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Knowledge and Skill Indicators
Important for Beginning Teachers:
A Survey of Pennsylvania
Teachers and Teacher Educators

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Abstract

The study investigated the job relevance of 70 knowledge and/or skill indicators across five content areas (Literature, Fine Arts, Mathematics, Social Studies, and Science) for the development of a Pennsylvania initial teacher licensure assessment. A random sample of 1,700 teachers and 300 teacher educators was selected from Pennsylvania. Respondents judged each indicator on a scale ranging from 1 (*of no importance*) to 5 (*very high level of importance*). Means (and standard deviations) were computed across all survey respondents, as well as for subgroups of teacher respondents. Using a mean of 3.50 as the criterion for job relevance, 24 of the 70 (34%) of the knowledge and/or skill indicators were judged to be important (job-relevant) enough for consideration in the development of the licensure assessment. These 24 knowledge and/or skill indicators are recommended as the primary content of the test.

Key Words: Content validation, job analysis, licensure

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Table of Contents

Introduction.....	1
Licensure Testing	1
Validity Inferences for Licensure Tests	2
Purpose of This Study	3
Overview of Domain Specification Development	3
Method	4
Survey Sample	5
Survey Format	5
Survey Administration.....	6
Data Analysis	6
Results	7
Response Rate	7
Respondent Demographics	7
Nonresponses.....	11
Frequency of Responses	12
Mean Ratings on Knowledge and/or Skill Indicators.....	12
Summary and Conclusions	16
Postscript.....	18
References.....	19
Notes	20
Appendixes	
A—Job Relevance Confirmation Survey and Letter	21
B—Frequency of Important Ratings: All Respondents	29
C—Percentage Bar Charts: All Respondents	32
D—Mean Importance Ratings: All Respondents	37
E—Mean Importance Ratings: Teachers and Teacher Educators	40
F—Mean Importance Ratings by Teacher Ethnicity	43
G—Mean Importance Ratings by School Level.....	46
H—Mean Importance Ratings by Urbanicity.....	49
I—Mean Importance Ratings by Content Expertise	52
J—Mean Ratings Less Than 3.50 by Subgroup	56

List of Tables

Table 1. Demographic Characteristics of Respondents: Teachers	8
Table 2. Demographic Characteristics of Respondents: Teacher Educators.....	9
Table 3. Geographic Location of Respondents: Teachers and Teacher Educators	10
Table 4. Primary Teaching Area (Teachers Only)	10
Table 5. Cross Tabulation of Teachers by Setting and Level	11
Table 6. Mean Ratings for Content Areas	12
Table 7. Knowledge and/or Skill Indicators With Mean Ratings Greater Than or Equal to 3.50	14
Table 8. Percent Agreement for Each Subgroup Analysis.....	16

Introduction

On behalf of the Pennsylvania Department of Education (PDE), Educational Testing Service (ETS) is developing a licensure assessment for all beginning teachers in the State of Pennsylvania. A licensure assessment is intended to provide information about the entry-level teachers' readiness to engage in independent teaching practice. One of the requirements of readiness to practice in Pennsylvania is a sufficient level of general knowledge. Pennsylvania legislation states that candidates seeking a license to teach in Pennsylvania need to demonstrate, by taking and passing an examination, an understanding the following five subjects: (1) Literature, (2) Fine Arts, (3) Mathematics, (4) Social Studies, and (5) Science.

The expectation of the PDE is that all educators who share in the learning and development of students command some “general knowledge” of these subjects. General knowledge is different from expert knowledge; thus, a science teacher is no more expected to be an expert in Fine Arts than is a Fine Arts teacher expected to be an expert in Science. What the PDE expects of all entry-level teachers is a “working knowledge” across the five subject areas, regardless of school level and teaching assignment.

This report describes and documents the results of the study conducted to investigate the perceived importance of the proposed domain specifications for the Fundamental Subjects: Content Knowledge test for beginning teachers in Pennsylvania. The report begins with a brief introduction of licensure testing and related validity concerns. It then describes the purpose of the study, how the domain specifications—the focus of this study—were developed, and the methodology and results of the study.

Licensure Testing

The process of licensure serves as a gateway into professional practice. The purpose of a licensure (credentialing) test is to identify candidates who, at the time of the test occasion, have the knowledge and skills believed important for safe and appropriate professional practice (American Educational Research Association, 1999). In this regard, licensed practitioners are believed capable of protecting the welfare of the public they serve. Licensure regulates the legal right to practice—an individual may not *legally* perform the scope of responsibilities associated with an occupation that requires a license without first obtaining a license.

A license signifies that practitioners have demonstrated the knowledge and skills that *should* enable them to be competent practitioners. It does not mean, however, that practitioners *will be* competent professionals. A license is not a guarantee of the public’s protection or the competency of the practitioner (Schmitt, 1995). The inferences based on scores from a licensure test do not extend to predictions of future occupational performance.

Validity Inferences for Licensure Tests

In its broadest and most basic sense, validity refers to the accumulation of evidence that supports the appropriateness of inferences or conclusions rendered from test scores. The relevant conclusion to be drawn from scores on a licensure test is either that the candidate does have the knowledge and/or skills believed important for competent professional practice or the candidate does not have these occupationally important knowledge and skills. Validity evidence needs to be accumulated to support making such a statement with reasonable confidence.

For licensure tests, the appropriate source of validity evidence to support score inferences is based on the content of the test (Mehrens, 1995; Smith & Greenberg, 1993; Mehrens & Popham, 1992). This is evidence that establishes the connection between the test content and the construct it is intended to measure (American Educational Research Association, 1999). Historically, this was referred to as content validity evidence or content-oriented validity evidence. The construct to be measured on a licensure test is defined by the knowledge and/or skills judged to be important for safe and effective beginning practice. The connection between these occupationally important knowledge and/or skills and the test content addresses the job relevance of the test content, a necessary condition for licensure testing.

Validity evidence to support score inferences from licensure tests is predominantly on expert judgment. As articulated in the *Standards for Educational and Psychological Testing* (American Educational Research Association, 1999), “The content domain to be covered by a credentialing test should be defined clearly and justified in terms of the importance of the content for credential-worthy performance in an occupation or profession.... Some form of job or practice analysis provides the basis for defining the content domain” (p. 161). While the objective of a job analysis study conducted for purposes of licensure testing is to identify knowledge and/or skills believed important for competent beginning professional practice, the *Standards for Educational and Psychological Testing* are flexible and do not prescribe any

particular form of job or practice analysis. However, any such domain definition process should involve content (job or subject matter) experts—practitioners and, as appropriate, others with relevant professional perspectives (e.g., educators who prepare practitioners) who are diverse with respect to characteristics such as practice setting, gender, race or ethnicity, and geographic region (Kuehn, Stallings, & Holland, 1990).

Purpose of This Study

The objective of this study was to investigate the perceived job relevance of the proposed domain specifications for the Fundamental Subjects: Content Knowledge (FSCK) test—a licensure test to be required of all entry-level teachers in Pennsylvania. Domain specifications define the content to be measured by specific test items. As indicated above, the initial intention was for the FSCK test to measure entry-level teachers’ knowledge of (1) Literature, (2) Fine Arts, (3) Mathematics, (4) Social Studies, and (5) Science.

While the focus of this report is on the investigation of the job relevance of the proposed FSCK domain specifications, the section below provides a brief description of the process that was used to create the domain specifications.

Overview of Domain Specification Development

Content-specific committees of practicing teachers and teacher educators in Pennsylvania developed the knowledge and/or skill indicators that operationally define each of the five content areas. The committee consisted of sixteen teachers and nine teacher educators, with four to six people in each of the five content areas. Seventeen (68%) team members were female and eight (32%) were male; three (12%) were African American and twenty-two (88%) were White. All the committee members were recommended by the Pennsylvania Department of Education. Most had previous experience in the development of state K-12 standards and assessments, teacher preparation standards, and other relevant work for the Department of Education.

Each committee was responsible for developing the indicators for its particular content area. Committee members were introduced to the task with an explanation of the purpose of the test and the nature of their task—to develop indicators in each content area that would represent knowledge and/or skills that all beginning teachers, regardless of level, should be expected to demonstrate. Experienced ETS test development specialists facilitated the committee meetings.

After each committee developed its draft set of content-specific knowledge and/or skill indicators, the indicators were shared with the other content-committees for review and suggested modifications. This “cross-validation” process addressed the appropriateness of the content-specific indicators for teachers whose primary content expertise (and teaching assignment) was outside the particular content area. Each committee had the opportunity to review and comment on each draft of indicators outside its area of content expertise. ETS test development specialists utilized the feedback from the cross-validation process to revise the drafts.

Recommended changes were the removal of several indicators that were deemed to require specialist knowledge, rewording of several indicators to adjust the level of knowledge (e.g., minimizing the necessity for technical knowledge), and other wording clarifications. The committees of teachers reviewed the revisions and approved the second drafts of the domain specifications.

Method

The job relevance of the domain of knowledge and/or skill indicators developed by the committees of teachers was investigated through a survey of teachers and teacher educators across Pennsylvania. Teachers from each of the five content areas were identified as the primary-level experts, as they are directly engaged in professional practice. Teacher educators were considered secondary-level experts because they are involved in the preparation and education of teacher-candidates but are not, themselves, practitioners or job incumbents. As noted by Raymond (2002), practitioners and educators are among the relevant sources of survey-based job relevance judgments.

The use of a survey to either confirm or refute the judgments of committees is common practice when conducting job relevance studies (Kane, Kingsbury, Colton, & Estes, 1989; Tannenbaum & Rosenfeld, 1994; Knapp & Knapp, 1995; Tannenbaum, 1999). The use of a survey enables larger numbers of experts with potentially different but relevant points of view to be involved in the content validation process.

Survey Sample

A random sample of 1,700 teachers and 300 teacher educators¹ was selected from Pennsylvania. Market Data Retrieval, a recognized leader in education database management, conducted the sampling of teachers. The teacher educators were sampled from the ONYX database, maintained and supported by Market Data Retrieval.

The teacher sample was stratified by school level and by content area. Surveys were sent to 800 elementary, 370 middle, and 530 secondary school teachers to reflect the proportion of teachers in Pennsylvania. The sampled group was stratified such that 200 teachers taught Mathematics, Science, Social Studies, and Literature; 150 teachers taught Fine Arts; and 750 were generalists (elementary school teachers). Fewer Fine Arts teachers were sampled in accordance to their representation in the population of Pennsylvania teachers in the content areas targeted by this assessment. Overall, approximately 4% of Pennsylvania content area teachers were selected to receive a survey. Teachers from urban areas were purposefully oversampled to increase the likelihood of racial/ethnic diversity in the sample.

A stratified random sampling approach was used to select teacher educators. In order to get a large enough sample of teacher educators, 300 were sampled approach across the five content areas.

Survey Format

The final edition of the domain specifications consisted of 70 knowledge and/or skill indicators across the five content areas: Literature (11 indicators, 16% of the domain); Fine Arts (15 indicators, 21% of the domain); Mathematics (17 indicators, 24% of the domain); Social Studies (11 indicators, 16% of the domain); and Science (16 indicators, 23% of the domain).

Each participant received a copy of the Job Relevance Confirmation Survey through the mail. Each survey included a cover letter explaining the purpose of the survey and the value of participation and included a section to collect demographic information. A copy of the cover letter and survey is included in Appendix A.

For each indicator listed on the survey, respondents were asked the following question: "What does a beginning teacher in Pennsylvania need to know or be able to do? Specifically, what level of importance do you, as an educator, place on each of the following as a way of demonstrating a sufficient level of general knowledge?" Respondents were

provided with a 5-point importance rating scale ranging from 1 (*of no importance*) to 5 (*very high level of importance*).

Survey Administration

The surveys were mailed to the teachers and teacher educators in early January 2002, with a return date of January 28. Two follow-up postcards reminded teachers and teacher educators to complete and return the survey. One was mailed one week after the initial survey mailing, and the second, three weeks after the initial mailing.

Data Analysis

The purpose of the job relevance survey is to identify those knowledge and/or skill indicators that are judged to be important for entry-level teaching practice in Pennsylvania. The intent is to differentiate between more important and less important indicators. The mean rating provides an indication of the absolute level of importance attributed to each of the knowledge and/or skill indicators. Given the high-stakes (and litigious) nature of licensure testing (those not passing are not eligible for employment even if they were successful throughout their teacher preparation program), the tendency is to err on the side of conservatism by establishing what may be considered a more stringent criterion (cut score) of job importance—in a sense, reducing the likelihood of false positive domain decisions: the inclusion of arguably less than important content on the test. A mean of 3.50 (the mid-point between scale value 3 (*moderate level of importance*) and scale value 4 (*high level of importance*) was established. Indicators meeting or exceeding the 3.50 mean importance criterion are classified as important (job-relevant). These indicators should drive the development of the FSCK test². As noted by Tannenbaum and Rosenfeld (1994), this criterion (mean importance of 3.50) is consistent with a content validation strategy that appropriately reduces the likelihood of defining performance domains by job content that is judged to be of minimal importance by large numbers of practicing professionals.

Means (and standard deviations) were computed across all survey respondents. Means were also computed separately for teacher respondents and for teacher educator respondents, as well as for subgroups of teacher respondents. Means were computed for teacher subgroups defined by race/ethnicity, content area, school level, and school setting. Subgroup analyses are useful in determining if judgments of importance are moderated by the context within which a

teacher may practice or by the race/ethnicity of the teacher. The analyses by school level and by content area are particularly informative in the present case, as the FSCK test will apply to all K-12 teacher-candidates in Pennsylvania.

Results

Response Rate

A total of 627 surveys were returned, of which 626 were useable. (One survey had only biographical data and no ratings.) Of the 626 respondents, 525 (84%) identified themselves as teachers, 82 (13%) identified themselves as teacher educators, and the remaining 19 (3%) did not provide information. This represents an overall response rate of 31%, and broken down by job classification, a response rate of 31% for teachers and 27% for teacher educators. These values fall within the expected range of response rates for job analysis surveys (see Knapp & Knapp, 1995) and are sufficient for supporting the types of necessary analyses.

Respondent Demographics

The demographic distributions for the responding teachers and teacher educators are presented in Table 1 and Table 2 respectively. The majority of the teachers were White (90%) and female (72%), and just over half (56%) had been teaching for 16 years or more. Of the teacher educators, 100% were White, 52% were female, and 42% had 16 years or more teaching K-12 teaching experience. Market Data Retrieval does not maintain records by gender or race/ethnicity, so it is not possible to compare the sample demographics against those of the state population of teachers. However, that our sample mainly consists of White female teachers is in line with recent demographic descriptions of the nation's teaching force (see <http://nces.ed.gov/pubs2002/digest2001/tables/dt070.asp>).

