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Part I: Validity

According to the 1999 AERA/APA/NCME *Standards for Educational and Psychological Testing* (the *Standards*) validity is a unitary concept. Virtually all of the information provided in this Technical Report on the development of the Missouri Assessment Program (MAP) Mathematics, Science, Communication Arts, and Social Studies tests constitutes evidence of some aspect of validity. For example, evidence comes from test content, the ways different examinees respond to the test, the ways the different subcomponents of the test interrelate, the ways the test relates to other variables, and the realized benefits of using the test where the construct is appropriate. According to the *Standards*…

> Ultimately, the validity of an intended interpretation of test scores relies on all the available evidence relevant to the technical quality of a testing system. This includes evidence of careful test construction; adequate score reliability; appropriate test administration and scoring; accurate score scaling, equating, and standard setting; and careful attention to fairness for all examinees, as described in subsequent chapters of the Standards. (p. 17)

This report therefor, has one major theme, Validity. Part I discusses the concepts involved in determining aspects of validity. Part II will be devoted to evidence for validity. The major aspects of validity treated are

- Construct, Purpose, and Interpretation-of-scores,
- Reliability/Internal Test,
- Classification Consistency,
- Test Content Development,
- Test Content/Design,
- Scaling and Equating,
- Achievement-Level-Setting,
- Fairness,
- Administration/Scoring,
- Consequential Benefits,
- External Variable.

Construct, Purpose, and Interpretation of Scores

The purpose of MAP core test scores is to demonstrate student ability in mathematics, communication arts, science, and social studies in Missouri. The MAP test scores may be used to classify students, schools, districts, and the state with respect to how much ability each shows in each subject area. Classification is based on the level of the ability shown by the MAP tests for each entity.

According to the *Standards…*

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> Tests that provide information about individual performance are used to (a) evaluate a student's overall achievement and growth in a content domain, (b) diagnose student strengths and weaknesses in and across content domains, (c) plan educational interventions and to design individualized instructional plans, (d) place students in appropriate educational programs, (e) select applicants into programs with limited enrollment, and (f) certify individual achievement or qualifications. (p. 137)

Also…

> Tests that provide information about the status, progress, or accomplishments of groups such as schools, school districts, or states are used (a) to judge and monitor the quality of educational programs for all or for particular subsets of individuals, and (b) to infer the success of policies and interventions that have been selected for evaluation. (p. 137)

For the purpose of this Technical Report we will refer to the overall ability score of MAP as the Proficiency score. The content subscores are referred to as Content Standard scores, and the process subscores are referred to as the Process Standard scores. The classifications of students using the Proficiency score are referred to as Achievement Levels.

Evidence gathering for validity begins with an explicit statement of the proposed interpretation of test scores. This statement has been presented above. This document will present limited evidence for the uses of the individual ability MAP scores. However, the primary purpose of this document is to present prior evidence bearing on the interpretation of the MAP score as individual ability scores in core subject areas. If the MAP scores are credible individual ability scores, then confidence increases that they may be used for the purposes mentioned by the *Standards*. However, it is recommended that policy and program evaluation studies, in accordance with the *Standards*, be conducted to support some of those uses.

The rationale for the claim that MAP scores are credible individual ability scores is based in part on the fact that the MAP tests were devised by creating items very much like the questions and activities teachers use to teach their students each of the subjects for which MAP may be used to measure students' ability. Missouri teachers were used as the authors or reviewers of all items in order to assure this close relationship. Their opinions were informed by the Missouri Curriculum Frameworks and the Missouri Show-Me Standards for each of the subjects for which a test was developed. Detailed descriptions of the process used to delineate the knowledge, skills, abilities, and processes, including content limits and process descriptions for each subject area are beyond the scope of this document, but they are available to interested parties as Test blueprints, Test specifications, and Item specifications.

The Proficiency Score

The Proficiency score is a quantification of the ability being measured by each MAP subject area test. The psychometric approach to the definition of ability is operational. That is to say, a test is created that stands as a definition of what is meant by the ability. For this reason, validation of the test's scores is focused on gathering contextual evidence that supports the test's construct. Validating various uses of the MAP test

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scores would involve determining whether decisions made using the test scores were sound decisions. Uses of MAP test scores include, for example, supporting accreditation of schools and districts, determining eligibility of students for reimbursement of costs of taking Advanced Placement tests, providing teachers with indicators of a student's need, or lack of need, for remediation in specific subject area knowledge…to name some.

Psychometric validation of the operational definition of ability also consists of *prima-facie* evidence. Teachers who must use the test to assess their students, and citizens who base their judgments of school quality on the results of tests, inspect the tests (through released items) and agree, or disagree, that the test, as it appears, presents the presumption of fact that the ability measured is, for example, mathematics, science, communication arts, or social studies. Generally, alignment with curriculum guidelines provides additional support for this *prima-facie* evidence.

The Use of the Achievement Level Score

Because it was possible to establish Levels of Achievement that reflected expectations for how much Missouri students needed to be able to do in each subject area, there is reason to believe, and evidence to support, the claim that MAP tests are indeed reflecting the abilities intended by the Missouri legislature, and the Department of Elementary and Secondary Education (DESE). Performance of students on these ability continua is reported as an Achievement Level classification. Performance of schools and districts, and the state, is reported as percentages of students in each Achievement Level classification.

The Use of the Content and Process Standard Subscores

The purpose of reporting Content and Process Standard subscores on MAP is to show that students who exhibit the overall ability being measured have skills in each of the areas delimited by the Content and Process Standards. The Content and Process Standard subscores provide some measure of the extent to which the overall ability has the desired breadth of the Missouri Curriculum Frameworks. The diagnostic value of these subscores however, is limited because some of the subscores are necessarily limited in length. Teachers may use these subscores for individual students as indicators of strengths and weaknesses, but they are best corroborated by other evidence such as homework, class participation, diagnostic test scores, or observation—if the scores are to be used to make decisions about the need, or lack of need, for remediation. Comparison of students with each other on the basis of these subscores is not supported. Profiles of Content or Process Standard subscores for students are not supported.

Reading Content Standard score

One exception to the general comments about Content Standard scores is the Reading score of the MAP Communication Arts test. This test score is composed of items in the Communication Arts test that measure reading. Two Content Standard subscores,

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Fiction and Non-fiction Reading were combined to create this additional Content Standard score. The remaining items in the Communication Arts test measure writing. Approximately 70%-80% of the items in the Communication Arts test measure reading (see the MAP Content Standard Item/Point Distributions Communication Arts Grades 3,7, and 11 and the MAP Communication Arts Item Maps in this report's evidence section). This Content Standard score comprises a substantial test of reading ability.

Process Standard Subscores

Mean Content Standard subscores are reported for schools and districts, but mean Process Standard subscores are not. When aggregated over all the students in the building, or district, the means for the school or district for Content Standard subscores become dependable. These means are intended as indicators of the performance of the school or district in teaching students the knowledges, skills, and abilities defined for each subject area. Standard errors of the means are reported using a 95% confidence interval. These averages may be compared with the state mean to help building or district staff better understand their strengths and weaknesses within a subject area of instruction. Comparisons of Content Standards within a building are not supportable, nor are year-to-year comparisons for a building on one Content Standard. Building and district assessment and curriculum personnel should not base critical decisions on test scores alone, rather, they should use test scores in conjunction with other indicators of school and district performance.

For each MAP subject area, the Process Standard scores are obtained from the same pool of items that Content Standard scores are. These items are reorganized by the particular underlying processes used to teach an item's content. The underlying processes for each Process Standard to be tested were identified by Missouri teachers in a workshop specifically designated for that purpose. However, since this identification of underlying processes was conducted subject area by subject area, there is no basis for scaling these items together across subject areas. Composites of Process Standard scores across subject areas would also be difficult to interpret because they reflect content acquisition as well as process use. The generality of processes across disciplines needs to be studied before it can be assumed—especially if the processes were identified only by subject area. When the Process Standard processes are used to teach the subject area content, the Process Standard scores can be said to reflect the strategies Missouri teachers desire Missouri students to adopt in the learning and handling of "real world" activities. However, the Process Standard scores and the Content Standard scores will increase concurrently when this teaching is successful because the items/tasks are from the same pool.

As a result, differences in a student's attainment on Process Standard scores versus Content Standard scores should not be interpreted as the student having acquired the processes of learning without learning the content, or vice versa. High Content Standard scores and low Process Standard scores will not generally occur because the same pool of items is used to measure both sets of Standards. The Process Standard scores should not be used to answer the question "…has the student learned the content without acquiring the habit of applying the processes used by the teacher in

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instruction?" The Process Standard scores should not be used to indicate that teachers are not teaching by the processes, therefor Process Standard scores are not aggregated to the school building level. The Process Standard scores are not independent evidence for a claim that the processes are being used by teachers when they teach the content in a school. Such inferences would require much lengthier Process Standard scores than can be provided within the testing time for MAP.

It is highly recommended that schools develop observational measures locally to ascertain whether teachers are using the processes set forth by the Process Standards when they teach the MAP Content Standards, since the use of the Process Standards in instruction has been assumed by the developers of the MAP core subject area test item pools.

The Use of the Proficiency Score

Although items for each MAP test are valid indicators of an aspect of the aggregate ability to which they contribute (the proficiency), the individual items are not sufficient indicators of performance on a single topic or process. Evidence is presented for the validity of individual items' contributions to the ability they are measuring in the aggregate. Teaching items released from MAP tests may not be harmful, unless excessive instructional time is used to do it, but no evidence exists that such a practice will raise MAP Proficiency scores on subsequent forms.

The use of the MAP Proficient Achievement Level score to determine eligibility for reimbursement of the cost of Advanced Placement tests has not been studied. The use of MAP to warrant that change in the distribution of MAP percentages of students in Achievement Levels from one year of MAP to another is real growth has not been studied. However, the confidence level in the percentage at or above a given Achievement Level can be reported and should be used in evaluating the likelihood that change from year to year (form to form) could have arisen as a result of chance influences in student populations.

At the grades for which MAP is designed to be used, *TerraNova Survey* editions have been incorporated as subtests of MAP to provide a vertical scale for the MAP, and to contribute to the Proficiency, Content, and Process Standards scores. However, no representations are made that MAP may be used to determine that growth from one MAP test grade to another is more or less than the national average. MAP is intended to provide classifications of student ability according to expectations of performance established by Missouri citizens. Descriptions of each Level of Achievement in terms of what a student must know and do are provided with MAP score reports.

No representation is made that MAP is a definitive or exhaustive measure of any ability construct. Mathematics ability or Science ability or Communication Arts ability, for example, may be defined in ways other than that chosen by Missouri test developers. Evidence is provided that attests to the stability of the ability constructs as defined by Missouri test developers in the form of test form equivalence—see the subsection Scaling and Equating. Satisfaction of Missouri teachers who did not actively participate

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in the development of the Standards or MAP tests has been sampled by studies of the consequential aspects of validity by CLEAR (University of Missouri) and reported in detail elsewhere and summarized herein in the subsection, Consequential Benefits.

Reliability

MAP tests are fallible measuring tools, i.e., the scores of students are subject to error from a variety of sources. The scores for schools' and districts' on the overall ability (their building averages, or means), and on the Content and Process Standard subscores, will therefor also be reflecting a degree of error since they are aggregates of student scores. The degree of error found in MAP student scores is reported in the section on Reliability/Internal Test .

Whereas validity refers to the legitimacy of test scores, reliability refers to the consistency of test scores. Before test scores can really be legitimate they have to be repeatable. Therefor, evidence of validity, or legitimacy, includes evidence of consistency.

Evidence exists that MAP tests will produce essentially the same test scores when different students take different forms of the same subject area test. For example, the internal consistency of each form is reported in Table 1 in the Reliability/Internal Test section. These coefficients provide a single-administration estimate of alternate form reliability. Alternate form reliability is an expression of the amount of variance in the students' scores on the test that is due to the ability being measured.

Evidence also exists that MAP tests do not produce exactly the same test scores if the same students were to take a different form (or even the same form a second time). For example, the internal consistency reliability coefficient of any form is less than the highest value it theoretically can attain (i.e., 1.0). One reason students are not expected to receive exactly the same score on an alternate form (or on the same form a second time) is because the scores fluctuate with changes in the students, with changes in the test (i.e., different forms), with changes in the testing conditions, and with changes in test scoring. The purpose of standardizing testing is to minimize these fluctuations. The high values for the coefficients of reliability coefficients attained for MAP tests attests to the success of the standardization of the tests and their administration.

What accounts for less than perfect reliability? Students acquire factual information constantly. They pick up information from a test form when they take it. Students also perform more or less well on tasks from day to day depending on how they feel. Tests change from form to form. Each form's items reflect domain content in a subject area more or less representatively. Testing conditions change from occasion to occasion. Distractions, administration errors, and scorers' consistency vary. Sometimes test agencies change the time allowed for testing during the life of a program, or even change other aspects of the administration procedures such as changing the number of days over which a test may be given. These variations cannot be eliminated, but their

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management is an attempt to minimize their impact on the legitimacy of the scores reported, by minimizing their impact on the consistency of the scores reported.

It should be noted that management of the conditions that can result in variation in observed scores is done at a price. Standardization of testing conditions, and standardization of tests, is expensive and costly in terms of the use of instructional time. In order to reduce the costs, constraints are often imposed that restrict what is tested. Reliability can be gained at the expense of validity if standardization and management of testing conditions results in forgoing the observation of aspects of student performance that are difficult to narrow down to those measured with greatest consistency, i.e., factual knowledge.

The *Standards* put it this way:

> Each step toward greater flexibility [of test types and conditions] almost inevitably enlarges the scope and magnitude of measurement error. However, it is possible that some of the resultant sacrifices in reliability may reduce construct irrelevance or construct underrepresentation in an assessment program. (p. 26)

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Classification Consistency

The *Standards* also make reference to an additional measurement concern that bears on evidence for validity:

> Some authorities have proposed that a semantic distinction be made between "reliability of scores" and "degree of agreement in classification." The former term would be reserved for analysis of score variation under repeated measurement. The term *classification consistency* … , rather than reliability, would be used in discussions of consistency of classification. Adoption of such usage would make it clear that the importance of an error of any given size depends on the proximity of the examinee's score to the cut score. (p. 30)

A repeated measurements approach to studying the classification consistency for the MAP Achievement Levels was not feasible due to security, logistics, and cost constraints. Therefor, CTB/McGraw-Hill studied classification consistency of examinees by simulating a test-retest condition using a normal distribution of true scores and random error.

Test Content Development

Because the items and tests were informed by the respective Missouri subject area Curriculum Frameworks and developed by Missouri teachers and CTB/McGraw-Hill subject area experts, there is reason to believe, and evidence to support, that each of the MAP tests is measuring specific subject area's knowledge and skills. This conjecture is supported by principal components analyses indicating that each subject area test is dominated by a single large factor (see Part II. A.).

In the subsection entitled Test Content Development, this document contains a chronology explicating the sequence of events involved in implementing the Test blueprint, Test specifications, and Item specifications. The process of developing a large-scale state test involves many constituencies who attempt to incorporate features that are desirable from their point of view. The test design emerges from the process as a compromise between these desired features and the many constraints imposed by cost, time, pedagogy, different experts, and psychometrics.

Test Content/Design

One of the emergent features, for example, is the important claim of MAP that the MAP test scores reflect "higher-order thinking skills" in each subject area. This requirement was operationalized from the Test and Item specifications using constructed-response tasks. This requirement probably stems from the perception that some traditional achievement tests are vulnerable to the charge that examinees can answer the questions by memorizing answers provided by peers, teachers, or others who have seen test items…or the charge that the test items can be answered by recognizing the correct alternative provided in a list of choices for the question. Both charges suggest

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that a score may reflect a student's ability to answer test questions, not adequately understand mathematics, science, or social studies concepts. Cognitive scientists rightly point out that task analysis of items and tasks is required to identify the components of ability required to solve the problem presented by an item or task. To cognitive scientists it is necessary to demonstrate that a task requires theoretically posited mental processes. Psychometricians, on the other hand, show factors of performance on tasks or test questions that arise when people are presented with a variety of different tasks.

As evidence that MAP examinees cannot obtain high scores without conceptual understanding, the MAP test developers have released examples of the tasks actually used to obtain the scores. Many of these tasks, upon analysis, will demonstrate that examinees must show their work and explain their answers to receive full credit. This requirement of the MAP constructed-response tasks fulfills the conditions that the examinee be able to

- translate the question to herself using linguistic and factual knowledge,
- integrate the question's information in an internal representation,
- plan a solution to answer the question,
- execute that plan with algorithmic procedures learned in the classroom, and
- show the work, or explain the process of answering the question in writing.

Scaling and Equating

The purpose of scaling a test is to enhance its validity by increasing the comparability of test taker's scores. Number correct raw scores are easily misinterpreted because examinees with the same number of correct items may differ in their ability on the underlying continuum the test measures. This happens of course because items differ in kind and degree in what they measure. A score that merely counts items correct ignores this important fact.

Fortunately transformations exist that improve this situation by incorporating the variation in item difficulty as information about student ability. In the case of MAP these transformations are effected by Item Response Theory (IRT). Specifically MAP scores are produced using a three-parameter logistic, two-parameter partial credit (3PL/2PPC) IRT model that assumes that each of the items and tasks is an independent indicator of the underlying ability governing the propensity for students to answer the item correctly (or with greater correctness in the case of the multilevel constructed-response tasks).

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Scaling and Special Effects

Evidence for validity is provided when scaling results are consistent with expectations implied by the construct being measured. For example, scaling a test made up of many items assumes that all the items are measuring the construct. Each item provides an estimate of the ability of the examinee with respect to the construct. We wish to express the examinee's ability on a scale with equal units and we know that items are not equal units even if each item is measuring the same ability. Getting the answer to some items seems to require more ability than getting the answer to other items on the same test.

If items are not equal units then we need some scale other than a *raw score scale* which is simply the number of items correct, or the number of points awarded for getting items partially, or wholly, correct. Item Response Theory (IRT) provides a procedure to create a scale with equal units so that we may compare students' ability on the construct.

Construct issues are addressed by the Test Blueprint, Test Specifications, and Item Specifications. Ideally the Test Blueprint would address the scale qualities required by the construct but traditionally scaling has been treated as a general measurement issue as though all constructs were to be treated the same way when it comes to their measurement. In this section we will present a partly fictitious scenario in order to illustrate how scaling influences the interpretation of constructs. Although partly fictitious, many aspects of this scenario are actual aspects of the MAP. To illustrate the discussion we set up a table and define several variables. The table contains mean scores for students calculated on an Assessment. However, rather than the usual single mean based on the Assessment's scale, we imagine calculating a mean separately for just the items written in Format S and one for items written in Format P. Since all the items are hypothesized to be measuring the same thing we would like these submeans to be the same as each other and the single total mean, except for random errors of observation. The table consists of two columns. Each column is identified by a combination of an Assessment Form (A_1 or A_2), an Instructional mode (I_S or I_P), and a rating by test scorers (R_1 or R_2). The two row means allow us to consider the effects of variables from outside of the test on a variable arising from within the test. All of these variables are often referred to as "effects," as in Format Effects, Form Effects, Rater Effects, etc.

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Format Effects

Table 1.

	$A_1I_SR_1$	$A_2I_SR_1$	A_{diff}	I_{diff}	R_{diff}
Format S	M_{11}	M_{12}			
Format P	M_{21}	M_{22}			
F_{diff}					

The table may be used to illustrate how scaling and equating the MAP tests accounts for the effects on the test score that might arise from item format (F), Assessment form (A), kind of instruction (I), and rater severity (R). The central four cells of the table contain the average student scale scores calculated separately for Format S items (selected-response) and Format P tasks (constructed-response) on two forms of the Assessment (A_1 and A_2). These average scale scores are calculated only on the S and P item subsets after all the items are scaled together. We will assume there are a fairly large number of items in the S and P Formats so that each subset of items gives a fairly dependable score on its own. We would expect these means (M_{11}, M_{12}, M_{21}, M_{22}) to become the same (as the number of items grows large) for the same group of students were they to take either form. This is so because we scale the items together in each form and equate each form to the other. Each form of the Assessment is constructed to be an instrument with a common scale on which a student's ability in a subject may be measured.

For the purposes of this exposition we now introduce the slightly fictitious part of our scenario. Imagine that the items in the P Format are open-ended items that require the student to write out his or her answer, and the items in the S Format as these same items with four or five alternative answers provided so that the student may choose an answer. Research studies have been reported in the literature that allow us to have a general idea of the result to be expected if we were to create such a test.

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Table 2.

	$A_1I_SR_1$	$A_2I_SR_1$	A_{diff}	I_{diff}	R_{diff}
Format S	M_{11}	M_{12}			
Format P	M_{21}	M_{22}			
F_{diff}	$\pm\rightarrow 0$				

If we were to construct such an Assessment test form, we should certainly like the scale score means to be the same for both item subsets. We would probably find however that the items in the P Format give lower *raw scores* than when students take them in the S Format. (For the sake of argument pretend that we have eliminated practice and order effects.) Even though they are measuring the same things, students can guess the answers with some success when they are in the S Format. Also, there is some evidence from cognitive science that recalling information and solving problems is more difficult when there are no hints available as to what the answer might be (recognition). However, the MAP construct calls for these means to be the same. In order for our test to be valid, then, they should be the same. Scaling the items together using IRT assumes that we intend the means to be the same—that is, we do not want these differences in difficulty to be reflected in our measure of the student's ability. This result of scaling is indicated by the notation $\pm\rightarrow 0$ and is meant to be interpreted as "Means calculated for the scale scores show that differences in the *raw score* submeans have tended to be eliminated when items are scaled together."

Equating versus Scaling

Table 2.

	$A_1I_SR_1$	$A_2I_SR_1$	A_{diff}	I_{diff}	R_{diff}
Format S	M_{11}	M_{12}	$\pm\rightarrow 0$		
Format P	M_{21}	M_{22}			
F_{diff}	$\pm\rightarrow 0$	$\pm\rightarrow 0$			

In Table 2 we indicate a common use of IRT equating. Again, we will assume that we have first scaled the items with different Formats together (for form A_2 as well as form A_1) in order to ignore differences in *raw scores* that might be reflecting aspects of ability that we define as *construct-irrelevant*.

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Although the differences between the scale score means should be zero, there is a fact about scaling that we need to account for in order for this to be the case. When the second form (A_2) of the Assessment is scaled on a different group of students the ability level of the second group will determine how easy or difficult the items are *parameterized* to be. If per chance this group of students is very able compared to the first group used to scale the first form of the Assessment (A_1), then the origin of our scale, which we set at 0 for convenience, will be the same as the origin of the scale for the first form (also set at 0). But unless we set the origin for our second scale higher than the first scale, to reflect the higher ability of the second group of students, we would get the wrong measurement of the first group of students if we were able to measure the first group again on our second form's scale. Therefor, we equate the second form's scale to the first form's scale. This equating step is indicated by $\pm\rightarrow 0$ in the column headed A_{diff}. This notation indicates that there will be no difference in students' scores due to which form they took. We have eliminated Form Effects. (Of course we will actually observe a difference in these means between forms for these two groups of students, but that is because we supposed that they differed in ability. But more about that later.)

Equating accomplishes the same thing scaling accomplishes. Since in this case the two samples of students are of different abilities we use some common items between the two forms in order to know how much to adjust the second form's item parameters. In this case we will assume that all of the items in Format S are the same between the two forms. These anchor items are then the basis for the adjustment—and now the second form of the Assessment will reflect the higher mean scale scores obtained by the second group of students (M_{12} and M_{22}). By aligning the scales of forms A_1 and A_2 we have made it possible to reflect the difference in the *raw scores* that we see for the common anchor items for the two forms for the two groups. In this case we have equated ability estimates by finding the transformation needed that will give the second scale's Format S item parameters about the same values as they had on the first scale. The transformation effectively cancels out the influence of the higher ability level of the second student group on the item parameters. (It would cancel out *apparent* higher ability if, for example, instead of a higher ability student group, we were equating a second form with easier items using student groups of *equal* ability.)

We have indicated the fact that we scaled the second form's Format P items with the Format S items in order to eliminate differences due to Format for the second form—just as we did for the first form. Now by equating using only the items in Format S, the items in Format P should give the same mean as the Format P items for the first form, for the students who originally took form A_1. Remember that so far, in this example, the Format P items in the first form are the same as Format S items, but without distracters. We haven't said anything about the Format P items in the second form yet.

Context Effects

So, for the sake of argument, let's imagine that the Format P items in the second form of the Assessment are new versions of the Format P items in the first form. This means that the Format S items are no longer Format P items with distracters. How different

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might these Format P items be, from the Format P items in the first form? We will imagine that they are written to the same Item specifications. In most cases this would mean that the items measure the same objectives or skills but they might be different in difficulty level from the Format P items in A_1. Something besides the skill we are measuring makes them differ in difficulty in addition to what made them more difficult than Format S versions. Perhaps some attendant aspect of the new item is less familiar—some factual knowledge used in the item to present the question or task, or perhaps the linguistic knowledge needed to comprehend the question is more demanding, or perhaps something about the way the question is asked entails more effort to mentally represent the situation presented by the question. We don't really know all the details of why the question's context makes an item easier or more difficult, but we are confident that the skill we're intending to measure is the very same skill as it was in the first form. Therefor, the skill difficulty should not differ.

This variation in contextual difficulty could lead to different *raw scores* for the same number of Format P items in the second form. Remember that we are now imagining that the same things are being measured by Format P items in the two forms and by both Formats. Therefor all the means should be the same. By scaling Format P items with Format S items in both forms A_1 and A_2 we now implement a procedure (scaling) that will tend to reduce Context Effects. In fact scaling can be checked to some extent to see if any context effects remain after scaling (by analyzing residuals).

Broadening the Idea of the "Same Thing"—Content Sampling Effects

Now however, let's extend our discussion beyond this somewhat fictional Assessment to include more realistic scenarios. Let's have items in the second form (A_2) measure the Domain and fit the Item specifications but sample Domain skills not included in the first form. This means that the Format P items in the second form are not measuring the same specific things as the Format S items, but they are measuring the same Domain ability. We said we didn't want test scores that reflected differences in the contextual information surrounding the target skill—now we're saying we don't want test scores that reflect differences in content sampling from the Domain. We want test scores that are invariant with regard to context <u>and</u> content sampling.

Raw scores might be different for the Format P items between the two forms because of context and content sampling. If however, we equate our scales we reduce these effects. When we scale we want to have some assurance that what we have captured as the "same thing" is just the ability on the core skill, and not the context...and not particular content—but any content from the target Domain. This is all specified by the construct—scaling is implementing this construct specification. The invariance across context and content is determined by an analysis of the item to be sure that it cannot be answered correctly unless the examinee has one or more of the Domain skills we intend. And we need to sample enough of the Domain skills each time to feel that a score is not due to the particular questions asked.

In any event, we see that scaling the Format P items with the Format S items on the second form aligns them with the Format S scale and conveys the impression that they

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are measuring the same ability as the Format S items (and the Format P items on the first form). Obviously scaling is only done when construct validity has been established for the items that will be scaled and equated. Usually this has been done through the use of Test and Item specifications, along with subject matter expert review to determine compliance with these specifications. Scaling contributes to construct validity by reducing unwanted *construct-irrelevant* Effects.

If we are wrong, and the Format P items on the second form do not measure the same Domain as the first form's Format P and Format S items, then scores on the second form may surprise us when future examinees score less well even though they seem to have been given the same, or better, instruction. In other words, scaling will capitalize on unknown, uncontrolled, *construct-irrelevant* information known by the group of students chosen for conjoining the Format P items and Format S items. Scaling can appear to have reduced unwanted context and content sampling effects for the study group of students, only to have them re-appear in other groups of examinees.

Table 3.

	$A_1I_SR_1$	$A_2I_SR_1$	A_{diff}	I_{diff}	R_{diff}
Format S	M_{11}	M_{12}	$\pm\rightarrow 0$	$\pm$	
Format P	M_{21}	M_{22}		$\pm$	
F_{diff}	$\pm\rightarrow 0$	$\pm\rightarrow 0$			

Instruction S

Now let us consider the effect of instruction on the mean scores of our two forms of the Assessment (A_1 and A_2). First we are going to suppose that instruction is given that is known to effectively produce higher achievement on Format S items, (I_S). This will certainly produce concomitant increases for Format P items in the first form of the Assessment because we stipulated that they measure the very same skills, they just don't use the alternatives provided in Format S. We expect that this instruction will also produce increases in answering the Format P items on the second form (A_2) because we believe the instruction has been given for the content or subject area Domain covered by both forms, not just the particular skills measured by the items of the first form of the Assessment.

Once both forms of the Assessment are scaled and their scales are aligned so that either may be used to measure construct-*relevant* skills, we expect the mean (M_{12}) for the Format S items to be higher for a group of students receiving Instruction S. This is indicated in our table by the ± symbol in the I_{diff} column. In other words, if we have scaled we are able to recover the difference in *raw scores* that we would also observe between the two forms, only now we know that the difference in the *raw scores* is due to instruction and not due to other factors that make test items more or less difficult. The question is, why should the Format P mean (M_{22}) increase for A_2?

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Table 4.

	$A_1I_SR_1$	$A_2I_PR_1$	A_{diff}	I_{diff}	R_{diff}
Format S	M_{11}	M_{12}	$\pm\rightarrow 0$	$\pm$	
Format P	M_{21}	M_{22}		?	
F_{diff}	$\pm\rightarrow 0$				

If instruction really were so narrow that it only raised scores on items with distracters we would not expect the mean for Format P items to increase to the level of the mean for the Format S items. However, scaling will tend to pull up this mean and overstate the performance on the Format P items—unless there are many more Format P items than Format S items, in which case the increase in Format S items may be understated by scaling them together.

Instruction P

Let's assume that our Assessment is part of a reform intended to implement a new instructional emphasis mandated by a state legislature. Imagine that this new instructional emphasis is all about teaching students to apply classroom learning in situations encountered outside the classroom. Let's also assume that we believe that the open-ended Format used for Format P may be more sensitive to the new instructional emphasis because it requires the student to mentally engage in a broader search of contextual possibilities than the very same items do when they are accompanied by suggested answers (item alternatives). Our theory assumes that teaching students to apply their knowledge to situations beyond the classroom teaches them to NOT expect hints as to what the correct solution to problems are, and that this, in turn, encourages them to pay more attention to problems (and their contextual conditions) during classroom problem-solving. In other words, rather than just learn algorithms, students begin to appreciate when to use these algorithms. Obviously this is an hypothesis based on a theory of cognition that might, or might not, be borne out by the particular measurements being implemented in our Assessment. It depends on whether we define the Assessment construct to make this prediction and follow up with Test and Item specifications that should detect this kind of capability.

What does this shift in perspective mean for our Assessment? It means that the unwanted Format Effects that were construct-*irrelevant* now account for only a part of the difference we might see in means between Format S and Format P items on the first form. Some of the differences observed in the *raw scores* between Format S items and Format P items might now be attributed to achievement somehow associated with students new-found appreciation of how to apply algorithms to new problems. And this might show up even more as they encounter the new items in Format P on the second form of the Assessment. In other words, we might hypothesize that there is knowledge

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beyond content knowledge and knowledge of algorithms that facilitates transfer to new questions.

In Table 4 this hypothesis is represented by the ± that appears in the I_{diff} column and Format P row. If we scale the Format P items with the Format S items we ignore all of the differences between Format because they are construct-*irrelevant*. This is acceptable when we reject the theory that says that Format S items can not reflect the increases the new instructional emphasis is designed to produce. Perhaps we argue that well-constructed multiple-choice items are sensitive to improvements in strategic knowledge brought about by including beyond-the-classroom problems. Perhaps we argue that the necessity for open-ended item formats is overstated by those who do not have the skill to develop the appropriate multiple-choice items.

If however we believe only Format P items can detect this hypothesized Instructional Effect of sensitizing students about when to apply knowledge then we have to have some of the A_1 Format P items as anchors in form A_2. With this innovation we can equate these anchors in A_2 to themselves in A_1. These "A_1-equivalent" item parameter values will not have been increased by the hypothesized Instructional Effect so they allow us to detect such an increase if it occurs. This will give us a set of parameters for the Format P items in A_2 that give ability estimates on the A_1 scale, without having first scaled away any differential growth on the Format P items by scaling them with the Format S items in A_2. If the Format P items now give us a mean M_{22} that is higher than M_{21}, we have evidence that the instruction functions differentially over Format, and is not due to Format-associated guessing, linguistic knowledge, or algorithmic knowledge. Rather it might be due to this knowledge that facilitates transfer, sometimes called *schema* knowledge and/or *strategic* knowledge.

We must remember however, that Format S items may reflect this latter knowledge just as much as do Format P items, until proven otherwise. If so, there will be an increase in both M_{21} and M_{22} and the Instructional Effect can be hypothesized to be included in the reasons for the increase, along with increases in content and algorithm knowledge. The particular contribution of the new application-oriented instructional emphasis would not be un-confounded from generally increased achievement.

Rater Effects

Table 5.

	$A_1I_SR_1$	$A_2I_PR_1$	A_{diff}	I_{diff}	R_{diff}
Format S	M_{11}	M_{12}	$\pm\rightarrow 0$	±	
Format P	M_{21}	M_{22}		±	±
F_{diff}	$\pm\rightarrow 0$				

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Now we come to the last 'special effect' to be discussed. Among the reasons for increased mean scores on A_2 is the possibility that raters who scored form 2 were more lenient than raters who scored A_1. Rater Effects are believed by some to be present whenever open-ended items are scored by different human graders on different occasions. In order to be certain that an increase is due to instruction or learning it is necessary to eliminate the possibility that the increase is an effect of human scoring. The procedure for doing so requires that a sample of student papers on the Format P anchors from A_1 (see above) be scored by raters who are scoring A_2. These student responses are not affected by the instruction that occurs between A_1 and A_2. The parameters for these anchors in A_2 are relieved of the effects of change in rater severity by equating them back to the A_1 scale. If this is done the Format P items in the second form are now capable of detecting growth in performance that is due to instruction and not rater leniency.

Scaling the Format P and Format S items together is premised on a theory that legitimates this procedure. What is the purpose to be served by the interpretation of the test score? If it is to assess performance without regard to item format than we should scale all the items together. If our purpose is to detect a shift in instructional emphasis then we need to determine what skills come from that shift. And what it takes to detect those skills. This will entail a construct and a Test Blueprint, Test Specifications, and Item Specifications for a measure that will respond to the new skills emerging from the new instructional emphasis. Tests that are explicitly designed to detect an anticipated change in instruction to be brought about by educational reform have been called "prognostic" tests by this author, to distinguish them from diagnostic tests currently used to assess individual differences in performance on currently implemented instruction.

Test/Item Characteristics

Evidence is presented for each of the forms of each of the subject area operational MAP tests on the performance of Missouri students in terms of scale scores means and standard deviations. Also, corresponding raw score means and standard deviations are presented, along with average proportion correct scores for the multiple-choice and constructed-response items/tasks. These basic statistics are often useful for those who are interested in analyzing skill acquisition at a level of detail. A typical pattern that emerges from this data is that multiple-choice items are easier, and less informative than the more mentally demanding multi-response open-ended tasks. This is consistent with expectations based on experience with the two types of items. At the same time, multiple-choice items require less time to take and offer breadth of coverage of content. The two types of items bring meaning to a two-tiered concept of validity in which thinking skills are arbitrarily categorized into categories of more and less demand of mental resources on a per-item basis.

Achievement-Level-Setting

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The purpose of setting standards on a test is to enhance its validity by increasing the interpretability of test taker's scores. Establishing cut scores on the scale that relates amounts of ability to levels of specific knowledge and skills enhances the definition of the construct being tested. In fact, such a process produces indicators for students that reflect levels of understanding of the subject matter. These indicators are the Achievement Levels, 1—Step 1, 2—Progressing, 3—Nearing Proficiency, 4—Proficiency, and 5—Advanced. Each Level has a short and long description of the knowledge and skills tested within it and the short version accompanies the score reports distributed to schools. These indicators then convey to users specifically what kind of understanding and degree of application of that understanding the student has reached in the subject area. The level of understanding the student has reached is necessarily couched in terms of descriptions of content and procedures acquired.

Achievement Level setting has been done in Missouri for each of the four core subject areas, Mathematics, Communication Arts, Science, and Social Studies. The procedure used is called the Bookmark and was created by CTB/McGraw-Hill researchers to address some of the weaknesses of test-centered approaches to establishing cut scores. In the Bookmark procedure data from Missouri students is used to scale items and tasks from the subject area domain so that judges don't have to guess how students would do on them, instead they may attend to the job of deciding how much students must know and be able to do in order to have achieved Missouri milestones of growth and progress in the subject's curriculum. Setting these milestones or Achievement Levels and describing each milestone in terms of concrete knowledge and skills makes it clear what is to be learned and how much Missourians expect students to learn. Such articulation of the construct the tests are measuring, and what the test scores mean, brings explicitness to test validation.

