.e.	2.27	2.37		2.11	2.34	2.18	2.13	2.33	2.33	2.33
131	how to communicate orally and in writing about p.e.	2.45	2.48			2.07	2.40	2.28			2.40
133	common student misconceptions in p.e.	2.47	2.41		2.35	2.34	2.35	2.40			2.40
134	formative and summative assessment strategies in p.e.	2.47			2.35	2.49	2.37	2.21		2.46	
135	standardized measures of achievement in p.e.	2.34	2.24		2.18	2.29	2.13	1.89		2.31	2.40
DOMAIN H: KNOWLEDGE OF PEDAGOGY SPECIFIC TO HEALTH											
154	inaccuracies in student work in health				2.48			2.42			
155	errors that may arise from cultural, dialect, or language differences in health						2.36	2.42			
158	standardized measures of achievement in health	2.12	2.27	2.43	1.91	2.34	2.00	1.87	2.24	2.15	2.25

QUESTION		RESPONDENTS BY JOB		RESPONDENTS BY GEOGRAPHIC LOCATION				TEACHERS BY YEARS OF TEACHING EXPERIENCE		RESPONDENTS BY SEX	
		T n=139	TED n=78	S n=69	FW n=59	NE n=41	C n=71	0-10 n=58	11+ n=183	F n=183	M n=60
DOMAIN I: KNOWLEDGE OF PEDAGOGY SPECIFIC TO VISUAL AND PERFORMING ARTS											
170	prior knowledge students bring to visual and performing arts						2.49				
176	problems in student work in visual and performing arts	2.31	2.38	2.42	2.43	2.32	2.25	2.36	2.32	2.30	
177	errors that may arise from cultural, dialect, or language differences in visual and performing arts	2.24	2.35	2.45	2.33	2.46	2.07	2.19	2.29	2.30	2.38
178	common student misconceptions in visual and performing arts	2.28	2.41	2.46	2.27	2.41	2.22	2.28	2.30	2.34	2.38
179	formative and summative assessment strategies in the arts	2.45	2.49		2.29		2.36	2.40		2.41	
180	standardized measures of achievement in visual and performing arts	1.71	1.85	2.14	1.53	1.68	1.70	1.48	1.85	1.73	1.96

53905-08834 • Y122M3.5 • 271822