Table 1
Demographic Characteristics of Respondents: Teachers

Gender	
Male	147 (28%)
Female	375 (72%)
Race or ethnicity	
African American	44 (9%)
Asian American	4 (1%)
Hispanic	3 (1%)
White	460 (90%)
School level	
Elementary	266 (51%)
Middle	116 (22%)
High	139 (27%)
School setting	
Urban	231 (44%)
Suburban	152 (29%)
Rural	139 (27%)
K-12 teaching experience (yrs)	
< 3	43 (8%)
4-7	69 (13%)
8-11	61 (12%)
12-15	58 (11%)
16 or more	294 (56%)

Note. The distributions reported are based on the number of respondents answering each background item; therefore the total number for each item may not equal 525 for teachers. Percentages have been rounded to the nearest whole number and, therefore, may not sum to 100.

Table 2
Demographic Characteristics of Respondents: Teacher Educators

Gender	
Male	39 (48%)
Female	43 (52%)
Race or ethnicity	
African American	0
Asian American	0
Hispanic	0
White	82 (100%)
K-12 teaching experience (yrs) ³	
< 3	11 (13%)
4-7	14 (17%)
8-11	10 (12%)
12-15	13 (16%)
16 or more	34 (42%)

Note. The distributions reported are based on the number of respondents answering each background item; therefore the total number for each item may not equal 82 for teacher educators. Percentages have been rounded to the nearest whole number and, therefore, may not sum to 100.

Respondents were asked to indicate the geographic location of their employment. The information is presented in Table 3.

Table 3

Geographic Location of Respondents: Teachers and Teacher Educators

	Eastern Pennsylvania	Central Pennsylvania	Western Pennsylvania
Teachers	249 (48%)	86 (16%)	189 (36%)
Teacher educators	41 (50%)	18 (22%)	23 (28%)

The majority of both teachers and teacher educators identified themselves as working in eastern Pennsylvania, with fewest working in central Pennsylvania. Given the location of the large population centers in the state, this distribution matches what would be expected.

Additionally, all respondents were also asked to provide information about their primary instructional area. The information is presented in Table 4.

Table 4

Primary Teaching Area (Teachers Only)

Content area	Number
Multiple Subjects	231 (45%)
Language Arts	71 (14%)
Mathematics	57 (11%)
Science	64 (13%)
Social Studies	52 (10%)
Fine Arts	28 (6%)
Other	9 (2%)

Since 51% of the teachers self-identified as elementary school teachers, it is not surprising that the largest primary teaching area identified was "multiple subjects" (45%). (The

remaining 6% of elementary school teachers identified a specialty content area.) Table 5 presents a cross-tabulation of teachers by school level and setting (with row and column percentages) and illustrates that urban, suburban, and rural districts were evenly represented across elementary, middle, and secondary teachers.

Table 5

Cross Tabulation of Teachers by Setting and Level

	Mainly urban	Mainly suburban	Mainly rural
Elementary	121	81	61
Row %	46%	31%	23%
Column %	53%	54%	45%
Middle	42	32	42
Row %	36%	28%	36%
Column %	18%	21%	31%
Secondary	67	38	34
Row %	48%	27%	24%
Column %	29%	25%	25%

Nonresponses

The number of missing responses was computed for each indicator. The analysis revealed that each indicator was rated by at least 97% of all respondents, except for two indicators: Literature 6—Recognize the setting, tone, and mood of the selection and how specific words and phrases in the selection contribute to their development, and Social Studies 47—Identify and demonstrate understanding of the impact of individuals, groups, religions, social organizations, and movements on history. These two indicators were rated by 73% and 74% of the respondents, respectively. All statements, therefore, were included in the analysis of mean importance ratings.

Frequency of Responses

The 70 knowledge and or skill indicators are listed in Appendix A and are referenced by the content area from which they come and then a number; so, for example, "Arts 12" is the 12th indicator in the survey and comes from the Fine Arts section. Appendix B provides a frequency table of responses for each of the 70 knowledge and/or skill indicators for all respondents.

Appendix C illustrates these response frequencies using bar charts.

An analysis of the frequency of responses revealed that in all but seven instances (Arts 15, Arts 19, Arts 22, Arts 23, Arts 24, Arts 25, and Arts 26), fewer than 10% of all respondents rated indicators as being of “no importance” (response category 1). All indicators in Literature, Mathematics, Social Studies, and Science were judged to be at least “moderately important” by 75% or more of the respondents. Only one Fine Arts indicator (Arts 17) was judged to be at least “moderately important” by 75% of all respondents.

Mean Ratings on Knowledge and/or Skill Indicators

All respondents. Means (and standard deviations) were computed for each knowledge and/or skill indicator. Content area means were derived from the statement means for each of the five areas (Literature, Fine Arts, Mathematics, Social Studies, and Science). The means for the five content areas are presented in Table 6. The content area means for Literature, Mathematics, Social Studies, and Science indicate that these four areas (overall) were judged to be important; the mean for Fine Arts is comparatively low, below a scale value of “moderately important.”

Table 6

Mean Ratings for Content Areas

Content area	Mean rating
Literature	3.81
Fine Arts	2.77
Mathematics	4.01
Social Studies	3.99
Science	3.69

Appendix D lists the 70 knowledge and/or skill indicators and their means (and standard deviations) for all respondents. Considering the 3.50 criterion, 20 out of 70 of the knowledge and/or skill indicators had means less than 3.50. Fifteen of the 20 statements were the Fine Arts knowledge and/or skill indicators; that is, all the Fine Arts indicators were “flagged.” One came from the Literature section (Literature 8) and four from the Science section (Science 62, 63, 65, 70). Two of the science knowledge and/or skill indicators (Science 63, 70) had mean ratings that were very close to 3.50, but as will be seen in the following section, they were additionally flagged as a result of one or more of the subgroup analyses.

Subgroup analyses. Means (and standard deviations) were computed for each knowledge and/or skill indicator, for the following subgroups of respondents:

- Teachers and teacher educators
- African American and White teachers
- Elementary, middle, and high school teachers
- Urban, suburban, and rural teachers
- Teachers by content expertise (Multiple Subjects, Language Arts, Mathematics, Science, Social Studies, Fine Arts, Other)

The number of respondents in the Fine Arts and "other teachers" subgroups is less than 50. However, no knowledge and/or skill indicator was flagged by either of these groups alone. Rather, the judgments of these two clusters of teachers are in line with other respondent groups and so are reported as further information. In some instances, an indicator failed to reach the 3.50 criterion from only one subgroup—which may represent less than 10% of the overall sample. However, given that the assessment is for all beginning teachers regardless of school level or subject taught, information from even a small subgroup of teachers represents a broader pool than the original development team.

The results (*N*, mean, standard deviation) of each subgroup analysis are presented in Appendices E, F, G, H, and I. Appendix J summarizes the subgroup analyses by listing the knowledge and/or skill indicators that were flagged by any of the subgroups. If a knowledge and/or skill indicator is not listed, all mean ratings were greater than or equal to 3.50. In addition to the 20 knowledge and/or skill indicators flagged by all respondents, an additional 26 indicators were flagged by the subgroup analyses: 7 (64%) Literature, 8 (47%) Mathematics, 3 (27%) Social Studies, and 8 (50%) Science. A number of the science knowledge and/or skill

indicators had mean ratings between 3.45 and 3.50, but in every case the mean ratings from at least one other subgroup was less than 3.45.

Table 7 lists the 24 knowledge and/or skill indicators that have mean ratings greater than or equal to 3.50 overall and from all subgroups, i.e., the knowledge and/or skill indicators that form the recommended domain specifications for the assessment.

Table 7

Knowledge and/or Skill Indicators With Mean Ratings Greater Than or Equal to 3.50

Literature indicators

- Lit 1 Recognize the literal and basic nonliteral meanings of literary texts.
- Lit 2 Identify major themes and purposes of literary texts.
- Lit 4 Identify the point of view of the selection and recognize how specific words and phrases in the selection contribute to its development.

Mathematics indicators

- Math 27 Compute using rational numbers.
- Math 28 Use estimating skills to solve a problem.
- Math 29 Use percents to solve a problem.
- Math 30 Set up ratios and simplify to solve a problem.
- Math 31 Set up and solve proportions.
- Math 33 Solve a word problem.
- Math 37 Use scale measurements to interpret maps, drawings, or models.
- Math 40 Interpret data based on charts, graphs, tables, and spreadsheets.
- Math 41 Find trends and patterns, and make inferences using graphs or data.

Social Studies indicators

- SS 44 Distinguish between fact and opinion with respect to historical documents.
- SS 45 Demonstrate understanding of multiple points of view with respect to historical documents (e.g., essays, famous speeches, interview transcripts, personal narratives).
- SS 47 Identify and demonstrate understanding of the impact of individuals, groups, religions, social organizations, and movements on history (e.g., Abraham Lincoln, Mohammed, Mahatma Gandhi, imperialism, worldwide immigration and cultural diffusion, the Industrial Revolution, women’s and civil rights movements, post-World War II technological advances).

(Table continues)

Table 7 (continued)

SS 48	Identify and demonstrate understanding of the causes, results, and consequences of social, political, economic, and military events (e.g., The U.S. Revolutionary War and Civil War, independence struggles, the slave trade, U.S. westward expansion, World War I and II).
SS 49	Demonstrate understanding of the interaction between people and places, especially the impact of human activity on the physical environment and human adaptation to the environment.
SS 50	Demonstrate the ability to use basic geographic literacy skills (e.g., geographic tools: maps, graphs, charts).
SS 51	Demonstrate an understanding of major systems of government and how they function, including the major features of the U.S. political system.
SS 52	Demonstrate an understanding of rights and responsibilities of U.S. citizens (e.g., voting, taxation, civic participation).
Science indicators	
Sci 56	Identify and use the elements of scientific inquiry for problem solving (e.g., making observations, formulating and testing hypotheses, drawing conclusions).
Sci 59	Interpret and draw conclusions from data, including those presented in tables, graphs, maps, and charts.
Sci 67	Understand the impact of science and technology on the environment and human affairs (e.g., production, use, and management of energy, consumer products, and natural resources).
Sci 68	Understand the societal issues with health awareness and medical advances (including biotechnology).

One way to consider the level of agreement between subgroups is to calculate the percentage of classification agreement, that is, the percentage of ratings for which the subgroups agree on the importance of each indicator (as defined by the 3.50 criterion). This is calculated as the sum of the number of indicators for which each subgroup rated less than 3.50 and for which each subgroup rated greater than or equal to 3.50, divided by the total number of indicators. For example, both groups of teachers and teacher educators had mean ratings greater than or equal to 3.50 on 47 of the indicators. Both groups mean ratings less than 3.50 on 14 indicators. The two groups did not agree on the importance of the remaining nine indicators. Therefore the percentage agreement between the two groups is calculated as $(47+14)/70=87\%$. Table 8 below provides the level of subgroup agreement.

Table 8

Percent Agreement for Each Subgroup Analysis

Subgroups	Percentage agreement
Teachers and teacher educators	87%
African American and White teachers	90%
Elementary, middle, and high school teachers	84% ^a
Urban, suburban, and rural teachers	81% ^a
Teachers by content expertise	43% ^a

^aRepresents average percent agreement.

African American and White teachers had similar ratings on the greatest number of knowledge and/or skill indicators. Disaggregating by race did not identify any knowledge and/or skill indicators with mean ratings less than 3.50 that were not previously flagged from other subgroup analyses. The level of agreement between teachers and teacher educators was also very high.

Elementary school teachers tended to rate slightly more highly than middle school teachers who, in turn, rated the knowledge and/or skill indicators more highly than secondary school teachers. Overall, the suburban teachers viewed more of the knowledge and/or skill indicators as less important than rural teachers and urban teachers. Agreements levels for both sets of groups were generally high. Disaggregating by content expertise identified the greatest number of knowledge and/or skill indicators with mean ratings less than 3.50 that had not been identified by other subgroup analyses. The least amount of agreement was between teachers from the various subject areas. This was not unexpected, given the range of content covered by the domain specifications and the high-stakes nature of the pending licensure test.

Summary and Conclusions

The Standards for Educational and Psychological Testing (American Educational Research Association, 1999) emphasizes the connection between the content of a licensure assessment and knowledge and/or skills important for safe and effective practice. This

connection establishes the job relevance of the assessment content. The job relevance of the domain specifications for the FSCK test was investigated through a survey of teachers and teacher educators across the state of Pennsylvania.

Teachers and teacher educators rated the importance of each of the 70 knowledge and/or skill indicators using a 5 point scale, ranging from 1 (*of no importance*) to 5 (*very high level of importance*). A mean importance rating of 3.50 was used to differentiate more important indicators from less important indicators. Indicators meeting or exceeding the 3.50 criterion should drive the development of the FSCK test. Analyses were conducted on the responses of all survey respondents and then by various subgroups of respondents.

The initial analysis across all respondents identified 20 knowledge and/or skill indicators that had mean ratings less than 3.50. Analysis by subgroups identified an additional 26 indicators with mean ratings less than 3.50 for one or more subgroup—3 indicators due to job classification (teacher or teacher educator), 6 due to school level, 3 due to district type, and 14 due to subject area.

Overall, 46 of the 70 (66%) of the knowledge and/or skill indicators had mean ratings less than 3.50 in one or more expert groups or subgroups. These 46 indicators were distributed across the content areas as follows: 8 of 11 (73%) Literature, 15 of 15 (100%) Fine Arts, 8 of 17 (47%) Mathematics, 3 of 11 (27%) Social Studies, and 12 of 16 (75%) Science. The remaining 24 knowledge and/or skill indicators were judged to be important (job relevant), according to the 3.50 criterion and should primarily define the content of the FSCK test.

The cut-point used to distinguish important from unimportant knowledge and/or skill indicators was set conservatively at 3.50 due to the highly litigious nature of licensure testing. It is worth examining the impact of a slightly loosened cut-point. The following criteria would represent one such modification: No knowledge and/or skill indicator would be considered with a mean rating of 3.00 or less in any analyses, and the 3.50 criterion must be met in at least 80% of the comparisons (for total group and subgroups defined by gender, race/ethnicity, school type, district, and subject area). An additional 15 indicators would meet these modified criteria. The additional indicators are Literature 3, 5, 6, 7, 9; Mathematics 34, 35, 36, 38, 42; Social Studies 43; and Science 55, 58, 61.