Fairness

Items that have been calibrated using IRT produce scale scores for examinees' reflecting examinees' academic development. For each item examinees' predicted scores based on the IRT calibrations can be compared to their observed scores. The expected proportion correct at each scale score can be found and compared to the observed proportion correct. Subgroups can be scored separately from the total group and their expected proportion correct based on the IRT model compared to their observed proportion correct. If the parameters derived for the total group produce over- or under-estimates of proportion correct for subgroups then it can be argued that the items are testing non-academic attributes of people. Proportion correct comparisons can result from differences over the entire range of ability being tested or they result from differences at specific levels of ability. Upon inspection of items that show differences resulting in significant chi-square tests it can be determined whether there is a cultural basis for the difference or whether the difference is occurring due to unspecified contextual effects, or from the sensitivity of the chi-square procedure to large case counts.

Impact data on subgroups of the Missouri student population is also presented in this section. It is well known that minorities under- or out-perform the majority white

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population on school achievement tests. There are also some well known gender differences on achievement tests. Fairness is at issue, it is believed by some, whenever the measured ability differences exceed the arbitrary 80% rule that suggests that any subgroup ought to overlap highly with the total group. The impact on minorities of achievement testing can be determined and reported in the form of average scores and also in terms of item statistics. This impact is one consequence of measuring ability with tests that must be taken into consideration along with other consequences, such as holding schools accountable for delivering learning opportunities for students.

Administration/Scoring/Reporting

Reporting

MAP Reports

The MAP Reports provide evidence of the ways score information is intended to be used. Explanations of the score reports provide the constraints which must be exercised as well as the appropriate uses of the various scores reported. These explanations are contained in the MAP *Test Guide to Interpretation* which accompanies the program materials and constitutes a major source of the validity of the Program.

Student Report

Purpose: This report describes performance in terms of five levels of achievement in a content area. It is used for instructional planning, a point of reference during a parent/teacher conference, and for permanent record keeping. Other sources of information should be used along with this report when determining areas of strength or need for the student.

The birth date of the student is given if he/she bubbled it in on the answer document. The test date shows when the test was taken. The codes refer to the county/district/school numbers.

Achievement Levels: Achievement Level scores provide a description of what students can do in terms of the content and skills assessed by the MAP. They are a means of comparing test results with standards of academic performance that have been determined by panels of expert Missouri teachers, research scientists, and content specialists. Achievement Level reporting establishes standards for students that are clearly delineated, that don't change over short periods of time, and that represent meaningful and significant learning. Teachers, students, and parents/guardians can use this information to determine what skills and abilities need to be acquired to enable the student to progress to higher Achievement Levels. A student in "Proficient" (4) or "Advanced" (5) has met the standard. Students in Levels 1, 2, or 3 need to work on the skills described in the next higher level.

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The graphed bar extends upward to the middle of the Level achieved by the student. The number at the top of the graphed bar represents the student's MAP scale score. This score may be compared to the "MAP combined score range" at the bottom of the descriptions text for the level. The comparison tells how close the student is to the next higher level. The phrase "MAP combined score range" is used to denote the inclusion of all 3 test sessions in this score.

Content/Process Standards: The Content Standards are measured in terms of percent of points earned. The number of points possible is the weight of the standard in the MAP test. By rank ordering the Content Standards scores from low to high with the lowest percent of points earned score being ranked number 1, schools can identify candidate Content Standards for improvement.

Label

Purpose: The label can be affixed to a student's permanent folder thereby providing a yearly record of the student's achievement on the MAP.

Student Roster

Purpose: The roster provides a permanent record of test results for students in a class or some other specified group. It also provides summary data for the group. The results may be used to evaluate individual and group achievement. Descriptions of the Achievement Levels can be found on the back of each report page.

TerraNova Report

The form/level refers to the *TerraNova* session of the MAP. This tells which form/level was taken by the students so the appropriate norms can be applied. The test date tells when the MAP was given. Codes refer to the county/district/school numbers.

Pages with student names listed (as opposed to the summary page)

This report presents group results. Students are listed alphabetically with a group summary at the end of the student listing. Read horizontally for an individual student's performance and vertically for group performance on a particular score. There are two columns of information.

The first column is the MAP achievement level. The assigned achievement level/ title are given along with the score range for the student's achievement level and student's actual assigned MAP score. The student's MAP score can be compared to the MAP score range for the level to determine how close the student is to the next higher level. It may also show that a student just reached the level reported.

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The second column is the *TerraNova* national percentile score. This score compares each student's performance to that of the national sample group. A national percentile score of 65, for example, means that the student's score is higher than the scores of 65 percent of the students in the national sample group for that student's grade.

Page with summary data (as opposed to the student listing)

The number of students listed in the left column reflects the number of students with a MAP score and assigned achievement level. The achievement level column gives the mean MAP score for the group. The number and percent of students in each achievement level are the same as the "reportable" column on the Summary Report. The *TerraNova* national percentile column has the Median NP score listed. The Median NP is calculated for all students who took session 3 regardless if they have a MAP score. The number of students in this calculation is not listed. The national average is 50. If the score is above 50 it is above the national average. If the score is below 50 it is below the national average.

Summary Report

Purpose: The Summary Report shows the number and percent of students locally in each of the five achievement levels. Instructional priorities can be established using this information along with other sources. The form/level refers to *TerraNova* session of the Missouri Assessment Program. This tells which form/level was taken by the students so the appropriate norms can be applied. The test date tells when MAP was given. Codes refer to the county/district/school numbers.

Reportable/Accountable: The reportable/accountable columns give a visual representation of the percent of students in a given Achievement Level based on the total number of students listed at the bottom of each column. If the percentages in "Reportable" and "Accountable" are significantly different schools are encouraged to learn more about why so many students did not take all 3 sessions of the test. The "Accountable" column includes all students. The "Reportable" column includes only those students who took all 3 sessions of the test.

If a high percentage of students are in Levels 3, 4, 5 the group is doing well. If a high percentage of students are in Levels 1, 2, 3 there is room for improvement. An average group will have a small percentage of students in Level 1, a small percentage of students in Level 5, and the majority of students will be in Levels 2, 3, 4. Comparison over time should show an upward trend of students moving out of the lower levels and into the upper levels.

Descriptions: The report gives 'can do' statements (descriptions) for each Achievement Level. Students at a given level can perform the majority of what is described for that level and even more of what is described for the levels below. These students may also be capable of performing some of the things described in the next higher level, but not enough to have reached that level of performance.

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TerraNova national percentile (*NP of the Mean NCE)***:** This is a score used to describe central tendency. Because the Normal Curve Equivalent (NCE) is an equal-interval scale, it can be treated arithmetically; therefore the mean NCE is computed by adding the NCE scores of all the students in the group with valid scores and then dividing by that number of students. That "arithmetic average" (mean NCE) is then converted to a national percentile score.

*Median NP***:** This score is also used to describe central tendency. Medians, unlike means, have the characteristic of being unaffected by extreme scores. Therefore, many testing specialists prefer the median when comparing groups with nonsymmetrical score distributions.

Since percentiles are "counting" scores, averages are reported in terms of the median. The median is the middle score in a set of ranked scores. It divides the distribution into two equal halves

Content Standards Summary Report

Purpose**:** This report provides general indications of local strengths and needs on the Content Standards compared to the state. This information can assist in assigning curriculum resources or instructional planning.

The number of reportable students is listed. All students have a Content Standard score for each of the standards listed. This means these students took all 3 sessions of the MAP. The test date tells when MAP was given.

Content Standards: These are the Content Standards measured by the Missouri Assessment Program. *Mean percent correct***:** The mean percent correct shows the average number of score points correct for a group of students. For example, if the local group has a mean percent correct of 49% it means the students, on average, got 49% of the score points correct. Score points are used rather than items because some of the constructed response items and performance events have multiple score points possible.

*Comparison of local school or district performance to state performance***:** When comparing local mean percent correct to the state mean percent the local confidence band is provided. If the state mean percent correct is within the range of the local confidence band then the school or district is doing as well as the state. If the confidence band is above the state mean percent correct the school or district is above the state average.

What does the confidence band mean? Each school and district represents a sample of the state's population. In small schools, reporting results for a small number of students leads to an inability to be sure the percent reported adequately represents the school or district. This is referred to as sampling error. Because of the small sample size, small schools are given a greater "benefit of the doubt," or confidence band, than

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large schools. Therefore, when comparing the mean percent correct with those of the state, this sampling error is always taken into consideration.

Scoring

The MAP selected-response questions are scored by machine. Selected-response questions typically use four parallel alternatives with position of the correct alternative balanced between the four positions. An item parameter captures and reflects the lowest rate of response of examinees who have no detectable amounts of the ability being measured. Student ability estimates, reflected in their scale scores, are determined in part by these item parameters. No other adjustment for guessing need be made in the test scores.

The MAP constructed response questions require a response composed by the examinee, usually in the form of one or more sentences, where the ideas expressed are scored as correct or incorrect. Since it is the ideas rather than the specific written expressions that are scored, the response cannot be scored by applying a clerical key. Scorers use judgment to determine whether the ideas expressed match those described in a scoring guide. In other words, scorers interpret what the student has written. In order to minimize the difference in interpretations that scorers make, scorers are required to have certain hiring prerequisites and on-site training using examples of responses that match and don't match the desired answers. Even so, the match between an examinee's response and the scoring guide description of correct responses is a matter of degree. As a result, perfect agreement between different raters of the same examinee response <u>is not expected</u> in order for the test to be valid. High perfect agreement between raters, for example, 80%, can be obtained when the ideas being expressed and scored are rather narrowly defined instances of principles or algorithms within a subject area composed of discrete knowledge. This rate of perfect agreement drops rapidly however for subject areas such as reading and writing where the ideas being expressed are not highly constrained by content, instead the form and coherence of the expression of the ideas is the target of the testing and scoring.

Nevertheless, relatively high adjacent agreement (scores only one point different) can be obtained. This adjacent agreement still varies with known characteristics of the question and scoring guides. Adjacent agreement of 95% or more is desirable when analytic rubrics are used. When holistic rubrics are used and scoring is deliberately impressionistic, adjacent agreement may drop below 90%. What reliability of scoring is telling us, in this case, is how well experts can agree, or perhaps, how much experts can find to disagree about.

There are a variety of sources of variability in student responses that can cause lowered adjacent agreement:

- Partial expression of the examinee's ideas. Short telegraphic answers require greater interpretation about whether a thought has been expressed adequately or not.

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- Extraneous ideas. Over-expression of irrelevant context can influence a scorer to give more credit to a response than it deserves.

- Novel ideas. An idea may be expressed that is appropriate but was not anticipated or described by the scoring guide. Raters vary in their willingness to give credit on their own.

- Halo effect. Scorer's are influenced by immediately preceding responses.

- Specificity of the desired answer. The narrower the idea that is desired the easier it is to determine whether the response contains it or not.

- Number of ideas in the desired answer. If several ideas are scored for a question there are more opportunities for raters to differ from one another.

- Drift. Human scorers differ from each other and from themselves on different occasions in their interpretation of the scoring guide. Scorers tend to give lower scores as they score more papers.

- Leniency/severity. Some scorers award more points than others due to personality characteristics.

- Variability. Some scorers give more extreme scores than other scorers. Some scorers have a tendency to stay in the middle of the score range.

- Focus. Scorers begin to change their frame of reference when additional extensive attention is given a response. This can occur whenever some external event causes a scorer to give more time and attention to one response, or set of responses.

- Criteria used to evaluate correctness. This is the area where clarity in rubrics and intensive training and management has made progress in improving scoring reliability.

Some of the sources of variability can be mitigated by management of the scoring process, but not all.

The least desirable scoring process involves a single scorer reading all the questions for an examinee. This exposes the examinee to the biases of a single reader.

The most desirable scoring process involves multiple readers with resolution of discrepancies by the most experienced reader available.

A compromise scoring process involves different readers reading one examinee's answers to several constructed-response questions. This tends to balance out the effects of point range variability and reader severity but still leaves the possibility of drift.

The most reliable scoring process is attained when questions are relatively short answer, most of the acceptable answers anticipated, a key prepared, and the scoring reduced largely to a clerical task. This priority on reliability however may conflict with validity goals depending on the test purpose/construct.

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The least reliable scoring process obtains when the question is general and complex requiring lengthy effort, and is scored holistically relying largely on the scorer's expertise. This priority may be in accord with some authenticity goals but may be unreliable enough to bring into question what is really being measured consistently.

The most reliable scoring process would result in percents of adjacent agreement of 100 barring recording error. The least reliable scoring process could result in adjacent agreement in the 50's. Because of the large number of variables there is no commonly agreed upon general standard of adjacent or perfect agreement. There is no commonly agreed upon correlation between raters that can serve as a standard for scoring. The only real consensus is that open-ended scoring cannot attain the levels of reliability of objective machine-scored tests.

Given the expense and the lower reliability of open-ended test questions why use them? Not only do they raise additional questions about reliability of test scores but they expose test developers to challenges brought by those who wish to avoid stricter accountability requirements.

This issue was debated when objective tests were becoming the popular alternative to essay tests at the start of the accountability movement (1960's). At that time essay tests were being called into question by those who saw that the cost of mass scoring essay tests was greater than the increased cost of developing good objective tests that could be scored much more cheaply.

Defenders of essay examinations questioned multiple choice or short answer objective tests on the grounds that the effects of these tests on teaching and learning might be negative (Coffman, Chapter 10 *Educational Measurement*, 2nd. Ed., 1971). Especially the effects of not having students write out answers on examinations.

Consider the following explanation (Coffman's) of the deleterious effects of not having essay questions on tests [an historical perspective from 1971].

> In many cases, the student obtains his ideas about the things he is expected to learn from the kinds of questions he encounters on examinations and governs his study procedures accordingly. Furthermore, teaching practices may depend on the kinds of external examinations. If the critical examinations for determining eligibility for higher education call for the student to recognize the correct synonyms for a series of vocabulary words, teachers will devote class time to exercises in vocabulary building and students will buy sets of practice exercises and spend time working with them. If the examinations that determine a course grade require only that the student recall or recognize the content of textbooks or lectures, the student will concentrate on learning factual details or memorizing explanations given by the teacher regardless of what is said about the importance of other outcomes of the course. Many years ago, Meyer (1934, 1935) reported that the form of the examination expected by students determined the nature of the studying that the students carried out. Furthermore, he found that greater achievement of any type of examination followed study in anticipation of an essay examination. It is doubtful, however, if Meyer's findings may be applied today without reservation. Since he completed the studies, there have been major advances in the art of objective item writing. The stereotype of the objective test item as a true-false

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question testing recall of superficial information cannot be applied to the types of questions found in good objective tests published in the 1960s, although they still appear to apply to typical classroom tests (Gustav, 1964.)

Handscoring Processes Used for MAP

Part of MAP is scored by electronic scanning equipment and part is scored by human raters. The following evidence of validity is provided by the procedures followed for the human scoring process.

Creation of Training Materials

CTB personnel from Handscoring and Development, meet with committees of DESE Curriculum Consultants, MAP Regional Facilitators and Missouri Teachers to review student examples. During several days, the groups discuss the papers for each item, and then select the most representative paper for each score point possible on that item. These are the anchor papers that will be used throughout the project as reference for that score point. At a follow-up meeting, CTB Handscoring personnel, DESE Curriculum Consultants, MAP Regional Facilitators and Missouri Teachers meet to review and verify scores of additional student examples that will be used as Training, Qualifying and Checkset papers.

Before each Operational Test phase, the anchor, training, qualifying and checkset papers are reviewed with the Missouri committees and CTB personnel.

Training

Training for Table Leaders is conducted by a CTB Supervisor, followed by training of evaluators. Training requires approximately 2 days depending on the grade and content area. Training and qualifying involves paced exposure to, and discussion of, Scoring Guides, Anchor papers, Training and Qualifying Rounds. An evaluator must qualify by achieving a minimum percentage of agreement with a Qualifying Round before being allowed to commence scoring. Table Leaders or Readers that do not achieve the minimum qualifying standards are released from the project.

Scoring and Validity Checks

Scoring occurs within a quiet environment under the supervision of a CTB Supervisor. Readers will assign scores independently, and scores are checked when a Table Leader conducts a read-behind. Table Leaders record read-behind results, and with the Supervisor, evaluates the results in order to determine if corrective action is required. Supervisors conduct and record read-behinds on Table Leaders.

In addition to read-behinds, Table Leaders and Readers will also be administered Checkset papers throughout scoring. The Supervisor also maintains and monitors the checkset results in order to determine whether corrective action on a Reader or Table Leader is required.

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Readers and Table Leaders that do not maintain the minimum qualifying percentages on read-behinds and/or Checkset papers must re-qualify before allowed to score further. Readers or Table Leaders that do not achieve the qualifying standard are released.

Consequential Benefits

According to the *Standards*…

> Large scale testing is increasingly viewed as a tool of educational policy. From this perspective, tests used for program evaluation, such as some state tests that are aligned to the state's own curriculum standards, are not used solely as measures of school outcomes. They are also viewed as a means to influence curriculum and instruction, to hold teachers and school administrators accountable, to increase student motivation, and to communicate performance expectations to students, to teachers, and to the public. *If such goals are set forth as a part of the rationales for a testing program, the validity of the testing program needs to be examined with respect to these goals.*
>
> Beyond any intended policy goals, it is important to consider potential unintended effects that may result from large-scale testing programs. Concerns have been raised, for instance, about narrowing the curriculum to focus only on the objectives tested, restricting the range of instructional approaches to correspond to the testing format, increasing the number of dropouts among students who do not pass the test, and encouraging other instructional or administrative practices that may raise test scores without affecting the quality of education. It is important for those who mandate tests to consider and monitor their consequences and to identify and minimize the potential of negative consequences. (p. 142, italics added)

How is the validity of tests that are designed to be instruments of policy determined? Changes over time in instructional practice in desired directions would apparently constitute evidence of validity for them. Because the intent of such assessments is substantively different from the intent of diagnostic tests, it is suggested here that policy-driven tests might be referred to as prognostic tests, as opposed to traditional diagnostic achievement tests. In the medical model, prognosis is based on test results, but the prognosis is a judgmental extrapolation of test results in response to planned intervention. If a test is deliberately designed to measure a future capability of students based on *if* and *when* instruction is implemented, then the validity of such a test is more dependent on the theory used to construct its items than on the current empirical performance of students. A prognostic test must be developed differently from the conventional procedure of trying out items and selecting them on the basis of their statistics. The validity of a prognostic test would depend on its theory for construction being commensurate with its theory for intervention. The theory of intervention should predict how the test results would respond to the intervention. In other words, a prognostic test must be accompanied by a plan for staff development and school/district program development and some time table setting out expectations for growth of the test scores in response to those programs.

The MAP Test Blueprint does set forth as one of its purposes that it will "stimulate educational improvement" and it does specify the policy initiatives, i.e., the Outstanding Schools Act of 1993, and the policy statement by the Missouri State Board of Education (April 27, 1995). The State Board indicated that students "…need more than just a strong academic knowledge base…they must be able to integrate and apply their knowledge in various settings and contexts…in and beyond the classroom…by providing models for excellent performance…"[MAP will] "…help

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educators plan for professional development." (Blueprint for the Missouri Assessment Program, Dec. 1999, pp 1-2.) The MAP Test Blueprint specifies how instruction is to change:

> "The **Show-Me Standards** provide the basis for the MAP. They set high expectations for learning and instruction, and encourage the development of challenging curricula in schools throughout the state. There are a total of 73 Show-Me Standards. Forty of these are knowledge (content) standards intended to delineate a solid foundation of knowledge and skills in traditional subject areas. The remaining 33 standards are process standards that require students to demonstrate and apply their content knowledge in a variety of situations."

Evidence for the validity of MAP should include evidence of improvement in the indicators of the quality of education in Missouri. Paramount among these would be evidence of improved instruction resulting from professional development activities related to how to teach for improved MAP test performance. According to the *Standards* this improved instruction must be shown to occur while avoiding…

> …narrowing the curriculum to focus only on the objectives tested, restricting the range of instructional approaches to correspond to the testing format, increasing the number of dropouts among students who do not pass the test, and encouraging other instructional or administrative practices that may raise test scores without affecting the quality of education.

The authors of the Missouri Framework for Curriculum Development in Mathematics K-12, 1996) describe the relationship between the knowledge (content) Standards and the performance (process) Standards by depicting the Missouri student centered within a universe of the Missouri knowledge Standards, itself surrounded by an outer ring of the four processes: Problem Solving, Communication, Reasoning, and Connections.

> The six content strands define the mathematical knowledge that is to be taught using the four process strands. (p. 4)

The MAP Assessments were explicitly constructed to measure the 40 knowledge Standards assuming they would be taught by methods informed by the 33 process Standards (see the Test Content Development section). Therefor, if instruction in Missouri is guided by the process Standards a plausible expectation is created that performance on the knowledge Standards will increase more rapidly than if instruction is not guided by the process Standards. The validity of the MAP as a tool of policy could be gained by collecting evidence that employing the process Standards in instruction produces more gains on the MAP assessments than when the process Standards are not employed.

Clearly, process Standards are intended to describe instructional inputs and knowledge (content) Standards are intended to describe learning outcomes. Indicators other than the MAP tests must be used to quantify such instructional inputs if their impact is to be determinable.

External Variable

Evidence is available that bears on the relationship between MAP Mathematics grade 8 and the Third International Mathematics and Science Study (TIMMS). This evidence collected in 1997 with the first form of the MAP Mathematics test (known as the voluntary year) suggests a substantial relationship for the skills tested by the two

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instruments. No use of MAP to predict performance of Missouri students in settings other than Missouri is intended by this evidence. The relationship of MAP and MMAT has not been investigated. The relationship of MAP to a nationally standardized achievement test (CTB/McGraw-Hill's *TerraNova*) has been investigated. *TerraNova* may be used to predict MAP scores at selected grades. Evidence of the statistical relationship allowing for these predictions is available from the Publisher, CTB/McGraw-Hill.

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Part II: Evidence for Validity

Construct, Purpose, and Interpretation-of-scores

As stated in Part I, the purpose of the MAP scores is to demonstrate student ability in mathematics, communication arts, science, and social studies in Missouri. Each of these subject areas is a core area of the curriculum. It is intended by the developers of MAP that MAP scores be interpreted to mean that students who score more questions correct on MAP core subject tests have acquired more of the knowledge and skills taught in Missouri classrooms in those subjects.

Principal Components Analysis

Evidence for the efficacy of modeling an ability is provided by demonstrating that the questions on a MAP test can be shown to be related. What relates the questions is most parsimoniously claimed to be the common ability acquired by students studying the subject. One way of modeling this is called factor analysis. Specifically principal components analysis. This analysis may show that there is a single factor, the first principal component, that can account for much of the relationship between the questions. A large first component would be evidence of the latent ability which is the primary cognitive behavior these students have in common with respect to the particular questions asked. A large principal component found from a factor analysis of an achievement test suggests a univocal ability construct that we may take to be what the questions were designed to have in common, e.g., mathematics question-answering ability.

A principal components factor analysis was conducted on 1998 and 1999 MAP tests for the core subject area tests operational in those years. For 1998 these were Mathematics, Science, and Communication Arts. For 1999 Social Studies was added. The 1998 study factored two correlation matrices, Content Standard score correlations and Process Standard score correlations for each subject. The 1999 study factored a correlation matrix of individual items/tasks for each core subject area test. The studies were done using the samples selected by the Missouri DESE for all data analyses. These samples are selected on the basis of their representativeness of the districts in the state. The number of cases in these samples are given in Table 2.

A large first principal component is evident in each analysis. Figure 1 provides plots of eigenvalues that demonstrate the relative dominance of the univocal ability trait measured by each test. The second factor in most of the following graphs is greater than 1.0 and would suggest the presence of a small second factor. However the ratio of the variance accounted for by the first factor to the second and third is sufficiently large to support the claim that these tests are essentially unidimensional. These values are presented in Table 1. This evidence supports the claim that there is a construct ability underlying the items/tasks in each test and that scores from each test would be

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representing performance primarily determined by that ability. Construct-irrelevant variance such as factual knowledge irrelevant for doing well in the subject does not appear to create significant nuisance factors.

According to M. Reckase (1977)

> …the 1PL and the 3PL models estimate different abilities when a test measures independent factors, but … both estimate the first principal component when it is large relative to the other factors. In this latter case, good ability estimates can be obtained from the models, even when the first factor accounts for less than 10 percent of the test variance, although item calibration results will be unstable.

As can be seen from Table 1 all of the MAP subject area tests exhibit first principle components accounting for more 10 percent of the test variance. MAP Proficiency scale scores may be used to classify students in terms of the specific MAP core abilities. Aggregate MAP scores may be used to classify schools in terms of the specific MAP core abilities by Achievement Levels. Before the questions-correct scores are used for these purposes however, the scores will have undergone some transformations. These transformations will be discussed in subsequent sections on Scaling/Equating and Achievement Level Setting .

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Table 1. Percent of variance by factor

Grade		Mathematics Factor 1	2	3	4	5
4	Eigenvalue	10.36	1.70	1.29	1.21	1.14
	% of Variance	19.18	3.14	2.39	2.25	2.12
8	Eigenvalue	10.95	1.62	1.23	1.19	1.16
	% of Variance	21.47	3.18	2.42	2.33	2.28
11	Eigenvalue	10.96	1.50	1.29	1.17	1.02
	% of Variance	25.50	3.49	3.01	2.72	2.37
		Communication Arts				
3	Eigenvalue	10.68	1.84	1.50	1.32	1.17
	% of Variance	19.07	3.28	2.68	2.36	2.09
7	Eigenvalue	10.16	1.92	1.59	1.42	1.32
	% of Variance	17.22	3.26	2.70	2.40	2.24
10	Eigenvalue	11.70	1.84	1.72	1.51	1.40
	% of Variance	18.58	2.91	2.74	2.40	2.23
		Science				
3	Eigenvalue	9.78	1.76	1.37	1.21	1.13
	% of Variance	19.17	3.46	2.69	2.37	2.22
7	Eigenvalue	7.88	1.38	1.34	1.14	1.13
	% of Variance	16.42	2.88	2.78	2.38	2.35
10	Eigenvalue	9.80	1.91	1.39	1.22	1.15
	% of Variance	19.21	3.75	2.73	2.38	2.26
		Social Studies				
4	Eigenvalue	11.69	2.25	1.49	1.39	1.33
	% of Variance	15.59	3.00	1.99	1.86	1.78
8	Eigenvalue	7.91	1.53	1.31	1.17	1.13
	% of Variance	16.49	3.18	2.74	2.44	2.35
11	Eigenvalue	12.20	2.06	1.50	1.39	1.35
	% of Variance	16.71	2.83	2.06	1.91	1.85

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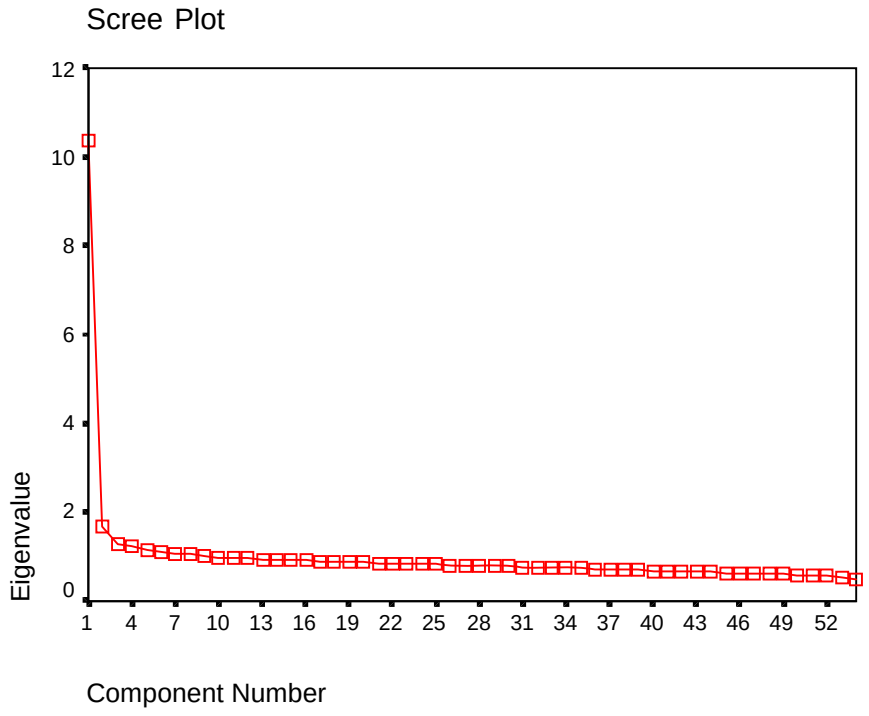
Figure 1. Scree Plots for 1999 MAP Core Operational Tests

Math Grade 4



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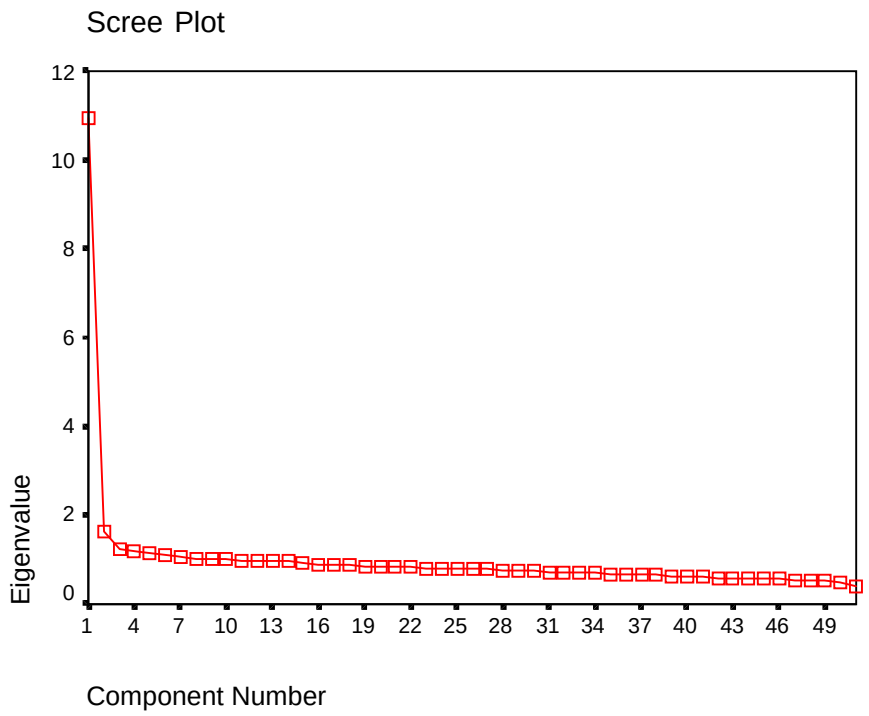
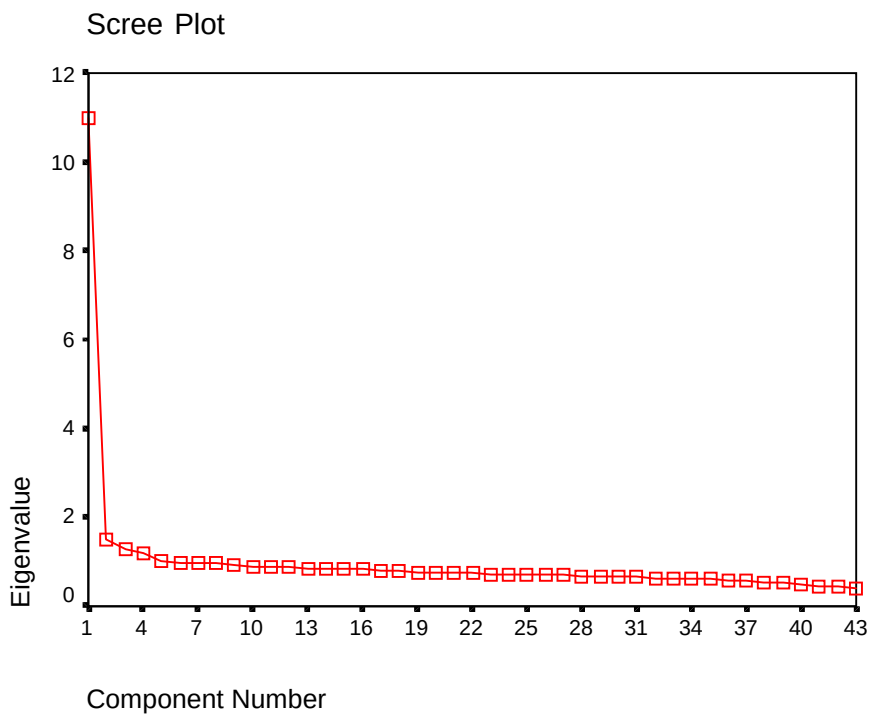
Math Grade 8



Math Grade 10



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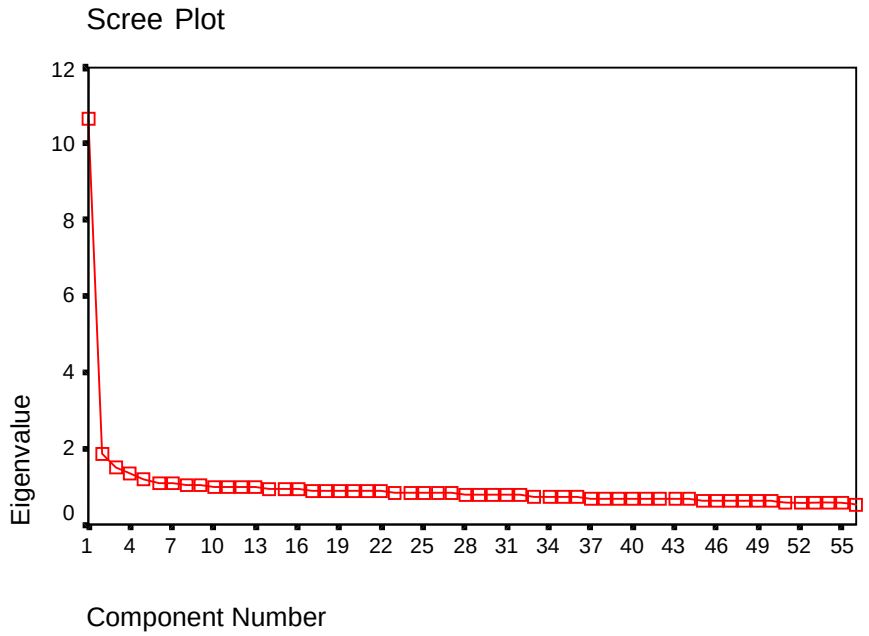
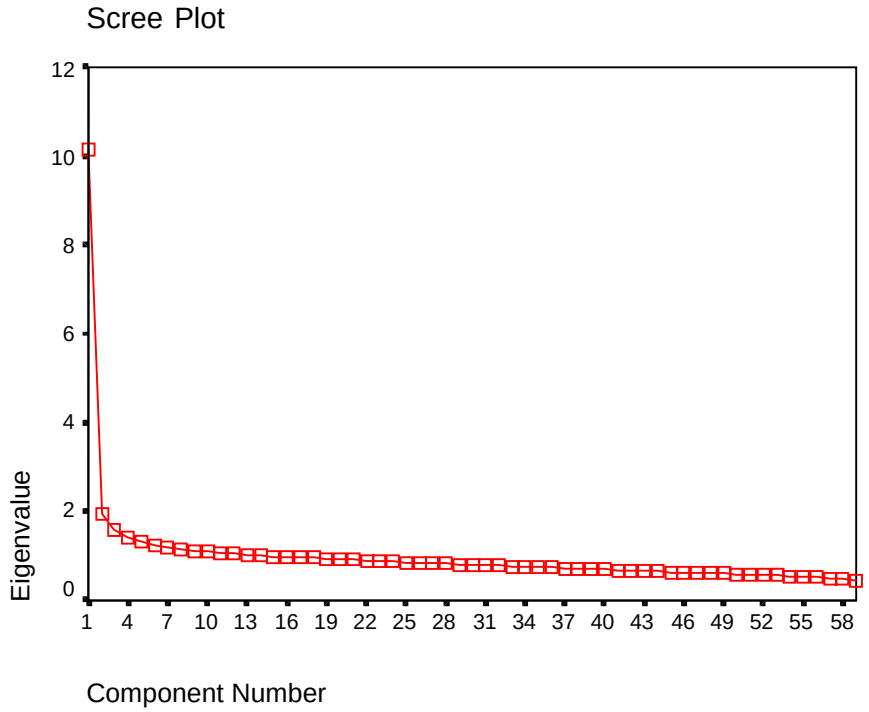
Communication Arts Grade 3



Communication Arts Grade 7



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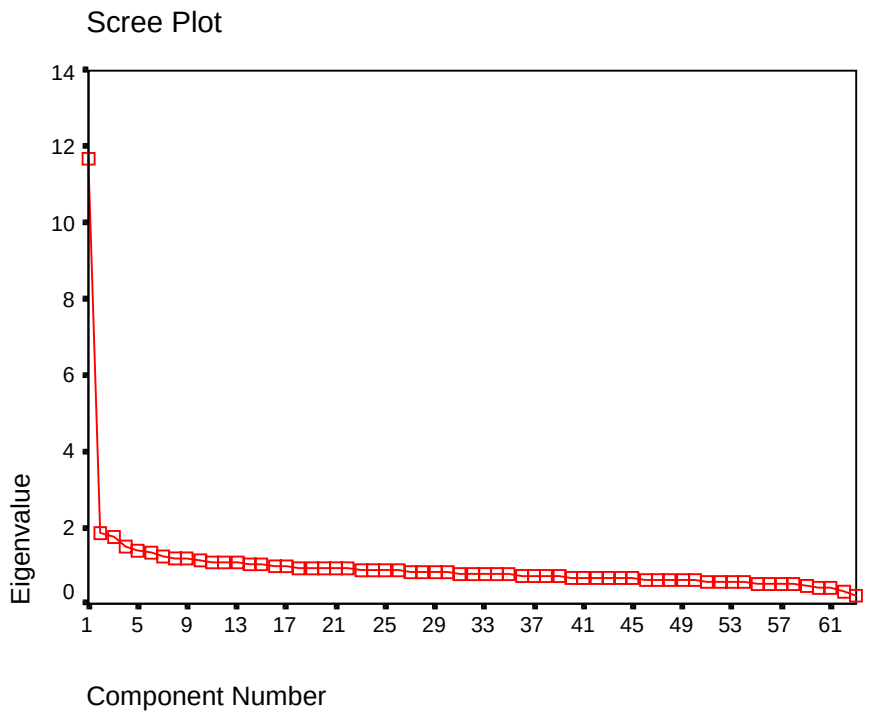
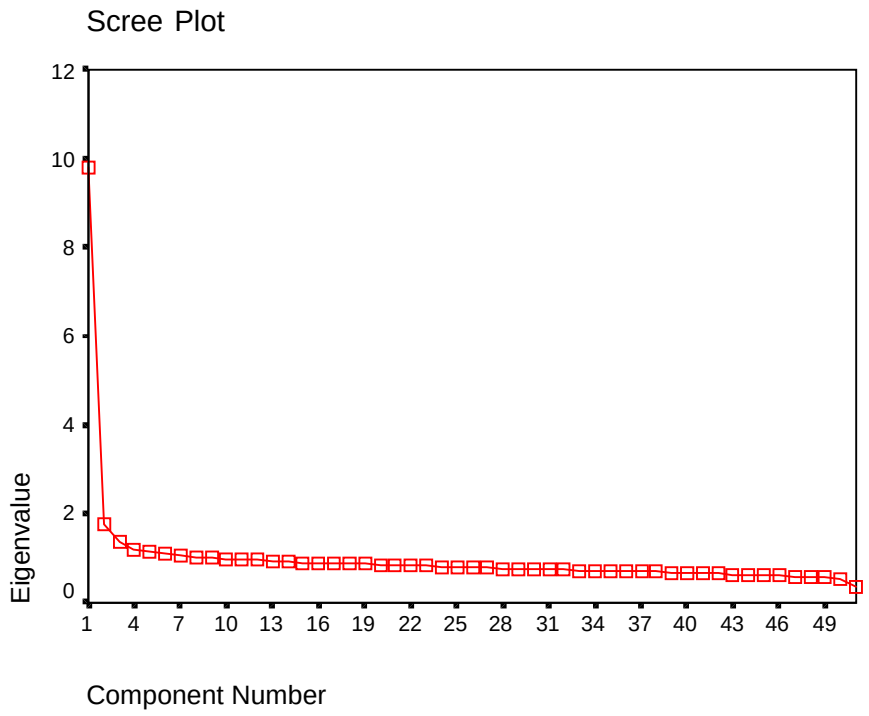
Communication Arts Grade 11



Science Grade 3



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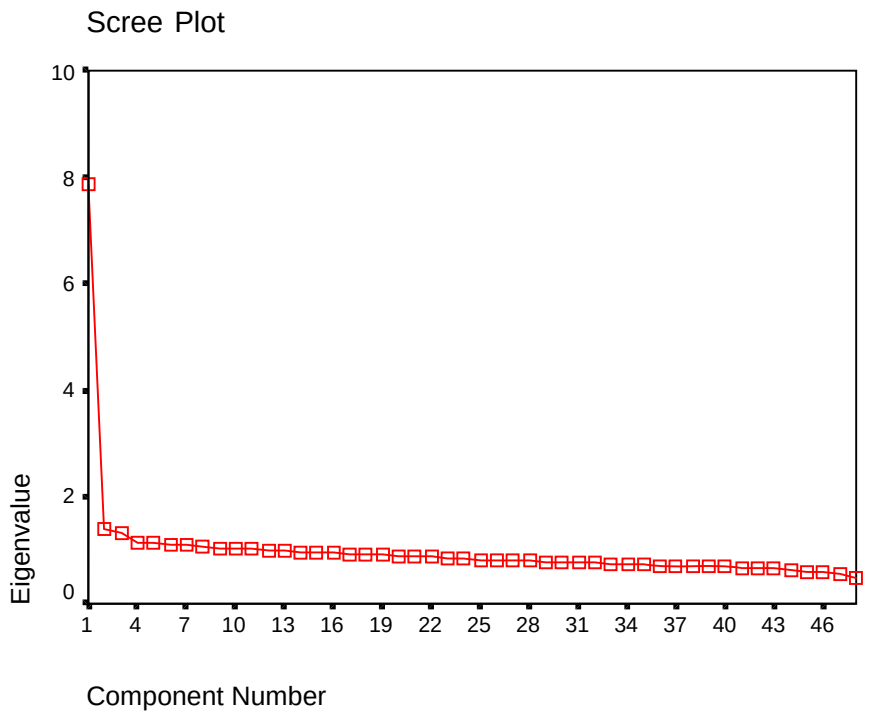
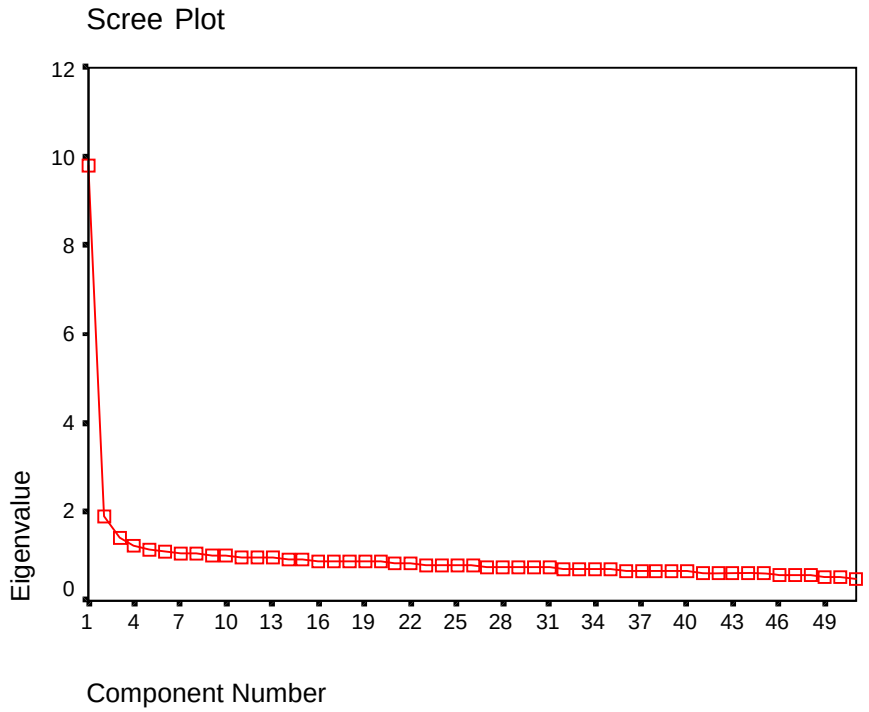
Science Grade 7



Science Grade 10



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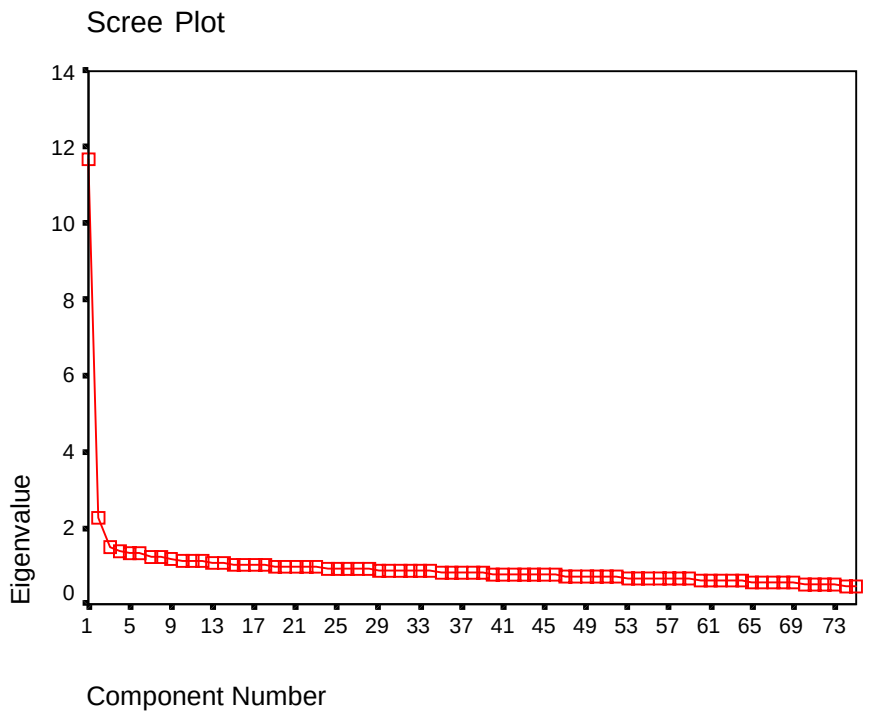
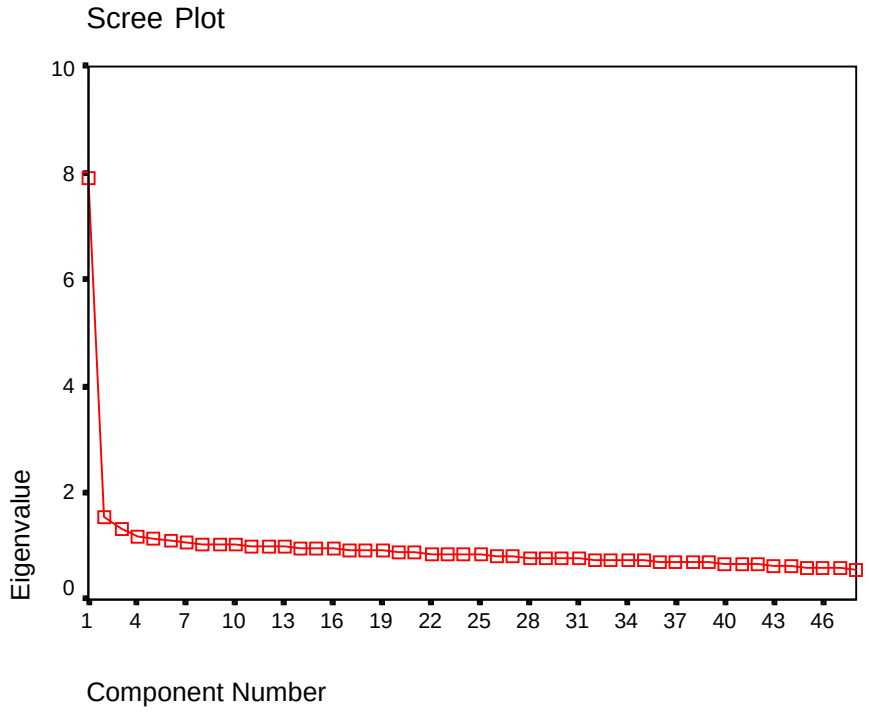
Social Studies Grade 4



Social Studies Grade 8



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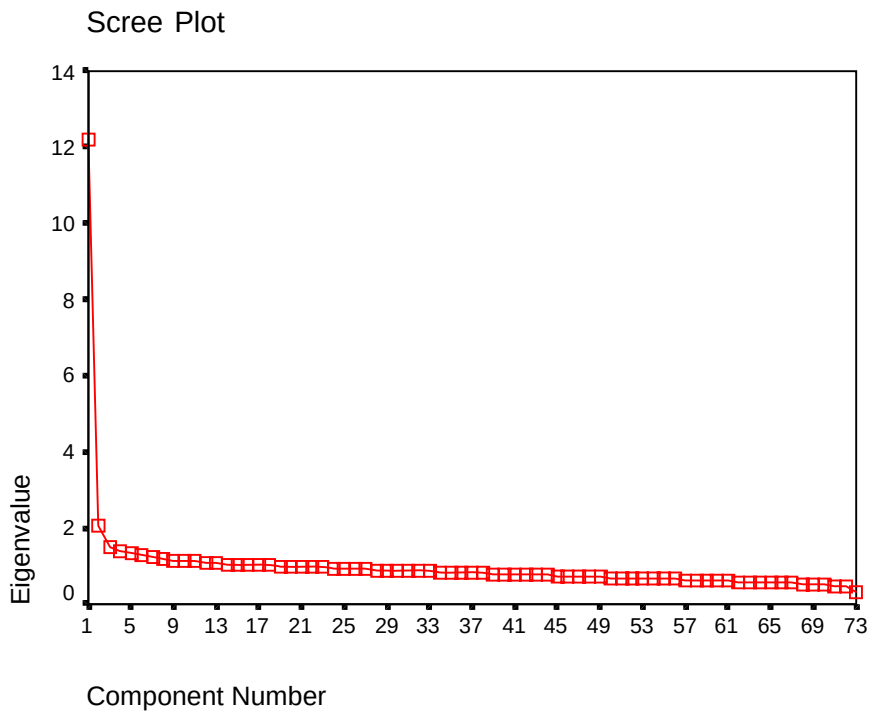

Exploratory/Confirmatory Factor Analysis

A full information factor analysis was performed on 1999 grade 11 MAP tests in Mathematics, Communication Arts and Science. One, two, and three factor models were hypothesized to explain the inter-item correlations. A one factor model was found to be adequate to explain the data, accounting for 20-30% of the variance. However, a two factor model fit the data acceptably and revealed a clear format factor for all three subjects (constructed-response versus selected-response). The variance accounted for by the second factor was about 3-4% and the first and second factors were correlated about 0.67. From the loadings it was speculated that the format effect arises because the provision of the correct answer in multiple-choice items supplies considerable information to the examinee about whether his/her schema being used to represent the problem is on track and also whether the calculated answer is accurate or not. Research of this nature depends highly on task analysis which is time consuming and somewhat subjective. To the extent that the validity of the MAP tests is believed to depend in part on incorporating constructed-response tasks, this type of evidence supports the proposition that they add an element of mental demand.

Reliability/Internal Test

The degree of reliability that is required by an interpretation of a test score must be carefully considered. When the interpretation is highly leveraged by consequences to individuals or schools, it is better to narrow the scope of the construct and limit the breadth of the interpretation of a score to an area of performance that can be

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standardized and managed. For MAP this implies a focus on the Proficiency score used to classify students' and schools' performance on the Achievement Levels for each subject area.

The *Standards* indicate that…

> …reliability evidence may be reported in terms of variances or standard deviations of measurement errors, in terms of one or more coefficients, or in terms of IRT-based test information functions. (p. 27)

The MAP internal consistency reliability coefficients reported indicate that tests with constructed-response tasks can be quite reliable. These coefficients were computed on samples of students selected by the Missouri Department of Elementary and Secondary Education (DESE) from all of the students tested in each year the MAP has been operational. They are computed on the single form administered to all students in Missouri in a given year. The sample selection was guided by the attempt to attain state representativeness on socio-economic, racial/ethnic, and school/district size variables. Generally these samples ranged in size from 1800-4500 students and were used for all subsequent analyses.

Table 2. Internal consistency reliability coefficients for MAP operational tests 1997-1999

Math Grade 4

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1997 N=2061	55	.913	.919	.919
1998 N=3483	54	.912	.921	.920
1999 N=2841	54	.907	.915	.915

Math Grade 8

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1997 N=2266	51	.923	.931	.929
1998 N=3835	51	.921	.927	.928
1999 N=1813	51	.919	.927	.927

Math Grade 10

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1997 N=2662	44	.929	.936	.936
1998 N=3573	43	.933	.940	.940
1999 N=2514	43	.921	.929	.932

Communication Arts Grade 3

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1998 N=3195	55	.920	.920	.924
1999 N=2714	56	.914	.915	.918

Communication Arts Grade 7

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1998 N=4283	61	.931	.932	.935
1999 N=1989	59	.904	.905	.909

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Table 2. Internal consistency reliability coefficients for MAP operational tests 1997-1999 (Cont'd)

Communication Arts Grade 11

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1998 N=3068	63	.934	.939	.939
1999 N=1860	63	.917	.919	.921

Science Grade 3

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1998 N=3165	50	.901	.907	.908
1999 N=2596	51	.903	.903	.910

Science Grade 7

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1998 N=3548	50	.910	.915	.916
1999 N=2000	48	.874	.875	.886

Science Grade 10

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
1998 N=3531	46	.895	.916	.919
1999 N=2053	51	.904	.908	.912

Social Studies, 1999

	Number of Items	Cronbach's Alpha	Stratified Alpha	Feldt-Raju
Grade 4 N = 2256	75	.916	.918	.923
Grade 8 N = 2122	64	.902	.906	.907
Grade 11 N = 1865	72	.922	.925	.926

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The various reliability coefficients differ slightly in their assumptions. The preferred coefficient for these tests is Stratified Alpha. This coefficient is most appropriate for a mixture of binary and polytomous item types as found in MAP tests.

Whereas reliability coefficients refer to a test characteristic, accuracy of measurement is a concept usually applied to individual scores. It indicates the standard deviation of observed scores to expect if an examinee were retested under unchanged conditions. Conditional standard deviations of observed scores can be found for each score level. The estimate of measurement error increases as the number of observations decreases. Generally there are few students with extreme scores and these score levels are not measured accurately. The estimate of measurement error also increases when there are few observations taken at the level of a student's ability. If all the items are very difficult, or very easy for the examinees, the error of measurement will be larger than when the items' difficulties are distributed across the levels of the students' ability being tested.

MAP tests provide accuracy of measurement over a wider range of score levels when compared to the embedded TerraNova achievement test. *TerraNova*, a multilevel achievement test, is comprised of levels that have been specifically designed for the range of ability at a single target grade. Clearly, MAP is designed to cover the ability found in adjacent grades as would be expected for an instrument with levels called "elementary," "intermediate," and "high school." This wider coverage is accomplished by giving credit in rubrics for partial answers to constructed-response tasks—partial credit for levels of skill that would not typically be observed with multiple-choice items that are designed to function at the target grade level specifically. Also, full credit in some constructed-response tasks involve levels of thoroughness and metacognitive knowledge that again would not likely be reflected in multiple-choice items targeted to a single grade level. This additional breadth of measurement increases the accuracy of measurement in a given mandated grade level for MAP because it provides discrimination amongst students in the grade with minimal skills, as well as students who have considerable expertise in the grade.

Accompanying each graph of the SEM curves for the operational tests in each subject area are values of the MAP SEM for the lowest and highest scale scores reported. Also the average SEM for the scale scores ranging from below the Progressing cut score to above the Proficient cut score is provided. This is the typical SEM most students scores would have. The size of the SEM is roughly equivalent to less than a half of a raw score point to just less than one raw score point, for these tests.

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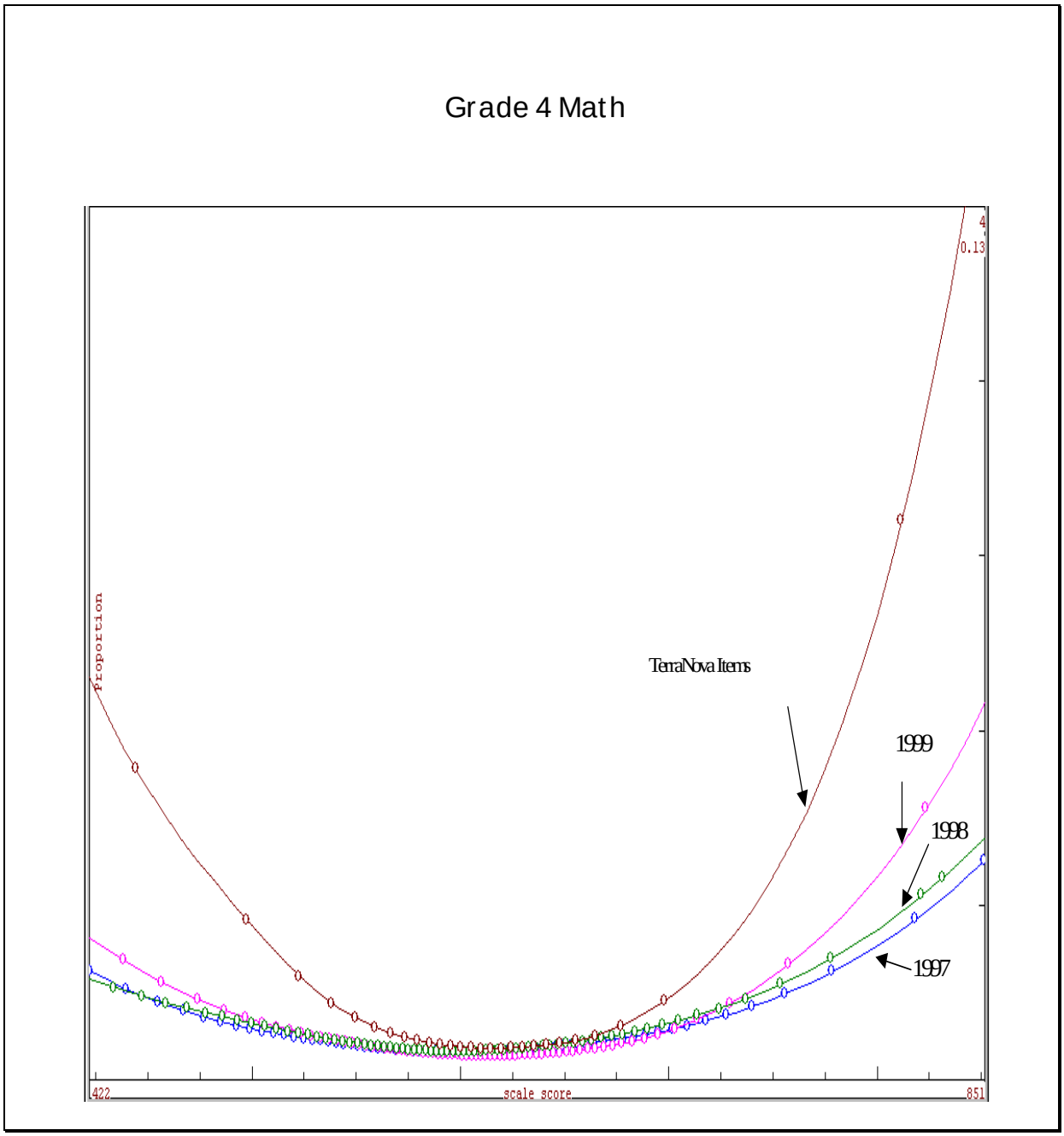
Figure 2. Standard Error Curves for MAP 1997-99 Operational Tests
Math Grade 4



Year	LOSS SEM	HOSS SEM	Ave. SEM 550-675	Lowest SEM
1997	38	77	11.5	10
1998	36	79	12	10
1999	36	98	10	9
TerraNova 99	132	400	15	11

Lowest Obtainable Scale Score (LOSS) is 422. Highest Obtainable Scale Score (HOSS) is 851.

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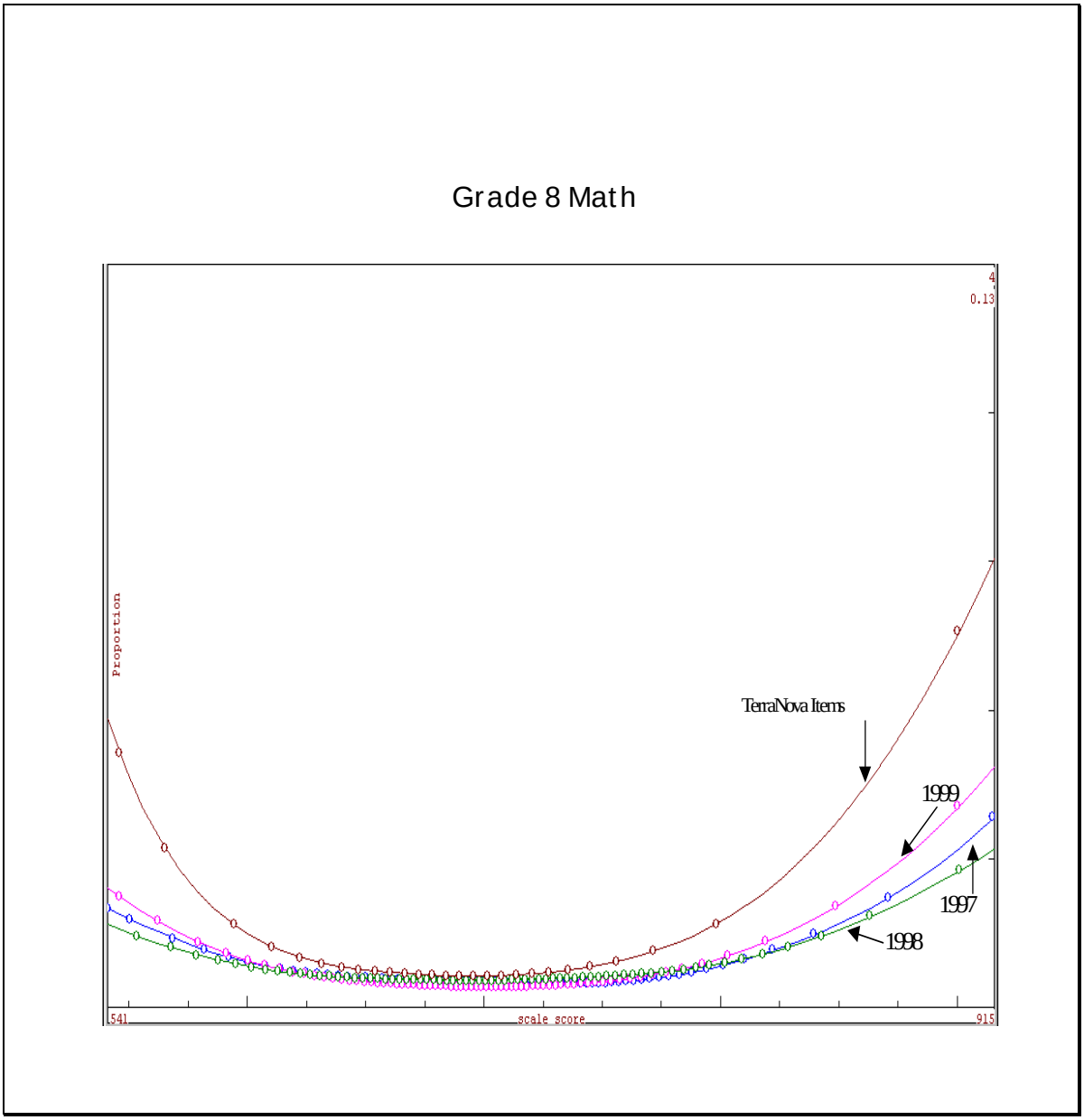

Year	LOSS SEM	HOSS SEM	Ave. SEM 650-750	Lowest SEM
1997	38	77	11	10
1998	36	75	11	11
1999	52	98	9.5	8.5
TerraNova 99	135	200	15	13

Lowest Obtainable Scale Score (LOSS) is 539. Highest Obtainable Scale Score (HOSS) is 936.

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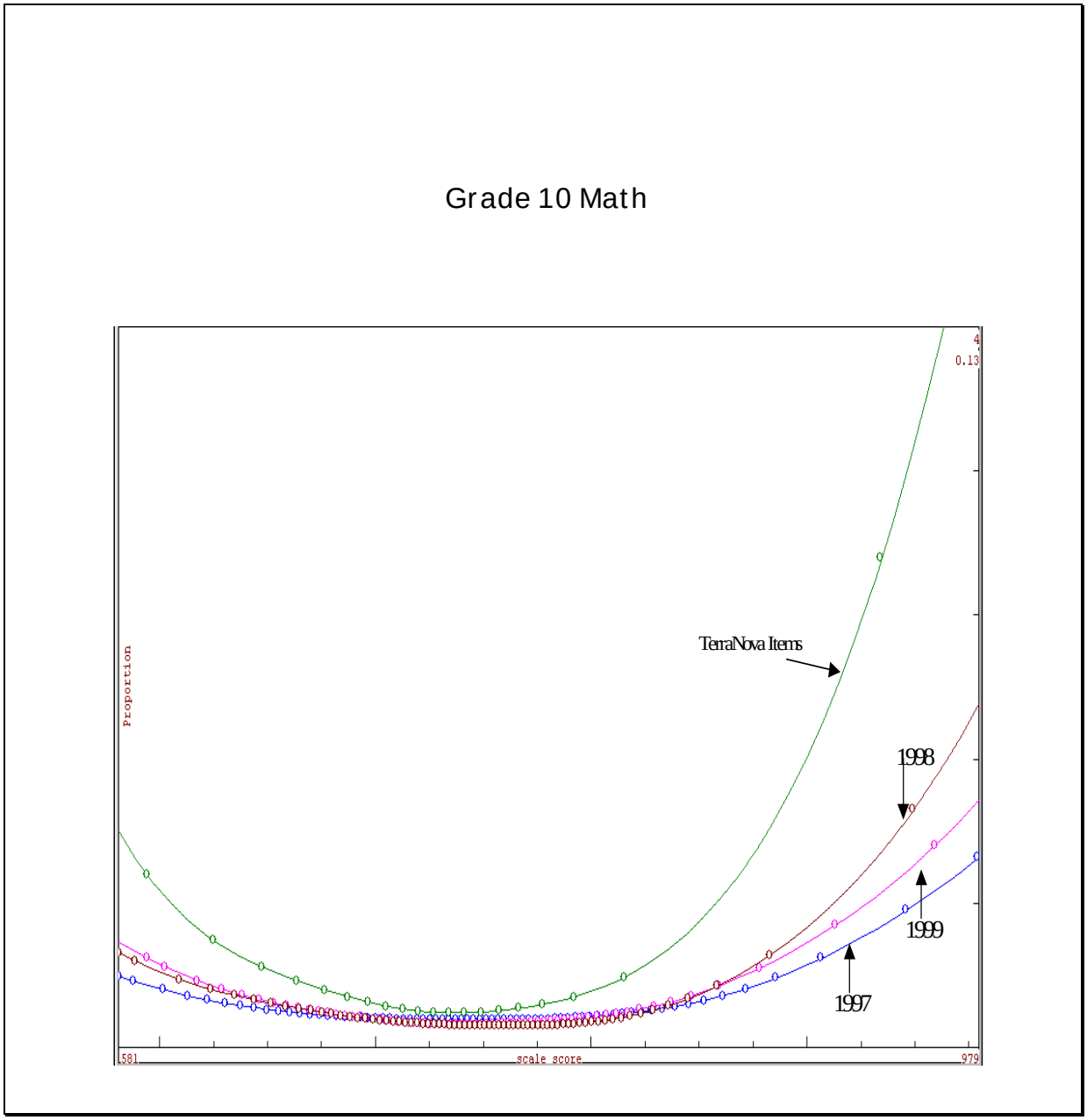
Standard Error Curves for MAP 1997-99 Operational Tests (Cont'd)
Math Grade 10



Year	LOSS SEM	HOSS SEM	Ave. SEM 675-800	Lowest SEM
1997	30	79	12.5	12
1998	41	105	11	9
1999	45	90	12	10

Year	LOSS SEM	HOSS SEM	Ave. SEM 650-750	Lowest SEM
TerraNova 99	96	N/A	17	15

Lowest Obtainable Scale Score (LOSS) is 581. Highest Obtainable Scale Score (HOSS) is 979.

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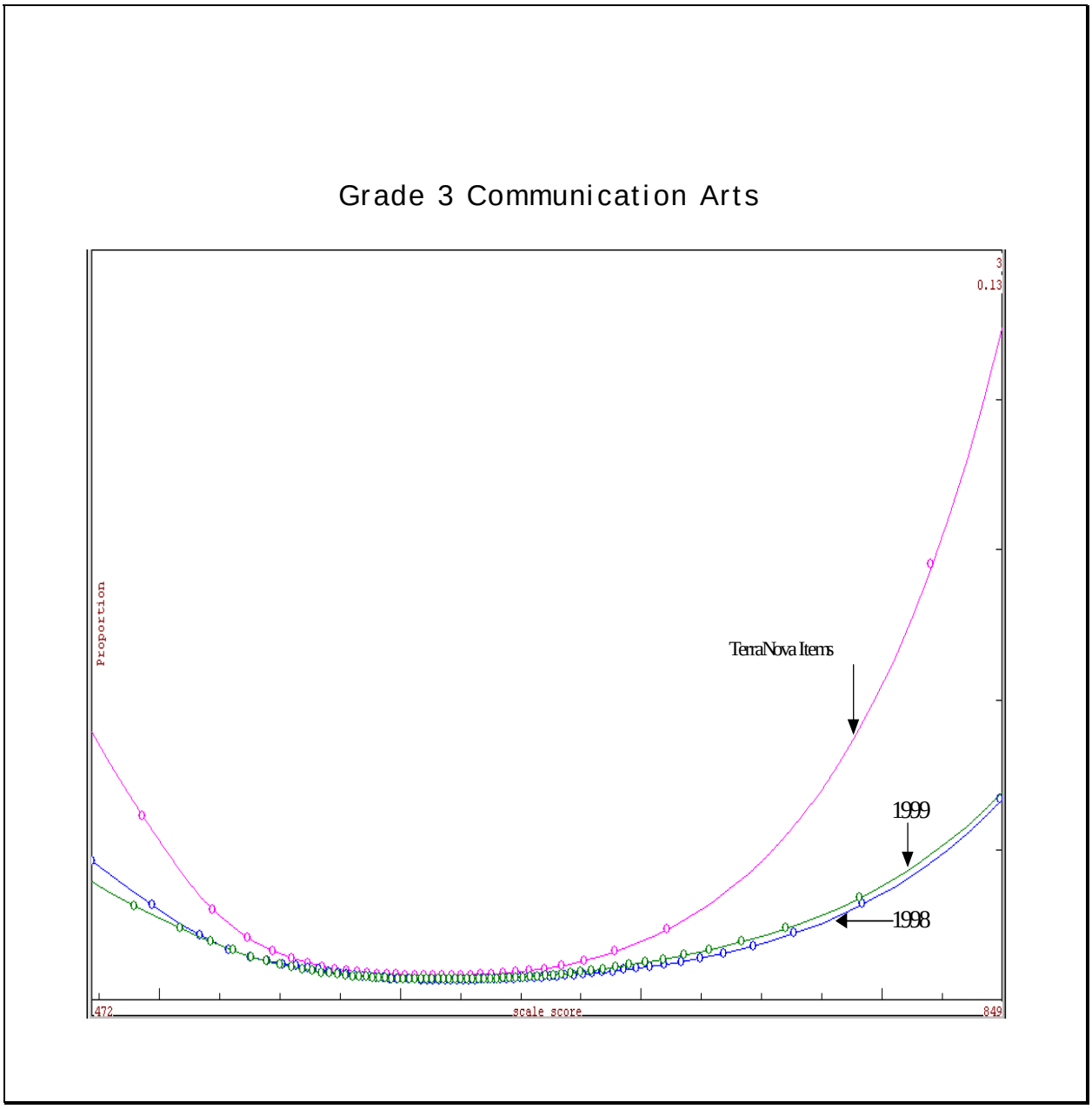

Year	LOSS SEM	HOSS SEM	Ave. SEM 575-675	Lowest SEM
1998	55	84	9	8
1999	47	86	9.5	8
TerraNova 99	110	250	10	10

Lowest Obtainable Scale Score (LOSS) is 472. Highest Obtainable Scale Score (HOSS) is 849.