Postscript

The focus of this report is on the procedure used to investigate the job relevance of knowledge and/or skill indicators for the development of a licensure assessment for Pennsylvania. However, the reader might find it valuable to understand how the development team used the results of the investigation. The following bullets outline the steps the team took:

- All knowledge and/or skill indicators having an *overall* mean rating below 3.50, with exception of two Science indicators (Science 63, 70), were removed from the domain specifications—that is, one Language Arts indicator (Literature 8), two Science indicators (Science 62, 65), and all Fine Arts indicators (Arts 12 to Arts 26) were dropped because of insufficient support from the survey participants.
- Two Science indicators (Science 63, 70) received *overall* ratings below but extremely close to the threshold (3.46 and 3.47 respectively) and are critical content components of other indicators that had received ratings above the threshold. The Science development team and ETS Science test developer are currently finalizing rationales to justify keeping these two indicators in the domain specifications.
- The appropriate development teams reviewed all other indicators given an overall rating above 3.50 but had one or more subgroup ratings below 3.50. All but three of these ratings were above 3.00, which represents a moderate degree of importance. Team members were asked to use their professional judgment to determine whether each indicator should be removed from or retained as part of the domain specifications. All of the indicators were deemed to be sufficiently important to be kept as part of the domain specifications, and the development teams and ETS test developers are currently finalizing rationales explaining the necessity of keeping them. In general, these specifications were believed by the development team to be critical content components, were very close to the threshold, and had received high importance ratings overall.

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Notes

¹ Because teacher educators are not job incumbents, they were sampled at a lower rate than practicing teachers.

² Indicators failing to meet the criterion may inform the content of the test if compelling rationales can be written, for example, by test development committee members, justifying their job relevance.

³ K-12 teaching experience for teacher educators refers to number of years teaching in grades K-12.

Appendix A

Job Relevance Confirmation Survey and Letter

Dear Professional Colleague:

On behalf of the Pennsylvania Department of Education (PDE), Educational Testing Service (ETS) is conducting a study that may have an impact on the teaching profession in the State of Pennsylvania. The survey that is enclosed in this packet invites you to participate in this study and to have your professional perspective represented. Please take a moment out of your busy schedule to complete the survey.

A licensure assessment is intended to provide information as to the entry-level teachers' readiness to engage in independent teaching practice. One of the requirements of readiness to practice in Pennsylvania is a sufficient level of general knowledge. As you may know, Pennsylvania legislation requires that candidates seeking a license to teach in Pennsylvania demonstrate, by taking an examination, an understanding the following five subjects:¹ (1) Mathematics; (2) Literature; (3) Science; (4) Social Studies; (5) Fine Arts.

The expectation of the PDE is that all educators who share in the learning and development of students command some “general knowledge” of these subjects. It is *not* expected that a science teacher, for example, will be an expert in the fine arts, nor that a fine arts teacher will command the same level of understanding of science as would a science teacher. It is also *not* expected that every successful candidate should be able to answer correctly all of the questions in each subject.

The licensure assessment candidates will be required to take is what may, therefore, be regarded as an assessment of general knowledge. The enclosed survey lists, for each subject, a set of statements that briefly describe the proposed focus and nature of the content to be addressed in this assessment. These statements are *not* the test questions. Rather, they outline the content on which the questions in each subject will be based.

We are asking you to indicate, according to your professional judgment, the *level of importance* you place on beginning teachers' understanding of the proposed content represented in each statement. This is your opportunity to identify the content you believe is important enough to

¹ Title 22: Education, Public School Code of 1949.

include on the licensure assessment, given the purpose of the assessment—measuring beginning teachers' general knowledge. As you are among a select sample of educators in Pennsylvania who have been asked to participate in this study, your responses hold a great deal of value.

Your judgments are completely anonymous, and will be kept in confidence. You may use the enclosed postage-paid return envelope to return your completed survey. If you have any questions, please contact me by email at pagk_survey@ets.org. Please return your survey by January 28th, 2002. I would like to thank you in advance for participating in this survey.

Sincerely,

Caroline Wylie, Ph.D.
Research Scientist

The statements you are being asked to evaluate will inform the content of the licensure assessment of general knowledge. This assessment will be required of all teachers seeking a license to practice in Pennsylvania.

What does a **beginning teacher** in Pennsylvania need to know or be able to do? Specifically, what **level of importance** do you as an educator place on each of the following as a way of demonstrating a sufficient level of general knowledge?

5-Point Importance Scale

1	2	3	4	5
Not important	Low 1 Level	Moderate Level	High Level	Very High Level

Literature						
Reading for Understanding		Importance				
1	Recognize the literal and basic non-literal meanings of literary texts	1	2	3	4	5
2	Identify major themes and purposes of literary texts	1	2	3	4	5
3	Analyze the importance of particular elements in a literary selection in relationship to the selection as a whole	1	2	3	4	5
Literary Methods & Effects		Importance				
4	Identify the point of view of the selection and recognize how specific words and phrases in the selection contribute to its development	1	2	3	4	5
5	Understand the characteristics of specific characters and recognize how specific words and phrases in the selection contribute to their development	1	2	3	4	5
6	Recognize the setting, tone, and mood of the selection and how specific words and phrases in the selection contribute to their development	1	2	3	4	5
7	Understand the meanings and effects created through the use of imagery and figurative language (e.g., metaphor, simile, personification)	1	2	3	4	5
8	Recognize the effects created through the use of poetic techniques (e.g., rhyme, rhythm, sound)	1	2	3	4	5
Contexts of Literature		Importance				
9	Understand literary texts in their historical contexts	1	2	3	4	5
10	Understand literary texts in their cultural and cross-cultural contexts	1	2	3	4	5
11	Make comparisons among literary texts	1	2	3	4	5

(Table continues)

Table (continued)

Fine Arts					
Music		Importance			
12	Identify the instrument, voice, or ensemble in a musical performance	1	2	3	4 5
13	Discern simple beat or rhythmic patterns in a musical performance	1	2	3	4 5
14	Recognize simple examples of changes in tempo, volume, and pitch organization in a musical performance	1	2	3	4 5
15	Identify the style, historical period, or cultural origin of a musical performance	1	2	3	4 5
Visual Arts		Importance			
16	Recognize the use of elements in artworks such as line, shape, color, texture, and space	1	2	3	4 5
17	Identify common art forms such as still life, portrait, landscape, and narrative	1	2	3	4 5
18	Discern basic compositional principles such as symmetry, asymmetry, randomness, and circularity in an artwork	1	2	3	4 5
19	Identify the style, historical period, or cultural origin of a given artwork	1	2	3	4 5
Theatre		Importance			
20	Recognize basic aspects of character development and interaction in a theatrical excerpt	1	2	3	4 5
21	Recognize basic aspects of storyline in a theatrical excerpt	1	2	3	4 5
22	Recognize basic aspects of production in a theatrical excerpt	1	2	3	4 5
23	Identify the style, historical period, or cultural origin of a theatrical excerpt	1	2	3	4 5
Dance		Importance			
24	Recognize how a dance excerpt uses elements such as space, time, and force	1	2	3	4 5
25	Recognize compositional elements in a dance excerpt such as form and the organization of body movements	1	2	3	4 5
26	Identify the style, historical period, or cultural origin of a dance excerpt	1	2	3	4 5
Mathematics					
Number Sense & Basic Algebra		Importance			
27	Compute using rational numbers	1	2	3	4 5
28	Use estimating skills to solve a problem	1	2	3	4 5
29	Use percents to solve a problem	1	2	3	4 5
30	Set up ratios and simplify to solve a problem	1	2	3	4 5

(Table continues)

Table (continued)

Number Sense & Basic Algebra		Importance				
31	Set up and solve proportions	1	2	3	4	5
32	Express a word problem in algebraic form	1	2	3	4	5
33	Solve a word problem	1	2	3	4	5
34	Represent and use numbers in equivalent forms	1	2	3	4	5
35	Apply place value concepts and numeration to ordering and grouping	1	2	3	4	5
Geometry & Measurement		Importance				
36	Convert, select, and use measurements within the same system	1	2	3	4	5
37	Use scale measurements to interpret maps, drawings, or models	1	2	3	4	5
38	Use concepts of area, perimeter, circumference, and volume to solve a problem	1	2	3	4	5
39	Solve a problem involving rates	1	2	3	4	5
Data Analysis & Probability		Importance				
40	Interpret data based on charts, graphs, tables, and spreadsheets	1	2	3	4	5
41	Find trends and patterns, and make inferences using graphs or data	1	2	3	4	5
42	Determine mean, median, mode, and range using sets of data	1	2	3	4	5
43	Compare, calculate, and use probability in a variety of problems	1	2	3	4	5
Social Studies						
Historical Continuity & Change		Importance				
44	Distinguish between fact and opinion with respect to historical documents	1	2	3	4	5
45	Demonstrate understanding of multiple points of view with respect to historical documents (e.g., essays, famous speeches, interview transcripts, personal narratives)	1	2	3	4	5
46	Demonstrate understanding of the significance of historical artifacts (e.g., religious holy sites, ancient cities)	1	2	3	4	5
47	Identify and demonstrate understanding of the impact of individuals, groups, religions, social organizations and movements on history (e.g., Abraham Lincoln, Mohammed, Mahatma Gandhi, imperialism, worldwide immigration and cultural diffusion, the Industrial Revolution, women's and civil rights movements, post-World War II technological advances)	1	2	3	4	5
48	Identify and demonstrate understanding of the causes, results, and consequences of social, political, economic, and military events (e.g., The U.S. Revolutionary War and Civil War, independence struggles, the slave trade, U.S. westward expansion, World War I and World War II)	1	2	3	4	5

(Table continues)

Table (continued)

People, Places, & Geographic Regions		Importance				
49	Demonstrate understanding of the interaction between people and places, especially the impact of human activity on the physical environment and human adaptation to the environment	1	2	3	4	5
50	Demonstrate the ability to use basic geographic literacy skills (e.g., geographic tools: maps, graphs, charts)	1	2	3	4	5
Civics & Government		Importance				
51	Demonstrate an understanding of major systems of government and how they function, including the major features of the U.S. political system	1	2	3	4	5
52	Demonstrate an understanding of rights and responsibilities of U.S. citizens (e.g., voting, taxation, civic participation)	1	2	3	4	5
Economics		Importance				
53	Demonstrate an understanding of the economic factors and principles that affect individuals, institutions, nations, and events	1	2	3	4	5
54	Demonstrate an understanding of how economic factors interact with other factors such as geographic features and cultural values	1	2	3	4	5
Science						
Nature & History of Science		Importance				
55	Gather reliable information about nature and develop explanations that can account for the information gathered	1	2	3	4	5
56	Identify and use the elements of scientific inquiry for problem solving (e.g., making observations, formulating and testing hypotheses, drawing conclusions)	1	2	3	4	5
57	Demonstrate familiarity with important scientific events and contributions made by major historical figures (e.g., Newton, Darwin, DNA structure, big bang theory)	1	2	3	4	5
58	Understand the processes involved in scientific data collection, manipulation, interpretation, and presentation (e.g., significance of controls)	1	2	3	4	5
59	Interpret and draw conclusions from data, including those presented in tables, graphs, maps, and charts	1	2	3	4	5
60	Analyze errors in presented data	1	2	3	4	5

(Table continues)

Table (continued)

Basic Principles and Fundamentals of Science		Importance				
61	Use basic principles of sciences to explain natural phenomena and events	1	2	3	4	5
62	Understand the importance of energy relationships and transformations in both living and nonliving contexts (e.g., energy flow, potential versus kinetic energy)	1	2	3	4	5
63	Understand the structure and properties of matter and the forces that act upon it (e.g., states and phases of matter, gravity, buoyancy)	1	2	3	4	5
64	Understand the diversity and characteristics of living organisms and their interactions with the environment and each other (e.g., living versus nonliving things, structure and function of living organisms)	1	2	3	4	5
65	Understand the processes that have led to changes in the dominant organisms at various times and in various places (e.g., natural selection, adaptation to the environment)	1	2	3	4	5
66	Demonstrate understanding of Earth as a part of the universe and a body with specific features and processes (e.g., the origin and structure of the universe, structure and characteristics of Earth, plate tectonic theory)	1	2	3	4	5
Science, Technology, and Social Perspectives		Importance				
67	Understand the impact of science and technology on the environment and human affairs (e.g., production, use, and management of energy, consumer products, and natural resources)	1	2	3	4	5
68	Understand the societal issues with health awareness and medical advances (including biotechnology)	1	2	3	4	5
69	Understand the social, political, ethical, and economic issues arising from science and technology (e.g., cloning, genetic-engineered organisms)	1	2	3	4	5
70	Understand relationships between societal demands and scientific and technological enterprises (e.g., past and current tradeoffs, social change as a result of scientific and technological advances)	1	2	3	4	5

Appendix B

Frequency of Important Ratings: All Respondents

	No importance		Low level		Moderate level		High level		Very high level	
Lit 1	3	0.5%	24	3.9%	130	21.0%	217	35.1%	245	39.6%
Lit 2	2	0.3%	14	2.3%	110	17.7%	249	40.1%	246	39.6%
Lit 3	5	0.8%	37	6.0%	173	27.9%	243	39.3%	161	26.0%
Lit 4	3	0.5%	26	4.2%	145	23.4%	250	40.3%	196	31.6%
Lit 5	3	0.5%	29	4.8%	154	25.3%	234	38.5%	188	30.9%
Lit 6	2	0.4%	19	4.1%	130	28.3%	175	38.1%	133	29.0%
Lit 7	7	1.1%	52	8.4%	201	32.4%	218	35.1%	143	23.0%
Lit 8	18	2.9%	109	17.6%	231	37.3%	176	28.4%	85	13.7%
Lit 9	7	1.1%	47	7.6%	209	33.7%	228	36.7%	130	20.9%
Lit 10	11	1.8%	37	6.0%	219	35.4%	211	34.1%	141	22.8%
Lit 11	9	1.5%	72	11.6%	229	36.9%	200	32.3%	110	17.7%
Arts 12	57	9.2%	188	30.3%	231	37.2%	91	14.7%	54	8.7%
Arts 13	43	6.9%	169	27.3%	226	36.5%	124	20.0%	58	9.4%
Arts 14	51	8.3%	169	27.5%	237	38.6%	113	18.4%	44	7.2%
Arts 15	88	14.3%	202	32.7%	214	34.7%	86	13.9%	27	4.4%
Arts 16	28	4.5%	137	22.2%	227	36.7%	143	23.1%	83	13.4%
Arts 17	34	5.5%	123	19.9%	245	39.6%	135	21.8%	82	13.2%
Arts 18	53	8.6%	186	30.0%	254	41.0%	84	13.6%	42	6.8%
Arts 19	85	13.8%	192	31.1%	200	32.4%	110	17.8%	31	5.0%
Arts 20	49	7.9%	151	24.5%	246	39.9%	115	18.6%	56	9.1%
Arts 21	40	6.5%	125	20.3%	228	37.0%	152	24.6%	72	11.7%
Arts 22	77	12.5%	228	37.0%	214	34.7%	77	12.5%	21	3.4%
Arts 23	86	14.0%	201	32.6%	200	32.5%	106	17.2%	23	3.7%

(Table continues)

Table (continued)

	No importance		Low level		Moderate level		High level		Very high level	
Arts 24	135	22.0%	210	34.1%	180	29.3%	62	10.1%	28	4.6%
Arts 25	146	23.7%	233	37.8%	153	24.8%	66	10.7%	19	3.1%
Arts 26	144	23.3%	214	34.6%	157	25.4%	80	12.9%	23	3.7%
Math 27	5	0.8%	8	1.3%	64	10.3%	169	27.2%	375	60.4%
Math 28	4	0.6%	7	1.1%	77	12.4%	197	31.8%	335	54.0%
Math 29	5	0.8%	10	1.6%	101	16.3%	223	36.0%	281	45.3%
Math 30	7	1.1%	42	6.8%	148	23.9%	222	35.8%	201	32.4%
Math 31	12	1.9%	43	6.9%	154	24.8%	207	33.4%	204	32.9%
Math 32	22	3.6%	76	12.3%	189	30.5%	178	28.8%	154	24.9%
Math 33	6	1.0%	18	2.9%	89	14.4%	175	28.2%	332	53.5%
Math 34	12	1.9%	27	4.4%	147	23.7%	220	35.5%	213	34.4%
Math 35	13	2.1%	29	4.7%	114	18.6%	187	30.5%	271	44.1%
Math 36	11	1.8%	29	4.7%	131	21.2%	216	34.9%	232	37.5%
Math 37	7	1.1%	22	3.5%	120	19.4%	233	37.6%	238	38.4%
Math 38	11	1.8%	31	5.0%	155	25.0%	215	34.7%	207	33.4%
Math 39	20	3.2%	56	9.1%	203	33.0%	205	33.3%	132	21.4%
Math 40	3	0.5%	13	2.1%	64	10.4%	195	31.6%	343	55.5%
Math 41	4	0.6%	21	3.4%	106	17.2%	232	37.7%	253	41.1%
Math 42	15	2.4%	52	8.4%	194	31.5%	181	29.4%	174	28.2%
Math 43	24	3.9%	72	11.7%	212	34.5%	182	29.6%	125	20.3%
SS 44	3	0.5%	24	3.9%	102	16.5%	207	33.4%	284	45.8%
SS 45	4	0.6%	33	5.3%	151	24.4%	243	39.2%	189	30.5%
SS 46	10	1.6%	64	10.4%	208	33.7%	208	33.7%	128	20.7%
SS 47	6	1.3%	19	4.1%	108	23.3%	188	40.6%	142	30.7%
SS 48	5	0.8%	26	4.2%	133	21.5%	244	39.4%	211	34.1%
SS 49	2	0.3%	23	3.7%	115	18.5%	262	42.3%	218	35.2%

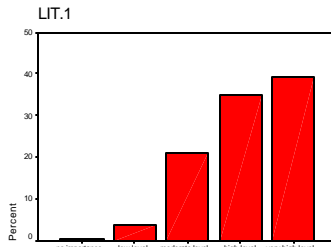
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Table (continued)

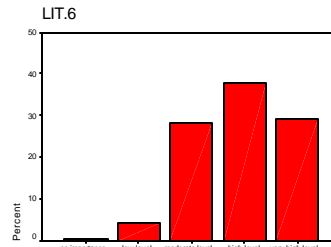
	No importance		Low level		Moderate level		High level		Very high level	
SS 50	0	0.0%	8	1.3%	86	13.9%	216	35.0%	308	49.8%
SS 51	7	1.1%	13	2.1%	100	16.1%	243	39.2%	257	41.5%
SS 53	12	1.9%	36	5.8%	205	33.2%	264	42.8%	100	16.2%
SS 54	14	2.3%	48	7.8%	226	36.7%	232	37.7%	96	15.6%
Sci 55	5	0.8%	30	4.9%	183	29.7%	231	37.4%	168	27.2%
Sci 56	4	0.6%	15	2.4%	114	18.4%	215	34.7%	271	43.8%
Sci 57	10	1.6%	62	10.0%	245	39.7%	212	34.4%	88	14.3%
Sci 58	8	1.3%	44	7.1%	207	33.6%	205	33.3%	152	24.7%
Sci 59	4	0.6%	13	2.1%	95	15.4%	249	40.4%	255	41.4%
Sci 60	11	1.8%	61	10.0%	187	30.6%	220	35.9%	133	21.7%
Sci 61	7	1.1%	39	6.3%	165	26.7%	232	37.5%	175	28.3%
Sci 62	23	3.7%	90	14.5%	232	37.5%	199	32.1%	75	12.1%
Sci 63	17	2.8%	80	13.0%	220	35.7%	204	33.1%	96	15.6%
Sci 64	15	2.4%	47	7.6%	193	31.2%	219	35.4%	144	23.3%
Sci 65	18	2.9%	82	13.2%	225	36.3%	207	33.4%	87	14.1%
Sci 66	17	2.8%	61	9.9%	211	34.1%	222	35.9%	107	17.3%
Sci 67	8	1.3%	27	4.4%	176	28.5%	228	37.0%	178	28.8%
Sci 68	8	1.3%	45	7.4%	197	32.2%	227	37.2%	134	21.9%
Sci 69	16	2.6%	54	8.8%	206	33.4%	223	36.2%	117	19.0%
Sci 70	18	2.9%	73	11.9%	225	36.6%	201	32.7%	97	15.8%

Appendix C

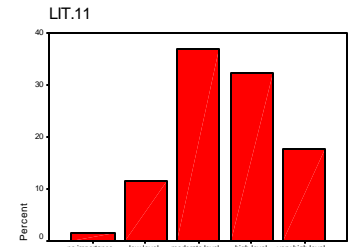
Percentage Bar Charts: All Respondents



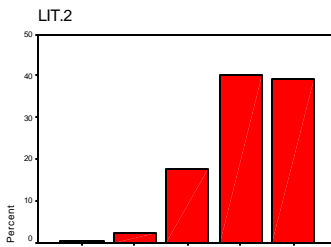
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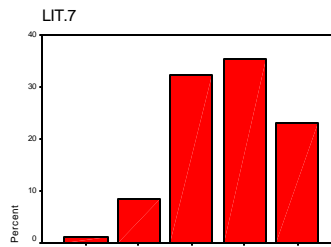
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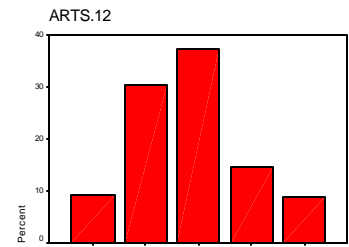
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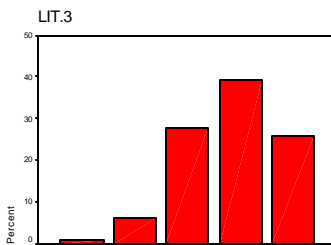
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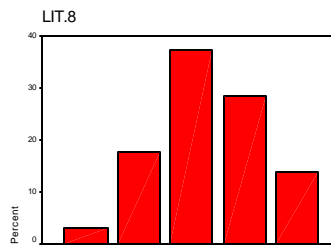
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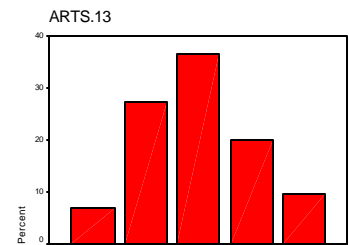
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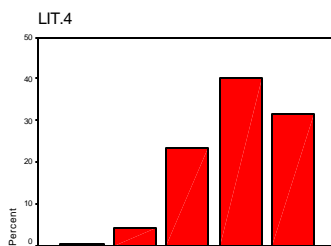
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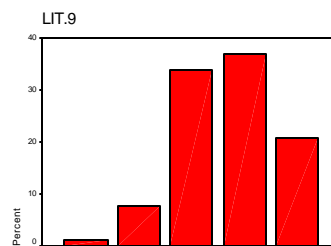
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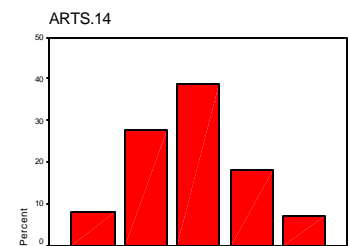
ARTS.13