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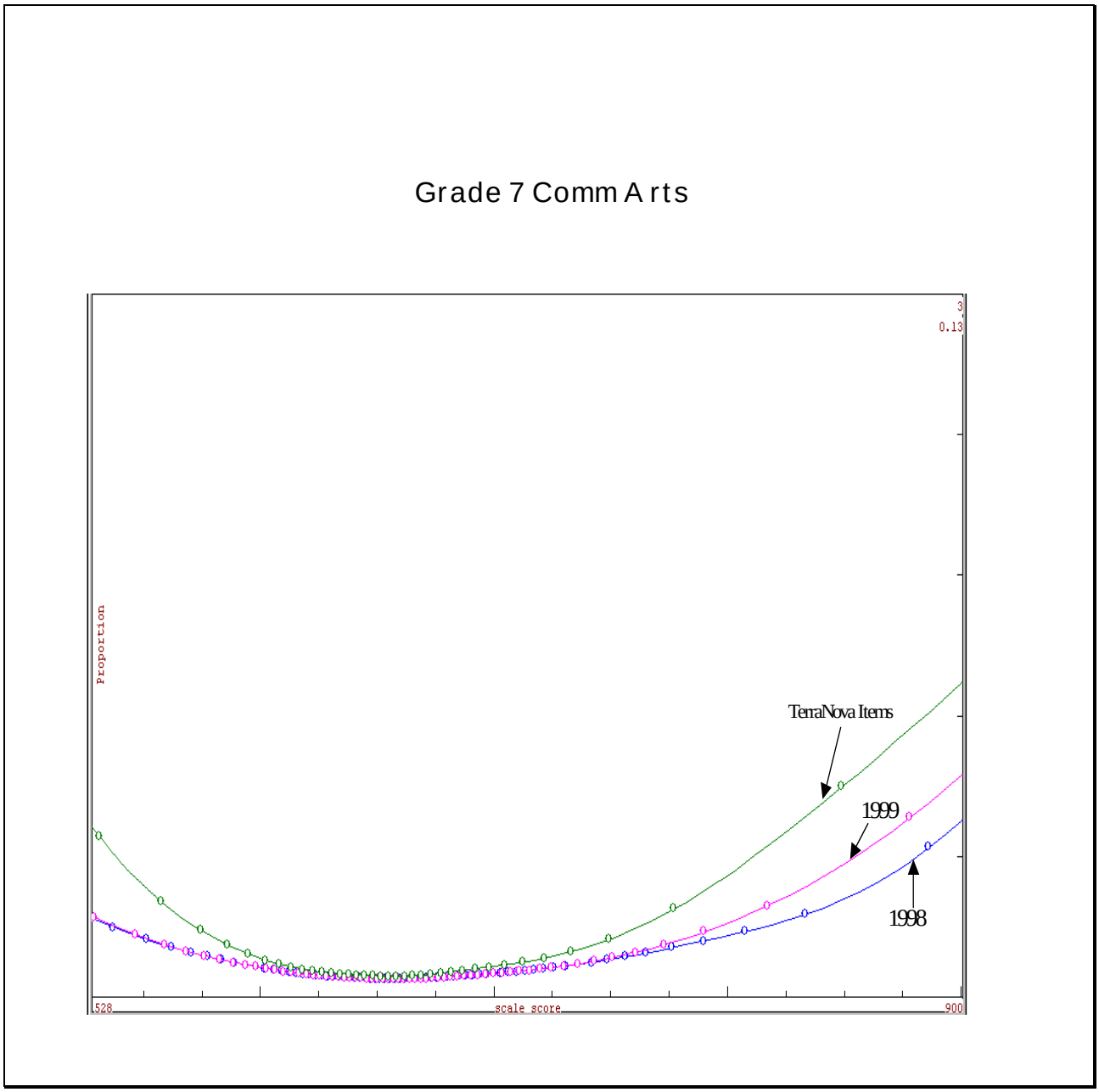

Year	LOSS SEM	HOSS SEM	Ave. SEM 600-700	Lowest SEM
1998	36	78	10	8
1999	37	98	10	8
TerraNova 99	70	138	12	9

Lowest Obtainable Scale Score (LOSS) is 528. Highest Obtainable Scale Score (HOSS) is 900.

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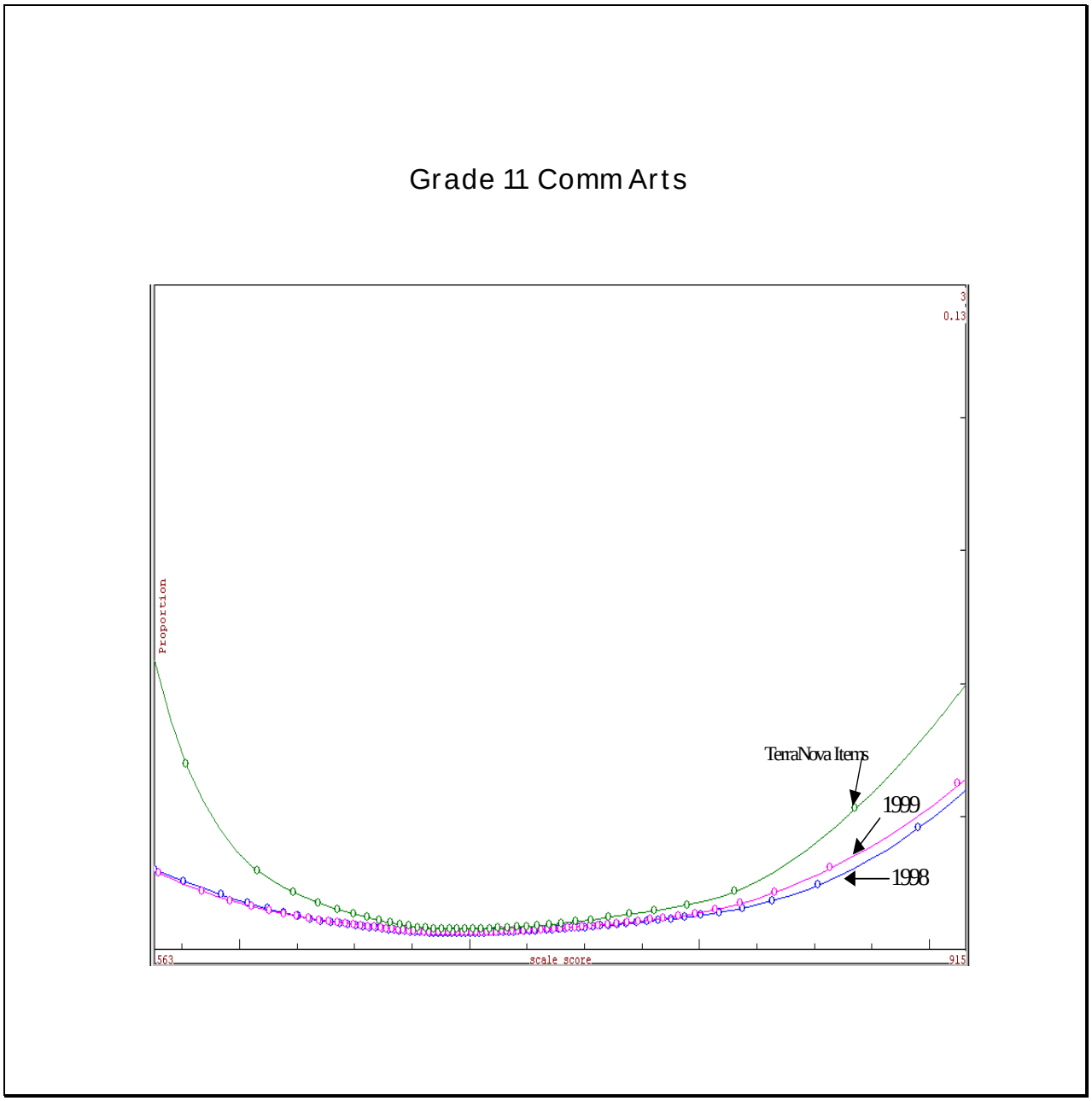

Year	LOSS SEM	HOSS SEM	Ave. SEM 650-750	Lowest SEM
1998	38	74	9	8
1999	36	79	9	8
TerraNova 99	130	120	12	9

Lowest Obtainable Scale Score (LOSS) is 563. Highest Obtainable Scale Score (HOSS) is 915.

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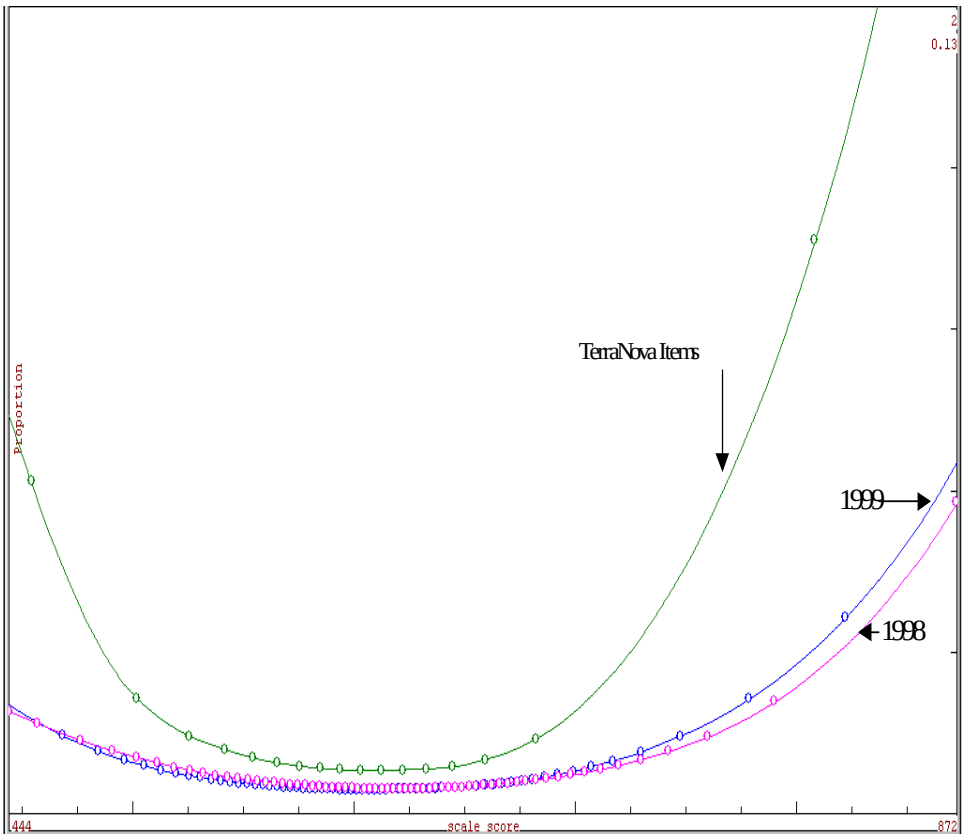
Grade 3 Science



Year	LOSS SEM	HOSS SEM	Ave. SEM 550-675	Lowest SEM
1998	39	122	11	10
1999	41	135	10	9
TerraNova 99	140	N/A	20	17

Lowest Obtainable Scale Score (LOSS) is 444. Highest Obtainable Scale Score (HOSS) is 872.

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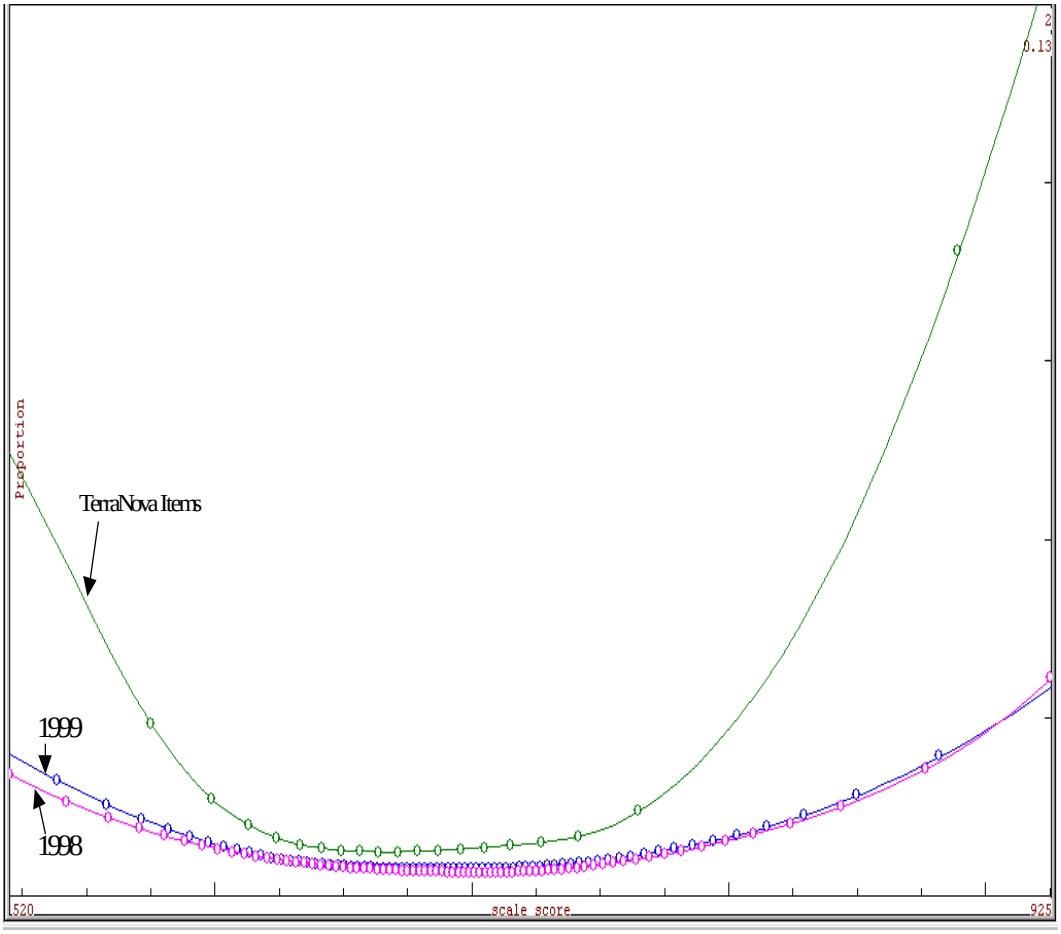
Standard Error Curves for MAP 1997-99 Operational Tests (Cont'd)
Science Grade 7



Year	LOSS SEM	HOSS SEM	Ave. SEM 625-750	Lowest SEM
1998	42	75	10	8
1999	49	73	11	9
TerraNova 99	163	300	18	15

Lowest Obtainable Scale Score (LOSS) is 520. Highest Obtainable Scale Score (HOSS) is 925.

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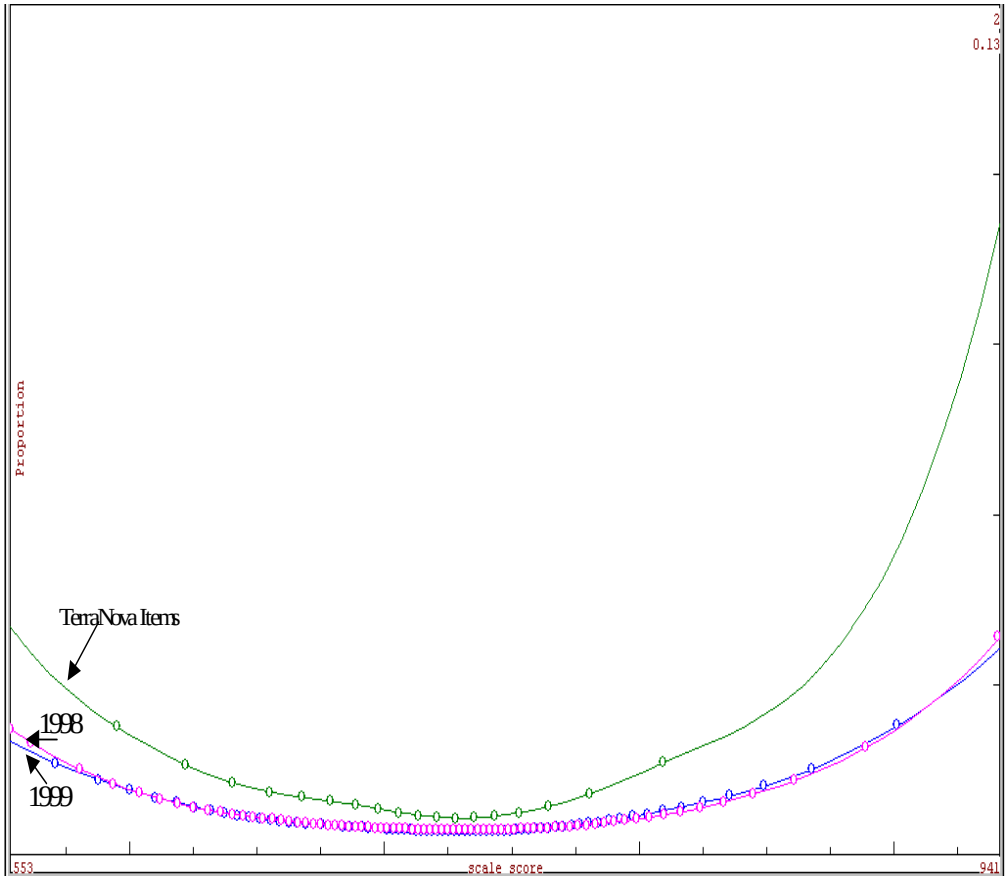
Grade 10 Science



Year	LOSS SEM	HOSS SEM	Ave. SEM 650-775	Lowest SEM
1998	46	78	10	9
1999	42	74	9	8
TerraNova 99	90	220	18	13

Lowest Obtainable Scale Score (LOSS) is 553. Highest Obtainable Scale Score (HOSS) is 941.

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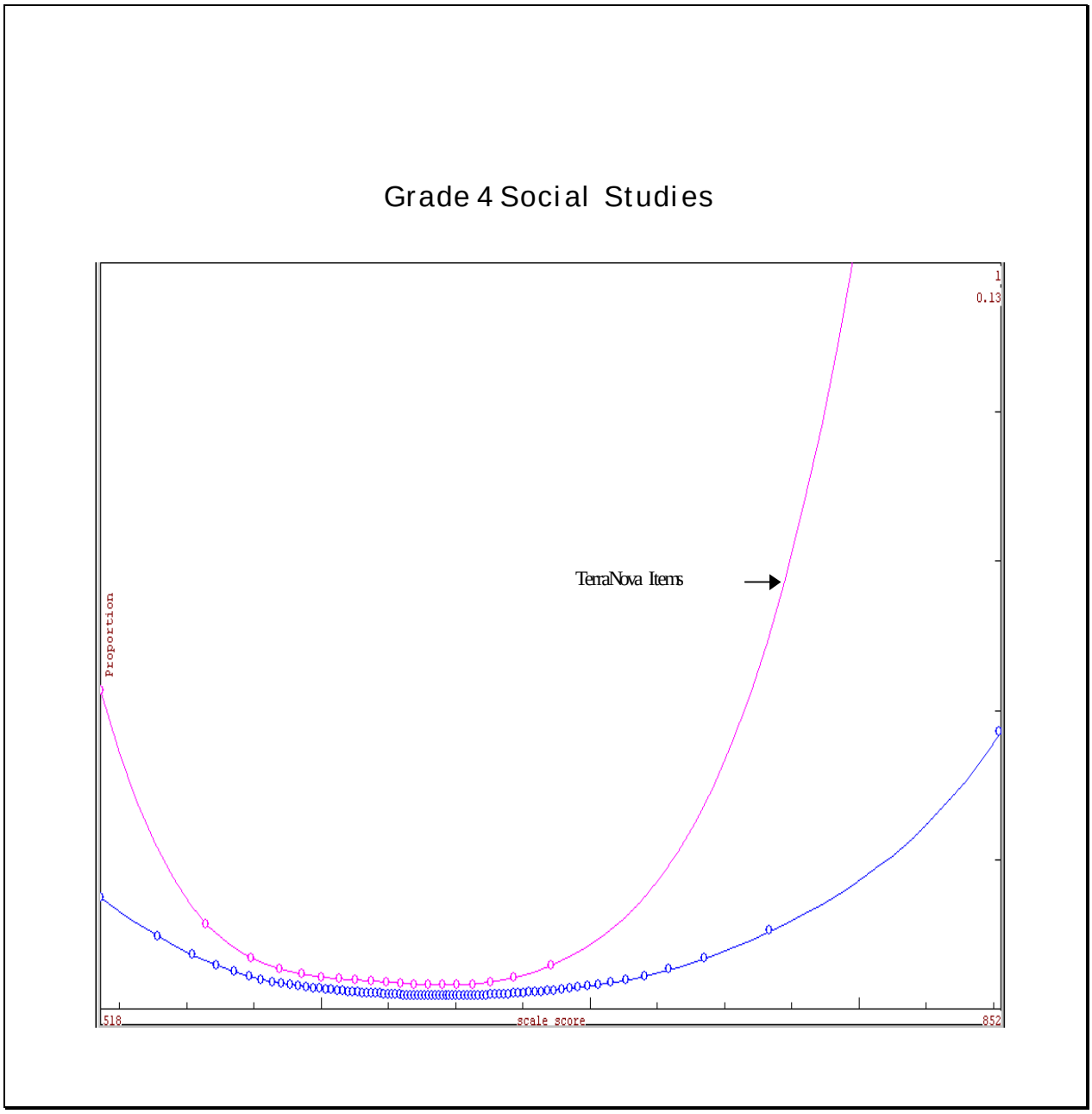

Year	LOSS SEM	HOSS SEM	Ave. SEM 575-700	Lowest SEM
1999	50	111	8	5
TerraNova 99	134	N/A	16	10

Lowest Obtainable Scale Score (LOSS) is 518. Highest Obtainable Scale Score (HOSS) is 852.

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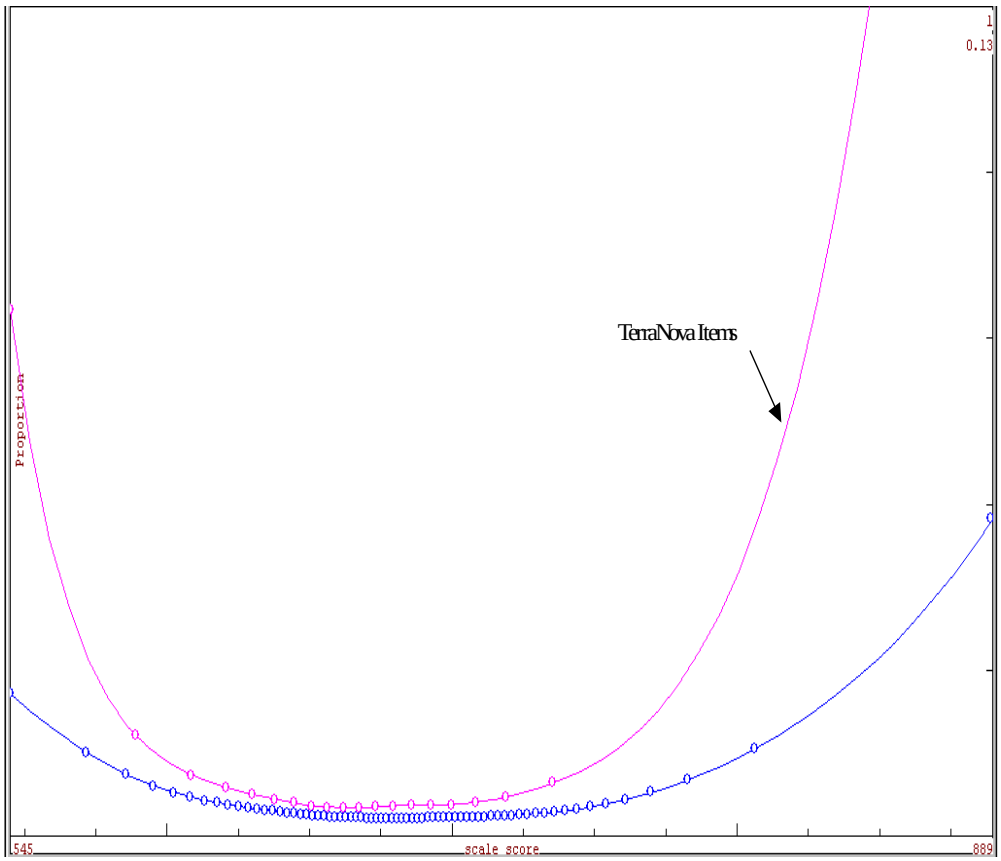
Grade 8 Social Studies



Year	LOSS SEM	HOSS SEM	Ave. SEM 625-750	Lowest SEM
1999	51	130	8.5	7
TerraNova 99	220	N/A	16	11

Lowest Obtainable Scale Score (LOSS) is 545. Highest Obtainable Scale Score (HOSS) is 889.

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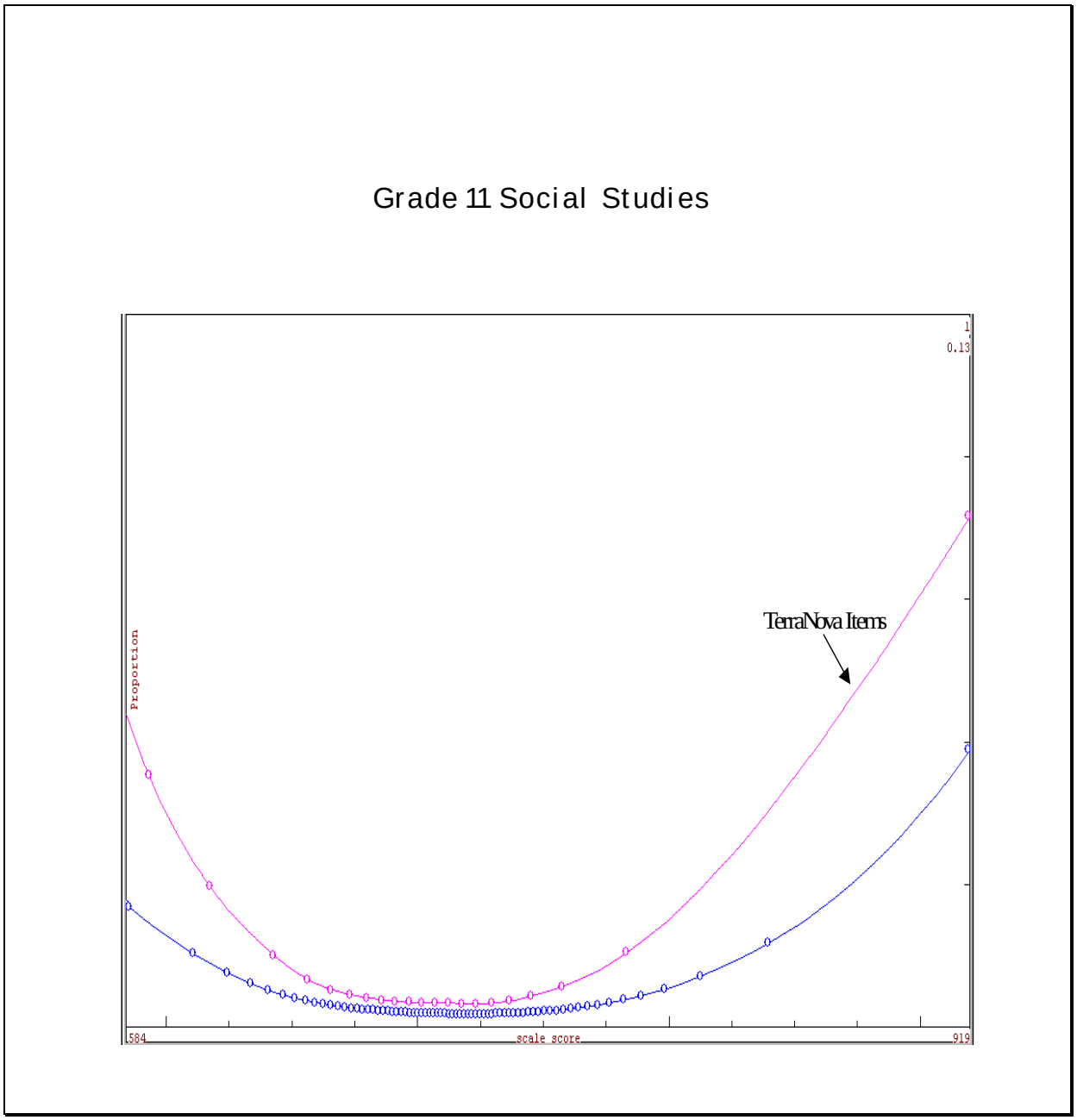

Year	LOSS SEM	HOSS SEM	Ave. SEM 650-775	Lowest SEM
1999	43	125	8	6
TerraNova 99	120	200	12	10

Lowest Obtainable Scale Score (LOSS) is 584. Highest Obtainable Scale Score (HOSS) is 919.

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The reliabilities presented in Table 2 and the standard error of measurement curves reflect repeatability and accuracy of individual scores. As the *Standards* point out…

> Average scores of groups, when interpreted as measures of program effectiveness, involve error factors that are not identical to those that operate at the individual level. For large groups, the positive and negative measurement errors of individuals may average out almost completely in group means. However, the sampling errors associated with the random sampling of persons who are tested for purposes of program evaluation are still present. [They] can be a significant source of error in inferences about programs even if there is a high degree of precision in individual test scores. Standard errors appropriate to individual scores are not appropriate measures of the precision of group averages. A more appropriate statistic is the standard error of the observed score means. (p. 30)

Standard errors of the School and District means for the Content Standards are reported each year on the MAP report forms. They are reported with a 95% confidence interval. This interval is used by the schools and districts when comparing themselves to the average for the whole state of Missouri. This comparison allows schools and districts to evaluate their performance diagnostically. These standard errors of the Content Standard means are not replicated in this document since they are directly available to every school and district and the state for every form on the score report documents.

Classification Consistency

MAP tests are used to place students into one of five Levels of Achievement: Step 1, Progressing, Nearing Proficient, Proficient, or Advanced. Consistency of classification is affected by the nearness of the individual's score to one of the four cut points between these Levels. A study was designed to simulate a test-retest situation so that the decision consistency of each of the MAP tests could be determined.

Data Simulation

For this study, data were simulated for each MAP test using item and scale score parameters from the Spring 1999 administration. For each test, 8,000 scale scores were simulated to be consistent with a normal distribution. The mean and standard deviation of the simulated scale scores was equal to the 1999 fast track calibration sample. Table 1 summarizes the mean and standard deviation of the simulated scale score for each test. Using a data generation program (BSSIM), the item parameters from the 1999 calibration were used to simulate two sets of item responses for each test. This is analogous to a test-retest situation where 8,000 students have taken the test twice.

The item responses were scored with the same software program used for all operational data analyses of MAP (PARDUXMX) using the operational item parameters from the 1999 calibration. These estimated scale scores were classified into one of the five Achievement Levels using the cut scores established by Missouri teachers in the standard settings for the particular subject. These cut scores are summarized in Table 2.

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These data were analyzed by cross-tabulating the classification levels into five-by-five tables. The probability of consistent classification and Cohen's Kappa were calculated from these tables. The probability of consistent classification is given by:

$$\hat{P} = \hat{P}_{11} + \hat{P}_{22} + \hat{P}_{33} + \hat{P}_{44} + \hat{P}_{55}$$

where $\hat{P}_{ii}$ is the probability that a student was classified in Achievement Level *i* by both administrations of a test. $\hat{P}$ reflects the overall probability of a consistent decision.

Cohen's Kappa may be calculated as:

$$\kappa = \frac{\hat{P} - P_c}{1 - P_c}$$

where P_c is the probability of a consistent decision if the tests were statistically independent. Kappa may be interpreted as the proportion of consistent classifications observed beyond that expected by chance (Subkoviak, 1988). Kappa is bound between 0.00 and 1.00 where 0.00 indicates that the tests are totally independent and 1.00 indicates that they perfectly agree.

Results

Missouri students are tested in Communication Arts in Grades 3, 7, and 11. Table 4 presents the cross-tabulation of the two test administrations after the simulees have been classified into Achievement Levels. Counts on the diagonal represent the number of simulees that were consistently classified between the two administrations of the test. Counts on the off-diagonal represent those simulees whose classification changed between the two administrations. The numbers in bold are the actual numbers of students in each Achievement Level. For the Grade 3, the probability of consistent decisions was 0.71. Kappa was 0.62: the increase over chance consistency was 62% for the decisions based on the two administrations. For the Grade 7 test, $\hat{P}$ =0.68 and κ = 0.58. For Grade 11, $\hat{P}$ =0.71 and κ = 0.61.

Table 3 summarizes the cross tabulation of two administrations of the Grades 4, 8, and 10 Mathematics test. Here, $\hat{P}$ =0.73 and κ = 0.63 for Grade 4, $\hat{P}$ =0.76 and κ = 0.66 for Grade 8, and $\hat{P}$ =0.75 and κ = 0.66 for Grade 10. The results for the Grades 3, 7, and 10 Science tests are shown in Table 5. In this case, $\hat{P}$ =0.71 and κ = 0.59 for Grade 3, $\hat{P}$ =0.68 and κ = 0.56 for Grade 7, and $\hat{P}$ =0.74 and κ = 0.63 for Grade 10. Finally, Table 6 displays the cross tabulation for the Grades 4, 8, and 11 Social Studies

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tests where $\hat{P}$ =0.71 and κ = 0.62 for Grade 4, $\hat{P}$ =0.65 and κ = 0.55 for Grade 8, and $\hat{P}$ =0.72 and κ = 0.63 for Grade 11.

Conclusion

The results of the simulation show the tests to be acceptable in terms of decision consistency. This implies that the actual tests will also provide decision consistency indices in an acceptable range. Of course, this simulation analysis assumed a normal distribution of scale scores. When the actual distribution of scale scores deviates from normality, this will limit the findings of the simulation study. However, the assumption of normality seemed reasonable since the calibration sample was approximately normally distributed. Moreover, $\hat{P}$ and Kappa should be robust to minor violations of normality.