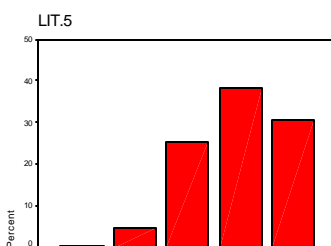
LIT.4



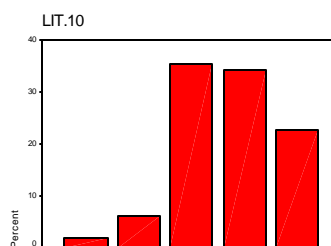
LIT.9



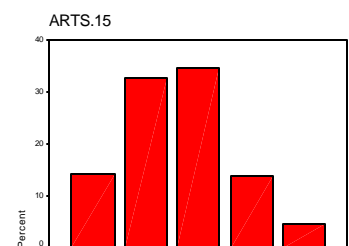
ARTS.14



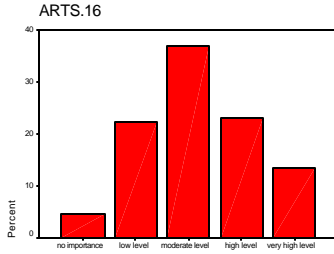
LIT.5



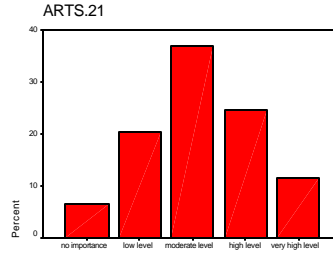
LIT.10



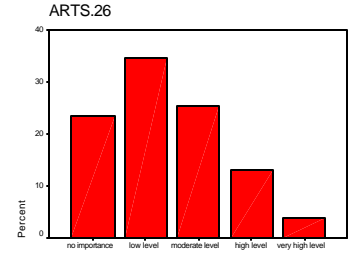
ARTS.15



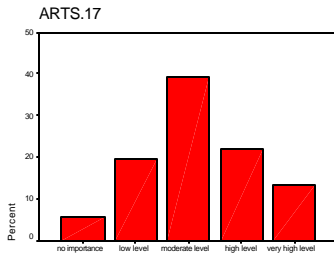
ARTS.16



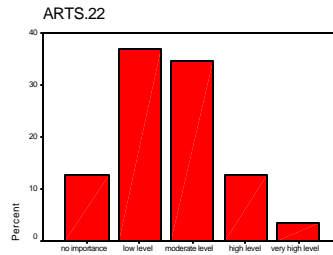
ARTS.21



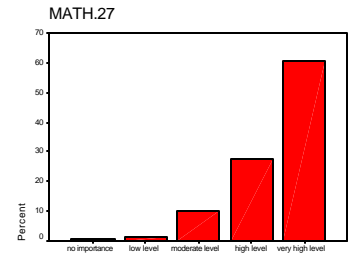
ARTS.26



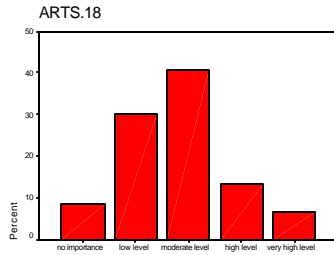
ARTS.17



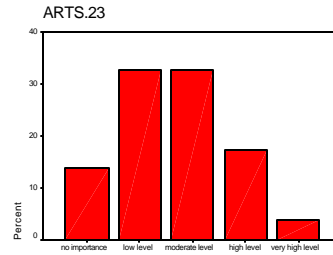
ARTS.22



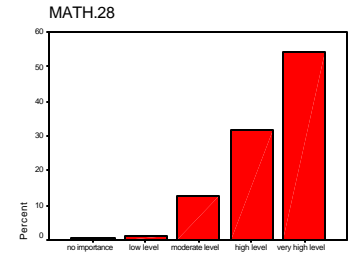
MATH.27



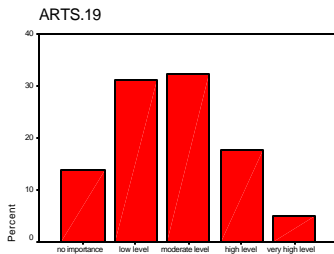
ARTS.18



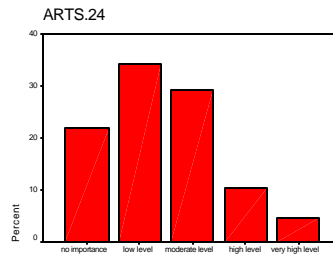
ARTS.23



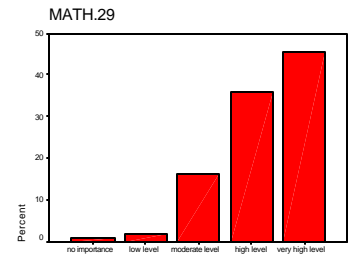
MATH.28



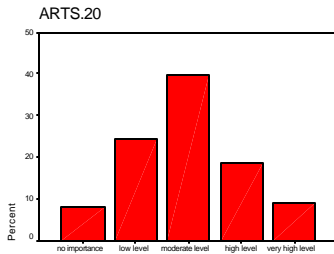
ARTS.19



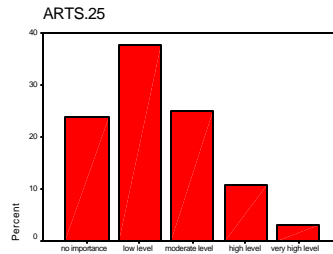
ARTS.24



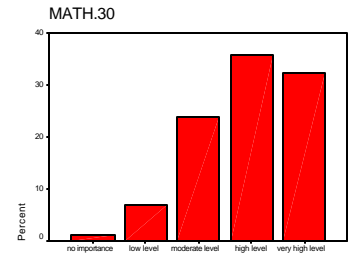
MATH.29



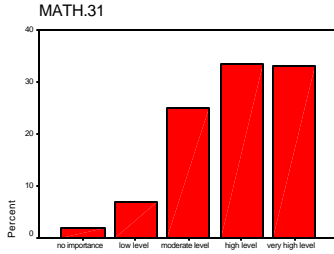
ARTS.20



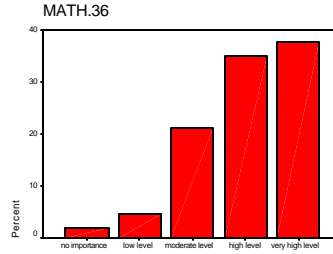
ARTS.25



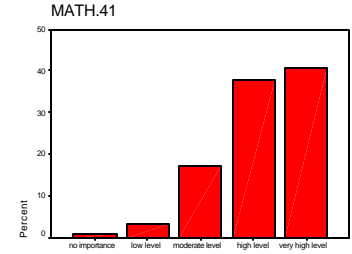
MATH.30



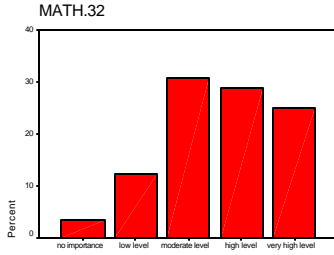
MATH.31



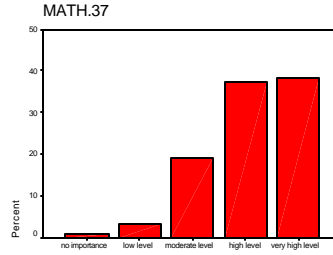
MATH.36



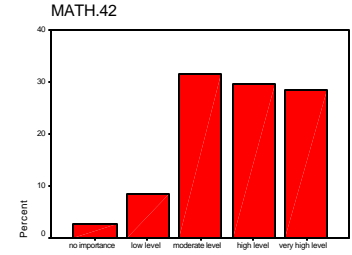
MATH.41



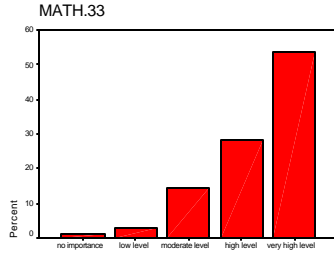
MATH.32



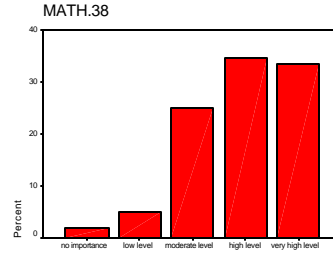
MATH.37



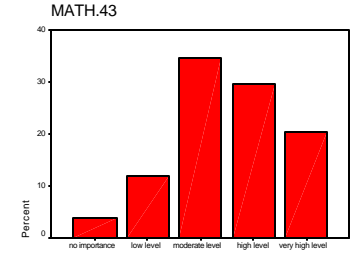
MATH.42



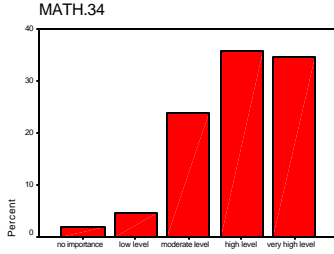
MATH.33



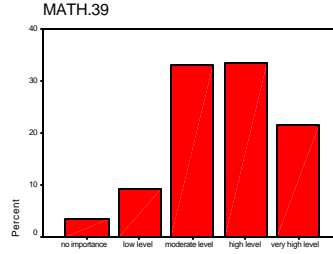
MATH.38



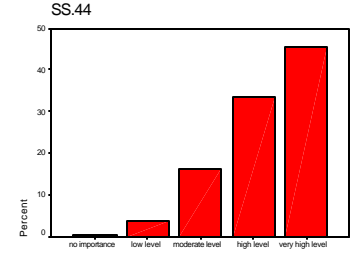
MATH.43



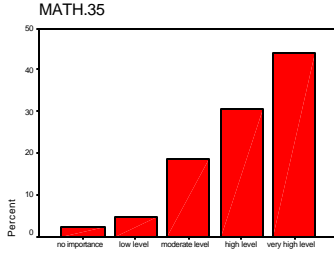
MATH.34



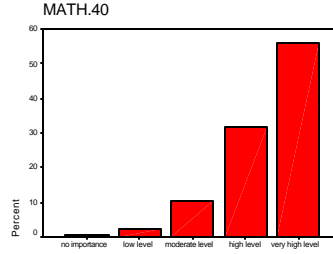
MATH.39



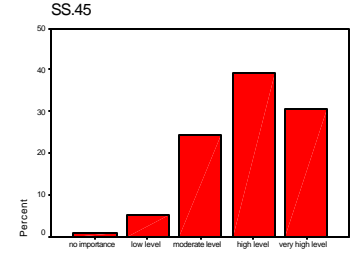
SS.44



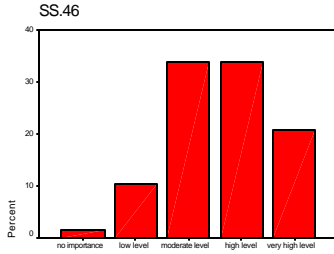
MATH.35



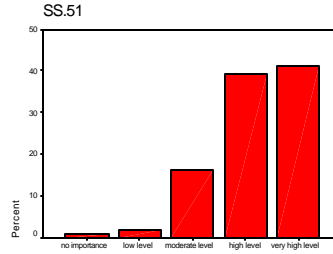
MATH.40



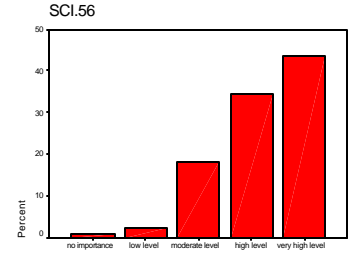
SS.45



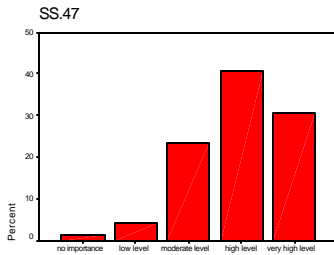
SS.46



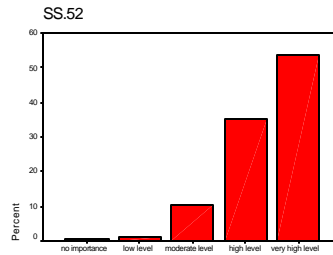
SS.51



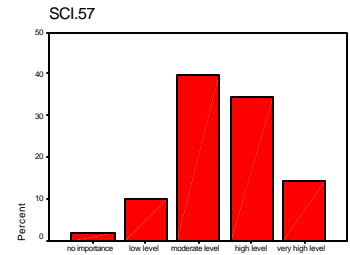
SCI.56



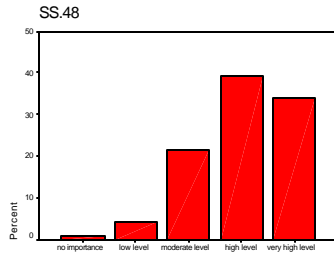
SS.47



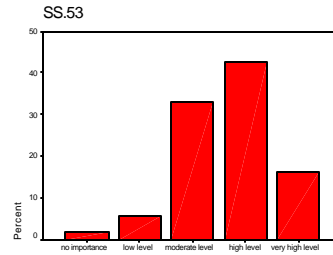
SS.52



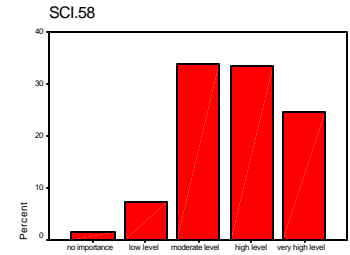
SCI.57



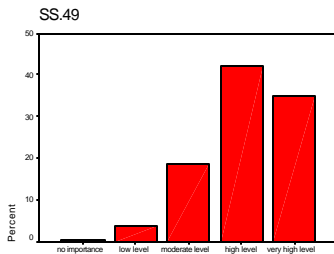
SS.48



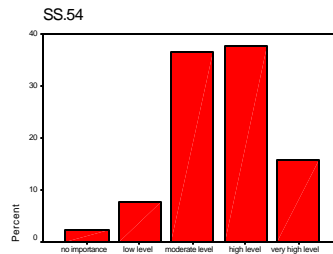
SS.53



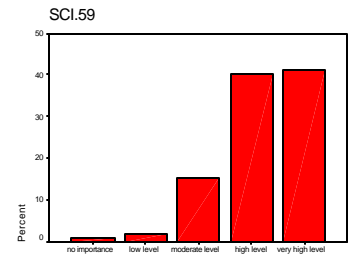
SCI.58



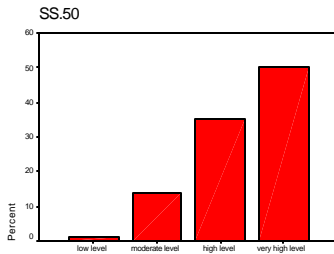
SS.49



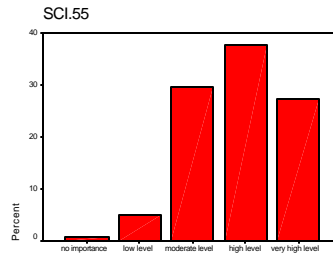
SS.54



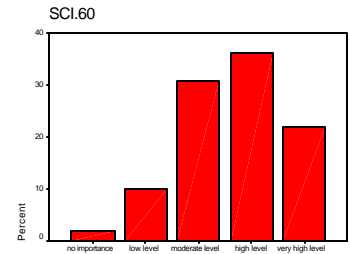
SCI.59



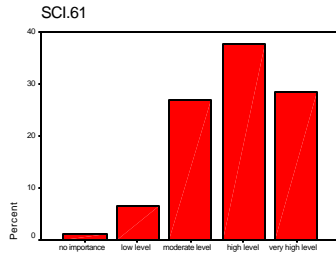
SS.50



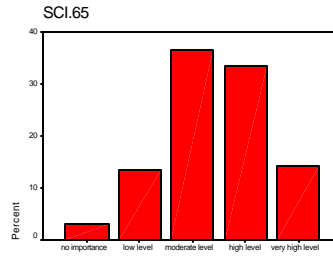
SCI.55



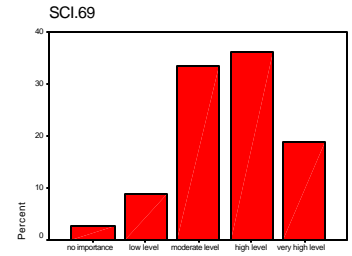
SCI.60



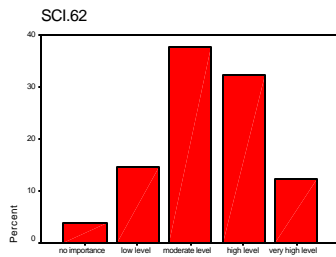
SCI.61



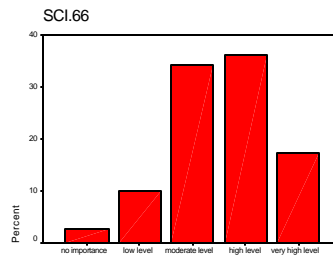
SCI.65



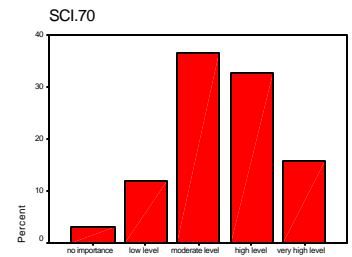
SCI.69



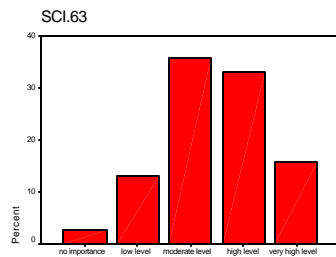
SCI.62



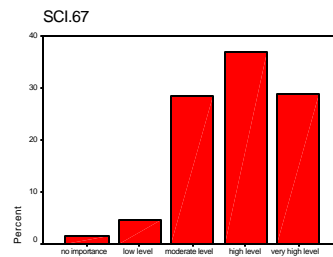
SCI.66



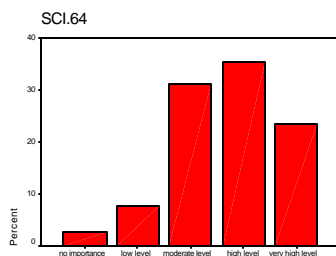
SCI.70



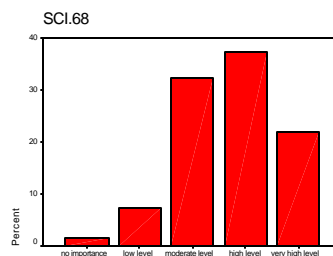
SCI.63



SCI.67



SCI.64



SCI.68

Appendix D

Mean Importance Ratings: All Respondents

	Mean	<i>N</i>	<i>SD</i>
Lit 1	4.09	619	0.89
Lit 2	4.16	621	0.82
Lit 3	3.84	619	0.91
Lit 4	3.98	620	0.87
Lit 5	3.95	608	0.89
Lit 6	3.91	459	0.88
Lit 7	3.71	621	0.95
Lit 8	3.32	619	1.01
Lit 9	3.69	621	0.92
Lit 10	3.70	619	0.94
Lit 11	3.53	620	0.96
Arts 12	2.83	621	1.07
Arts 13	2.98	620	1.06
Arts 14	2.89	614	1.03
Arts 15	2.61	617	1.03
Arts 16	3.19	618	1.07
Arts 17	3.17	619	1.07
Arts 18	2.80	619	1.01
Arts 19	2.69	618	1.07
Arts 20	2.96	617	1.05
Arts 21	3.15	617	1.07
Arts 22	2.57	617	0.97
Arts 23	2.64	616	1.04
Arts 24	2.41	615	1.08
Arts 25	2.32	617	1.04

(Table continues)

Table (continued)