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Table 3. Cross-Tabulation of Achievement Levels, Mathematics

Grade 4		TEST 2 (0.93)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.93)	Step 1	212.00 0.03	98.00 0.01	0.00 0.00	0.00 0.00	0.00 0.00	310.00 0.04
	Progressing	95.00 0.01	1379.00 0.17	315.00 0.04	0.00 0.00	0.00 0.00	1789.00 0.22
	Nearing Proficient	0.00 0.00	291.00 0.04	2255.00 0.28	397.00 0.05	4.00 0.00	2947.00 0.37
	Proficient	0.00 0.00	1.00 0.00	437.00 0.05	1458.00 0.18	253.00 0.03	2149.00 0.27
	Advanced	0.00 0.00	0.00 0.00	4.00 0.00	267.00 0.03	534.00 0.07	805.00 0.10
	Total	307.00 0.04	1769.00 0.22	3011.00 0.38	2122.00 0.27	791.00 0.10	8000.00 1.00
	Fast Track	**0.03**	**0.20**	**0.42**	**0.29**	**0.06**	

Grade 8		TEST 2 (0.93)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.93)	Step 1	1466.00 0.18	309.00 0.04	0.00 0.00	0.00 0.00	0.00 0.00	1775.00 0.22
	Progressing	327.00 0.04	2392.00 0.30	393.00 0.05	0.00 0.00	0.00 0.00	3112.00 0.39
	Nearing Proficient	0.00 0.00	389.00 0.05	1637.00 0.20	214.00 0.03	2.00 0.00	2242.00 0.28
	Proficient	0.00 0.00	0.00 0.00	200.00 0.03	501.00 0.06	58.00 0.01	759.00 0.09
	Advanced	0.00 0.00	0.00 0.00	1.00 0.00	57.00 0.01	54.00 0.01	112.00 0.01
	Total	1793.00 0.22	3090.00 0.39	2231.00 0.28	772.00 0.10	114.00 0.01	8000.00 1.00
	Fast Track	**0.22**	**0.38**	**0.31**	**0.09**	**0.00**	

Grade 10		TEST 2 (0.94)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.94)	Step 1	2148.00 0.27	378.00 0.05	1.00 0.00	0.00 0.00	0.00 0.00	2527.00 0.32
	Progressing	377.00 0.05	1823.00 0.23	334.00 0.04	0.00 0.00	0.00 0.00	2534.00 0.32
	Nearing Proficient	2.00 0.00	362.00 0.05	1380.00 0.17	213.00 0.03	0.00 0.00	1957.00 0.24
	Proficient	0.00 0.00	0.00 0.00	189.00 0.02	557.00 0.07	65.00 0.01	811.00 0.10
	Advanced	0.00 0.00	0.00 0.00	0.00 0.00	66.00 0.01	105.00 0.01	171.00 0.02
	Total	2527.00 0.32	2563.00 0.32	1904.00 0.24	836.00 0.10	170.00 0.02	8000.00 1.00
	Fast Track	**0.28**	**0.33**	**0.28**	**0.10**	**0.01**	

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Table 4. Cross-Tabulation of Achievement Levels, Communication Arts

Grade 3		TEST 2 (0.92)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.92)	Step 1	632 0.08	195 0.02	2 0.00	0 0.00	0 0.00	829 0.10
	Progressing	187 0.02	1233 0.15	374 0.05	1 0.00	0 0.00	1795 0.22
	Nearing Proficient	3 0.00	372 0.05	1927 0.24	415 0.05	0 0.00	2717 0.34
	Proficient	0 0.00	1 0.00	425 0.05	1767 0.22	143 0.02	2336 0.29
	Advanced	0 0.00	0 0.00	0 0.00	145 0.02	178 0.02	323 0.04
	Total	822 0.10	1801 0.23	2728 0.34	2328 0.29	321 0.04	8000 1.00
	Fast Track	**0.09**	**0.22**	**0.37**	**0.30**	**0.02**	
Grade 7		TEST 2 (0.91)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.91)	Step 1	971.00 0.12	258.00 0.03	4.00 0.00	0.00 0.00	0.00 0.00	1233.00 0.15
	Progressing	295.00 0.04	1122.00 0.14	374.00 0.05	12.00 0.00	0.00 0.00	1803.00 0.23
	Nearing Proficient	3.00 0.00	387.00 0.05	1462.00 0.18	429.00 0.05	1.00 0.00	2282.00 0.29
	Proficient	0.00 0.00	9.00 0.00	440.00 0.06	1656.00 0.21	177.00 0.02	2282.00 0.29
	Advanced	0.00 0.00	0.00 0.00	3.00 0.00	167.00 0.02	230.00 0.03	400.00 0.05
	Total	1269.00 0.16	1776.00 0.22	2283.00 0.29	2264.00 0.28	408.00 0.05	8000.00 1.00
	Fast Track	**0.15**	**0.22**	**0.30**	**0.30**	**0.03**	
Grade 11		TEST 2 (0.92)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.92)	Step 1	1619.00 0.20	306.00 0.04	20.00 0.00	0.00 0.00	0.00 0.00	1945.00 0.24
	Progressing	293.00 0.04	809.00 0.10	360.00 0.05	1.00 0.00	0.00 0.00	1463.00 0.18
	Nearing Proficient	24.00 0.00	383.00 0.05	1839.00 0.23	357.00 0.04	0.00 0.00	2603.00 0.33
	Proficient	0.00 0.00	3.00 0.00	375.00 0.05	1224.00 0.15	98.00 0.01	1700.00 0.21
	Advanced	0.00 0.00	0.00 0.00	1.00 0.00	129.00 0.02	159.00 0.02	289.00 0.04
	Total	1936.00 0.24	1501.00 0.19	2595.00 0.32	1711.00 0.21	257.00 0.03	8000.00 1.00
	Fast Track	**0.22**	**0.20**	**0.34**	**0.22**	**0.02**	

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Table 5. Cross-Tabulation of Achievement Levels, Science

Grade 3		TEST 2 (0.91)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.91)	Step 1	360.00 0.05	143.00 0.02	3.00 0.00	0.00 0.00	0.00 0.00	506.00 0.06
	Progressing	141.00 0.02	888.00 0.11	353.00 0.04	1.00 0.00	0.00 0.00	1383.00 0.17
	Nearing Proficient	4.00 0.00	346.00 0.04	2308.00 0.29	477.00 0.06	2.00 0.00	3137.00 0.39
	Proficient	0.00 0.00	0.00 0.00	459.00 0.06	1667.00 0.21	195.00 0.02	2321.00 0.29
	Advanced	0.00 0.00	0.00 0.00	1.00 0.00	233.00 0.03	419.00 0.05	653.00 0.08
	Total	505.00 0.06	1377.00 0.17	3124.00 0.39	2378.00 0.30	616.00 0.08	8000.00 1.00
	Fast Track	**0.06**	**0.16**	**0.40**	**0.33**	**0.05**	
Grade 7		TEST 2 (0.89)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.89)	Step 1	1252.00 0.16	374.00 0.05	0.00 0.00	0.00 0.00	0.00 0.00	1626.00 0.20
	Progressing	352.00 0.04	2354.00 0.29	477.00 0.06	20.00 0.00	0.00 0.00	3203.00 0.40
	Nearing Proficient	0.00 0.00	467.00 0.06	1053.00 0.13	311.00 0.04	9.00 0.00	1840.00 0.23
	Proficient	0.00 0.00	17.00 0.00	299.00 0.04	546.00 0.07	125.00 0.02	987.00 0.12
	Advanced	0.00 0.00	0.00 0.00	5.00 0.00	131.00 0.02	208.00 0.03	344.00 0.04
	Total	1604.00 0.20	3212.00 0.40	1834.00 0.23	1008.00 0.13	342.00 0.04	8000.00 1.00
	Fast Track	**0.18**	**0.39**	**0.29**	**0.12**	**0.02**	
Grade 10		TEST 2 (0.92)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.92)	Step 1	1225.00 0.15	331.00 0.04	0.00 0.00	0.00 0.00	0.00 0.00	1556.00 0.19
	Progressing	354.00 0.04	2056.00 0.26	394.00 0.05	0.00 0.00	0.00 0.00	2804.00 0.35
	Nearing Proficient	6.00 0.00	426.00 0.05	2216.00 0.28	186.00 0.02	7.00 0.00	2841.00 0.36
	Proficient	0.00 0.00	0.00 0.00	194.00 0.02	282.00 0.04	76.00 0.01	552.00 0.07
	Advanced	0.00 0.00	0.00 0.00	4.00 0.00	92.00 0.01	151.00 0.02	247.00 0.03
	Total	1585.00 0.20	2813.00 0.35	2808.00 0.35	560.00 0.07	234.00 0.03	8000.00 1.00
	Fast Track	**0.17**	**0.36**	**0.40**	**0.06**	**0.02**	

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Table 6. Cross-Tabulation of Achievement Levels, Social Studies

Grade 4		TEST 2 (0.93)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.93)	Step 1	771.00 0.10	248.00 0.03	0.00 0.00	0.00 0.00	0.00 0.00	1019.00 0.13
	Progressing	254.00 0.03	1643.00 0.21	354.00 0.04	2.00 0.00	0.00 0.00	2253.00 0.28
	Nearing Proficient	0.00 0.00	356.00 0.04	1663.00 0.21	353.00 0.04	1.00 0.00	2373.00 0.30
	Proficient	0.00 0.00	4.00 0.00	351.00 0.04	953.00 0.12	211.00 0.03	1519.00 0.19
	Advanced	0.00 0.00	0.00 0.00	4.00 0.00	197.00 0.02	635.00 0.08	836.00 0.10
	Total	1025.00 0.13	2251.00 0.28	2372.00 0.30	1505.00 0.19	847.00 0.11	8000.00 1.00
	Fast Track	**0.10**	**0.28**	**0.33**	**0.22**	**0.07**	
Grade 8		TEST 2 (0.91)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.91)	Step 1	1090.00 0.14	283.00 0.04	18.00 0.00	0.00 0.00	0.00 0.00	1391.00 0.17
	Progressing	280.00 0.04	668.00 0.08	395.00 0.05	8.00 0.00	0.00 0.00	1351.00 0.17
	Nearing Proficient	35.00 0.00	387.00 0.05	1499.00 0.19	433.00 0.05	2.00 0.00	2356.00 0.29
	Proficient	1.00 0.00	4.00 0.00	439.00 0.05	1348.00 0.17	237.00 0.03	2029.00 0.25
	Advanced	0.00 0.00	0.00 0.00	3.00 0.00	260.00 0.03	610.00 0.08	873.00 0.11
	Total	1406.00 0.18	1342.00 0.17	2354.00 0.29	2049.00 0.26	849.00 0.11	8000.00 1.00
	Fast Track	**0.16**	**0.16**	**0.31**	**0.29**	**0.08**	
Grade 11		TEST 2 (0.93)					
	Frequency Proportion	Step 1	Progressing	Nearing Proficient	Proficient	Advanced	Total
TEST 1 (0.93)	Step 1	2299.00 0.29	324.00 0.04	22.00 0.00	0.00 0.00	0.00 0.00	2645.00 0.33
	Progressing	354.00 0.04	863.00 0.11	369.00 0.05	0.00 0.00	0.00 0.00	1586.00 0.20
	Nearing Proficient	28.00 0.00	390.00 0.05	1867.00 0.23	228.00 0.03	12.00 0.00	2525.00 0.32
	Proficient	0.00 0.00	0.00 0.00	214.00 0.03	325.00 0.04	125.00 0.02	664.00 0.08
	Advanced	0.00 0.00	0.00 0.00	19.00 0.00	134.00 0.02	427.00 0.05	580.00 0.07
	Total	2681.00 0.34	1577.00 0.20	2491.00 0.31	687.00 0.09	564.00 0.07	8000.00 1.00
	Fast Track	**0.30**	**0.21**	**0.35**	**0.09**	**0.05**	

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Score-Rescore Reliability

A score-rescore reliability can be computed for raw scores that include all the items in each MAP test. The multiple-choice items do not add any unreliability to scoring, and will of course increase the constructed response score-rescore reliability of the tests. However, this reliability reflects the actual stability of scores from the tests as they are actually constituted.

1999 Score-Rescore Reliabilities

	Grade	Reliability
Mathematics	4	0.99351
	8	0.98963
	10	0.99177
Communication Arts	3	0.98766
	7	0.98476
	11	0.98368
Science	3	0.98050
	7	0.97240
	10	0.97056
Social Studies	4	0.98589
	8	0.98478
	11	0.99147

Test Content Development

A key piece of validity evidence for a test is provided by the procedures used to develop the test's content to the blueprint and specifications. By setting forth a description of the events that took place in a test's development we establish credibility for the validity claims made for it.

Mathematics Assessment Development

The development of the mathematics assessment began in January, 1996. The process of constructing a mathematics assessment has served (with some modification) as a prototype for development of assessments in other subject areas.

In January, 1996, a group comprised of teachers, school administrators, parents, and business professionals, representative of the state's geographic and ethnic make-up, met with the Department and CTB/McGraw-Hill to discuss the format of the assessment, the kinds of knowledge and skills that should be measured, and the type of items that should be used. During the meeting it also became clear that schools wanted an example of the kind of assessment planned, and an opportunity to "try out" this new model of assessment before its implementation in the schools. In response, CTB/McGraw-Hill developed preliminary test specifications. A set of mathematics

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constructed-response items, and performance events, representative of the items that might be included in the MAP was created.

In February 1996, a second group of parents, business professionals, and school personnel, was convened to review the proposed mathematics items before they were piloted in the schools. As recommended by the Technical Advisory Committee, this group provided an early review of items to ensure that they were not biased in any way that would put any group of students at a disadvantage. Once again, the group selected was geographically and ethnically representative of the state. Participants helped select bias-free items and identified those that should be eliminated or modified.

On March 16, 1996, 150 teachers nominated by the Missouri Council of Teachers of Mathematics, and other Missouri teachers, met at seven regional sites to discuss the mathematics content to be measured by the MAP. Teachers at each site reviewed what students should know and be able to do by the end of grades 4, 8, and 10 using the Show-Me Standards and the Curriculum Frameworks as a reference point, and then elected representatives who took their views to a statewide content meeting on March 28, 1996.

The 29 representatives who attended the March 28 meeting presented the results of the meetings in their regions, and then reached consensus about the mathematics content that should be measured by the Missouri Assessment Program (MAP) at each of the grades assessed.

On June 1, 1996, 38 parents and business professionals representing each region of the state met to review these teachers' work, and to make additional recommendations concerning the content of the assessment. The meetings of March 16th and March 28th provided a basis upon which the results of the mathematics assessment could be reported in terms of the Show-Me Standards.

Mathematics items were piloted in late April through early May with 2,136 students at the elementary, middle and secondary levels. In late May, fifty teachers met with CTB/McGraw-Hill to score the piloted items and evaluate their effectiveness.

In June, 1996, Missouri teachers created Performance Events based on the results of the March statewide content meeting. In early August, CTB/McGraw-Hill met with two groups to develop field test forms that would measure the content that had been identified as important by earlier committees. The first group was comprised of mathematics teachers nominated by professional educator organizations. Using information obtained from the pilot test, this group validated items by evaluating their effectiveness in measuring the designated mathematics content. The second group, which included parents, business professionals, other community constituents from diverse ethnical/racial backgrounds, then reviewed the items for bias. Based on input from these two groups, items were edited and organized into six field test forms for use in the fall of 1996.

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In October, 1996, Missouri school districts had the opportunity to participate in a voluntary field test of the mathematics assessment at grades 5, 9 and 11. The fall field test at these grade levels was intended to result in a spring assessment for grades 4, 8, and 10. Of Missouri's 537 school districts, 244 districts (66,449 students) participated in the fall mathematics field test. The field test was a test of the items themselves; therefore, scores were not returned to individual students or participating districts.

Student responses to the constructed-response items and performance events were hand-scored, in December, by readers trained by CTB personnel. Prior to the scoring, experienced Missouri teachers and MAP Regional Facilitators assisted in the establishment of score points for each item, development of scoring materials, and the refinement of scoring guides, to be used during the scoring process. This helped to ensure the consistent grading of papers. All students' responses were then scored by CTB/McGraw-Hill.

To ensure that CTB/McGraw-Hill's scoring was consistent with Missouri scoring practices, a sample of the student responses were re-scored by approximately 60 Missouri teachers in January 1997. Teachers and MAP Regional Facilitators were trained by CTB personnel to facilitate re-scoring activities in Missouri. The Missouri re-scoring was a research effort to determine the degree of agreement Missouri and CTB/McGraw-Hill scorers could achieve under similar conditions. It also provided an opportunity to inform Missouri teachers about the assessment.

Item statistics from the field test were then used to develop three comparable and equivalent forms of the assessment. These forms were reviewed by the Technical Advisory Committee. The first of these three forms was administered to students in grades 4, 8, and 10 during the April 28-May 16, 1997 test window, in school districts that volunteered to participate in the assessment.

During the spring of 1997, 355 Missouri school districts (about 117,000 Missouri students in grades 4, 8, and 10) took part in the first administration of the mathematics assessment. The remaining two equivalent forms of the assessment were held for administration in the spring of 1998 and 1999, respectively. The mathematics portion of the MAP was mandated for all districts in the spring of 1998. The mathematics portion of the MMAT continued to be available to districts wishing to use it at the alternative grade levels, or in addition to the MAP mathematics assessment at grades 4, 8, and 10.

During June 16-20, 1997, 41 Missouri teachers assisted in re-scoring a sample of student work from the spring administration of the mathematics assessment. Again, the focus was to ensure that Missouri standards were clearly upheld in the scoring process. Re-scoring is an ongoing area of research conducted by CTB/McGraw-Hill to determine the degree of agreement between the contractor's scorers and Missouri scorers. The results indicate a high degree of agreement. Under no circumstances do teachers score their own student's work.

In July, 1997, Achievement Levels were established in the area of mathematics. Achievement Levels designate the amount of knowledge and skills students must

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demonstrate to fall within each of five levels of subject-area proficiency. Achievement Levels for mathematics, at each grade, were recommended by Missouri citizens. These "judging panels" included Missouri math teachers, parents, legislators, and members of the business community. The panels were committed to setting high expectations for math achievement by Missouri students. Although rigorous levels were established, panelists believe they can be achieved through hard work by teachers, students, and parents.

The first report forms with district, building, and student-level information were mailed to districts in August, 1997. More information regarding the establishment of Achievement Levels and the contents of the report forms is outlined in the Achievement-Level-Setting section of this document.

In 1999 additional forms of Mathematics were developed. An item writing workshop was held in the middle of March. The purpose of the workshop was twofold, first to expand and to clarify six content standards in the curriculum frameworks and then to write Performance Events for the new field test to be administered in the fall of 1999.

There were four different grade level groups, K-2, 3-4, 5-8, and 9-12. Each grade level group was further divided into 6 teams, 1 team for each content standard. Each team focused on the same content standard and grade level for the entire week. DESE and CTB each provided facilitators for each grade level group.

The teams wrote clarifying statements for the "to know" column of the Curriculum Frameworks, and short constructed response items to illustrate the "to do" statements. The teams occasionally had difficulty interpreting the statements in the Curriculum Frameworks, but worked as a team to clarify each statement or to expand the statements to include skills that were not specifically mentioned. The teams focused on writing Performance Events. Each Performance Event was written to match one content standard and one or two process standards. The teams were consistent in their interpretation of the content standards. However, the teams often interpreted the process standards quite differently.

Science and Communication Arts Assessment Development

The science and communication arts portions of the MAP were developed concurrently. Development of these portions of the MAP closely paralleled the processes used in creating the mathematics assessment.

In July 1996, groups of science and communication arts teachers, nominated by professional educator organizations, met to begin discussing the possible Content and Process Standards that should be assessed at a state level, and the format for the assessments in these subject areas.

Preliminary work from these meetings was then presented at meetings in nine regions of the state throughout the month of August, 1996. Approximately 300 educators in each subject area reviewed and commented on the proposed content and format of the

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assessments. Spokespersons from each regional meeting then met for a statewide content meeting in September to attempt to reach consensus across regions regarding assessment content and format. In November, 1996, groups of parents and business professionals met to review and comment on the early work in both communication arts and science.

CTB personnel used information from these preliminary meetings to create prototype assessment models for Science and Communication Arts. On January 27 and 28, 1997, other large groups of science and communication arts teachers met to review the assessment prototypes and to lay the groundwork for CTB to develop test and item specifications. Parents and business leaders from throughout the state met in Kansas City and St. Louis during the first two weeks in March to review initial test and item specifications.

On April 28-29, 1997, 32 communication arts teachers met in Jefferson City to review the content contained in passages for which test questions/prompts would later be written. Following that meeting, 26 teachers, parents, and community members met on May 8 to review the passages to ensure they contained no bias.

In June, 1997, Missouri teachers created constructed-response items and Performance Events, for Communication Arts and Science, according to the test and item specifications CTB developed with the input of Missouri educators. These items were then reviewed by other teachers for content and process validity and by community constituents for bias.

Items were revised, as necessary, and test forms were created for a voluntary October field test in both subject areas. Approximately 70,000 students participated in field test activities in each subject area. Items for the fall field test were administered in grades 4, 8, and 12 in Communication Arts, and grades 4, 8, and 11 in Science in order to create test forms for spring administration in grades 3, 7, and 11 in Communication Arts and grades 3, 7, and 10 in Science.

In November and December, representative Missouri teachers and MAP Regional Facilitators assisted in the selection of scoring materials, and the refinement of scoring guides, to be used during the scoring process. All student responses were then scored by CTB/McGraw-Hill. A sample of student responses were re-scored by approximately 60 Missouri teachers in January, 1998. Teachers and Regional Facilitators were trained in December by CTB personnel to facilitate re-scoring activities in Missouri, under the leadership of CTB/McGraw-Hill.

Based on item statistics from the field test, three final forms of the assessment were developed for each of the subject areas. The first form was administered on a voluntary basis in spring 1998 to students in grades 3, 7, and 11 for Communication Arts, and grades 3, 7, and 10 for Science. During the spring of 1998, 368 districts participated in the voluntary administration of the Communication Arts assessment; 366 in the Science assessment. The other two forms of the assessment, were to be administered in 1999 and 2000, respectively. Both subject areas assessments were required in spring 1999.

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On June 22-26, 1998, Missouri teachers assisted in re-scoring a sample of the performance items from the spring administration. Again, the focus was to ensure that Missouri standards were clearly upheld in the scoring process.
In July, 1998, Achievement Levels were established for Communication Arts and Science. The first reports forms were mailed to districts in August, 1998.

Social Studies Assessment Development

The Social Studies assessment development process began in July, 1997, when groups of social studies teachers, nominated by professional educator organizations, met to begin discussing the possible content and process standards that should be assessed at the state level, and format for the assessment. Preliminary work from this meeting was then presented at meetings in nine regions of the state throughout the month of August, 1997. Approximately 300 educators reviewed and commented on the proposed content and format of the assessment. Spokespersons from each regional meeting then met for a statewide content meeting to attempt to reach consensus across regions regarding assessment content and format.

CTB/McGraw-Hill used information from the preliminary content meetings to create prototype assessment models. On December 11-12, 1997, another large group of social studies teachers met to review the assessment prototypes and to lay the groundwork for CTB to develop test and item specifications. To ensure coverage of the four social studies disciplines contained in the Missouri Social Studies Content Standards, the teachers affirmed CTB's suggestion that multiple-choice and constructed-response items be included in Sessions 1 and 2.

In January, 1998, groups of parents and business professionals met to review and comment on the early work for the Social Studies test. Following this meeting, Missouri teachers participated in a content review of the stimulus materials for which test questions/prompts would be written. This meeting was conducted January 26-27. A second content review was held on March 7 to review additional materials.

On January 28, 1998, 21 Missourians reviewed the stimulus materials to ensure that they contained no bias. On April 9, a second bias review was conducted to review additional materials. Eighteen people participated in this activity.

In March 18-21, 1998, Missouri teachers wrote multiple-choice, constructed-response items, and Performance Events, according to the test and item specifications CTB/McGraw-Hill developed with input from Missouri educators.

On June 29-30, 1998, all field test items, refined by CTB/McGraw-Hill, were reviewed by teachers for content and process validity. A bias and sensitivity review meeting was then conducted in July. Missouri citizens participated in this meeting. Items were revised as necessary, and test forms were created for a voluntary field test. Approximately 58,000 students participated in field test activities. All districts who volunteered were allowed to participate. This provided an opportunity for educators and

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students to gain a better understanding of the type of items to be included in the social studies assessment.

In November 1998, Missouri teachers and MAP Regional Facilitators assisted in the selection of scoring materials, and the refinement of scoring guides, to be used during the scoring process. In December 1998, teachers were trained by CTB/McGraw-Hill staff to facilitate the re-scoring activities in Missouri. A representative sample of student responses was re-scored in Missouri in January 1999, by approximately 90 teachers.

Final forms of the assessment, for Grades 4, 8, and 11, were selected based on data from the field test. Members of DESE and Missouri teachers reviewed the form selections, suggesting changes to the selections that would better represent Missouri's Content Standards. During the spring of 1999, districts participated in the voluntary administration of the Social Studies assessment. The other two forms of the assessment, which are required, were to be administered in 2000 and 2001.

In July 1999, Achievement Levels were established for Social Studies. Achievement Levels designate the amount of knowledge and skills students must demonstrate to fall within each of five levels of subject-area proficiency. Achievement Levels for Social Studies, at each grade, were recommended by Missouri citizens, including Missouri social studies teachers, parents, and members of the business community. The panels were committed to setting high expectations for social studies achievement by Missouri students. Although rigorous levels were established, panelists stated that they could be achieved through hard work by teachers, students, and parents.

In December, 1999, representative Missouri teachers and MAP Regional facilitators assisted in the selection of scoring materials for the year 2000 form, and the refinement of scoring guides, to be used during the scoring process.

Since DESE expressed a desire for additional items at Grade 11 that assessed world history, in January, 1999, members of DESE, with input from Missouri educators, designated a number of topics/time periods in world history that they wanted assessed. CTB developed stimulus materials and sample items that would assess these topics. In March, content and bias committees of Missouri educators, MAP Regional Facilitators, members of DESE, and members of the community reviewed and approved these stimulus materials. In June, an item-writing workshop was held with Missouri educators, who wrote items to these stimulus materials. In August, after a preliminary review by members of DESE and expert teachers, items written by Missouri teachers and by CTB staff were reviewed by content and bias committees of Missouri educators, MAP Regional Facilitators, members of DESE, and members of the community. Items that were approved by the committees were then selected to be included as embedded field test items in the operational forms of the test for the years 2000 and 2001.

Process Standard Identification Exercises in Missouri in 1997

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Missouri teachers using the Missouri Process Standard statements engaged in a classification and identification exercise in 1997. They approached the activity not so much as an activity to identify "integrated outcomes,"—rather, they approached it as identifying procedural knowledge within subject-matter area. Within subject-area and within grade, Missouri teachers wrote somewhat more detailed descriptors of the Missouri Process Standards—then for Mathematics used the descriptors to index MAP items and tasks by the Process Standards. For Science and Communication Arts CTB editors used the teachers' descriptors to index items and tasks. For MAP Mathematics, Missouri teachers worked in grade level groups of eight to write the descriptors. Each group read and discussed each of the Process Standards that were applicable to mathematics at the state level for their specific grade level group. Then they wrote their descriptors. The descriptors were intended to indicate the types of mathematics behavior a student would show in the classroom.

It should be kept in mind that these descriptors are based on Process Standards, whereas descriptors written later in the MAP development process by Achievement Level Setting (ALS) panelists are based on Content Standards. In other words, descriptors written by ALS panelists describe the types of content that are mastered as students become more proficient.

In order to write process descriptors in January of 1997 the participating teachers were making some judgment about what kind of activity students engage in, in their classrooms, that might bear on the attainment of each item or task written for MAP. From the nature of the detailed descriptors written for MAP Mathematics it appears that they were thinking of activities students might engage in that would demonstrate mathematical reasoning.

Mathematics Descriptors

The following is an example of the descriptors written for the problem solving Process Standard:

Goal 3*Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems*.

3.1 identify problems and define their scope and elements

The student will

Elementary School

use given information related to a real-life or theoretical situation to:

- write and solve a story/word problem
- identify missing, extraneous, erroneous and/or needed information
- recognize the problem to be solved

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Middle School

- identify needed information from given problem with extraneous information
- identify various steps to solve a given problem
- identify missing information
- identify operation(s) needed to solve a problem (order of operations, compatible numbers)

High School

- apply appropriate problem-solving techniques within given parameters[1]
- identify sequential steps or processes that are used to complete a task

3.2 develop and apply strategies based on ways others have prevented or solved problems

The student will

Elementary School

use an example to:
- solve a similar problem using the same method shown in the example

Middle School

- apply a strategy based on what someone else did by using the same strategy for an extended, or different, problem
- complete the same problem using a different strategy (algebraic properties)

High School

- solve a problem with a strategy similar to a model presented

3.3 develop and apply strategies based on one's own experience in preventing or solving problems

The student will

Elementary School

use given information related to a real-life situation to:

[1] this descriptor may not be consistent with other grade levels or appropriate for the process standard

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- solve problems using various strategies (guess and check, make a list, solve a simpler problem, draw a picture, work backwards, etc.)
- choose an appropriate operation for solving a problem

Middle School

- show and/or explain a strategy used to solve a problem
- choose a strategy and solve a problem

High School

- apply problem-solving strategies that deal with estimation and comparisons in real-world problem situations such as budgets, fund raisers, and consumer purchases (food, car, entertainment)

3.4 evaluate the processes used in recognizing and solving problems

The student will

Elementary School

use given information related to a real-life or theoretical situation to:
- evaluate a process used to solve a problem

Middle School

- decide if a procedure shown produces the correct solution

High School

- examine a given process or situation and determine its validity
- explain or demonstrate the processes that need to be used to solve a problem

3.5 reason inductively from a set of specific facts and deductively from general premises

The student will

Elementary School

- find an answer or make a prediction based on clues
- explain an answer or prediction based on clues
- write the rule for a given pattern
- create or identify an example for a given rule

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Middle School

- draw conclusions from complete or incomplete data
- group objects in accord with common attributes
- give a rule for a given pattern
- complete logic problems (i.e., matrix, table, etc.)

High School

- deduce properties and relationships between a variety of situations
- observe consistencies in a collection of information to make a generalization

3.6 examine problems and proposed solutions from multiple perspectives

The student will

High School

- recognize that problems can be solved in a variety of ways
- transfer strategies from one problem to a similar problem
- recognize that multiple solutions may be appropriate in given situations

3.7 evaluate the extent to which a strategy addresses the problem

The student will

Elementary School

- determine whether a solution or strategy is reasonable
- use estimation to check an answer
- explain in words, pictures, or diagrams why a solution is reasonable

Middle School

- decide whether a given strategy is relevant or irrelevant to the solution and explain the response to a given situation

High School

- recognize the advantages and disadvantages of using particular strategies in problem solving

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- recognize and apply a sequential order of processes (order of operations, geometric classifications, simplifying algebraic functions, etc.) that lead to the appropriate solution

3.8 assess costs, benefits and other consequences of proposed solutions

The student will

Middle School

use math to determine the results of a course of action in problems that deal with:
- the point of diminishing returns
- consumer opportunity costs over a long term
- employee costs – overtime

High School

- recognize that alternate solutions can be obtained through the modification of variables
- weigh factors to determine the best solution

According to the CTB Development Editor on the Mathematics descriptor writing team (personal communication) the Mathematics descriptors are similar to traditional process measures that would be found in other mathematics frameworks. They do bear a resemblance to the first four NCTM standards, which are Mathematics as Problem Solving, Mathematics as Communication, Mathematics as Reasoning, and Mathematical Connections. The Missouri Process Standard descriptors, however, are not grouped as clearly as the NCTM standards. For instance, NCTM problem-solving descriptors are not necessarily found all under the same Missouri Goal 3.

The descriptors were not deliberately generalized across subject areas. They were intended to be specific to mathematics, but obviously many of them appear to apply to any domain.

Science Descriptors

In January 1997 Missouri educators met and determined which of the Process Standards listed under Goals 1-4 were assessable. At the same meeting there was an attempt to interpret the process standard statements from the standpoint of science assessment. The chart below presents this interpretation.

Item Content Associated with Process Standard

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Goal 1.

1.1 The student is asked to formulate questions, hypotheses, or ideas about how to approach a problem given a set of information, a flawed-experiment, or experimental data.

1.3 The student must design, conduct, or evaluate an experiment/investigation that studies nature or society; (or) use basic science skills.

1.5 Use for conceptual *or* inquiry items which require students to process language, data tables and charts, and/or graphics of above-average complexity.

1.6 Use for a conceptual *or* inquiry item that requires the student to understand or discover patterns/relationships in graphs and charts of data, concepts, or in descriptions of nature.

1.7 The student must assess the accuracy and reliability of given information by considering how it was gathered or presented.

1.8 The student must organize, rank, or present given data, ideas, or information (graphs/outlines/lists) to support his/her analysis.

1.10 Use standard for any item that assesses conceptual understanding or application of acquired information.

Goal 2.

2.1 The students must express their understanding of science concepts (beyond short answers), describe inquiry processes, present data, or communicate in any way that is important or appropriate in the learning and practice of science.

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Goal 3.

3.1 Students must understand the elements of a problem from given information and use these to show the scope of a problem or choose an optimal solution.

3.2 The student follows an example of how a problem was solved and adapts the approach to solve their problem or make decisions.

3.3 The student must describe or propose a solution to a problem using his/her own experiences as a framework.

3.4 The student must reflect on the adequacy of the methods and procedures to solve a problem and/or alternative approaches to problem solving.

3.5 The student must reason inductively from any data or information presented (or) they must reason deductively from general premises.

3.6 The student must be able to examine a problem or solution to a problem from different perspectives

3.7 Evaluate how well-suited a strategy is to a particular problem. (When classifying item for 3.7, score for 3.4 as well.)

3.8 The student must compare and contrast the costs, risks, and benefits of proposed solutions and possibly choose optimal solutions.

Goal 4.

4.1 Any item that asks students to explain the reasoning for a decision or asks the student to identify the information used to justify a decision.

The Science exercise for developing Process Standard descriptors differed from the exercise used in Mathematics. The Science descriptors add some subject-area specificity to the existing Process Standard statements, but no grade-level specificity. Like the Mathematics group, an attempt was made to incorporate actual student behaviors with defined links to item/task features based on observations of students behavior in classrooms during instruction.

Actual student inputs (responses) to test questions were not used in either of these subject-area's Process Standard description-writing activities. One source of student input might be the "show-your-work/explain-your-answer" responses given by students taking the MAP Mathematics and Science test questions. These have not been analyzed and were, of course, not available for the Process Standard identification exercise. Whether these explanations could be matched to the behaviors in the math or science descriptors has not been investigated. Whether the students' explanations on MAP tests comprise common or different strategies has not been investigated. Although such an investigation might seem to be out-of-the-question because of the sheer volume of student responses in the state, it might be possible to re-purpose the effort expended by Missouri teachers who currently score a sample of student papers each year. Rather than score the students' responses these Missouri teachers might describe, classify, and record the different strategies they observe in the papers for

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each of the constructed-response tasks. Over time a fairly complete repertoire of student strategies should emerge from the various samples scored each year.

In any event, during or shortly after the various content-area Process Standard identification exercises conducted in January 1997, a principal Process Standard was identified for each MAP Mathematics item. On the other hand, multiple Process Standards were identified in MAP Communication Arts, Science, and Social Studies for each item. Multiple assignment of Process Standards to items and tasks suggests that these items and tasks were not perceived to be answerable only if one particular process was implemented in instruction—rather the content is perceived to be learned as a result of multiple instructional experiences crossing the processes.

Test Content /Design

Evidence of validity based on test content includes information about the test and item specifications. Test development involves creating a design framework from the statement of the construct to be measured. This design evolves from the tension between the constraints for the Assessment Program and the benefits sought from the examination of students. Many of the benefits sought are not scientific in nature, nor are many of the constraints—rather, they are policy considerations. The design emerges from specifications which are originally set forth and modified during the process just described above. Design elements include such things as number and types of items/tasks for each of the scores reported. Item maps for MAP show the distribution of items/tasks by Content Standards that resulted for the forms to be used in years 1997-1999. Tasks are measured by constructed-response (CR) items in MAP. The item maps also show the design of test administration. The number of sessions into which the test is divided determines which items will be taken together, possibly on different test days. By providing booklet item numbers test reviewers and Technical Report readers are invited to inspect released (public) items/tasks. These item maps provide an idea of the scope of each MAP and also the degree of structural parallelness of the forms.

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Mathematics Grade 4 Item Maps

1997

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense		1, 9	1, 2, 4, 5, 6, 7, 10, 11, 12, 14, 27, 28, 29
2	Geometric/Spatial Sense & Measurement	10	5, 6	13, 18, 23,24,25,31,32
3	Data Analysis. Probability & Statistics	2, 5	2, 3, 4, 8	15,16,17,19,26
4	Patterns and Relationships	3, 7, 8, 9, 13		22, 30
5	Math Systems and Number Theory	1, 4, 12		3,8,9,20,21
6	Discrete Mathematics	6, 11	7, 10	

1998

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense	2	2	1, 2, 4, 5, 6, 7, 10, 11, 12, 14, 27, 28, 29
2	Geometric/Spatial Sense & Measurement	9	1, 3, 5	13, 18, 23,24,25,31,32
3	Data Analysis. Probability & Statistics	5, 6, 10	4, 6, 7, 8	15,16,17,19,26
4	Patterns and Relationships	1, 3, 8, 11, 12	9	22, 30
5	Math Systems and Number Theory	7		3,8,9,20,21
6	Discrete Mathematics	4, 13		

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Mathematics Grade 4 Item Maps (Cont'd)

1999				
Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense	3, 4	2	1, 2, 4, 5, 6, 7, 10, 11, 12, 14, 27, 28, 29
2	Geometric/Spatial Sense & Measurement	8	3, 5, 6, 8	13, 18, 23,24,25,31,32
3	Data Analysis. Probability & Statistics	5, 6, 11	11	15,16,17,19,26
4	Patterns and Relationships	1, 10	4, 7	22, 30
5	Math Systems and Number Theory		1, 9	3,8,9,20,21
6	Discrete Mathematics	2, 7, 9	10	

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Mathematics Grade 8 Item Maps

1997

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense	8	4, 8	1, 2, 3, 4, 5, 6, 7, 8, 11, 19, 25
2	Geometric/Spatial Sense & Measurement	1, 2, 6, 9		13,18, 20, 21, 23 26, 29, 30
3	Data Analysis. Probability & Statistics	3	1, 2, 6, 7	14, 15, 16, 17, 24, 31
4	Patterns and Relationships	5	9, 10	22, 27
5	Math Systems and Number Theory	4	3, 5	9, 10, 12, 28
6	Discrete Mathematics	7	11	

1998

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense	2, 5, 6, 7	9	1, 2, 3, 4, 5, 6, 7, 8, 11, 19, 25
2	Geometric/Spatial Sense & Measurement		2, 3, 5, 10	13,18, 20, 21, 23 26, 29, 30
3	Data Analysis. Probability & Statistics	3, 8, 10	7	14, 15, 16, 17, 24, 31
4	Patterns and Relationships	1	4, 6	22, 27
5	Math Systems and Number Theory	4	1	9, 10, 12, 28
6	Discrete Mathematics	9	8	

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Mathematics Grade 8 Item Maps (Cont'd)

1999

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense	1, 3, 6	1, 4, 9	1, 2, 3, 4, 5, 6, 7, 8, 11, 19, 25
2	Geometric/Spatial Sense & Measurement	8	7, 11	13,18, 20, 21, 23 26, 29, 30
3	Data Analysis. Probability & Statistics	2, 5, 9		14, 15, 16, 17, 24, 31
4	Patterns and Relationships	7	5, 6	22, 27
5	Math Systems and Number Theory		2	9, 10, 12, 28
6	Discrete Mathematics	2	5,9,11	

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Mathematics Grade 10 Item Maps

1997

	Content Standard	CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense	3	4	1, 2, 3, 4, 10, 13
2	Geometric/Spatial Sense & Measurement	2, 6	6	5, 6, 7, 8, 21, 22
3	Data Analysis. Probability & Statistics		2, 8, 9	9, 14, 15, 16, 17, 23
4	Patterns and Relationships	1, 5	1, 7	11, 18, 20, 24, 25
5	Math Systems and Number Theory	4, 8, 9	3	12, 19
6	Discrete Mathematics	7	5, 10	

1998

	Content Standard	CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense		10	1, 2, 3, 4, 10, 13
2	Geometric/Spatial Sense & Measurement	1	2, 8, 9	5, 6, 7, 8, 21, 22
3	Data Analysis. Probability & Statistics	2, 8	6	9, 14, 15, 16, 17, 23
4	Patterns and Relationships	4, 6	1, 3, 5	11, 18, 20, 24, 25
5	Math Systems and Number Theory	3, 7	7	12, 19
6	Discrete Mathematics	5	4	

1999

	Content Standard	CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Number Sense	3, 5		1, 2, 3, 4, 10, 13
2	Geometric/Spatial Sense & Measurement	2, 8	1	5, 6, 7, 8, 21, 22
3	Data Analysis. Probability & Statistics		3, 7	9, 14, 15, 16, 17, 23
4	Patterns and Relationships	6	2, 4, 6, 8	11, 18, 20, 24, 25
5	Math Systems and Number Theory	4, 7	5, 9	12, 19
6	Discrete Mathematics	1, 9		

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Communication Arts Grade 3 Item Maps

1998				
Content Standard		**CR Item #**	**CR Item #**	**TN Item #**
		(Session 1)	**(Session 2)**	**(Session 3)**
1	Speaking/Writing Standard English			18,19,25,34,35,36,37,38,39,40,41
2	Reading – Fiction/Poetry/Drama	1,2,3,4,5,11,12,13		1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16, 17
3	Reading Nonfiction	6,7,8,9,10		20,21,22,23,24,26,27,28,29,30,31,32,33
4	Writing Formally & Informally	9,10	1	
5	Combined Reading	1,2,3,4,5,6,7,8,9,10,11,12,13	1	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,20,21, 22,23,24,26,27,28,29,30,31,32,33

1999				
Content Standard		**CR Item #**	**CR Item #**	**TN Item #**
		(Session 1)	**(Session 2)**	**(Session 3)**
1	Speaking/Writing Standard English			18,19,25,34,35,36,37,38,39,40,41
2	Reading – Fiction/Poetry/Drama	1,2,3,4,5,6,11,12,13,14		1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16, 17
3	Reading Nonfiction	7,8,9,10,11,12		20,21,22,23,24,26,27,28,29,30,31,32,33
4	Writing Formally & Informally	5,6	1	
5	Combined Reading	1,2,3,4,5,6,7,8,9,10,11,12,13,14	1	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,20,21, 22,23,24,26,27,28,29,30,31,32,33

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Communication Arts Grade 7 Item Maps

1998

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Speaking/Writing Standard English		1	14,15,36,37,38,39,40,41,42,43,44,45
2	Reading - Fiction/Poetry/Drama	1,2,3,4,5,13,14		1,2,3,4,5,6,7,8,9,10,11,12,13,16,17
3	Reading Nonfiction	6,7,8,9,10,11,12,13		18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33, 34,35
4	Writing Formally & Informally	4,15	1	
5	Combined Reading	1,2,3,4,5,6,7,8,9,10,11,12,13,14		1,2,3,4,5,6,7,8,9,10,11,12,13,16,17,18,19,20,21, 22,23,24,25,26,27,28,29,30,31,32,33, 34, 35

1999

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	TN Item # (Session 3)
1	Speaking/Writing Standard English			14,15,36,37,38,39,40,41,42,43,44,45
2	Reading - Fiction/Poetry/Drama	1,2,3,7,8B,9,10,11,12		1,2,3,4,5,6,7,8,9,10,11,12,13,16,17
3	Reading Nonfiction	4,5,6,7,8B,12		18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33, 34,35
4	Writing Formally & Informally	7,8A	1	
5	Combined Reading	1,2,3,4,5,6,7,8B,9,10,11,12	1	1,2,3,4,5,6,7,8,9,10,11,12,13,16,17,18,19,20,21, 22,23,24,25,26,27,28,29,30,31,32,33, 34, 35

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Communication Arts Grade 11 Item Maps

1998				
Content Standard		**CR Item #**	**CR Item #**	**TN Item #**
		(Session 1)	**(Session 2)**	**(Session 3)**
1	Speaking/Writing Standard English		1	14,26,27,28,39,40,41,42,43,44,45,46
2	Reading – Fiction/Poetry/Drama	1,2,3,4,11,12,14,15,16		15,16,17,18,19
3	Reading Nonfiction	5,6,7,8,9,10,11,16		1,2,3,4,5,6,7,8,9,10,11,12,13,20,21,22,23,24,25, 29,30,31,32,33,34,35,36,37,38
4	Writing Formally & Informally	11,13,16	1	
5	Combined Reading	1,2,3,4,5,6,7,8,9,10,11,12,14, 15,16		1,2,3,4,5,6,7,8,9,10,11,12,13,15,16,17,18,19,20, 21,22,23,24,25,29,30,31,32,33,34,35,36,37,38

1999				
Content Standard		**CR Item #**	**CR Item #**	**TN Item #**
		(Session 1)	**(Session 2)**	**(Session 3)**
1	Speaking/Writing Standard English		1	14,26,27,28,39,40,41,42,43,44,45,46
2	Reading – Fiction/Poetry/Drama	5,6,7,8,9,10,15		15,16,17,18,19
3	Reading Nonfiction	1,2,3,4A,11,12,13,14,15		1,2,3,4,5,6,7,8,9,10,11,12,13,20,21,22,23,24,25, 29,30,31,32,33,34,35,36,37,38
4	Writing Formally & Informally	4B,15	1	
5	Combined Reading	1,2,3,4A,5,6,7,8,9,10,11,12,13, 14,15		1,2,3,4,5,6,7,8,9,10,11,12,13,15,16,17,18,19,20, 21,22,23,24,25,29,30,31,32,33,34,35,36,37,38

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Science Grade 3 Item Maps

1998

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	CR Item # (Session 3)	TN Item # (Session 3)
1	Matter and Energy	3, 4, 9		24, 27, 28	1, 19
2	Force and Motion	12		21, 26	11
3	Characteristics of Living Organisms	2, 10	9, 10		2, 3, 4, 20
4	Interactions of Organisms	1, 6, 7	6		7
5	Earth's Processes	8	7	22, 23	15
6	The Universe	11	8	25	16,17,18
7	Scientific Inquiry		1, 2, 3, 4		5, 6, 9, 10, 13
8	Technology and the Environment	5			8, 12, 14

1999

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	CR Item # (Session 3)	TN Item # (Session 3)
1	Matter and Energy	5, 13		21	1, 19
2	Force and Motion	3, 10	12	22, 23	11
3	Characteristics of Living Organisms	1, 2	6, 7		2, 3, 4, 20
4	Interactions of Organisms	8, 9	8	24	7
5	Earth's Processes	4, 6, 11	11, 13		15
6	The Universe	7	9, 10		16,17,18
7	Scientific Inquiry		1, 2, 3, 4, 5		5, 6, 9, 10, 13
8	Technology and the Environment	12	14		8, 12, 14

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Science Grade 7 Item Maps

1998

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	CR Item # (Session 3)	TN Item # (Session 3)
1	Matter and Energy	10		27	7, 8, 10, 12
2	Force and Motion	4, 5		28	
3	Characteristics of Living Organisms	1, 9, 14			1, 5, 6, 11
4	Interactions of Organisms	6		26, 29	2, 4
5	Earth's Processes	7, 8			23, 24
6	The Universe	2, 12, 13			9
7	Scientific Inquiry		1, 2, 3, 4, 5		3, 15, 16, 17, 20, 22, 25
8	Technology and the Environment	3, 11			13, 14, 18, 19, 21

1999

Content Standard		CR Item # (Session 1)	CR Item # (Session 2)	CR Item # (Session 3)	TN Item # (Session 3)
1	Matter and Energy		1	31	7, 8, 10, 12
2	Force and Motion	7, 11			
3	Characteristics of Living Organisms	1, 4, 10			1, 5, 6, 11
4	Interactions of Organisms	3, 6			2, 4
5	Earth's Processes	8, 9		30	23, 24
6	The Universe			27, 28, 29	9
7	Scientific Inquiry		2, 3, 4, 5, 6		3, 15, 16, 17, 20, 22, 25
8	Technology and the Environment	2, 5		26	13, 14, 18, 19, 21

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Science Grade 10 Item Maps

1998

Standard		CR Item # (Session 1)	CR Item # (Session 2)	CR Item # (Session 3)	TN Item # (Session 3)
1	Matter and Energy			27	3, 9, 15, 19, 20
2	Force and Motion	11		29	
3	Characteristics of Living Organisms	5		28	2, 6, 14, 17, 18
4	Interactions of Organisms	10	4, 5		
5	Earth's Processes	3, 8			10, 11, 12, 21, 23
6	The Universe	1, 6		26, 30	24
7	Scientific Inquiry	4	1, 2		5, 7, 13, 16, 25
8	Technology and the Environment	2, 7, 9			4, 8, 22

1999

Standard		CR Item # (Session 1)	CR Item # (Session 2)	CR Item # (Session 3)	TN Item # (Session 3)
1	Matter and Energy	12		31	3, 9, 15, 19, 20
2	Force and Motion	9, 11, 13			
3	Characteristics of Living Organisms	6, 7			2, 6, 14, 17, 18
4	Interactions of Organisms	1, 2, 14	2		
5	Earth's Processes	5		28	10, 11, 12, 21, 23
6	The Universe	8		26, 27	24
7	Scientific Inquiry		1, 3, 4, 5		5, 7, 13, 16, 25
8	Technology and the Environment	3, 4, 10	6	29, 30	4, 8, 22

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Social Studies 1999 Item Maps

Grade 4

Standard		CR Item # (Session 1)	CR Item # (Session 2)	MC Item# (Session 1)	MC Item# (Session 2)	TN Item # (Session 3)
1	Principles of Constitutional Democracy		3	2,20,21,22, 24,25	1,2	24
2A	American History	15	8,13	5,7,8,13,14	5,6,7,15,16, 17	
2B	World History					
3	Principles and Processes of Governance Systems	19,23,27		16,18,26		9,11,16
4	Economic Concepts and Principles	4,6			9,22	15,21,25
5	Elements of Geographical Study and Analysis		23		11,19,20,21	1,2,13,14,17,20,22,25
6	Relationships of Individual and Groups to Institutions and Traditions	9,15	10,14,18,	11,12	12,15,17	10,11,12,23
7	Tools of Social Science Inquiry	17		1,3,10,16, 26	4,5	1,2,3,4,5,6,7,8,13,14, 17,18,19

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Social Studies 1999 Item Maps (Cont'd)

Grade 8

Standard		CR Item #	CR Item #	MC Item#	MC Item#	TN Item #
		(Session 1)	(Session 2)	(Session 1)	(Session 2)	(Session 3)
1	Principles of Constitutional Democracy	3,6	6	1,2,5	1	9,10,11,19,20
2A	American History	4,10		2,7,8,9,11,13	7,8	1,2,3,4,5,14,15,17, 20,22,25
2B	World History	16,22		14,17,18,20		
3	Principles and Processes of Governance Systems	6	4	5,18	1,2,3	
4	Economic Concepts and Principles	15	11,12,13	7,12	9,10,15,16	24
5	Elements of Geographical Study and Analysis	16,21,22	17	11,13,17,19, 20	14,16	2,3,6,8,12,13,14,23
6	Relationships of Individual and Groups to Institutions and Traditions		5,6,12		7	23
7	Tools of Social Science Inquiry	3,4	5,13,17	19	2,14,15	5,6,7,12,15,16,17, 18,21,22

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Social Studies 1999 Item Maps (Cont'd)

Grade 11

Standard		CR Item # (Session 1)	CR Item # (Session 2)	MC Item# (Session 1)	MC Item# (Session 2)	TN Item # (Session 3)
1	Principles of Constitutional Democracy	24		14,15,16	16,24	14
2A	American History	9,11,12,13	14,15	8,10,18	9,17,18	6,7,9
2B	World History	11	3,21,23,25		1,2,5,6,11,12, 22	13,17,18
3	Principles and Processes of Governance Systems	13	20	14,15,16	18	3,4,15,20,21
4	Economic Concepts and Principles		10,14	5,6,7,8	9,13	3,4,15,20,21
5	Elements of Geographical Study and Analysis	9	7,21	1,2,3,4,17,19		1,2,19,24,25
6	Relationships of Individual and Groups to Institutions and Traditions	12	20	22		5,6,7,13,18, 19
7	Tools of Social Science Inquiry	24	7,10	1,2,3,4,17,19,20 ,21,22,23	4,8,19	8,10,11,12,17,22,23

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The other key aspect of MAP tests as far as structural framework of the tests is concerned has to do with the number of points awarded for each Content and Process Standard. This design element represented a compromise between many constraints including the target weights for each Content Standard recommended by Missouri teachers, availability of items from field testing, and results of many reviews by content specialists.

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Form 97

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	12	2	14	12	6	18	24%
2 Geometry/Measurement	7	3	10	7	6	13	17%
3 Data, Probability, Statistics	5	6	11	5	10	15	20%
4 Patterns & Relationships	2	5	7	2	10	12	16%
5 Math Systems	5	3	8	5	6	11	14%
6 Discrete Math	0	4	4	0	7	7	9%
Total	*31+1	23	*54+1	31	45	76	

Form 98

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	12	2	14	12	4	16	21%
2 Geometry/Measurement	7	4	11	7	9	16	21%
3 Data, Probability, Statistics	5	7	12	5	13	18	24%
4 Patterns & Relationships	2	6	8	2	10	12	16%
5 Math Systems	5	1	6	5	2	7	9%
6 Discrete Math	0	2	2	0	6	6	8%
Total	*31+1	22	*53+1	31	44	75	

Form 99

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	12	3	15	12	5	17	23%
2 Geometry/Measurement	7	5	12	7	7	14	19%
3 Data, Probability, Statistics	5	4	9	5	10	15	20%
4 Patterns & Relationships	2	4	6	2	10	12	16%
5 Math Systems	5	2	7	5	6	11	15%
6 Discrete Math	0	4	4	0	6	6	8%
Total	*31+1	22	*53+1	31	44	75	

* TerraNova, grade 4 has 32 total items, 31 items match the Missouri content standards

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Form 97

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	11	3	14	11	5	16	22%
2 Geometry/Measurement	8	4	12	8	10	18	25%
3 Data, Probability, Statistics	6	5	11	6	12	18	25%
4 Patterns & Relationships	2	3	5	2	5	7	9%
5 Math Systems	4	3	7	4	6	10	14%
6 Discrete Math	0	2	2	0	4	4	5%
Total	31	20	51	31	42	73	

Form 98

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	11	5	16	11	9	20	27%
2 Geometry/Measurement	8	4	12	8	8	16	21%
3 Data, Probability, Statistics	6	4	10	6	11	17	23%
4 Patterns & Relationships	2	3	5	2	6	8	11%
5 Math Systems	4	2	6	4	6	10	13%
6 Discrete Math	0	2	2	0	4	4	5%
Total	31	20	51	31	44	75	

Form 99

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	11	6	17	11	15	26	35%
2 Geometry/Measurement	8	3	11	8	7	15	20%
3 Data, Probability, Statistics	6	3	9	6	9	15	20%
4 Patterns & Relationships	2	3	5	2	4	6	8%
5 Math Systems	4	1	5	4	2	6	8%
6 Discrete Math	0	4	4	0	7	7	9%
Total	31	20	51	31	44	75	

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Form 97

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	6	2	8	6	4	10	14%
2 Geometry/Measurement	6	3	9	6	6	12	16%
3 Data, Probability, Statistics	6	3	9	6	9	15	21%
4 Patterns & Relationships	5	4	9	5	11	16	22%
5 Math Systems	2	4	6	2	12	14	19%
6 Discrete Math	0	3	3	0	6	6	8%
Total	25	19	44	25	48	73	

Form 98

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	6	1	7	6	3	9	12%
2 Geometry/Measurement	6	4	10	6	9	15	21%
3 Data, Probability, Statistics	6	3	9	6	9	15	21%
4 Patterns & Relationships	5	5	10	5	14	19	26%
5 Math Systems	2	3	5	2	8	10	14%
6 Discrete Math	0	2	2	0	5	5	7%
Total	25	18	43	25	48	73	

Form 99

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Number Sense	6	2	8	6	4	10	14%
2 Geometry/Measurement	6	3	9	6	8	14	19%
3 Data, Probability, Statistics	6	2	8	6	6	12	16%
4 Patterns & Relationships	5	5	10	5	15	20	27%
5 Math Systems	2	4	6	2	10	12	16%
6 Discrete Math	0	2	2	0	5	5	7%
Total	25	18	43	25	48	73	

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Content Standard Item/Point Distributions Communication Arts Grade 3

Form 98

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Speaking/Writing Standard English	11	0	11	11	0	11	15%
2 Reading - Fiction/Poetry/Drama	17	8	25	17	16	33	45%
3 Reading Nonfiction	13	5	18	13	9	22	30%
4 Writing Formally & Informally	0	3	3	0	8	8	11%
Combined Reading*	30	14	44	30	29	59	80%
Total	41	16	57	41	33	74	

Form 99

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Speaking/Writing Standard English	11	0	11	11	0	11	14%
2 Reading - Fiction/Poetry/Drama	17	10	27	17	20	37	47%
3 Reading Nonfiction	13	6	19	13	10	23	29%
4 Writing Formally & Informally	0	3	3	0	8	8	10%
Combined Reading*	30	15	45	30	30	60	76%
Total	41	19	60	41	38	79	

* Combined reading includes all items measuring Standard 2 and 3. Combined reading is not included in the totals.

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Form 98

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Speaking/Writing Standard English	13	1	14	13	4	17	19%
2 Reading - Fiction/Poetry/Drama	15	7	22	15	15	30	33%
3 Reading Nonfiction	18	9	27	18	16	34	38%
4 Writing Formally & Informally	0	4	4	0	9	9	10%
Combined Reading*	33	14	47	33	27	60	67%
Total	46	21	67	46	44	90	

Form 99

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Speaking/Writing Standard English	13	0	13	13	0	13	16%
2 Reading - Fiction/Poetry/Drama	15	9	24	15	16	31	39%
3 Reading Nonfiction	18	6	24	18	11	29	36%
4 Writing Formally & Informally	0	3	3	0	7	7	9%
Combined Reading*	33	13	46	33	25	58	73%
Total	46	18	64	46	34	80	

* Combined reading includes all items measuring Standard 2 and 3. Combined reading is not included in the totals.

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Form 98

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
I Speaking/Writing Standard English	12	1	13	12	4	16	17%
2 Reading - Fiction/Poetry/Drama	5	9	14	5	19	24	25%
3 Reading Nonfiction	29	8	37	29	16	45	47%
4 Writing Formally & Informally	0	4	4	0	10	10	11%
Combined Reading*	34	15	49	34	30	64	67%
Total	46	22	68	46	49	95	

Form 99

Content Standard	TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1 Speaking/Writing Standard English	12	1	13	12	4	16	18%
2 Reading - Fiction/Poetry/Drama	5	7	12	5	14	19	22%
3 Reading Nonfiction	29	9	38	29	17	46	52%
4 Writing Formally & Informally	0	3	3	0	7	7	8%
Combined Reading*	34	15	49	34	29	63	72%
Total	46	20	66	46	42	88	

* Combined reading includes all items measuring Standard 2 and 3. Combined reading is not included in the totals.

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Content Standard Item/Point Distributions Science Grade 3

Form 98

Content Standard		TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1	Matter and Energy	2	6	8	2	6	8	12%
2	Force and Motion	1	3	4	1	6	7	10%
3	Characteristics of Living Organisms	4	4	8	4	7	11	16%
4	Interactions of Organisms	1	4	5	1	7	8	12%
5	Earth's Processes	1	4	5	1	7	8	12%
6	The Universe	3	3	6	3	5	8	12%
7	Scientific Inquiry	5	4	9	5	8	13	19%
8	Technology and the Environment	3	1	4	3	2	5	7%
Total		20	29	49	20	48	68	100%

Form 99

Content Standard		TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1	Matter and Energy	2	3	5	2	7	9	13%
2	Force and Motion	1	5	6	1	9	10	14%
3	Characteristics of Living Organisms	4	4	8	4	7	11	16%
4	Interactions of Organisms	1	4	5	1	7	8	12%
5	Earth's Processes	1	5	6	1	7	8	12%
6	The Universe	3	3	6	3	3	6	9%
7	Scientific Inquiry	5	5	10	5	5	10	14%
8	Technology and the Environment	3	2	5	3	4	7	10%
Total		20	31	51	20	49	69	100%

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Content Standard Item/Point Distributions Science Grade 7

Form 98

Content Standard		TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1	Matter and Energy	4	2	6	4	4	8	11%
2	Force and Motion	0	3	3	0	7	7	9%
3	Characteristics of Living Organisms	4	3	7	4	6	10	13%
4	Interactions of Organisms	2	3	5	2	5	7	9%
5	Earth's Processes	2	2	4	2	5	7	9%
6	The Universe	1	3	4	1	7	8	11%
7	Scientific Inquiry	7	5	12	7	13	20	26%
8	Technology and the Environment	5	2	7	5	4	9	12%
Total		25	23	48	25	51	76	100%

Form 99

Content Standard		TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1	Matter and Energy	4	2	6	4	4	8	10%
2	Force and Motion	0	2	2	0	7	7	9%
3	Characteristics of Living Organisms	4	3	7	4	5	9	11%
4	Interactions of Organisms	2	2	4	2	5	7	9%
5	Earth's Processes	2	3	5	2	8	10	12%
6	The Universe	1	3	4	1	5	6	7%
7	Scientific Inquiry	7	5	12	7	16	23	28%
8	Technology and the Environment	5	3	8	5	6	11	14%
Total		25	23	48	25	56	81	100%

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Content Standard Item/Point Distributions Science Grade 10

Form 98

Content Standard		TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1	Matter and Energy	5	1	6	5	3	8	11%
2	Force and Motion	0	2	2	0	6	6	8%
3	Characteristics of Living Organisms	5	2	7	5	5	10	13%
4	Interactions of Organisms	0	3	3	0	15	15	20%
5	Earth's Processes	5	2	7	5	2	7	9%
6	The Universe	1	4	5	1	9	10	13%
7	Scientific Inquiry	5	2	7	5	6	11	14%
8	Technology and the Environment	3	5	8	3	6	9	12%
Total		24	21	45	24	52	76	100%

Form 99

Content Standard		TN items	CR/PE items	Total items	TN points	CR/PE points	Total points	% of total points
1	Matter and Energy	5	2	7	5	4	9	11%
2	Force and Motion	0	3	3	0	7	7	9%
3	Characteristics of Living Organisms	5	2	7	5	3	8	10%
4	Interactions of Organisms	0	4	4	0	8	8	10%
5	Earth's Processes	5	2	7	5	3	8	10%
6	The Universe	1	3	4	1	8	9	11%
7	Scientific Inquiry	5	4	9	5	11	16	20%
8	Technology and the Environment	3	6	9	3	12	15	19%
Total		24	26	50	24	56	80	100%

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Content Standard Item/Point Distributions Social Studies 1999

Grade 4

Content Standard		TN items	MAP Items	CR/PE items	Total items	TN points	MAP points	CR/PE points	Total points	% of total pts
1	Principles of Constitutional Democracy	1	8	1	10	1	8	2	11	10%
2A	American History	0	11	3	14	0	11	6	17	16%
2B	World History	0	0	0	0	0	0	0	0	0%
3	Principles and Processes of Governance Systems	3	3	3	9	3	3	6	12	11%
4	Economic Concepts and Principles	3	2	2	7	3	2	4	9	8%
5	Elements of Geographical Study and Analysis	8	4	1	13	8	4	5	17	16%
6	Relationships of Individual and Groups to Institutions and Traditions	4	5	5	14	4	5	11	20	19%
7	Tools of Social Science Inquiry	13	7	1	21	13	7	2	22	20%
Total		32	40	16	88	32	40	36	108	100%

Grade 8

Content Standard		TN items	MAP Items	CR/PE items	Total items	TN points	MAP points	CR/PE points	Total points	% of total pts
1	Principles of Constitutional Democracy	5	4	3	12	5	4	7	16	12%
2A	American History	11	8	2	21	11	8	4	23	18%
2B	World History	0	4	2	6	0	4	4	8	6%
3	Principles and Processes of Governance Systems	0	5	2	7	0	5	4	9	7%
4	Economic Concepts and Principles	1	6	4	11	1	6	9	16	12%
5	Elements of Geographical Study and Analysis	8	7	4	19	8	7	8	23	18%
6	Relationships of Individual and Groups to Institutions and Traditions	1	1	3	5	1	1	7	9	7%
7	Tools of Social Science Inquiry	10	4	5	19	10	4	11	25	19%
Total		36	39	25	100	36	39	54	129	100%

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Content Standard Item/Point Distributions Social Studies 1999 (Cont'd)

Grade 11

Content Standard		TN items	MAP Items	CR/PE items	Total items	TN points	MAP points	CR/PE points	Total points	% of total pts
1	Principles of Constitutional Democracy	1	5	2	8	1	5	4	10	8%
2A	American History	3	6	6	15	3	6	12	21	16%
2B	World History	3	7	5	15	3	7	10	20	16%
3	Principles and Processes of Governance Systems	1	4	2	7	1	4	4	9	7%
4	Economic Concepts and Principles	5	6	2	13	5	6	4	15	12%
5	Elements of Geographical Study and Analysis	5	6	3	14	5	6	6	17	13%
6	Relationships of Individual and Groups to Institutions and Traditions	6	1	2	9	6	1	4	11	9%
7	Tools of Social Science Inquiry	7	13	3	23	7	13	6	26	20%
Total		31	48	25	104	31	48	50	129	100%

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Test content evidence of validity is provided for MAP with the specification of each of the Process Standards that are influential in acquiring the skills tested in the items/tasks used in each of the MAP tests. If teachers teach by the Process Standards as intended by the developers of the Curriculum Frameworks then student performance should improve on those items that were identified as implicitly tapping these habits of mind. The following charts provide the distribution of items and points by Process Standards deemed addressable using MAP paper-and-pencil items.

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Number of Items/Points Measuring Process Standards: Mathematics, Grade 4

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1997	1.4	1	1	2	1	1	2
	1.5	3	7	10	3	11	14
	1.6	6	3	9	6	8	14
	1.8	2	1	3	2	2	4
	1.10	13	5	18	13	9	22
	2.1	0	1	1	0	2	2
	3.1	3	1	4	3	4	7
	3.3	3	4	7	3	12	15
	3.5	0	2	2	0	4	4
1998	1.4	1	3	4	1	7	8
	1.5	3	3	6	3	5	8
	1.6	6	7	13	6	11	17
	1.8	2	2	4	2	5	7
	1.10	13	1	14	13	2	15
	2.1	0	1	1	0	2	2
	3.1	3	1	4	3	3	6
	3.3	3	2	5	3	6	9
	3.5	0	1	1	0	1	1
	3.7	0	1	1	0	4	4
	4.1	0	2	2	0	6	6
1999	1.4	1	2	3	1	4	5
	1.5	3	5	8	3	11	14
	1.6	6	5	11	6	11	17
	1.8	2	1	3	2	4	6
	1.10	13	2	15	13	3	16
	2.1	0	2	2	0	4	4
	3.1	3	1	4	3	2	5
	3.3	3	2	5	3	5	8
	3.5	0	2	2	0	3	3
	3.7	0	1	1	0	1	1

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Number of Items/Points Measuring Process Standards: Mathematics, Grade 8

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1997	1.5	2	2	4	2	4	6
	1.6	5	4	9	5	8	13
	1.7	4	0	4	4	0	4
	1.10	7	5	12	7	12	19
	2.2	1	0	1	1	0	1
	3.1	2	3	5	2	8	10
	3.2	1	0	1	1	0	1
	3.3	6	2	8	6	4	10
	3.5	2	4	6	2	6	8
	4.1	1	0	1	1	0	1
1998	1.4	0	2	2	0	3	3
	1.5	2	2	4	2	4	6
	1.6	5	3	8	5	6	11
	1.7	4	0	4	4	0	4
	1.10	7	4	11	7	8	15
	2.2	1	0	1	1	0	1
	3.1	2	3	5	2	7	9
	3.2	1	0	1	1	0	1
	3.3	6	2	8	6	5	11
	3.5	2	2	4	2	6	8
	3.8	0	1	1	0	2	2
	4.1	1	1	2	1	3	4
1999	1.5	2	0	2	2	0	2
	1.6	5	3	8	5	5	10
	1.7	4	1	5	4	2	6
	1.8	0	3	3	0	10	10
	1.10	7	6	13	7	13	20
	2.2	1	1	2	1	3	4
	3.1	2	0	2	2	0	2
	3.2	1	0	1	1	0	1
	3.3	6	2	8	6	4	10
	3.5	2	4	6	2	7	9
	4.1	1	0	1	1	0	1

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Number of Items/Points Measuring Process Standards: Mathematics, Grade 10

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1997	1.4	2	0	2	2	0	2
	1.5	1	1	2	1	2	3
	1.6	8	3	11	8	9	17
	1.7	0	1	1	0	2	2
	1.8	0	1	1	0	4	4
	1.10	9	1	10	9	2	11
	2.1	1	0	1	1	0	1
	2.2	1	2	3	1	6	7
	3.1	0	1	1	0	3	3
	3.3	1	2	3	1	5	6
	3.4	1	4	5	1	8	9
	3.7	0	3	3	0	7	7
	4.5	1	0	1	1	0	1
1998	1.4	2	0	2	2	0	2
	1.5	1	0	1	1	0	1
	1.6	8	2	10	8	5	13
	1.10	9	4	13	9	10	19
	2.1	1	0	1	1	0	1
	2.2	1	0	1	1	0	1
	3.1	0	4	4	0	11	11
	3.3	1	0	1	1	0	1
	3.4	1	1	2	1	2	3
	3.5	0	1	1	0	4	4
	3.7	0	5	5	0	12	12
	4.1	0	1	1	0	4	4
	4.5	1	0	1	1	0	1
1999	1.4	2	1	3	2	2	4
	1.5	1	0	1	1	0	1
	1.6	8	4	12	8	11	19
	1.1	9	1	10	9	2	11
	2.1	1	0	1	1	0	1
	2.2	1	1	2	1	4	5
	3.1	0	3	3	0	8	8
	3.3	1	0	1	1	0	1
	3.4	1	2	3	1	3	4
	3.5	0	1	1	0	3	3
	3.6	0	2	2	0	5	5
	3.7	0	1	1	0	2	2
	3.8	0	2	2	0	8	8
	4.5	1	0	1	1	0	1

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Number of Items/Points Measuring Process Standards: CommArts, Grade 3

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1998	1.1	0	1	1	0	2	2
	1.5	18	2	20	18	4	22
	1.6	12	3	15	12	6	18
	1.8	0	2	2	0	4	4
	2.1	0	3	3	0	8	8
	2.2	11	0	11	11	0	11
	3.1	0	2	2	0	4	4
	3.5	0	4	4	0	7	7
	4.1	0	1	1	0	2	2
1999	1.5	18	3	21	18	5	23
	1.6	12	4	16	12	7	19
	1.8	0	2	2	0	4	4
	2.1	0	3	3	0	8	8
	2.2	11	0	11	11	0	11
	3.5	0	5	5	0	10	10

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Number of Items/Points Measuring Process Standards: CommArts, Grade 7

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1998	1.5	15	4	19	15	7	22
	1.6	18	5	23	18	11	29
	1.8	0	1	1	0	1	1
	2.1	0	3	3	0	8	8
	2.2	12	0	12	12	0	12
	2.4	0	1	1	0	2	2
	3.1	0	1	1	0	2	2
	3.5	0	3	3	0	5	5
1999	1.5	15	2	17	15	3	18
	1.6	18	5	23	18	9	27
	1.8	0	1	1	0	1	1
	2.1	0	2	2	0	6	6
	2.2	12	0	12	12	0	12
	3.5	0	5	5	0	9	9

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Number of Items/Points Measuring Process Standards: CommArts, Grade 11

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1998	1.5	15	4	19	15	6	21
	1.6	19	5	24	19	11	30
	1.8	0	1	1	0	1	1
	2.1	0	3	3	0	9	9
	2.2	12	0	12	12	0	12
	2.4	0	1	1	0	2	2
	3.1	0	1	1	0	2	2
	3.5	0	3	3	0	6	6
	3.7	0	1	1	0	3	3
1999	1.1	0	1	1	0	2	2
	1.5	15	2	17	15	4	19
	1.6	19	5	24	19	9	28
	1.8	0	1	1	0	1	1
	2.1	0	1	1	0	4	4
	2.2	12	0	12	12	0	12
	2.4	0	1	1	0	2	2
	3.1	0	1	1	0	2	2
	3.5	0	3	3	0	6	6
	3.8	0	2	2	0	4	4

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Number of Items/Points Measuring Process Standards: Science, Grade 3

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1998	1.3	2	0	2	2	0	2
	1.5	1	1	2	1	1	2
	1.6	7	10	17	7	16	23
	1.8	0	2	2	0	4	4
	1.10	9	21	30	9	32	41
	2.1	0	9	9	0	19	19
	3.1	0	1	1	0	1	1
	3.5	2	3	5	2	6	8
	4.1	0	1	1	0	2	2
1999	1.3	2	0	2	2	0	2
	1.5	1	10	11	1	18	19
	1.6	7	17	24	7	25	32
	1.8	0	2	2	0	2	2
	1.10	9	20	29	9	30	39
	2.1	0	8	8	0	13	13
	3.5	2	0	2	2	0	2
	4.1	0	4	4	0	7	7

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Number of Items/Points Measuring Process Standards: Science, Grade 7

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1998	1.3	3	4	7	3	11	14
	1.5	3	2	5	3	5	8
	1.6	6	9	15	6	19	25
	1.8	0	2	2	0	4	4
	1.10	18	15	33	18	32	50
	2.1	0	14	14	0	30	30
	3.1	0	2	2	0	6	6
	3.5	0	1	1	0	2	2
	4.1	0	1	1	0	2	2
1999	1.3	3	1	4	3	4	7
	1.5	3	2	5	3	5	8
	1.6	6	10	16	6	28	34
	1.8	0	3	3	0	10	10
	1.10	18	14	32	18	33	51
	2.1	0	8	8	0	21	21
	3.1	0	2	2	0	5	5
	3.3	0	1	1	0	2	2
	3.5	0	1	1	0	1	1
	3.6	0	1	1	0	2	2
	4.1	0	2	2	0	4	4

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Number of Items/Points Measuring Process Standards: Science, Grade 10

Year	Process Standards	TN Items	CR Items	Total Items	TN Points	CR Points	Score Points
1998	1.3	3	1	4	3	3	6
	1.5	1	1	2	1	2	3
	1.6	5	14	19	5	30	35
	1.8	0	1	1	0	2	2
	1.10	18	14	32	18	33	51
	2.1	0	13	13	0	28	28
	3.1	0	2	2	0	13	13
	3.5	0	2	2	0	4	4
	3.6	0	1	1	0	2	2
	3.8	0	3	3	0	15	15
	4.1	0	1	1	0	2	2
1999	1.3	3	1	4	3	4	7
	1.5	1	1	2	1	3	4
	1.6	5	9	14	5	18	23
	1.7	0	1	1	0	2	2
	1.8	0	1	1	0	3	3
	1.10	18	16	34	18	32	50
	2.1	0	13	13	0	29	29
	3.1	0	3	3	0	5	5
	3.2	0	2	2	0	4	4
	3.3	0	1	1	0	2	2
	3.5	0	2	2	0	4	4
	3.8	0	2	2	0	5	5
	4.1	0	1	1	0	2	2

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Number of Items/Points Measuring Process Standards: Social Studies, 1999

	Process Standards	TN Items	MC Items	CR Items	Total Items	TN Points	MC Points	CR Points	Score Points
Grade 4	1.5	16	6	0	22	16	6	0	22
	1.6	1	7	3	11	1	7	7	15
	1.9	1	1	0	2	1	1	0	2
	1.10	12	21	7	40	12	21	14	47
	3.5	3	1	4	8	3	1	8	12
	3.6	1	0	0	1	1	0	0	1
	4.1	0	0	1	1	0	0	5	5
Grade 8	1.5	12	4	2	18	12	4	5	21
	1.6	1	0	0	1	1	0	0	1
	1.8	0	0	1	1	0	0	3	3
	1.9	1	0	0	1	1	0	0	1
	1.10	13	22	9	44	13	22	19	54
	3.1	0	0	1	1	0	0	2	2
	3.2	0	0	1	1	0	0	2	2
	3.5	4	4	6	14	4	4	12	20
	3.6	0	0	1	1	0	0	2	2
	3.8	1	0	0	1	1	0	0	1
	4.1	0	0	3	3	0	0	7	7

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Number of Items/Points Measuring Process Standards: Social Studies, 1999 (Cont'd)