	Mean	<i>N</i>	<i>SD</i>
Arts 26	2.39	618	1.09
Math 27	4.45	621	0.79
Math 28	4.37	620	0.79
Math 29	4.23	620	0.84
Math 30	3.92	620	0.96
Math 31	3.88	620	1.01
Math 32	3.59	619	1.10
Math 33	4.30	620	0.89
Math 34	3.96	619	0.96
Math 35	4.10	614	1.00
Math 36	4.02	619	0.97
Math 37	4.09	620	0.90
Math 38	3.93	619	0.97
Math 39	3.61	616	1.02
Math 40	4.39	618	0.79
Math 41	4.15	616	0.87
Math 42	3.73	616	1.04
Math 43	3.51	615	1.06
SS 44	4.20	620	0.88
SS 45	3.94	620	0.90
SS 46	3.61	618	0.98
SS 47	3.95	463	0.91
SS 48	4.02	619	0.89
SS 49	4.08	620	0.84
SS 50	4.33	618	0.76
SS 51	4.18	620	0.85

(Table continues)

Table (continued)

	Mean	<i>N</i>	<i>SD</i>
SS 52	4.40	617	0.75
SS 53	3.65	617	0.89
SS 54	3.56	616	0.92
Sci 55	3.85	617	0.90
Sci 56	4.19	619	0.86
Sci 57	3.50	617	0.91
Sci 58	3.73	616	0.96
Sci 59	4.20	616	0.82
Sci 60	3.66	612	0.98
Sci 61	3.86	618	0.94
Sci 62	3.34	619	0.99
Sci 63	3.46	617	0.99
Sci 64	3.70	618	0.99
Sci 65	3.42	619	0.98
Sci 66	3.55	618	0.98
Sci 67	3.88	617	0.92
Sci 68	3.71	611	0.93
Sci 69	3.60	616	0.98
Sci 70	3.47	614	0.99

Appendix E

Mean Importance Ratings: Teachers and Teacher Educators

	School teacher			University faculty		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Lit 1	4.04	519	0.91	4.41	81	0.72
Lit 2	4.13	521	0.81	4.35	81	0.84
Lit 3	3.81	520	0.90	3.98	81	0.88
Lit 4	3.94	520	0.88	4.20	81	0.78
Lit 5	3.92	511	0.89	4.06	79	0.87
Lit 6	3.90	392	0.87	4.00	52	0.93
Lit 7	3.67	521	0.95	3.93	81	0.91
Lit 8	3.30	520	1.02	3.45	80	0.98
Lit 9	3.64	522	0.92	3.96	80	0.92
Lit 10	3.65	520	0.93	4.01	80	0.96
Lit 11	3.53	522	0.96	3.58	79	0.96
Arts 12	2.77	521	1.06	3.20	81	1.04
Arts 13	2.91	520	1.07	3.38	81	0.97
Arts 14	2.83	516	1.04	3.22	79	0.96
Arts 15	2.55	519	1.02	3.00	80	1.03
Arts 16	3.12	518	1.08	3.54	81	0.94
Arts 17	3.12	519	1.05	3.42	81	1.08
Arts 18	2.75	519	1.00	3.12	81	1.00
Arts 19	2.62	519	1.05	3.02	81	1.11
Arts 20	2.90	517	1.04	3.32	81	1.03
Arts 21	3.08	517	1.07	3.51	81	1.01
Arts 22	2.53	518	0.96	2.80	80	1.00
Arts 23	2.59	516	1.04	2.90	81	1.00
Arts 24	2.35	515	1.06	2.77	81	1.12

(Table continues)

Table (continued)

	School teacher			University faculty		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Arts 25	2.26	517	1.04	2.64	81	1.03
Arts 26	2.32	518	1.07	2.70	81	1.11
Math 27	4.44	522	0.79	4.55	80	0.76
Math 28	4.35	521	0.79	4.48	80	0.87
Math 29	4.19	521	0.84	4.46	80	0.78
Math 30	3.88	521	0.96	4.14	80	0.96
Math 31	3.85	521	1.01	4.16	80	0.96
Math 32	3.56	519	1.08	3.81	81	1.16
Math 33	4.29	520	0.89	4.38	81	0.93
Math 34	3.94	519	0.96	4.06	81	1.05
Math 35	4.08	515	1.02	4.20	80	0.93
Math 36	3.99	519	0.97	4.20	81	0.97
Math 37	4.02	520	0.90	4.40	81	0.88
Math 38	3.90	519	0.97	4.12	81	0.97
Math 39	3.55	516	1.03	3.93	81	0.97
Math 40	4.37	518	0.79	4.52	81	0.84
Math 41	4.11	516	0.87	4.38	81	0.90
Math 42	3.68	516	1.04	4.02	81	1.02
Math 43	3.48	515	1.05	3.70	81	1.12
SS 44	4.16	519	0.89	4.39	82	0.87
SS 45	3.86	519	0.91	4.29	82	0.81
SS 46	3.57	517	0.98	3.89	82	0.92
SS 47	3.93	388	0.88	4.03	58	1.01
SS 48	3.97	519	0.90	4.27	82	0.77
SS 49	4.04	519	0.83	4.32	82	0.80

(Table continues)

Table (continued)

	School teacher			University faculty		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
SS 50	4.30	517	0.76	4.49	82	0.72
SS 51	4.12	519	0.86	4.55	82	0.67
SS 52	4.35	516	0.75	4.65	82	0.64
SS 53	3.61	516	0.87	3.94	82	0.95
SS 54	3.53	515	0.91	3.77	82	1.01
Sci 55	3.80	517	0.89	4.21	81	0.90
Sci 56	4.15	518	0.85	4.46	82	0.82
Sci 57	3.46	516	0.91	3.79	82	0.89
Sci 58	3.65	515	0.94	4.22	82	0.90
Sci 59	4.15	515	0.80	4.49	82	0.82
Sci 60	3.60	512	0.96	4.00	81	1.01
Sci 61	3.78	518	0.93	4.36	81	0.88
Sci 62	3.27	518	0.99	3.76	82	0.88
Sci 63	3.39	516	0.98	3.88	82	0.92
Sci 64	3.63	518	0.99	4.09	81	0.84
Sci 65	3.37	518	0.97	3.72	82	0.92
Sci 66	3.49	517	0.97	3.93	82	0.94
Sci 67	3.80	517	0.92	4.28	81	0.78
Sci 68	3.67	512	0.93	3.96	80	0.89
Sci 69	3.55	517	0.97	3.89	80	0.95
Sci 70	3.41	514	0.98	3.79	81	0.97

Appendix F

Mean Importance Ratings by Teacher Ethnicity

	African American			White		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Lit 1	4.12	42	0.83	4.05	456	0.91
Lit 2	4.07	44	0.85	4.14	456	0.82
Lit 3	3.98	43	0.77	3.80	457	0.90
Lit 4	4.09	44	0.83	3.94	456	0.88
Lit 5	4.07	42	0.84	3.93	449	0.89
Lit 6	4.03	36	0.84	3.89	341	0.87
Lit 7	3.93	44	0.85	3.64	457	0.96
Lit 8	3.61	44	0.97	3.28	456	1.01
Lit 9	3.73	44	1.02	3.64	458	0.90
Lit 10	3.95	44	0.89	3.63	456	0.93
Lit 11	3.61	44	0.84	3.52	458	0.96
Arts 12	2.86	44	0.85	2.76	456	1.08
Arts 13	2.84	44	0.94	2.91	455	1.08
Arts 14	2.79	42	0.92	2.83	453	1.05
Arts 15	2.98	43	0.91	2.52	455	1.02
Arts 16	3.18	44	0.99	3.10	454	1.09
Arts 17	3.11	44	0.75	3.12	455	1.09
Arts 18	2.77	44	1.05	2.75	455	0.99
Arts 19	3.02	43	0.86	2.58	456	1.06
Arts 20	3.00	44	0.91	2.89	453	1.05
Arts 21	3.23	44	0.96	3.07	453	1.08
Arts 22	2.80	44	0.93	2.50	454	0.96
Arts 23	3.02	43	0.96	2.54	453	1.04
Arts 24	2.56	43	0.80	2.32	452	1.08

(Table continues)

Table (continued)

	African American			White		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Arts 25	2.61	44	0.97	2.21	453	1.05
Arts 26	2.84	44	1.08	2.26	454	1.06
Math 27	4.34	44	0.81	4.47	458	0.78
Math 28	4.39	44	0.65	4.36	458	0.78
Math 29	4.41	44	0.69	4.18	457	0.84
Math 30	4.18	44	0.84	3.87	457	0.96
Math 31	4.12	43	0.96	3.83	458	1.02
Math 32	3.81	43	1.01	3.54	456	1.08
Math 33	4.23	43	0.84	4.29	457	0.90
Math 34	4.14	43	0.89	3.93	456	0.95
Math 35	4.20	40	0.88	4.08	456	1.01
Math 36	4.16	43	0.95	3.98	456	0.97
Math 37	4.19	43	0.85	4.00	457	0.91
Math 38	4.00	43	0.93	3.89	456	0.97
Math 39	3.93	43	0.99	3.51	453	1.03
Math 40	4.30	43	0.91	4.38	455	0.78
Math 41	4.23	43	0.87	4.09	453	0.86
Math 42	3.79	43	1.04	3.68	453	1.03
Math 43	3.95	42	0.96	3.43	453	1.03
SS 44	4.16	44	0.86	4.16	455	0.88
SS 45	4.07	44	0.85	3.85	455	0.91
SS 46	3.84	44	0.89	3.56	453	0.98
SS 47	4.08	36	0.87	3.92	335	0.87
SS 48	4.07	44	0.76	3.97	455	0.90
SS 49	4.23	44	0.64	4.02	455	0.85

(Table continues)

Table (continued)

	African American			White		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
SS 50	4.30	43	0.64	4.31	454	0.77
SS 51	4.05	44	0.86	4.13	455	0.85
SS 52	4.30	43	0.74	4.36	453	0.75
SS 53	3.89	44	0.87	3.60	452	0.85
SS 54	3.93	44	0.90	3.51	451	0.89
Sci 55	3.84	44	1.01	3.81	453	0.87
Sci 56	4.23	44	0.77	4.17	454	0.84
Sci 57	3.70	44	0.95	3.44	452	0.89
Sci 58	3.84	43	0.92	3.65	452	0.93
Sci 59	4.07	42	0.84	4.17	453	0.80
Sci 60	3.88	42	0.92	3.60	450	0.95
Sci 61	3.73	44	0.90	3.79	454	0.92
Sci 62	3.61	44	0.84	3.23	454	0.98
Sci 63	3.61	44	0.92	3.36	452	0.97
Sci 64	3.84	44	0.86	3.60	454	1.01
Sci 65	3.68	44	0.83	3.34	454	0.98
Sci 66	3.73	44	0.85	3.47	453	0.97
Sci 67	4.02	44	0.85	3.80	453	0.92
Sci 68	3.79	42	0.81	3.65	450	0.94
Sci 69	3.77	44	0.86	3.54	453	0.97
Sci 70	3.82	44	0.90	3.38	451	0.97

Appendix G

Mean Importance Ratings by School Level

	Elementary			Middle			Secondary		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Lit 1	4.16	265	0.86	3.87	115	0.95	3.96	135	0.95
Lit 2	4.27	264	0.72	4.06	116	0.86	3.95	137	0.89
Lit 3	3.99	265	0.83	3.76	115	0.88	3.52	136	0.92
Lit 4	4.13	264	0.80	3.80	115	0.93	3.70	137	0.92
Lit 5	4.18	257	0.78	3.72	115	0.96	3.61	135	0.91
Lit 6	4.15	189	0.79	3.77	94	0.82	3.57	105	0.92
Lit 7	3.91	264	0.86	3.55	116	0.96	3.31	137	0.99
Lit 8	3.66	265	0.91	3.02	116	1.04	2.85	135	0.93
Lit 9	3.62	265	0.93	3.66	116	0.95	3.65	137	0.88
Lit 10	3.75	264	0.90	3.57	116	0.99	3.52	136	0.93
Lit 11	3.73	265	0.93	3.36	116	0.98	3.28	137	0.91
Arts 12	2.85	264	1.07	2.72	115	1.07	2.62	138	1.03
Arts 13	3.06	263	1.07	2.83	115	1.09	2.67	138	1.01
Arts 14	2.86	261	1.02	2.82	115	1.10	2.75	136	1.02
Arts 15	2.46	262	0.97	2.60	115	1.14	2.67	138	1.01
Arts 16	3.15	262	1.07	3.16	115	1.11	3.01	137	1.05
Arts 17	3.11	262	1.05	3.09	115	1.06	3.14	138	1.06
Arts 18	2.83	263	0.95	2.61	115	1.03	2.69	137	1.04
Arts 19	2.52	263	0.97	2.62	115	1.14	2.79	137	1.09
Arts 20	2.89	261	1.04	2.87	115	1.02	2.93	137	1.06
Arts 21	3.07	261	1.08	3.08	115	1.05	3.09	137	1.08
Arts 22	2.52	262	0.97	2.49	115	0.89	2.57	137	0.98
Arts 23	2.51	260	1.00	2.59	115	1.05	2.70	137	1.09
Arts 24	2.38	260	1.05	2.37	115	1.14	2.26	137	1.01

(Table continues)

Table (continued)

	Elementary			Middle			Secondary		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Arts 25	2.29	261	1.03	2.21	115	1.03	2.22	137	1.03
Arts 26	2.24	262	1.01	2.33	115	1.07	2.45	137	1.15
Math 27	4.52	264	0.75	4.49	115	0.75	4.27	139	0.88
Math 28	4.44	264	0.74	4.30	115	0.79	4.22	138	0.85
Math 29	4.16	264	0.84	4.34	115	0.77	4.14	138	0.87
Math 30	3.85	264	0.95	3.93	115	0.95	3.91	138	1.01
Math 31	3.86	263	0.98	3.91	115	0.96	3.77	139	1.11
Math 32	3.70	263	1.03	3.53	114	1.03	3.35	138	1.18
Math 33	4.56	264	0.67	4.25	114	0.88	3.83	138	1.06
Math 34	4.14	264	0.83	3.93	113	0.97	3.58	138	1.06
Math 35	4.45	260	0.74	3.87	114	1.05	3.57	137	1.15
Math 36	4.13	264	0.86	3.96	114	0.96	3.76	137	1.11
Math 37	4.02	264	0.89	4.04	114	0.87	4.01	138	0.96
Math 38	4.00	263	0.92	3.90	114	0.93	3.67	138	1.06
Math 39	3.59	261	1.03	3.61	114	0.96	3.44	137	1.06
Math 40	4.40	264	0.78	4.39	114	0.77	4.29	136	0.81
Math 41	4.13	262	0.86	4.01	114	0.88	4.14	136	0.85
Math 42	3.79	262	1.03	3.65	114	1.04	3.50	136	1.03
Math 43	3.65	262	1.05	3.46	113	0.94	3.19	136	1.06
SS 44	4.14	264	0.91	4.17	114	0.90	4.17	137	0.84
SS 45	3.82	264	0.94	3.91	114	0.89	3.90	137	0.83
SS 46	3.54	263	1.01	3.60	113	0.92	3.58	137	0.97
SS 47	3.92	192	0.90	3.98	87	0.88	3.89	106	0.84
SS 48	3.95	264	0.91	4.08	114	0.88	3.90	137	0.90
SS 49	4.14	264	0.79	4.01	114	0.85	3.88	137	0.88