	Process Standards	TN Items	MC Items	CR Items	Total Items	TN Points	MC Points	CR Points	Score Points
Grade 11	1.4	1	0	0	1	1	0	0	1
	1.5	7	11	3	21	7	11	6	24
	1.6	5	5	1	11	5	5	2	12
	1.7	1	0	0	1	1	0	0	1
	1.10	11	23	11	45	11	23	22	56
	3.1	0	2	2	4	0	2	4	6
	3.4	0	0	1	1	0	0	2	2
	3.5	4	2	0	6	4	2	0	6
	3.6	0	2	3	5	0	2	6	8
	3.8	1	0	0	1	1	0	0	1
	4.1	0	1	5	6	0	1	10	11
	4.8	1	0	0	1	1	0	0	1

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Test/Item Characteristics

Test Characteristics: IRT/Classical

Means, standard deviations for scale/raw scores, p-values, item-total correlations: Mathematics				
	Mean Scale Score (SD)	Mean Raw Score (SD)	Mean P-Value (SD)	Mean Item-Total Correlation (SD)
1997				
4	634.72 (44.57)	51.94 (12.88)	0.69 (.19)	0.44 (.12)
8	693.41 (45.50)	35.20 (14.67)	0.53 (.22)	0.47 (.09)
10	721.70 (53.65)	31.22 (15.53)	0.48 (.19)	0.52 (.09)
1998				
4	640.41 (49.87)	53.38 (13.42)	0.72 (.16)	0.45 (.10)
8	693.98 (48.14)	37.46 (15.27)	0.52 (.20)	0.43 (.09)
10	715.85 (51.81)	29.37 (15.87)	0.42 (.18)	0.52 (.12)
1999				
4	638.23 (38.90)	54.71 (12.39)	0.73 (.17)	0.46 (.11)
8	696.22 (37.05)	40.94 (14.77)	0.57 (.19)	0.45 (.11)
10	724.30 (49.59)	35.35 (15.74)	0.50 (.18)	0.49 (.11)

Means, standard deviations for scale/raw scores, p-values, item-total correlations: CommArts				
	Mean Scale Score (SD)	Mean Raw Score (SD)	Mean P-Value (SD)	Mean Item-Total Correlation (SD)
1998				
3	633.72 (35.72)	41.47 (12.06)	0.63 (.20)	0.44 (.09)
7	669.90 (41.60)	45.41 (14.95)	0.60 (.15)	0.44 (.12)
11	702.59 (40.74)	43.94 (15.71)	0.52 (.17)	0.44 (.15)
1999				
3	638.19 (35.55)	46.03 (11.98)	0.68 (.18)	0.43 (.09)
7	676.30 (33.55)	45.67 (11.64)	0.65 (.16)	0.41 (.11)
11	711.48 (36.19)	48.74 (13.96)	0.57 (.18)	0.44 (.11)

Means, standard deviations for scale/raw scores, p-values, item-total correlations: Science				
	Mean Scale Score (SD)	Mean Raw Score (SD)	Mean P-Value (SD)	Mean Item-Total Correlation (SD)
1998				
3	629.19 (37.49)	41.66 (11.85)	0.62 (.22)	0.44 (.10)
7	672.76 (36.39)	37.64 (13.53)	0.49 (.23)	0.44 (.11)
10	695.10 (45.11)	35.65 (14.70)	0.43 (.21)	0.46 (.15)
1999				
3	627.96 (35.29)	44.09 (11.58)	0.66 (.21)	0.43 (.09)
7	684.09 (32.49)	41.45 (12.60)	0.57 (.22)	0.39 (.12)
10	712.50 (35.92)	41.06 (13.75)	0.51 (.21)	0.43 (.11)

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Means, standard deviations for scale/raw scores, p-values, item-total correlations: Social Studies				
	Mean Scale Score (SD)	Mean Raw Score (SD)	Mean P-Value (SD)	Mean Item-Total Correlation (SD)
1999				
4	646.48 (24.30)	57.95 (15.06)	0.65 (.20)	0.39 (.10)
8	687.60 (25.57)	50.42 (12.67)	0.63 (.20)	0.39 (.09)
11	709.87 (27.11)	48.04 (14.48)	0.54 (.17)	0.42 (.10)

Item Statistics: IRT/Classical by Item Type

Mathematics Grade 4
1997

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	646	0.60	0.91	0.37	1	1	2	550	0.15	0.75	0.44
2	3	1	631	0.28	0.86	0.45	2	1	2	575	0.22	0.86	0.45
3	3	1	600	0.52	0.63	0.37	3	1	2	631	0.11	0.61	0.47
4	3	1	621	0.55	0.89	0.30	4	1	2	529	0.07	0.95	0.36
5	3	1	586	0.27	0.79	0.28	5	1	2	564	0.04	0.65	0.49
6	3	1	668	0.23	0.09	-0.25	6	1	3	588	0.25	0.43	0.56
7	3	1	613	0.36	0.72	0.53	7	1	2	609	0.38	0.88	0.40
8	3	1	581	0.14	0.85	0.45	8	1	1	584	0.23	0.79	0.48
9	3	1	648	0.14	0.73	0.47	9	1	1	613	0.24	0.58	0.52
10	3	1	568	0.14	0.56	0.37	10	1	3	632	0.11	0.82	0.52
11	3	1	548	0.19	0.51	0.34	11	1	1	667	0.15	0.30	0.30
12	3	1	606	0.15	0.81	0.54	12	1	2	588	0.46	0.34	0.48
13	3	1	497	0.22	0.83	0.40	13	1	4	558	0.17	0.36	0.59
14	3	1	576	0.12	0.89	0.46	1	2	4	574	0.26	0.42	0.57
15	3	1	643	0.34	0.79	0.47	2	2	2	582	0.26	0.49	0.54
16	3	1	517	0.15	0.91	0.50	3	2	2	572	0.52	0.94	0.46
17	3	1	578	0.25	0.82	0.49	4	2	1	578	0.33	0.94	0.39
18	3	1	621	0.29	0.76	0.45	5	2	1	589	0.21	0.86	0.41
19	3	1	548	0.32	0.79	0.56	6	2	2	593	0.50	0.56	0.45
20	3	1	690	0.07	0.85	0.54	7	2	2	589	0.59	0.51	0.37
21	3	1	665	0.25	0.59	0.47	8	2	1	624	0.23	0.87	0.43
22	3	1	676	0.49	0.66	0.45	9	2	2	603	0.19	0.66	0.56
23	3	1	701	0.34	0.56	0.40	10	2	1	635	0.14	0.87	0.36
24	3	1	636	0.29	0.49	0.54							
25	3	1	534	0.43	0.59	0.49							
26	3	1	522	0.26	0.79	0.55							
27	3	1	550	0.19	0.66	0.57							
28	3	1	617	0.13	0.77	0.48							
29	3	1	631	0.07	0.45	0.38							
30	3	1	550	0.21	0.68	0.53							
31	3	1	609	0.35	0.74	0.40							
32	3	1	535	0.13	0.57	0.39							
average			**600**	**0.26**	**0.70**	**0.43**				**593**	**0.25**	**0.67**	**0.46**

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Mathematics Grade 4 (Cont'd)
1998

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	518	0.07	0.89	0.28	1	1	2	531	0.13	0.86	0.47
2	3	1	546	0.12	0.88	0.35	2	1	2	609	0.16	0.62	0.53
3	3	1	620	0.05	0.65	0.32	3	1	1	414	0.04	0.93	0.32
4	3	1	504	0.06	0.90	0.21	4	1	2	558	0.22	0.83	0.56
5	3	1	530	0.03	0.82	0.20	5	1	1	464	0.10	0.94	0.38
6	3	1	600	0.15	0.75	0.45	6	1	2	600	0.31	0.68	0.64
7	3	1	607	0.37	0.74	0.55	7	1	2	586	0.21	0.71	0.57
8	3	1	568	0.17	0.87	0.37	8	1	1	482	0.16	0.95	0.42
9	3	1	611	0.25	0.74	0.48	9	1	2	463	0.12	0.94	0.41
10	3	1	621	0.11	0.60	0.38	10	1	3	522	0.10	0.85	0.47
11	3	1	626	0.09	0.53	0.34	11	1	2	620	0.15	0.55	0.56
12	3	1	599	0.42	0.78	0.50	12	1	2	552	0.22	0.84	0.54
13	3	1	565	0.22	0.84	0.34	13	1	4	681	0.37	0.30	0.59
14	3	1	566	0.34	0.87	0.39	1	2	4	654	0.15	0.43	0.54
15	3	1	585	0.32	0.79	0.46	2	2	2	606	0.12	0.62	0.50
16	3	1	565	0.74	0.91	0.41	3	2	1	565	0.08	0.74	0.42
17	3	1	576	0.30	0.83	0.40	4	2	1	673	0.14	0.33	0.42
18	3	1	583	0.20	0.77	0.38	5	2	2	569	0.17	0.74	0.55
19	3	1	597	0.48	0.77	0.52	6	2	3	608	0.20	0.59	0.60
20	3	1	592	0.59	0.85	0.47	7	2	2	622	0.23	0.57	0.59
21	3	1	630	0.18	0.59	0.42	8	2	1	618	0.20	0.59	0.53
22	3	1	597	0.21	0.72	0.41	9	2	2	574	0.13	0.70	0.52
23	3	1	627	0.21	0.61	0.44							
24	3	1	646	0.51	0.51	0.53							
25	3	1	633	0.25	0.55	0.48							
26	3	1	602	0.67	0.78	0.54							
27	3	1	619	0.49	0.65	0.55							
28	3	1	593	0.27	0.77	0.42							
29	3	1	661	0.18	0.46	0.37							
30	3	1	611	0.45	0.69	0.54							
31	3	1	590	0.23	0.76	0.40							
32	3	1	647	0.12	0.53	0.33							
average			**595**	**0.28**	**0.73**	**0.41**				**571**	**0.17**	**0.70**	**0.51**

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Mathematics Grade 4 (Cont'd)
1999

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	544	0.13	0.92	0.27	1	1	3	565	0.38	0.87	0.46
2	3	1	573	0.25	0.90	0.36	2	1	2	626	0.21	0.54	0.46
3	3	1	615	0.14	0.71	0.36	3	1	3	575	0.33	0.79	0.48
4	3	1	522	0.09	0.93	0.22	4	1	1	624	0.40	0.60	0.50
5	3	1	519	0.03	0.87	0.19	5	1	2	513	0.12	0.85	0.31
6	3	1	615	0.36	0.75	0.47	6	1	2	637	0.22	0.50	0.46
7	3	1	612	0.73	0.75	0.55	7	1	1	609	0.14	0.64	0.37
8	3	1	584	0.29	0.89	0.39	8	1	2	599	0.21	0.66	0.45
9	3	1	632	0.32	0.78	0.41	9	1	2	605	0.77	0.73	0.60
10	3	1	630	0.14	0.60	0.36	10	1	2	582	0.41	0.83	0.49
11	3	1	648	0.21	0.57	0.39	11	1	4	622	0.83	0.66	0.69
12	3	1	605	0.55	0.80	0.51	1	2	4	673	1.07	0.25	0.57
13	3	1	580	0.16	0.87	0.34	2	2	1	572	0.17	0.81	0.37
14	3	1	570	0.31	0.93	0.37	3	2	1	519	0.21	0.95	0.27
15	3	1	602	0.22	0.81	0.42	4	2	2	609	0.23	0.64	0.46
16	3	1	572	0.45	0.94	0.40	5	2	1	611	0.28	0.67	0.46
17	3	1	597	0.23	0.84	0.40	6	2	2	517	0.37	0.96	0.28
18	3	1	604	0.18	0.80	0.38	7	2	3	549	0.64	0.93	0.42
19	3	1	606	0.40	0.81	0.47	8	2	1	673	0.31	0.27	0.40
20	3	1	589	0.53	0.89	0.45	9	2	2	566	0.40	0.88	0.44
21	3	1	639	0.31	0.62	0.43	10	2	1	655	0.34	0.38	0.45
22	3	1	621	0.20	0.72	0.40	11	2	2	620	0.57	0.63	0.58
23	3	1	625	0.27	0.64	0.45							
24	3	1	650	0.94	0.48	0.51							
25	3	1	640	0.48	0.58	0.49							
26	3	1	607	0.72	0.80	0.53							
27	3	1	626	0.72	0.67	0.55							
28	3	1	606	0.19	0.79	0.40							
29	3	1	661	0.39	0.49	0.39							
30	3	1	611	0.64	0.74	0.55							
31	3	1	608	0.17	0.78	0.38							
32	3	1	655	0.16	0.61	0.33							
average			**605**	**0.34**	**0.76**	**0.41**				**596**	**0.39**	**0.68**	**0.45**

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Mathematics Grade 8
1997

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	687	0.32	0.61	0.43	1	1	2	711	0.20	0.52	0.60
2	3	1	676	0.27	0.70	0.42	2	1	2	699	0.17	0.13	0.50
3	3	1	711	0.06	0.68	0.51	3	1	3	680	0.28	0.55	0.47
4	3	1	673	0.14	0.72	0.50	4	1	2	654	0.26	0.38	0.43
5	3	1	665	0.11	0.47	0.43	5	1	2	707	0.14	0.52	0.58
6	3	1	718	0.54	0.46	0.35	6	1	2	743	0.16	0.25	0.60
7	3	1	701	0.22	0.59	0.38	7	1	2	704	0.10	0.24	0.56
8	3	1	737	0.14	0.49	0.41	8	1	1	701	0.11	0.77	0.36
9	3	1	725	0.31	0.79	0.53	9	1	4	648	0.44	0.17	0.60
10	3	1	739	0.34	0.61	0.45	1	2	4	699	0.17	0.23	0.69
11	3	1	762	0.15	0.81	0.39	2	2	2	620	0.16	0.53	0.56
12	3	1	690	0.35	0.80	0.52	3	2	2	644	0.46	0.58	0.64
13	3	1	757	0.74	0.79	0.38	4	2	2	650	0.11	0.18	0.55
14	3	1	683	0.12	0.52	0.32	5	2	2	687	0.05	0.14	0.53
15	3	1	721	0.11	0.89	0.44	6	2	1	632	0.34	0.61	0.35
16	3	1	688	0.29	0.87	0.47	7	2	2	626	0.51	0.24	0.60
17	3	1	733	0.64	0.75	0.49	8	2	2	647	0.27	0.65	0.62
18	3	1	737	0.48	0.65	0.35	9	2	2	691	0.07	0.35	0.52
19	3	1	616	0.09	0.82	0.49	10	2	1	637	0.44	0.11	0.43
20	3	1	756	0.93	0.32	0.49	11	2	2	731	0.35	0.78	0.44
21	3	1	728	0.78	0.67	0.52							
22	3	1	688	0.25	0.66	0.51							
23	3	1	681	0.48	0.58	0.32							
24	3	1	748	0.67	0.59	0.44							
25	3	1	753	0.87	0.75	0.40							
26	3	1	663	0.07	0.40	0.56							
27	3	1	733	0.68	0.57	0.48							
28	3	1	669	0.46	0.42	0.37							
29	3	1	721	0.23	0.36	0.50							
30	3	1	765	0.45	0.37	0.42							
31	3	1	620	0.15	0.31	0.32							
average			**707**	**0.37**	**0.61**	**0.44**				**676**	**0.24**	**0.40**	**0.53**

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Mathematics Grade 8 (Cont'd)
1998

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	713	0.20	0.61	0.42	1	1	2	681	0.30	0.54	0.62
2	3	1	716	0.17	0.66	0.36	2	1	2	688	0.35	0.50	0.65
3	3	1	675	0.26	0.64	0.52	3	1	2	656	0.28	0.66	0.61
4	3	1	659	0.17	0.67	0.47	4	1	2	643	0.28	0.69	0.63
5	3	1	713	0.10	0.49	0.40	5	1	1	786	0.21	0.10	0.36
6	3	1	731	0.10	0.49	0.34	6	1	2	677	0.15	0.55	0.53
7	3	1	712	0.10	0.57	0.35	7	1	2	693	0.11	0.48	0.51
8	3	1	719	0.11	0.49	0.36	8	1	2	732	0.08	0.35	0.44
9	3	1	648	0.40	0.74	0.50	9	1	2	720	0.15	0.35	0.51
10	3	1	690	0.27	0.59	0.49	10	1	4	701	0.27	0.45	0.65
11	3	1	618	0.20	0.82	0.32	1	2	4	777	0.64	0.12	0.53
12	3	1	642	0.56	0.78	0.49	2	2	2	690	0.23	0.49	0.60
13	3	1	631	0.16	0.76	0.34	3	2	1	770	0.08	0.22	0.35
14	3	1	683	0.06	0.52	0.30	4	2	2	706	0.43	0.39	0.66
15	3	1	614	0.38	0.87	0.31	5	2	3	767	0.40	0.14	0.49
16	3	1	631	0.55	0.83	0.42	6	2	2	621	0.16	0.76	0.52
17	3	1	645	0.23	0.73	0.41	7	2	3	729	0.21	0.39	0.59
18	3	1	665	0.09	0.60	0.34	8	2	2	706	0.21	0.41	0.57
19	3	1	644	0.45	0.79	0.45	9	2	2	713	0.43	0.36	0.64
20	3	1	738	0.28	0.31	0.45	10	2	2	767	0.69	0.10	0.48
21	3	1	685	0.39	0.64	0.51							
22	3	1	684	0.28	0.62	0.49							
23	3	1	723	0.06	0.54	0.26							
24	3	1	672	0.16	0.59	0.42							
25	3	1	645	0.16	0.71	0.36							
26	3	1	719	0.46	0.39	0.53							
27	3	1	685	0.20	0.55	0.46							
28	3	1	735	0.11	0.41	0.35							
29	3	1	723	0.24	0.36	0.48							
30	3	1	737	0.30	0.36	0.42							
31	3	1	781	0.11	0.27	0.25							
average			**686**	**0.24**	**0.59**	**0.41**				**711**	**0.28**	**0.40**	**0.55**

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Mathematics Grade 8 (Cont'd)
1999

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	679	0.18	0.69	0.39	1	1	2	709	0.40	0.42	0.55
2	3	1	672	0.10	0.70	0.33	2	1	2	719	0.15	0.40	0.41
3	3	1	683	0.44	0.67	0.52	3	1	2	640	0.25	0.77	0.42
4	3	1	667	0.29	0.76	0.45	4	1	2	693	0.32	0.51	0.53
5	3	1	718	0.13	0.50	0.36	5	1	2	736	0.37	0.27	0.47
6	3	1	731	0.17	0.48	0.34	6	1	2	641	0.63	0.83	0.49
7	3	1	729	0.22	0.58	0.33	7	1	2	717	0.37	0.36	0.52
8	3	1	721	0.20	0.51	0.38	8	1	4	719	1.52	0.29	0.73
9	3	1	650	0.48	0.80	0.47	1	2	4	667	0.76	0.66	0.64
10	3	1	700	0.51	0.63	0.49	2	2	3	713	0.46	0.45	0.58
11	3	1	642	0.16	0.85	0.33	3	2	3	680	0.56	0.62	0.61
12	3	1	654	0.62	0.82	0.49	4	2	2	683	0.50	0.59	0.58
13	3	1	654	0.16	0.81	0.36	5	2	1	696	0.33	0.49	0.50
14	3	1	724	0.08	0.53	0.29	6	2	1	703	0.25	0.45	0.46
15	3	1	621	0.25	0.92	0.30	7	2	1	706	0.32	0.43	0.49
16	3	1	643	0.36	0.88	0.39	8	2	3	712	0.76	0.39	0.65
17	3	1	671	0.27	0.76	0.44	9	2	2	708	0.33	0.42	0.52
18	3	1	692	0.10	0.65	0.33	10	2	2	701	0.59	0.46	0.61
19	3	1	652	0.36	0.85	0.41	11	2	2	717	0.35	0.37	0.51
20	3	1	725	0.38	0.34	0.46	12	2	2	745	0.75	0.17	0.48
21	3	1	691	0.46	0.69	0.49							
22	3	1	674	0.30	0.69	0.47							
23	3	1	741	0.02	0.54	0.19							
24	3	1	697	0.20	0.63	0.42							
25	3	1	665	0.13	0.77	0.35							
26	3	1	716	0.58	0.40	0.52							
27	3	1	695	0.44	0.59	0.53							
28	3	1	734	0.19	0.44	0.34							
29	3	1	723	0.41	0.36	0.47							
30	3	1	729	0.32	0.38	0.41							
31	3	1	750	0.33	0.30	0.31							
average			**692**	**0.28**	**0.63**	**0.40**				**700**	**0.50**	**0.47**	**0.54**

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Mathematics Grade 10
1997

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	718	0.14	0.67	0.46	1	1	2	683	0.16	0.45	0.60
2	3	1	750	0.12	0.46	0.37	2	1	2	733	0.06	0.17	0.52
3	3	1	656	0.15	0.76	0.42	3	1	2	662	0.17	0.45	0.66
4	3	1	695	0.18	0.34	0.50	4	1	3	765	0.26	0.19	0.60
5	3	1	709	0.18	0.26	0.38	5	1	3	794	0.13	0.14	0.48
6	3	1	758	0.14	0.53	0.53	6	1	2	717	0.20	0.25	0.58
7	3	1	730	0.24	0.48	0.56	7	1	2	729	0.28	0.46	0.41
8	3	1	790	0.32	0.48	0.50	8	1	3	731	0.16	0.16	0.58
9	3	1	729	0.36	0.61	0.32	9	1	4	734	0.05	0.35	0.65
10	3	1	829	0.64	0.63	0.52	1	2	4	695	0.21	0.26	0.60
11	3	1	805	0.27	0.60	0.46	2	2	2	696	0.13	0.53	0.49
12	3	1	774	0.30	0.75	0.40	3	2	2	660	0.14	0.23	0.59
13	3	1	736	0.05	0.71	0.48	4	2	2	676	0.20	0.66	0.57
14	3	1	790	0.42	0.60	0.54	5	2	2	702	0.25	0.27	0.61
15	3	1	782	0.37	0.73	0.43	6	2	2	668	0.16	0.17	0.61
16	3	1	816	0.45	0.67	0.46	7	2	2	683	0.16	0.35	0.62
17	3	1	711	0.10	0.61	0.42	8	2	3	694	0.10	0.37	0.66
18	3	1	782	0.33	0.78	0.49	9	2	4	666	0.34	0.47	0.72
19	3	1	685	0.22	0.65	0.59	10	2	2	696	0.44	0.63	0.51
20	3	1	763	0.37	0.51	0.48							
21	3	1	780	0.75	0.43	0.44							
22	3	1	748	0.29	0.77	0.41							
23	3	1	744	0.35	0.62	0.50							
24	3	1	727	0.41	0.56	0.51							
25	3	1	688	0.14	0.40	0.45							
average			**747**	**0.29**	**0.58**	**0.46**				**704**	**0.19**	**0.35**	**0.58**

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Mathematics Grade 10 (Cont'd)
1998

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	737	0.14	0.59	0.39	1	1	2	774	0.64	0.16	0.55
2	3	1	756	0.16	0.42	0.41	2	1	2	747	0.45	0.30	0.64
3	3	1	656	0.16	0.68	0.42	3	1	2	769	0.44	0.19	0.57
4	3	1	767	0.34	0.30	0.44	4	1	3	767	0.45	0.25	0.66
5	3	1	784	0.30	0.24	0.36	5	1	2	749	0.34	0.29	0.61
6	3	1	741	0.20	0.46	0.45	6	1	2	678	0.23	0.62	0.64
7	3	1	741	0.51	0.42	0.55	7	1	3	799	1.00	0.11	0.55
8	3	1	741	0.26	0.43	0.49	8	1	4	784	1.09	0.19	0.70
9	3	1	730	0.04	0.54	0.27	1	2	4	790	1.30	0.18	0.68
10	3	1	725	0.35	0.53	0.53	2	2	3	743	0.44	0.32	0.69
11	3	1	730	0.24	0.57	0.44	3	2	2	702	0.37	0.52	0.69
12	3	1	680	0.10	0.69	0.35	4	2	3	721	0.47	0.42	0.74
13	3	1	684	0.22	0.63	0.47	5	2	3	731	0.42	0.38	0.69
14	3	1	728	0.36	0.53	0.51	6	2	3	783	0.36	0.22	0.57
15	3	1	660	0.14	0.66	0.37	7	2	3	783	0.51	0.22	0.63
16	3	1	675	0.15	0.63	0.41	8	2	2	730	0.51	0.38	0.69
17	3	1	687	0.11	0.56	0.39	9	2	2	762	1.07	0.19	0.64
18	3	1	670	0.27	0.71	0.43	10	2	3	797	0.78	0.10	0.51
19	3	1	710	0.67	0.58	0.59							
20	3	1	729	0.22	0.45	0.49							
21	3	1	757	0.24	0.35	0.43							
22	3	1	656	0.14	0.68	0.35							
23	3	1	697	0.22	0.54	0.50							
24	3	1	727	0.24	0.50	0.48							
25	3	1	764	0.30	0.33	0.43							
average			**717**	**0.24**	**0.52**	**0.44**				**756**	**0.60**	**0.28**	**0.64**

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Mathematics Grade 10 (Cont'd)
1999

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	740	0.12	0.69	0.37	1	1	1	751	0.15	0.36	0.44
2	3	1	780	0.13	0.50	0.32	2	1	2	704	0.15	0.55	0.46
3	3	1	672	0.14	0.77	0.40	3	1	2	737	0.59	0.41	0.66
4	3	1	756	0.34	0.38	0.51	4	1	3	736	0.16	0.40	0.51
5	3	1	784	0.45	0.28	0.37	5	1	2	756	0.15	0.34	0.47
6	3	1	740	0.34	0.52	0.51	6	1	3	731	0.39	0.39	0.63
7	3	1	742	0.50	0.49	0.54	7	1	2	761	0.21	0.32	0.51
8	3	1	740	0.40	0.48	0.54	8	1	2	809	0.66	0.07	0.40
9	3	1	706	0.03	0.65	0.28	9	1	4	797	0.53	0.25	0.60
10	3	1	732	0.21	0.62	0.45	1	2	4	760	0.86	0.29	0.71
11	3	1	726	0.22	0.67	0.45	2	2	3	735	0.60	0.46	0.69
12	3	1	675	0.07	0.75	0.34	3	2	4	718	0.51	0.46	0.68
13	3	1	694	0.21	0.68	0.48	4	2	3	707	0.50	0.53	0.67
14	3	1	737	0.26	0.56	0.48	5	2	3	792	0.79	0.10	0.51
15	3	1	683	0.12	0.75	0.39	6	2	3	735	0.40	0.47	0.64
16	3	1	708	0.14	0.67	0.43	7	2	2	671	0.37	0.73	0.53
17	3	1	724	0.13	0.64	0.42	8	2	3	731	0.29	0.44	0.60
18	3	1	670	0.21	0.80	0.41	9	2	2	762	0.45	0.26	0.59
19	3	1	717	0.52	0.64	0.56							
20	3	1	743	0.30	0.48	0.51							
21	3	1	762	0.22	0.42	0.43							
22	3	1	669	0.09	0.77	0.36							
23	3	1	714	0.22	0.62	0.49							
24	3	1	736	0.24	0.56	0.48							
25	3	1	756	0.17	0.46	0.43							
average			**724**	**0.23**	**0.59**	**0.44**				**744**	**0.43**	**0.38**	**0.57**

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Communications Arts Grade 3
1998

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	547	0.70	0.94	0.20	1	1	2	630	0.27	0.52	0.51
2	3	1	561	0.41	0.95	0.28	2	1	2	669	0.21	0.35	0.43
3	3	1	621	0.26	0.76	0.41	3	1	2	607	0.58	0.66	0.63
4	3	1	595	0.04	0.77	0.22	4	1	2	645	0.63	0.42	0.61
5	3	1	591	0.57	0.89	0.41	5	1	2	682	0.56	0.19	0.45
6	3	1	586	0.38	0.90	0.38	6	1	1	645	0.18	0.42	0.43
7	3	1	597	0.39	0.87	0.41	7	1	2	628	0.26	0.52	0.52
8	3	1	592	1.19	0.91	0.43	8	1	2	699	0.24	0.20	0.39
9	3	1	622	0.49	0.70	0.49	9	1	2	678	0.39	0.26	0.50
10	3	1	549	0.40	0.96	0.23	10	1	2	635	0.21	0.49	0.50
11	3	1	642	0.17	0.54	0.38	11	1	2	653	0.25	0.40	0.51
12	3	1	639	0.73	0.55	0.53	12	1	2	664	0.64	0.30	0.55
13	3	1	606	0.24	0.66	0.43	13	1	2	676	0.46	0.25	0.51
14	3	1	663	0.31	0.40	0.40	1	2	4	665	0.69	0.43	0.63
15	3	1	605	0.46	0.78	0.48							
16	3	1	602	0.85	0.82	0.55							
17	3	1	667	0.19	0.56	0.30							
18	3	1	602	0.35	0.79	0.44							
19	3	1	659	0.74	0.48	0.43							
20	3	1	594	0.34	0.84	0.44							
21	3	1	656	0.32	0.49	0.42							
22	3	1	639	0.72	0.64	0.50							
23	3	1	634	0.18	0.64	0.40							
24	3	1	608	0.45	0.72	0.50							
25	3	1	649	0.22	0.55	0.39							
26	3	1	632	0.32	0.63	0.48							
27	3	1	631	0.62	0.69	0.51							
28	3	1	615	0.48	0.75	0.48							
29	3	1	594	0.44	0.85	0.42							
30	3	1	606	0.18	0.64	0.40							
31	3	1	614	0.97	0.74	0.57							
32	3	1	606	0.58	0.80	0.50							
33	3	1	628	0.28	0.70	0.47							
34	3	1	660	0.49	0.46	0.40							
35	3	1	617	0.77	0.75	0.54							
36	3	1	574	0.27	0.87	0.32							
37	3	1	619	0.16	0.70	0.34							
38	3	1	638	0.23	0.62	0.42							
39	3	1	659	0.20	0.55	0.35							
40	3	1	597	0.40	0.84	0.41							
41	3	1	607	0.21	0.77	0.38							
average			**615**	**0.43**	**0.72**	**0.42**				**655**	**0.40**	**0.39**	**0.51**

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Communications Arts Grade 3 (Cont'd)
1999

Multiple Choice							Constructed Response						
Item	sess	pts	Loc_m	info	p	R_{it}	item	sess	pts	Loc_m	info	p	R_{it}
1	3	1	533	0.08	0.94	0.20	1	1	2	604	0.18	0.62	0.41
2	3	1	563	0.46	0.96	0.29	2	1	2	714	0.23	0.17	0.34
3	3	1	615	0.23	0.79	0.39	3	1	2	646	0.35	0.45	0.52
4	3	1	595	0.06	0.81	0.26	4	1	2	636	0.23	0.50	0.46
5	3	1	591	0.43	0.90	0.40	5	1	2	642	0.38	0.47	0.53
6	3	1	582	0.34	0.92	0.36	6	1	2	613	0.13	0.59	0.39
7	3	1	593	0.35	0.89	0.39	7	1	2	635	0.55	0.51	0.58
8	3	1	586	0.74	0.92	0.41	8	1	1	591	0.48	0.81	0.47
9	3	1	625	0.39	0.72	0.47	9	1	2	644	0.47	0.45	0.55
10	3	1	556	0.39	0.96	0.27	10	1	1	591	0.40	0.79	0.47
11	3	1	638	0.13	0.62	0.35	11	1	2	645	0.42	0.45	0.55
12	3	1	639	0.70	0.59	0.52	12	1	2	651	0.43	0.41	0.54
13	3	1	612	0.25	0.69	0.44	13	1	2	591	0.20	0.69	0.42
14	3	1	661	0.23	0.42	0.39	14	1	2	635	0.37	0.51	0.54
15	3	1	597	0.45	0.79	0.49	1	2	4	695	0.57	0.41	0.60
16	3	1	597	0.67	0.83	0.51							
17	3	1	642	0.12	0.58	0.35							
18	3	1	603	0.32	0.82	0.43							
19	3	1	656	0.76	0.52	0.45							
20	3	1	591	0.39	0.88	0.41							
21	3	1	657	0.34	0.47	0.41							
22	3	1	638	0.67	0.67	0.50							
23	3	1	626	0.22	0.64	0.42							
24	3	1	609	0.56	0.75	0.52							
25	3	1	639	0.19	0.58	0.39							
26	3	1	639	0.24	0.64	0.40							
27	3	1	628	0.60	0.70	0.52							
28	3	1	605	0.26	0.80	0.41							
29	3	1	592	0.38	0.87	0.42							
30	3	1	604	0.17	0.67	0.38							
31	3	1	619	0.75	0.76	0.54							
32	3	1	600	0.60	0.81	0.50							
33	3	1	623	0.30	0.72	0.45							
34	3	1	660	0.46	0.48	0.42							
35	3	1	610	0.58	0.78	0.52							
36	3	1	574	0.29	0.91	0.34							
37	3	1	639	0.16	0.73	0.35							
38	3	1	646	0.31	0.69	0.40							
39	3	1	670	0.18	0.56	0.31							
40	3	1	590	0.25	0.86	0.39							
41	3	1	610	0.13	0.76	0.35							
average			**613**	**0.37**	**0.74**	**0.41**				**636**	**0.36**	**0.52**	**0.49**

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Communications Arts Grade 7

1998

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	603	0.19	0.88	0.33	1	1	2	709	0.22	0.33	0.48
2	3	1	716	0.16	0.55	0.27	2	1	3	683	0.37	0.42	0.58
3	3	1	645	0.21	0.75	0.40	3	1	2	698	0.30	0.34	0.50
4	3	1	656	0.40	0.67	0.50	4	1	2	679	0.39	0.44	0.59
5	3	1	699	0.37	0.44	0.43	5	1	2	669	0.22	0.50	0.53
6	3	1	639	0.34	0.77	0.46	6	1	2	639	0.38	0.67	0.59
7	3	1	646	0.13	0.61	0.37	7	1	2	734	0.15	0.29	0.56
8	3	1	658	0.17	0.54	0.41	8	1	2	701	0.43	0.30	0.51
9	3	1	718	0.32	0.41	0.31	9	1	1	680	0.30	0.44	0.51
10	3	1	622	0.47	0.85	0.44	10	1	2	660	0.26	0.52	0.56
11	3	1	661	0.36	0.66	0.50	11	1	1	621	0.26	0.74	0.52
12	3	1	650	0.20	0.67	0.43	12	1	2	673	0.30	0.46	0.55
13	3	1	621	0.23	0.75	0.42	13	1	2	659	0.40	0.54	0.61
14	3	1	669	0.06	0.64	0.27	14	1	2	687	0.31	0.37	0.57
15	3	1	642	0.24	0.76	0.43	15	1	1	615	0.22	0.68	0.52
16	3	1	633	0.09	0.63	0.30	1	2	4	608	0.56	0.58	0.68
17	3	1	627	0.17	0.71	0.38							
18	3	1	675	0.08	0.61	0.31							
19	3	1	639	0.82	0.79	0.55							
20	3	1	645	0.32	0.75	0.46							
21	3	1	671	0.09	0.63	0.35							
22	3	1	655	0.20	0.63	0.43							
23	3	1	640	0.58	0.77	0.53							
24	3	1	651	0.33	0.68	0.49							
25	3	1	635	0.86	0.82	0.51							
26	3	1	632	0.60	0.79	0.53							
27	3	1	700	0.29	0.51	0.37							
28	3	1	670	0.29	0.63	0.45							
29	3	1	662	0.79	0.70	0.55							
30	3	1	668	0.41	0.61	0.50							
31	3	1	661	1.15	0.67	0.59							
32	3	1	656	0.36	0.63	0.51							
33	3	1	659	1.03	0.70	0.57							
34	3	1	696	0.37	0.49	0.41							
35	3	1	683	0.30	0.57	0.42							
36	3	1	608	0.07	0.81	0.28							
37	3	1	676	0.16	0.65	0.37							
38	3	1	670	0.19	0.59	0.41							
39	3	1	645	0.28	0.74	0.47							
40	3	1	638	0.30	0.77	0.44							
41	3	1	1002	0.01	0.28	-0.03							
42	3	1	706	0.05	0.49	0.27							
43	3	1	729	0.04	0.43	0.24							
44	3	1	690	0.02	0.56	0.19							
45	3	1	678	0.13	0.57	0.37							
average			**667**	**0.32**	**0.65**	**0.40**				**670**	**0.32**	**0.48**	**0.55**

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Communications Arts Grade 7 (Cont'd)