(Table continues)

Table (continued)

	Elementary			Middle			Secondary		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
SS 50	4.41	263	0.68	4.32	114	0.76	4.07	136	0.87
SS 51	4.06	264	0.88	4.15	114	0.91	4.18	137	0.78
SS 52	4.33	262	0.77	4.36	113	0.78	4.37	137	0.71
SS 53	3.58	262	0.92	3.64	113	0.76	3.66	137	0.87
SS 54	3.52	261	0.93	3.58	113	0.90	3.51	137	0.86
Sci 55	3.89	262	0.85	3.84	114	0.85	3.60	137	0.94
Sci 56	4.20	263	0.82	4.25	114	0.80	3.99	137	0.92
Sci 57	3.38	263	0.94	3.58	113	0.81	3.49	136	0.90
Sci 58	3.68	260	0.94	3.75	114	0.90	3.51	137	0.93
Sci 59	4.15	261	0.78	4.24	113	0.80	4.09	137	0.84
Sci 60	3.59	259	0.99	3.67	113	0.96	3.56	136	0.89
Sci 61	3.84	263	0.88	3.85	114	0.91	3.63	137	0.99
Sci 62	3.35	263	0.94	3.31	114	1.06	3.10	137	0.99
Sci 63	3.48	263	0.90	3.43	113	0.99	3.18	136	1.06
Sci 64	3.79	263	0.90	3.54	114	1.07	3.40	137	1.03
Sci 65	3.44	263	0.95	3.32	114	0.99	3.28	137	0.99
Sci 66	3.58	262	0.92	3.55	114	0.99	3.25	137	1.01
Sci 67	3.72	262	0.99	3.91	115	0.84	3.86	136	0.84
Sci 68	3.59	259	0.98	3.68	115	0.84	3.79	134	0.89
Sci 69	3.42	262	0.99	3.55	115	0.99	3.80	136	0.84
Sci 70	3.34	260	1.00	3.37	115	0.91	3.57	135	0.96

Appendix H

Mean Importance Ratings by Urbanicity

	Mainly urban			Mainly suburban			Mainly rural		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Lit 1	4.17	229	0.87	3.97	149	0.94	3.89	138	0.93
Lit 2	4.26	230	0.77	4.01	150	0.88	4.06	138	0.77
Lit 3	3.96	228	0.85	3.70	151	0.89	3.68	138	0.94
Lit 4	4.07	229	0.86	3.82	151	0.93	3.85	137	0.84
Lit 5	4.07	226	0.85	3.87	149	0.94	3.74	133	0.89
Lit 6	4.03	176	0.86	3.79	111	0.86	3.81	103	0.88
Lit 7	3.83	229	0.90	3.52	151	0.96	3.57	138	1.00
Lit 8	3.48	229	1.00	3.11	151	0.97	3.22	137	1.04
Lit 9	3.72	230	0.96	3.50	151	0.89	3.67	138	0.84
Lit 10	3.80	228	0.97	3.54	151	0.90	3.52	138	0.88
Lit 11	3.69	230	0.96	3.38	151	0.99	3.42	138	0.90
Arts 12	2.87	231	1.05	2.63	150	1.11	2.72	137	1.04
Arts 13	2.97	230	1.04	2.84	150	1.14	2.88	137	1.04
Arts 14	2.87	229	1.05	2.74	149	1.04	2.86	135	1.02
Arts 15	2.74	230	1.04	2.36	149	0.99	2.46	137	0.99
Arts 16	3.21	230	1.06	2.99	148	1.11	3.08	137	1.05
Arts 17	3.23	229	1.03	3.05	150	1.10	3.01	137	1.04
Arts 18	2.86	230	1.07	2.66	149	0.98	2.66	137	0.89
Arts 19	2.79	229	1.06	2.46	149	1.06	2.51	138	1.01
Arts 20	2.99	230	1.07	2.87	149	1.05	2.79	135	0.99
Arts 21	3.16	230	1.09	3.04	149	1.10	3.01	135	1.03
Arts 22	2.62	230	0.99	2.45	149	0.96	2.46	136	0.90
Arts 23	2.76	227	1.08	2.44	149	1.03	2.45	137	0.94
Arts 24	2.49	228	1.08	2.16	149	1.02	2.30	135	1.04

(Table continues)

Table (continued)

	Mainly urban			Mainly suburban			Mainly rural		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Arts 25	2.40	230	1.07	2.09	149	0.99	2.21	135	1.02
Arts 26	2.54	229	1.16	2.11	149	0.98	2.19	137	0.94
Math 27	4.42	230	0.83	4.44	150	0.76	4.50	139	0.76
Math 28	4.31	230	0.80	4.37	150	0.76	4.41	138	0.78
Math 29	4.22	229	0.88	4.11	150	0.82	4.25	139	0.78
Math 30	3.97	230	0.98	3.71	150	0.92	3.93	138	0.98
Math 31	3.92	229	1.04	3.67	150	0.96	3.92	139	1.01
Math 32	3.66	227	1.09	3.37	150	1.09	3.63	139	1.02
Math 33	4.30	228	0.90	4.19	150	0.88	4.37	139	0.89
Math 34	4.01	228	0.98	3.83	150	0.97	3.96	138	0.89
Math 35	4.13	223	1.02	3.97	150	1.04	4.12	139	0.99
Math 36	3.99	227	1.03	3.86	150	0.96	4.15	139	0.86
Math 37	4.03	228	0.94	3.93	150	0.91	4.10	139	0.82
Math 38	3.87	227	1.02	3.81	150	0.97	4.03	139	0.88
Math 39	3.65	226	1.04	3.40	149	1.05	3.54	138	0.97
Math 40	4.35	226	0.84	4.33	150	0.82	4.46	139	0.68
Math 41	4.17	226	0.88	4.09	150	0.86	4.03	137	0.86
Math 42	3.76	226	1.07	3.58	150	1.06	3.67	137	0.96
Math 43	3.65	225	1.07	3.27	150	1.01	3.44	137	1.01
SS 44	4.23	229	0.88	4.09	149	0.89	4.12	138	0.90
SS 45	3.99	229	0.90	3.77	149	0.96	3.75	138	0.83
SS 46	3.72	228	0.97	3.46	149	1.00	3.42	137	0.97
SS 47	3.98	172	0.91	3.81	108	0.88	3.97	105	0.83
SS 48	4.03	229	0.91	3.86	149	0.93	3.99	138	0.86
SS 49	4.11	229	0.81	4.00	149	0.90	3.96	138	0.79

(Table continues)

Table (continued)

	Mainly urban			Mainly suburban			Mainly rural		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
SS 50	4.27	228	0.77	4.30	149	0.78	4.36	137	0.75
SS 51	4.09	229	0.89	4.07	149	0.87	4.20	138	0.82
SS 52	4.34	228	0.78	4.33	149	0.79	4.39	136	0.68
SS 53	3.68	229	0.96	3.50	149	0.84	3.62	135	0.74
SS 54	3.62	229	1.00	3.45	148	0.87	3.46	135	0.76
Sci 55	3.86	228	0.93	3.71	150	0.88	3.78	136	0.82
Sci 56	4.18	229	0.85	4.11	150	0.91	4.15	136	0.80
Sci 57	3.53	229	0.91	3.37	149	0.94	3.42	135	0.86
Sci 58	3.72	227	0.99	3.59	150	0.94	3.60	135	0.84
Sci 59	4.12	227	0.82	4.18	149	0.81	4.17	136	0.77
Sci 60	3.73	226	0.93	3.45	148	1.02	3.56	135	0.94
Sci 61	3.83	229	0.93	3.65	150	0.97	3.84	136	0.88
Sci 62	3.44	229	0.98	3.04	150	1.04	3.25	136	0.89
Sci 63	3.53	229	0.98	3.20	150	1.01	3.36	134	0.90
Sci 64	3.72	229	0.97	3.49	150	1.05	3.60	136	0.97
Sci 65	3.48	229	0.98	3.25	150	1.00	3.30	136	0.94
Sci 66	3.56	228	1.02	3.42	150	0.97	3.43	136	0.87
Sci 67	3.85	229	0.92	3.68	150	0.99	3.85	135	0.86
Sci 68	3.77	226	0.89	3.55	149	0.95	3.60	134	0.97
Sci 69	3.66	229	0.97	3.47	150	1.03	3.45	135	0.87
Sci 70	3.55	227	0.98	3.32	150	1.01	3.27	134	0.92

Appendix I

Mean Importance Ratings by Content Expertise

Subject	Elementary			Language Arts			Mathematics			Science			Social Studies			Fine Arts			Other		
	Mean	N	SD	Mean	N	SD	Mean	N	SD	Mean	N	SD	Mean	N	SD	Mean	N	SD	Mean	N	SD
Lit 1	4.13	230	0.87	4.35	69	0.84	3.64	55	1.02	3.75	64	0.94	4.04	52	0.82	4.00	28	0.86	4.25	8	1.04
Lit 2	4.24	229	0.74	4.20	71	0.84	3.93	55	0.90	3.78	64	0.88	4.15	52	0.80	4.25	28	0.75	4.56	9	0.73
Lit 3	3.99	230	0.83	3.87	71	0.91	3.45	55	0.96	3.50	64	0.89	3.69	51	0.91	3.96	28	0.84	4.11	9	0.78
Lit 4	4.08	230	0.79	3.97	71	0.97	3.64	55	0.97	3.52	64	0.87	3.98	51	0.84	4.04	28	0.84	4.56	9	0.53
Lit 5	4.16	225	0.78	3.97	71	0.89	3.44	54	0.96	3.41	63	0.80	3.90	50	0.91	4.00	27	0.88	4.44	9	0.73
Lit 6	4.14	167	0.78	3.96	55	0.88	3.59	41	0.92	3.38	53	0.71	3.74	38	0.92	3.90	20	0.79	4.44	9	0.73
Lit 7	3.91	231	0.85	3.68	71	1.11	3.16	55	1.03	3.13	64	0.83	3.62	52	0.91	3.75	28	0.70	4.44	9	0.73
Lit 8	3.64	231	0.92	3.30	71	1.09	2.72	54	1.07	2.62	63	0.79	3.08	52	0.88	3.50	28	0.92	3.89	9	0.78
Lit 9	3.61	231	0.92	3.69	71	0.95	3.44	55	0.92	3.42	64	0.75	4.04	52	0.91	3.79	28	0.96	4.33	9	1.00
Lit 10	3.75	230	0.90	3.56	71	0.97	3.35	55	0.89	3.31	64	0.92	3.88	51	0.93	3.82	28	0.86	4.67	9	0.71
Lit 11	3.71	231	0.94	3.65	71	0.96	3.05	55	0.99	2.98	64	0.85	3.63	52	0.86	3.43	28	0.84	4.22	9	0.83
Arts 12	2.76	230	1.03	2.84	70	0.97	2.43	56	1.02	2.43	63	0.86	2.65	52	1.10	4.04	28	0.88	3.56	9	1.24
Arts 13	3.00	229	1.05	3.00	70	1.01	2.41	56	1.04	2.48	63	0.80	2.77	52	1.11	3.89	28	0.88	3.67	9	1.12
Arts 14	2.79	227	0.97	3.01	70	1.03	2.53	55	1.09	2.54	63	0.88	2.83	52	1.13	3.86	28	0.89	3.50	8	1.07
Arts 15	2.39	230	0.95	2.63	68	0.93	2.30	56	1.09	2.38	63	0.94	3.02	52	1.11	3.61	28	0.79	3.11	9	1.05
Arts 16	3.10	230	1.07	3.31	70	1.04	2.84	55	1.17	2.83	63	0.93	3.17	52	1.10	3.89	28	0.92	3.56	9	0.88
Arts 17	3.04	229	1.03	3.47	70	0.96	2.73	56	1.05	2.73	63	0.92	3.37	52	1.09	4.04	28	0.79	3.89	9	0.78

(Table continues)

Table (continued)

Subject	Elementary			Language Arts			Mathematics			Science			Social Studies			Fine Arts			Other		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Arts 18	2.80	230	0.95	2.80	70	1.14	2.65	55	1.02	2.49	63	0.86	52	52	1.00	3.36	28	1.03	3.11	9	0.78
Arts 19	2.46	231	0.97	2.78	69	0.98	2.29	55	1.08	2.38	63	0.94	3.12	52	1.17	3.64	28	0.87	3.33	9	1.00
Arts 20	2.83	228	1.04	3.46	70	0.97	2.58	55	0.98	2.49	63	0.80	2.81	52	1.10	3.71	28	0.90	3.44	9	0.53
Arts 21	3.01	228	1.07	3.61	70	0.94	2.76	55	1.07	2.56	63	0.82	3.15	52	1.14	3.93	28	0.90	3.67	9	0.50
Arts 22	2.43	229	0.94	2.80	70	0.94	2.35	55	0.93	2.21	63	0.72	2.63	52	1.05	3.46	28	0.92	2.89	9	0.78
Arts 23	2.44	227	0.99	2.84	70	0.97	2.29	55	1.03	2.29	63	0.85	3.12	52	1.20	3.32	28	0.94	3.11	9	0.93
Arts 24	2.30	227	1.04	2.67	70	1.06	2.25	55	1.16	1.92	63	0.70	2.23	52	1.10	3.26	27	1.10	2.67	9	0.50
Arts 25	2.18	228	1.00	2.51	70	1.07	2.07	55	1.05	1.90	63	0.76	2.21	52	1.02	3.36	28	1.10	2.67	9	0.87
Arts 26	2.16	230	1.00	2.59	70	1.01	2.09	55	1.09	2.02	63	0.81	2.71	52	1.24	3.18	28	1.12	3.00	9	1.12
Math 27	4.53	231	0.76	4.44	70	0.79	4.37	57	0.77	4.48	63	0.76	4.12	52	1.02	4.32	28	0.77	5.00	9	0.00
Math 28	4.44	231	0.76	4.30	70	0.86	4.32	57	0.78	4.38	63	0.71	4.08	52	0.88	4.14	28	0.76	4.89	9	0.33
Math 29	4.15	231	0.86	4.19	69	0.93	4.21	57	0.80	4.38	63	0.68	4.17	52	0.92	3.93	28	0.77	4.78	9	0.44
Math 30	3.84	231	0.96	3.86	70	0.98	3.93	56	1.04	4.14	63	0.80	3.83	52	1.06	3.64	28	0.91	4.56	9	0.53
Math 31	3.85	230	1.00	3.83	70	1.08	3.79	57	1.10	4.06	63	0.90	3.69	52	1.11	3.64	28	0.87	4.56	9	0.73
Math 32	3.73	230	1.02	3.54	70	1.16	3.49	57	1.09	3.49	63	1.00	3.02	50	1.13	3.36	28	1.03	4.44	9	0.73
Math 33	4.58	231	0.65	4.23	70	1.01	4.07	57	0.96	4.11	63	0.92	3.64	50	1.06	3.86	28	0.93	4.89	9	0.33
Math 34	4.19	231	0.81	3.71	70	1.01	3.98	57	0.94	3.79	63	0.85	3.35	49	1.22	3.50	28	1.04	4.67	9	0.50
Math 35	4.52	229	0.70	3.68	68	1.19	4.05	56	0.84	3.73	63	0.99	3.34	50	1.29	3.50	28	0.96	4.78	9	0.44

(Table continues)

Table (continued)

Subject	Elementary			Language Arts			Mathematics			Science			Social Studies			Fine Arts			Other		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
Math 36	4.16	231	0.86	3.89	70	1.04	4.00	56	0.97	4.08	63	0.89	3.36	50	1.19	3.61	28	0.88	4.44	9	0.73
Math 37	4.00	231	0.90	4.09	70	0.81	3.89	57	0.92	4.10	63	0.89	4.02	50	1.02	3.86	28	0.93	4.56	9	0.53
Math 38	4.02	230	0.92	3.87	70	0.95	3.82	57	1.00	3.92	63	0.90	3.46	50	1.15	3.61	28	0.88	4.78	9	0.44
Math 39	3.61	228	1.05	3.49	70	1.05	3.54	56	1.04	3.65	63	0.88	3.28	50	1.07	3.29	28	0.90	4.44	9	0.73
Math 40	4.42	231	0.75	4.20	70	0.86	4.26	57	0.81	4.55	62	0.67	4.39	49	0.84	3.96	28	1.04	4.89	9	0.33
Math 41	4.15	229	0.84	4.00	70	0.90	4.00	57	0.93	4.18	62	0.78	4.16	49	0.87	3.64	28	1.03	5.00	9	0.00
Math 42	3.78	229	1.01	3.61	70	1.15	3.70	57	1.07	3.44	62	0.97	3.59	49	0.98	3.50	28	1.00	4.44	9	0.88
Math 43	3.66	230	1.04	3.36	69	1.21	3.23	57	1.04	3.32	62	0.90	3.29	48	0.92	3.32	28	0.90	4.22	9	0.83
SS 44	4.16	231	0.90	4.41	70	0.71	3.89	55	1.01	3.94	63	0.95	4.45	51	0.64	3.89	28	0.92	4.56	9	0.73
SS 45	3.84	231	0.92	4.13	70	0.87	3.56	55	0.94	3.63	63	0.87	4.24	51	0.68	3.68	28	0.90	4.56	9	0.73
SS 46	3.53	230	1.00	3.53	70	0.99	3.37	54	0.94	3.44	63	0.88	4.08	51	0.89	3.64	28	1.03	4.33	9	0.71
SS 47	3.94	167	0.90	4.12	57	0.78	3.50	40	0.82	3.68	50	0.96	4.30	37	0.74	3.86	21	0.73	4.67	9	0.50
SS 48	3.97	231	0.90	4.10	70	0.84	3.64	55	0.89	3.78	63	0.91	4.37	51	0.80	3.86	28	0.89	4.67	9	0.50
SS 49	4.14	231	0.79	4.04	70	0.77	3.58	55	0.94	3.95	63	0.91	4.25	51	0.77	3.89	28	0.74	4.78	9	0.44
SS 50	4.41	230	0.67	4.26	70	0.77	4.04	55	0.94	4.13	62	0.82	4.45	51	0.73	4.07	28	0.81	4.78	9	0.44
SS 51	4.07	231	0.87	4.21	70	0.83	3.89	55	0.92	4.06	63	0.82	4.45	51	0.78	3.93	28	0.94	4.67	9	0.50
SS 52	4.32	228	0.77	4.46	70	0.70	4.18	55	0.77	4.37	63	0.70	4.53	51	0.76	4.25	28	0.89	4.67	9	0.50
SS 53	3.56	229	0.89	3.64	70	0.85	3.61	54	0.79	3.51	63	0.78	4.00	51	0.80	3.43	28	1.03	4.22	9	0.67

(Table continues)

Table (continued)

Subject	Elementary			Language Arts			Mathematics			Science			Social Studies			Fine Arts			Other		
	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>	Mean	<i>N</i>	<i>SD</i>
SS 54	3.52	228	0.90	3.54	70	0.86	3.43	54	0.88	3.40	63	0.85	3.96	51	0.80	3.29	28	1.15	4.22	9	0.67
Sci 55	3.92	228	0.83	3.73	70	0.90	3.47	55	0.86	3.98	64	0.86	3.73	51	0.98	3.50	28	1.00	4.11	9	0.78
Sci 56	4.23	229	0.81	4.13	70	0.78	3.98	55	0.93	4.34	64	0.84	4.06	51	0.88	3.71	28	0.98	4.56	9	0.53
Sci 57	3.38	229	0.93	3.56	70	0.83	3.11	53	0.82	3.75	64	0.84	3.65	51	0.89	3.32	28	0.94	4.22	9	0.67
Sci 58	3.68	226	0.94	3.61	70	0.82	3.44	55	0.90	3.98	64	0.92	3.53	51	0.95	3.32	28	1.06	4.22	9	0.67
Sci 59	4.15	227	0.76	4.09	69	0.78	3.98	55	0.89	4.45	64	0.73	4.24	51	0.81	3.68	28	0.98	4.56	9	0.73
Sci 60	3.57	225	0.97	3.67	69	0.85	3.49	55	0.96	3.77	64	0.99	3.64	50	0.96	3.32	28	1.06	4.11	9	0.78
Sci 61	3.85	229	0.88	3.80	70	0.86	3.51	55	1.02	4.06	64	0.77	3.69	51	1.01	3.39	28	1.13	4.11	9	0.93
Sci 62	3.36	229	0.95	3.30	70	0.94	2.85	55	1.03	3.58	64	0.87	3.08	51	1.04	3.11	28	1.13	3.78	9	0.97
Sci 63	3.50	229	0.92	3.33	69	0.93	2.96	55	1.00	3.68	63	0.89	3.10	51	1.10	3.21	28	1.03	3.89	9	1.17
Sci 64	3.78	229	0.91	3.64	70	0.99	3.04	55	1.14	3.78	64	0.92	3.39	51	1.02	3.57	28	1.07	4.33	9	0.71
Sci 65	3.44	229	0.96	3.44	70	0.85	2.85	55	1.03	3.48	64	0.99	3.31	51	0.99	3.39	28	1.03	4.00	9	0.87
Sci 66	3.59	228	0.92	3.50	70	0.90	3.05	55	1.06	3.63	64	0.95	3.33	51	0.99	3.32	28	1.12	4.11	9	0.93
Sci 67	3.72	228	1.00	3.77	70	0.80	3.71	55	0.94	4.05	64	0.79	4.08	51	0.80	3.64	28	0.95	4.33	9	0.87
Sci 68	3.56	226	0.99	3.78	68	0.90	3.51	55	0.81	3.84	63	0.88	3.84	51	0.88	3.68	28	0.94	4.22	9	0.67
Sci 69	3.39	228	1.01	3.69	70	0.81	3.38	55	0.89	3.59	64	1.00	4.00	51	0.85	3.68	28	0.94	4.33	9	0.71
Sci 70	3.30	226	1.01	3.57	70	0.91	3.16	55	0.92	3.44	64	0.94	3.76	51	0.91	3.36	28	0.95	4.33	9	0.71

Appendix J

Mean Ratings Less Than 3.50 by Subgroup

	All	Job		Race		School type			District			Subject						
	N=626	Teacher N=525	Teacher Educator N=82	African American N=44	White N=460	Elem. N=266	Mid. N=116	High N=139	Urban N=231	Suburb. N=152	Rural N=139	Mult. Subj. N=231	Lang. Arts N=71	Math N=57	Sci. N=64	Social Studies N=52	Fine Arts N=28	Other N=9
Lit 3													3.45					
Lit 5													3.44	3.41				
Lit 6														3.38				
Lit 7							3.31						3.16	3.13				
Lit 8	3.32	3.30	3.45		3.28		3.02	2.85	3.48	3.11	3.22		3.30	2.72	2.62	3.08		
Lit 9													3.44	3.42				
Lit 10													3.35	3.31				
Lit 11								3.28		3.38	3.42		3.05	2.98			3.43	
Arts 12	2.83	2.77	3.20	2.86	2.76	2.85	2.72	2.62	2.87	2.63	2.72	2.76	2.84	2.43	2.43	2.65		
Arts 13	2.98	2.91	3.38	2.84	2.91	3.06	2.83	2.67	2.97	2.84	2.88	3.00	3.00	2.41	2.48	2.77		
Arts 14	2.89	2.83	3.22	2.79	2.83	2.86	2.82	2.75	2.87	2.74	2.86	2.79	3.01	2.53	2.54	2.83		
Arts 15	2.61	2.55	3.00	2.98	2.52	2.46	2.60	2.67	2.74	2.36	2.46	2.39	2.63	2.30	2.38	3.02		3.11
Arts 16	3.19	3.12		3.18	3.10	3.15	3.16	3.01	3.21	2.99	3.08	3.10	3.31	2.84	2.83	3.17		
Arts 17	3.17	3.12	3.42	3.11	3.12	3.11	3.09	3.14	3.23	3.05	3.01	3.04	3.47	2.73	2.73	3.37		
Arts 18	2.80	2.75	3.12	2.77	2.75	2.83	2.61	2.69	2.86	2.66	2.66	2.80	2.80	2.65	2.49	2.52	3.36	3.11
Arts 19	2.69	2.62	3.02	3.02	2.58	2.52	2.62	2.79	2.79	2.46	2.51	2.46	2.78	2.29	2.38	3.12		3.33

(Table continues)

Table (continued)

	All		Job		Race		School type			District			Subject						
	<i>N</i> =626	<i>N</i> =525	Teacher Educator <i>N</i> =82	Teacher <i>N</i> =82	African American <i>N</i> =44	White <i>N</i> =460	Elem. <i>N</i> =266	Mid. <i>N</i> =116	High <i>N</i> =139	Urban <i>N</i> =231	Suburb. <i>N</i> =152	Rural <i>N</i> =139	Mult. Subj. <i>N</i> =231	Lang. Arts <i>N</i> =71	Math <i>N</i> =57	Sci. <i>N</i> =64	Social Studies <i>N</i> =52	Fine Arts <i>N</i> =28	Other <i>N</i> =9
Arts 20	2.96	2.90	3.32		3.00	2.89	2.89	2.87	2.93	2.99	2.87	2.79	2.83	3.46	2.58	2.49	2.81		3.44
Arts 21	3.15	3.08			3.23	3.07	3.07	3.08	3.09	3.16	3.04	3.01	3.01		2.76	2.56	3.15		
Arts 22	2.57	2.53	2.80		2.80	2.50	2.52	2.49	2.57	2.62	2.45	2.46	2.43	2.80	2.35	2.21	2.63	3.46	2.89
Arts 23	2.64	2.59	2.90		3.02	2.54	2.51	2.59	2.70	2.76	2.44	2.45	2.44	2.84	2.29	2.29	3.12	3.32	3.11
Arts 24	2.41	2.35	2.77		2.56	2.32	2.38	2.37	2.26	2.49	2.16	2.30	2.30	2.67	2.25	1.92	2.23	3.26	2.67
Arts 25	2.32	2.26	2.64		2.61	2.21	2.29	2.21	2.22	2.40	2.09	2.21	2.18	2.51	2.07	1.90	2.21	3.36	2.67
Arts 26	2.39	2.32	2.70		2.84	2.26	2.24	2.33	2.45	2.54	2.11	2.19	2.16	2.59	2.09	2.02	2.71	3.18	3.00
Math 32									3.35					3.49	3.49	3.02	3.36		
Math 34																	3.35		
Math 35																	3.34		
Math 36																	3.36		
Math 38																	3.46		
Math 39								3.44			3.40			3.49			3.28	3.29	
Math 42																3.44			
Math 43		3.48			3.43		3.46	3.19		3.27	3.44		3.36	3.23	3.32	3.29	3.32		
SS 46										3.46	3.42			3.37	3.44				
SS 53																		3.43	

56

(Table continues)

Table (continued)

	All	Job		Race		School type			District			Subject						
		Teacher	Teacher Educator	African American	White	Elem.	Mid.	High	Urban	Suburb.	Rural	Mult. Subj.	Lang. Arts	Math	Sci.	Social Studies	Fine Arts	Other
	N=626	N=525	N=82	N=44	N=460	N=266	N=116	N=139	N=231	N=152	N=139	N=231	N=71	N=57	N=64	N=52	N=28	N=9
SS 54										3.45	3.46			3.43	3.40		3.29	
Sci 55														3.47				
Sci 57		3.46			3.44	3.38		3.49		3.37	3.42			3.11			3.32	
Sci 58														3.44			3.32	
Sci 60										3.45				3.49			3.32	
Sci 61																	3.39	
Sci 62	3.34	3.27			3.23	3.35	3.31	3.10	3.44	3.04	3.25	3.36	3.30	2.85		3.08	3.11	
Sci 63	3.46	3.39			3.36	3.48	3.43	3.18		3.20	3.36		3.33	2.96		3.10	3.21	
Sci 64								3.40		3.49				3.04		3.39		
Sci 65	3.42	3.37			3.34	3.44	3.32	3.28	3.48	3.25	3.30	3.44	3.44	2.85	3.48	3.31	3.39	
Sci 66		3.49								3.25				3.05		3.33	3.32	
Sci 69						3.42				3.47	3.45	3.39		3.38				
Sci 70	3.47	3.41			3.38	3.34	3.37			3.32	3.27	3.30		3.16	3.44		3.36	