1999

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	606	0.29	0.92	0.34	1	1	2	593	0.76	0.93	0.35
2	3	1	720	0.21	0.53	0.25	2	1	2	669	0.42	0.54	0.52
3	3	1	642	0.21	0.80	0.38	3	1	2	671	0.45	0.52	0.54
4	3	1	664	0.48	0.68	0.50	4	1	2	710	0.16	0.35	0.36
5	3	1	701	0.47	0.43	0.42	5	1	2	669	0.78	0.54	0.62
6	3	1	640	0.39	0.83	0.46	6	1	1	698	0.37	0.33	0.44
7	3	1	650	0.14	0.62	0.36	7	1	2	693	0.48	0.38	0.54
8	3	1	654	0.18	0.61	0.40	8	1	1	636	0.22	0.71	0.40
9	3	1	724	0.38	0.39	0.28	9	1	2	703	0.39	0.33	0.49
10	3	1	631	0.67	0.88	0.46	10	1	1	684	0.12	0.45	0.34
11	3	1	666	0.53	0.69	0.51	11	1	1	645	0.24	0.68	0.43
12	3	1	660	0.19	0.71	0.41	12	1	2	638	0.21	0.68	0.43
13	3	1	639	0.18	0.80	0.39	13	1	2	683	0.33	0.45	0.51
14	3	1	670	0.06	0.65	0.29	1	2	4	693	0.50	0.55	0.58
15	3	1	641	0.24	0.80	0.41							
16	3	1	671	0.04	0.65	0.26							
17	3	1	645	0.07	0.74	0.31							
18	3	1	678	0.05	0.63	0.27							
19	3	1	635	0.98	0.84	0.54							
20	3	1	639	0.28	0.82	0.42							
21	3	1	668	0.09	0.66	0.32							
22	3	1	677	0.15	0.63	0.37							
23	3	1	627	0.77	0.84	0.50							
24	3	1	657	0.44	0.75	0.48							
25	3	1	629	0.73	0.89	0.46							
26	3	1	636	0.62	0.86	0.48							
27	3	1	701	0.35	0.54	0.37							
28	3	1	655	0.34	0.66	0.47							
29	3	1	663	0.77	0.78	0.50							
30	3	1	667	0.57	0.68	0.51							
31	3	1	661	1.49	0.73	0.59							
32	3	1	653	0.49	0.67	0.52							
33	3	1	657	1.02	0.76	0.56							
34	3	1	690	0.44	0.51	0.45							
35	3	1	666	0.28	0.61	0.44							
36	3	1	618	0.14	0.85	0.34							
37	3	1	666	0.16	0.68	0.37							
38	3	1	678	0.31	0.62	0.44							
39	3	1	643	0.27	0.80	0.43							
40	3	1	637	0.24	0.82	0.42							
41	3	1	977	0.01	0.26	0.05							
42	3	1	703	0.04	0.52	0.25							
43	3	1	721	0.04	0.48	0.22							
44	3	1	686	0.02	0.58	0.20							
45	3	1	681	0.15	0.58	0.37							
average			**669**	**0.35**	**0.68**	**0.39**				**670**	**0.39**	**0.53**	**0.47**

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Communications Arts Grade 11
1998

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	722	0.70	0.45	0.51	1	1	2	695	0.35	0.52	0.59
2	3	1	652	0.54	0.82	0.37	2	1	2	638	0.31	0.75	0.60
3	3	1	682	0.25	0.69	0.44	3	1	2	700	0.43	0.49	0.64
4	3	1	698	0.16	0.62	0.40	4	1	1	660	0.30	0.70	0.58
5	3	1	762	0.23	0.31	0.29	5	1	2	728	0.36	0.33	0.54
6	3	1	673	0.23	0.72	0.43	6	1	2	700	0.69	0.50	0.68
7	3	1	688	0.41	0.68	0.47	7	1	1	709	0.19	0.44	0.47
8	3	1	685	0.38	0.66	0.49	8	1	2	685	0.49	0.55	0.66
9	3	1	696	0.52	0.62	0.51	9	1	2	712	0.38	0.41	0.59
10	3	1	666	0.32	0.70	0.44	10	1	2	732	0.37	0.32	0.58
11	3	1	654	0.19	0.69	0.40	11	1	2	706	0.45	0.43	0.64
12	3	1	642	0.52	0.83	0.37	12	1	2	757	0.43	0.12	0.40
13	3	1	704	0.22	0.60	0.42	13	1	1	682	0.22	0.34	0.49
14	3	1	681	0.24	0.70	0.41	14	1	2	710	0.58	0.38	0.62
15	3	1	688	0.88	0.67	0.54	15	1	3	738	0.77	0.22	0.57
16	3	1	696	0.64	0.66	0.51	16	1	3	745	0.40	0.21	0.51
17	3	1	702	0.51	0.62	0.48	1	2	4	725	0.55	0.49	0.73
18	3	1	701	0.52	0.59	0.50							
19	3	1	689	0.21	0.65	0.43							
20	3	1	690	0.36	0.68	0.44							
21	3	1	686	1.28	0.68	0.60							
22	3	1	724	0.29	0.45	0.42							
23	3	1	687	1.03	0.70	0.53							
24	3	1	729	0.43	0.44	0.42							
25	3	1	741	0.26	0.46	0.35							
26	3	1	716	0.20	0.55	0.40							
27	3	1	746	0.13	0.46	0.32							
28	3	1	696	0.25	0.52	0.45							
29	3	1	743	0.22	0.41	0.34							
30	3	1	770	0.14	0.31	0.24							
31	3	1	696	0.48	0.56	0.52							
32	3	1	807	0.12	0.25	0.17							
33	3	1	761	0.28	0.32	0.28							
34	3	1	709	0.19	0.46	0.41							
35	3	1	691	0.44	0.59	0.53							
36	3	1	683	0.46	0.61	0.53							
37	3	1	702	0.11	0.45	0.34							
38	3	1	714	0.08	0.53	0.32							
39	3	1	688	0.28	0.66	0.44							
40	3	1	775	0.29	0.33	0.20							
41	3	1	668	0.44	0.71	0.47							
42	3	1	683	0.31	0.67	0.46							
43	3	1	796	0.07	0.43	0.16							
44	3	1	1032	0.01	0.25	-0.05							
45	3	1	746	0.10	0.41	0.28							
46	3	1	811	0.56	0.17	0.04							
average			**717**	**0.36**	**0.55**	**0.39**				**707**	**0.43**	**0.42**	**0.58**

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Communications Arts Grade 11 (Cont'd)

1999

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	724	0.84	0.47	0.53	1	1	2	648	0.54	0.81	0.44
2	3	1	647	0.52	0.87	0.43	2	1	2	676	0.36	0.68	0.47
3	3	1	685	0.29	0.73	0.46	3	1	2	674	0.32	0.65	0.47
4	3	1	697	0.19	0.66	0.43	4	1	1	656	0.30	0.76	0.43
5	3	1	754	0.48	0.33	0.35	5	1	1	638	0.24	0.81	0.36
6	3	1	670	0.18	0.76	0.44	6	1	2	762	0.19	0.23	0.36
7	3	1	702	0.53	0.72	0.51	7	1	2	744	0.13	0.32	0.40
8	3	1	689	0.31	0.70	0.48	8	1	2	695	0.30	0.54	0.52
9	3	1	702	0.63	0.64	0.56	9	1	2	688	0.64	0.60	0.61
10	3	1	678	0.23	0.74	0.45	10	1	2	745	0.28	0.26	0.44
11	3	1	681	0.17	0.72	0.44	11	1	2	732	0.37	0.33	0.49
12	3	1	626	0.38	0.90	0.38	12	1	2	730	0.15	0.37	0.42
13	3	1	720	0.29	0.65	0.43	13	1	2	677	0.30	0.62	0.52
14	3	1	675	0.21	0.76	0.44	14	1	2	696	0.54	0.55	0.59
15	3	1	686	0.70	0.71	0.56	15	1	2	682	0.23	0.60	0.48
16	3	1	686	0.58	0.73	0.53	16	1	2	738	0.48	0.29	0.52
17	3	1	694	0.58	0.68	0.54	1	2	4	713	0.50	0.49	0.58
18	3	1	700	0.56	0.63	0.53							
19	3	1	689	0.19	0.69	0.45							
20	3	1	679	0.34	0.75	0.48							
21	3	1	687	1.04	0.74	0.58							
22	3	1	723	0.26	0.51	0.44							
23	3	1	687	0.91	0.77	0.55							
24	3	1	728	0.44	0.46	0.46							
25	3	1	730	0.41	0.50	0.44							
26	3	1	728	0.24	0.58	0.41							
27	3	1	729	0.14	0.50	0.37							
28	3	1	709	0.18	0.60	0.43							
29	3	1	739	0.22	0.44	0.39							
30	3	1	753	0.19	0.31	0.34							
31	3	1	700	0.46	0.63	0.52							
32	3	1	802	0.13	0.25	0.20							
33	3	1	754	0.41	0.33	0.34							
34	3	1	731	0.28	0.52	0.42							
35	3	1	698	0.55	0.65	0.54							
36	3	1	692	0.49	0.69	0.54							
37	3	1	725	0.21	0.48	0.42							
38	3	1	709	0.11	0.59	0.39							
39	3	1	689	0.30	0.70	0.48							
40	3	1	763	0.31	0.39	0.30							
41	3	1	678	0.34	0.75	0.50							
42	3	1	683	0.37	0.70	0.51							
43	3	1	770	0.02	0.46	0.21							
44	3	1	1027	0.01	0.26	0.03							
45	3	1	750	0.11	0.46	0.33							
46	3	1	797	0.67	0.20	0.14							
average			**717**	**0.37**	**0.59**	**0.43**				**700**	**0.34**	**0.52**	**0.48**

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Science Grade 3
1998

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	546	0.34	0.94	0.26	1	1	1	557	0.19	0.82	0.40
2	3	1	543	0.09	0.88	0.26	2	1	1	595	0.28	0.71	0.46
3	3	1	596	0.24	0.81	0.38	3	1	1	585	0.59	0.81	0.54
4	3	1	559	0.17	0.88	0.31	4	1	1	606	0.29	0.66	0.48
5	3	1	561	0.25	0.90	0.32	5	1	2	628	0.22	0.50	0.49
6	3	1	564	0.25	0.90	0.32	6	1	1	563	0.34	0.87	0.45
7	3	1	612	0.36	0.70	0.48	7	1	2	615	0.15	0.55	0.47
8	3	1	606	0.43	0.82	0.45	8	1	1	629	0.13	0.50	0.40
9	3	1	613	0.48	0.71	0.52	9	1	1	623	0.41	0.55	0.52
10	3	1	610	0.22	0.53	0.41	10	1	2	623	0.39	0.53	0.55
11	3	1	640	0.52	0.60	0.46	11	1	2	619	0.14	0.51	0.52
12	3	1	603	0.29	0.71	0.46	12	1	2	568	0.22	0.74	0.51
13	3	1	649	0.29	0.54	0.40	1	2	1	522	0.26	0.91	0.42
14	3	1	580	0.25	0.84	0.38	2	2	3	576	0.25	0.74	0.52
15	3	1	593	0.32	0.82	0.42	3	2	2	552	0.16	0.74	0.49
16	3	1	519	0.01	0.79	0.17	4	2	2	557	0.13	0.71	0.45
17	3	1	581	0.29	0.85	0.38	5	2	1	622	0.33	0.55	0.49
18	3	1	655	0.16	0.53	0.33	6	2	3	616	0.40	0.54	0.57
19	3	1	651	0.53	0.44	0.45	7	2	3	624	1.07	0.53	0.69
20	3	1	666	0.55	0.31	0.41	8	2	2	654	0.43	0.35	0.53
							9	2	2	663	0.23	0.32	0.42
							10	2	2	673	0.31	0.27	0.43
							21	3	2	605	0.44	0.63	0.59
							22	3	2	669	0.39	0.25	0.44
							23	3	1	670	0.44	0.22	0.43
							24	3	1	722	0.26	0.07	0.24
							25	3	1	685	0.21	0.20	0.34
							26	3	2	677	0.29	0.24	0.45
							27	3	1	571	0.20	0.77	0.47
							28	3	1	612	0.70	0.63	0.60
average			**597**	**0.30**	**0.73**	**0.38**				**616**	**0.33**	**0.55**	**0.48**

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Science Grade 3 (Cont'd)
1999

MC	sess	pts	Loc_m	info	p	R_{jt}	CR	sess	pts	Loc_m	info	p	R_{jt}
1	3	1	529	0.379	0.97	0.24	1	1	2	546	0.501	0.92	0.37
2	3	1	556	0.144	0.90	0.31	2	1	3	642	0.132	0.51	0.40
3	3	1	612	0.244	0.84	0.39	3	1	3	588	0.305	0.71	0.50
4	3	1	565	0.245	0.90	0.35	4	1	2	573	0.382	0.78	0.48
5	3	1	566	0.203	0.89	0.34	5	1	4	579	0.704	0.66	0.63
6	3	1	567	0.356	0.91	0.38	6	1	1	610	0.252	0.61	0.44
7	3	1	602	0.386	0.78	0.48	7	1	1	647	0.391	0.36	0.46
8	3	1	598	0.361	0.81	0.46	8	1	2	655	0.469	0.34	0.52
9	3	1	611	0.369	0.70	0.49	9	1	2	601	0.311	0.66	0.48
10	3	1	618	0.154	0.55	0.39	10	1	2	623	0.343	0.52	0.53
11	3	1	630	0.442	0.62	0.48	11	1	1	660	0.124	0.34	0.33
12	3	1	609	0.226	0.74	0.42	12	1	2	639	0.550	0.43	0.57
13	3	1	632	0.237	0.61	0.42	13	1	1	629	0.561	0.49	0.54
14	3	1	583	0.236	0.85	0.40	1	2	1	519	0.331	0.95	0.26
15	3	1	585	0.262	0.84	0.41	2	2	1	509	0.289	0.96	0.23
16	3	1	544	0.038	0.84	0.22	3	2	1	569	0.710	0.88	0.47
17	3	1	584	0.316	0.86	0.42	4	2	1	590	0.329	0.74	0.46
18	3	1	628	0.108	0.53	0.34	5	2	1	591	0.912	0.79	0.56
19	3	1	646	0.593	0.50	0.45	6	2	1	596	0.605	0.74	0.53
20	3	1	658	0.521	0.36	0.42	7	2	1	534	0.210	0.90	0.30
							8	2	1	556	0.413	0.90	0.39
							9	2	1	651	0.483	0.32	0.48
							10	2	1	616	0.196	0.56	0.41
							11	2	2	655	0.395	0.33	0.49
							12	2	1	636	0.298	0.44	0.46
							13	2	1	614	0.247	0.58	0.45
							14	2	2	655	0.252	0.37	0.45
							21	3	2	623	0.295	0.53	0.50
							22	3	2	665	0.219	0.33	0.42
							23	3	1	672	0.350	0.21	0.39
							24	3	2	612	0.307	0.59	0.51

average	**596**	**0.29**	**0.75**	**0.39**		**608**	**0.38**	**0.60**	**0.45**

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Science Grade 7
1998

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	599	0.03	0.76	0.14	1	1	2	623	0.20	0.71	0.47
2	3	1	642	0.36	0.79	0.42	2	1	3	639	0.43	0.61	0.57
3	3	1	659	0.10	0.68	0.29	3	1	3	595	0.28	0.63	0.54
4	3	1	632	0.43	0.75	0.43	4	1	2	653	0.28	0.60	0.51
5	3	1	672	0.23	0.76	0.34	5	1	1	668	0.38	0.52	0.51
6	3	1	639	0.23	0.78	0.37	6	1	2	677	0.69	0.46	0.62
7	3	1	656	0.26	0.71	0.40	7	1	3	685	0.76	0.47	0.67
8	3	1	661	0.43	0.75	0.45	8	1	2	705	0.64	0.28	0.54
9	3	1	658	0.13	0.67	0.37	9	1	2	709	0.21	0.30	0.44
10	3	1	663	0.36	0.74	0.43	10	1	2	704	0.70	0.28	0.58
11	3	1	649	0.24	0.75	0.38	11	1	1	709	0.50	0.23	0.46
12	3	1	614	0.03	0.75	0.17	12	1	2	718	1.15	0.16	0.51
13	3	1	659	0.58	0.73	0.47	13	1	2	766	0.30	0.12	0.37
14	3	1	674	0.10	0.62	0.31	14	1	2	732	0.24	0.27	0.48
15	3	1	673	0.20	0.58	0.39	1	2	3	715	1.11	0.18	0.50
16	3	1	706	0.33	0.47	0.35	2	2	3	715	1.24	0.16	0.53
17	3	1	693	0.31	0.45	0.44	3	2	1	737	0.45	0.11	0.34
18	3	1	653	0.43	0.74	0.44	4	2	4	717	0.89	0.16	0.57
19	3	1	688	0.47	0.57	0.45	5	2	2	672	0.31	0.46	0.55
20	3	1	700	0.22	0.43	0.37	6	2	3	656	0.49	0.55	0.60
21	3	1	709	0.61	0.34	0.42	7	2	3	614	0.52	0.81	0.56
22	3	1	687	0.42	0.59	0.41	26	3	2	686	0.72	0.39	0.59
23	3	1	713	0.51	0.35	0.34	27	3	2	722	0.60	0.20	0.51
24	3	1	723	0.34	0.37	0.32	28	3	4	775	0.44	0.12	0.43
25	3	1	743	0.54	0.28	0.18	29	3	1	748	0.47	0.07	0.31

average	**671**	**0.32**	**0.62**	**0.36**		**694**	**0.56**	**0.35**	**0.51**

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Science Grade 7 (Cont'd)
1999

MC	sess	pts	Loc_m	info	p	R_{jt}	CR	sess	pts	Loc_m	info	p	R_{jt}
1	3	1	594	0.02	0.79	0.15	1	1	2	615	0.09	0.71	0.28
2	3	1	644	0.40	0.86	0.39	2	1	2	613	0.38	0.85	0.37
3	3	1	655	0.07	0.74	0.26	3	1	3	657	0.30	0.56	0.47
4	3	1	645	0.36	0.85	0.38	4	1	2	680	0.32	0.52	0.47
5	3	1	645	0.15	0.81	0.32	5	1	2	682	0.10	0.50	0.32
6	3	1	634	0.21	0.86	0.33	6	1	2	881	0.03	0.14	0.05
7	3	1	657	0.33	0.79	0.40	7	1	4	721	0.43	0.31	0.50
8	3	1	653	0.39	0.82	0.41	8	1	2	724	0.40	0.25	0.43
9	3	1	658	0.16	0.76	0.34	9	1	4	688	0.69	0.45	0.61
10	3	1	665	0.30	0.82	0.38	10	1	1	727	0.40	0.20	0.38
11	3	1	649	0.29	0.82	0.38	11	1	3	766	0.64	0.17	0.46
12	3	1	584	0.01	0.80	0.14	1	2	1	664	0.19	0.62	0.36
13	3	1	645	0.40	0.85	0.39	2	2	2	689	0.32	0.47	0.47
14	3	1	678	0.08	0.66	0.28	3	2	5	706	0.98	0.34	0.64
15	3	1	701	0.24	0.63	0.34	4	2	3	645	0.52	0.74	0.51
16	3	1	696	0.38	0.55	0.42	5	2	4	689	0.89	0.37	0.63
17	3	1	698	0.28	0.54	0.39	6	2	2	710	0.34	0.32	0.45
18	3	1	651	0.37	0.83	0.41	26	3	2	690	0.16	0.47	0.37
19	3	1	689	0.30	0.62	0.40	27	3	1	667	0.42	0.63	0.47
20	3	1	710	0.19	0.48	0.34	28	3	1	658	0.40	0.69	0.45
21	3	1	715	0.35	0.42	0.36	29	3	3	712	1.06	0.27	0.57
22	3	1	678	0.32	0.68	0.42	30	3	2	744	0.26	0.20	0.35
23	3	1	716	0.38	0.38	0.37	31	3	3	726	0.42	0.30	0.49
24	3	1	720	0.16	0.45	0.31							
25	3	1	739	0.71	0.33	0.20							
average			**669**	**0.27**	**0.69**	**0.34**				**698**	**0.42**	**0.44**	**0.44**

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Science Grade 10
1998

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	659	0.21	0.72	0.38	1	1	2	692	0.48	0.47	0.68
2	3	1	628	0.21	0.81	0.29	2	1	2	688	0.32	0.47	0.66
3	3	1	652	0.43	0.77	0.42	3	1	1	687	0.39	0.49	0.63
4	3	1	638	0.23	0.78	0.34	4	1	2	699	0.28	0.45	0.63
5	3	1	642	0.14	0.76	0.31	5	1	2	726	0.37	0.30	0.59
6	3	1	647	0.07	0.72	0.26	6	1	3	706	0.50	0.40	0.69
7	3	1	693	0.27	0.64	0.42	7	1	2	669	0.29	0.57	0.67
8	3	1	704	0.17	0.60	0.38	8	1	1	764	0.22	0.15	0.35
9	3	1	674	0.06	0.64	0.26	9	1	2	752	0.56	0.14	0.47
10	3	1	732	0.31	0.38	0.40	10	1	3	730	0.77	0.24	0.60
11	3	1	716	0.32	0.55	0.40	11	1	2	773	0.28	0.18	0.53
12	3	1	730	0.05	0.48	0.24	1	2	3	745	0.62	0.18	0.56
13	3	1	685	0.67	0.64	0.53	2	2	1	684	0.30	0.51	0.61
14	3	1	764	0.30	0.28	0.23	3	2	4	680	0.88	0.52	0.79
15	3	1	700	0.45	0.56	0.47	4	2	3	771	0.93	0.08	0.41
16	3	1	717	0.54	0.45	0.48	5	2	9	658	0.57	0.58	0.81
17	3	1	718	0.45	0.41	0.49	26	3	3	781	0.42	0.13	0.48
18	3	1	734	0.40	0.42	0.37	27	3	3	771	1.05	0.08	0.47
19	3	1	703	0.33	0.55	0.45	28	3	3	761	0.70	0.15	0.52
20	3	1	744	0.53	0.26	0.38	29	3	4	791	0.82	0.14	0.60
21	3	1	724	0.34	0.44	0.39	30	3	1	747	0.64	0.14	0.44
22	3	1	750	0.33	0.33	0.33							
23	3	1	768	0.32	0.23	0.24							
24	3	1	743	0.13	0.37	0.31							
25	3	1	738	0.16	0.39	0.30							

average	**704**	**0.30**	**0.53**	**0.36**	**727**	**0.54**	**0.30**	**0.58**

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Science Grade 10 (Cont'd)

1999

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	662	0.31	0.83	0.40	1	1	1	752	0.38	0.22	0.42
2	3	1	604	0.13	0.89	0.29	2	1	1	666	0.32	0.75	0.41
3	3	1	655	0.50	0.87	0.40	3	1	2	671	0.34	0.69	0.47
4	3	1	634	0.19	0.88	0.33	4	1	2	704	0.11	0.50	0.35
5	3	1	644	0.17	0.85	0.35	5	1	1	692	0.27	0.60	0.44
6	3	1	640	0.09	0.82	0.32	6	1	1	721	0.47	0.41	0.51
7	3	1	685	0.29	0.77	0.44	7	1	2	701	0.21	0.52	0.44
8	3	1	702	0.20	0.71	0.41	8	1	3	738	0.47	0.38	0.54
9	3	1	658	0.05	0.76	0.28	9	1	2	756	0.61	0.20	0.48
10	3	1	721	0.39	0.52	0.46	10	1	2	752	0.23	0.30	0.42
11	3	1	720	0.48	0.66	0.44	11	1	2	757	0.16	0.29	0.37
12	3	1	833	0.27	0.21	-0.04	12	1	3	740	0.65	0.26	0.59
13	3	1	684	0.46	0.76	0.49	13	1	3	760	1.10	0.15	0.52
14	3	1	770	0.23	0.37	0.27	14	1	3	763	0.31	0.22	0.44
15	3	1	712	0.50	0.66	0.49	1	2	3	680	0.26	0.62	0.48
16	3	1	729	0.55	0.51	0.46	2	2	3	675	1.03	0.72	0.58
17	3	1	732	0.88	0.48	0.48	3	2	1	716	0.64	0.45	0.55
18	3	1	728	0.44	0.49	0.47	4	2	4	704	0.36	0.47	0.55
19	3	1	711	0.33	0.62	0.45	5	2	3	716	0.44	0.44	0.55
20	3	1	751	0.61	0.28	0.40	6	2	2	679	0.40	0.66	0.51
21	3	1	726	0.50	0.53	0.47	26	3	3	720	0.56	0.42	0.60
22	3	1	752	0.42	0.39	0.36	27	3	2	768	0.28	0.21	0.42
23	3	1	759	0.34	0.34	0.34	28	3	2	719	0.41	0.43	0.54
24	3	1	744	0.13	0.46	0.36	29	3	2	708	0.44	0.50	0.56
25	3	1	747	0.30	0.40	0.37	30	3	2	736	0.84	0.30	0.60
							31	3	1	772	0.53	0.11	0.36

average	**708**	**0.35**	**0.60**	**0.38**		**722**	**0.46**	**0.42**	**0.49**

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Social Studies 1999
Grade 4

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	1	1	638	0.37	0.70	0.37	4	1	2	678	0.89	0.22	0.43
2	1	1	658	0.32	0.60	0.32	6	1	2	692	0.99	0.14	0.38
3	1	1	612	1.00	0.90	0.37	9	1	3	669	0.60	0.36	0.46
5	1	1	684	0.50	0.39	0.25	15	1	2	702	0.30	0.24	0.34
7	1	1	662	0.28	0.54	0.31	17	1	2	625	0.64	0.68	0.47
8	1	1	664	0.39	0.59	0.31	19	1	2	664	0.67	0.35	0.46
10	1	1	662	0.48	0.51	0.37	23	1	2	653	1.15	0.44	0.56
11	1	1	633	0.79	0.77	0.45	27	1	2	657	0.44	0.42	0.42
12	1	1	600	0.22	0.88	0.26	3	2	2	628	0.84	0.66	0.52
13	1	1	661	0.35	0.58	0.32	8	2	2	663	2.04	0.31	0.60
14	1	1	637	0.99	0.78	0.46	10	2	2	639	1.57	0.58	0.62
16	1	1	669	0.70	0.42	0.37	13	2	2	599	0.37	0.77	0.36
18	1	1	593	0.50	0.94	0.27	14	2	2	625	0.82	0.69	0.50
20	1	1	678	0.30	0.48	0.27	18	2	2	619	0.92	0.75	0.50
21	1	1	639	1.36	0.72	0.51	23	2	5	645	1.52	0.50	0.66
22	1	1	649	1.93	0.63	0.52							
24	1	1	660	0.48	0.56	0.36							
25	1	1	653	0.62	0.57	0.42							
26	1	1	672	0.35	0.58	0.27							
1	2	1	615	0.60	0.86	0.39							
2	2	1	610	0.46	0.88	0.34							
4	2	1	636	0.99	0.73	0.48							
5	2	1	626	0.88	0.85	0.42							
6	2	1	654	0.41	0.59	0.37							
7	2	1	687	0.74	0.39	0.20							
9	2	1	647	0.25	0.65	0.33							
11	2	1	633	0.61	0.75	0.43							
12	2	1	646	1.08	0.66	0.47							
15	2	1	692	0.34	0.50	0.19							
16	2	1	670	0.53	0.44	0.35							
17	2	1	610	0.45	0.88	0.34							
19	2	1	608	0.13	0.81	0.25							
20	2	1	666	0.64	0.50	0.36							
21	2	1	700	0.74	0.26	0.15							
22	2	1	645	0.67	0.67	0.44							

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Social Studies 1999 (Cont'd)
Grade 4

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	604	0.37	0.89	0.31							
2	3	1	621	0.49	0.82	0.38							
3	3	1	593	0.58	0.94	0.29							
4	3	1	652	0.75	0.62	0.43							
5	3	1	611	0.49	0.87	0.35							
6	3	1	643	1.15	0.70	0.49							
7	3	1	608	0.10	0.80	0.23							
8	3	1	645	0.85	0.68	0.46							
9	3	1	607	0.82	0.91	0.36							
10	3	1	598	0.62	0.93	0.32							
11	3	1	595	0.72	0.94	0.31							
12	3	1	595	0.37	0.92	0.28							
13	3	1	617	1.30	0.90	0.43							
14	3	1	658	0.48	0.57	0.37							
15	3	1	668	0.50	0.48	0.34							
16	3	1	655	0.39	0.59	0.36							
17	3	1	653	0.66	0.57	0.43							
18	3	1	614	0.57	0.87	0.38							
19	3	1	654	0.57	0.61	0.40							
20	3	1	657	1.53	0.54	0.47							
21	3	1	655	1.00	0.56	0.44							
22	3	1	608	0.17	0.83	0.27							
23	3	1	631	0.93	0.82	0.45							
24	3	1	659	0.48	0.61	0.36							
25	3	1	641	0.71	0.84	0.37							
average			**640**	**0.63**	**0.69**	**0.36**				**651**	**0.92**	**0.47**	**0.49**

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Social Studies 1999
Grade 8

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	1	1	665	0.24	0.76	0.32	3	1	2	690	0.17	0.48	0.34
2	1	1	664	0.17	0.76	0.28	4	1	2	704	0.45	0.39	0.45
5	1	1	717	0.34	0.45	0.30	6	1	2	659	0.71	0.73	0.48
7	1	1	648	0.40	0.87	0.34	10	1	2	672	0.41	0.59	0.44
8	1	1	715	0.97	0.59	0.29	15	1	2	689	0.75	0.47	0.52
9	1	1	687	1.10	0.62	0.50	16	1	2	707	0.30	0.39	0.39
11	1	1	731	1.01	0.27	0.21	21	1	2	708	0.68	0.33	0.49
12	1	1	663	0.27	0.77	0.35	22	1	2	716	0.96	0.25	0.49
13	1	1	687	0.17	0.64	0.31	4	2	2	721	0.96	0.19	0.42
14	1	1	678	0.62	0.69	0.46	5	2	2	662	0.34	0.66	0.42
17	1	1	698	0.56	0.47	0.42	6	2	3	677	0.76	0.56	0.56
18	1	1	726	0.88	0.36	0.26	11	2	2	675	0.43	0.57	0.46
19	1	1	695	0.76	0.52	0.46	12	2	2	669	0.55	0.63	0.49
20	1	1	686	0.45	0.67	0.40	13	2	3	627	0.83	0.76	0.44
1	2	1	668	1.36	0.83	0.47	17	2	2	710	0.57	0.34	0.49
2	2	1	655	0.42	0.74	0.39							
3	2	1	686	0.56	0.63	0.45							
7	2	1	677	0.35	0.81	0.36							
8	2	1	677	0.44	0.71	0.41							
9	2	1	739	0.69	0.27	0.18							
10	2	1	683	0.38	0.68	0.38							
14	2	1	655	0.18	0.80	0.30							
15	2	1	735	0.83	0.25	0.21							
16	2	1	694	0.40	0.63	0.38							

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Social Studies 1999 (Cont'd)
Grade 8

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	638	0.32	0.88	0.34							
2	3	1	688	0.45	0.65	0.42							
3	3	1	658	0.78	0.84	0.45							
4	3	1	689	0.18	0.62	0.33							
5	3	1	671	0.78	0.79	0.48							
6	3	1	633	0.91	0.93	0.36							
7	3	1	623	0.33	0.92	0.30							
8	3	1	669	0.89	0.77	0.50							
9	3	1	657	1.20	0.89	0.44							
10	3	1	698	1.08	0.55	0.45							
11	3	1	664	0.84	0.83	0.47							
12	3	1	696	0.84	0.58	0.45							
13	3	1	726	0.76	0.30	0.29							
14	3	1	704	0.35	0.59	0.35							
15	3	1	662	0.28	0.77	0.38							
16	3	1	628	0.45	0.92	0.33							
17	3	1	643	0.30	0.86	0.34							
18	3	1	657	1.34	0.86	0.49							
19	3	1	669	0.43	0.75	0.42							
20	3	1	686	0.77	0.65	0.48							
21	3	1	620	0.53	0.94	0.31							
22	3	1	705	1.26	0.59	0.38							
23	3	1	709	0.41	0.58	0.33							
24	3	1	730	0.43	0.41	0.23							
25	3	1	661	0.56	0.81	0.43							
average			**680**	**0.61**	**0.67**	**0.37**				**686**	**0.59**	**0.49**	**0.46**

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Social Studies 1999
Grade 11

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	1	1	744	1.21	0.29	0.31	9	1	2	754	0.98	0.12	0.40
2	1	1	665	0.13	0.78	0.30	11	1	2	732	0.55	0.32	0.49
3	1	1	659	0.56	0.88	0.28	12	1	2	727	0.37	0.37	0.43
4	1	1	733	1.28	0.43	0.40	13	1	2	708	1.35	0.48	0.62
5	1	1	695	0.33	0.69	0.36	24	1	2	745	0.96	0.19	0.47
6	1	1	711	0.28	0.59	0.35	3	2	2	701	1.14	0.55	0.59
7	1	1	698	1.08	0.72	0.49	7	2	2	716	0.54	0.41	0.50
8	1	1	734	0.10	0.50	0.18	10	2	2	714	0.19	0.45	0.39
10	1	1	710	1.56	0.69	0.48	14	2	2	688	1.52	0.65	0.60
14	1	1	733	0.61	0.43	0.38	15	2	2	713	1.15	0.43	0.60
15	1	1	734	0.51	0.50	0.34	20	2	2	694	0.47	0.55	0.53
16	1	1	764	1.27	0.31	0.14	21	2	2	752	0.93	0.17	0.46
17	1	1	709	0.57	0.58	0.46	23	2	2	724	0.69	0.35	0.54
18	1	1	737	1.23	0.33	0.40							
19	1	1	707	0.33	0.61	0.38							
20	1	1	720	0.74	0.52	0.44							
21	1	1	711	0.68	0.56	0.45							
22	1	1	745	0.39	0.33	0.30							
23	1	1	713	1.15	0.62	0.48							
1	2	1	668	0.74	0.84	0.38							
2	2	1	677	0.62	0.81	0.40							
4	2	1	738	0.68	0.66	0.26							
5	2	1	732	1.06	0.33	0.44							
6	2	1	748	1.13	0.40	0.25							
8	2	1	675	0.39	0.79	0.38							
9	2	1	713	0.73	0.57	0.47							
11	2	1	735	0.49	0.53	0.36							
12	2	1	756	0.61	0.33	0.27							
13	2	1	704	0.71	0.63	0.50							
16	2	1	690	0.35	0.71	0.40							
17					0.59	0.51							
18	2	1	765	0.40	0.26	0.25							
19	2	1	700	0.64	0.59	0.51							
22	2	1	748	0.84	0.35	0.33							
24	2	1	705	0.49	0.63	0.45							
25					.	.							
26	2	1	699	0.45	0.65	0.47							
27	2	1	705	1.43	0.62	0.56							

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Social Studies 1999 (cont'd)
Grade 11

MC	sess	pts	Loc_m	info	p	R_{it}	CR	sess	pts	Loc_m	info	p	R_{it}
1	3	1	699	0.45	0.65	0.47							
2	3	1	705	1.43	0.62	0.56							
3	3	1	687	0.54	0.73	0.48							
4	3	1	742	0.07	0.48	0.29							
5	3	1	681	0.24	0.73	0.41							
6	3	1	692	0.41	0.70	0.46							
7	3	1	769	0.01	0.54	0.17							
8	3	1	719	0.39	0.45	0.47							
9	3	1	726	0.59	0.46	0.45							
10	3	1	677	1.24	0.79	0.49							
11	3	1	696	0.22	0.65	0.42							
12	3	1	691	0.57	0.70	0.48							
13	3	1	723	0.10	0.54	0.31							
14	3	1	682	0.35	0.73	0.44							
15	3	1	712	1.16	0.54	0.54							
16	3	1	735	1.12	0.41	0.43							
17	3	1	727	2.37	0.40	0.53							
18	3	1	668	0.17	0.74	0.39							
19	3	1	682	0.15	0.69	0.39							
20	3	1	713	0.33	0.55	0.42							
21	3	1	722	0.53	0.52	0.44							
22	3	1	696	1.17	0.65	0.55							
23	3	1	742	0.88	0.30	0.36							
24	3	1	744	0.36	0.40	0.35							
25	3	1	689	0.78	0.71	0.52							
average			**713**	**0.67**	**0.57**	**0.40**				**721**	**0.83**	**0.39**	**0.51**

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Scaling and Equating

Scaling evidence of validity is provided by model fit. If the IRT model fits the empirical item response distributions for the population we want to generalize to, i.e., Missouri students, then the claim that the scores are valid indicators of an underlying ability is strengthened. Fit statistics that indicate the degree of difference between IRT predictions and empirical percents correct over the item response functions are investigated in two separate studies. The first study occurs when the items and tasks are tried out, or field tested, and the second study occurs when the operational forms are administered to all students in the state. During the first study six experimental forms of MAP subject area tests are administered in the fall of the year to a sample of students in the grade higher than the spring target operational grade. These forms are administered to a representative sample of districts in Missouri comprising 1800 to 4500 students.

All six forms are scaled together concurrently and their item parameters calculated. Statistical tests are done of the differences between each item or task's IRT-predicted percent correct and observed percent correct. These statistical tests are based on Yen's Q1 statistic, a chi-square test. Items are flagged if they show significant differences in one or more of ten regions of the ability range. These items are avoided in the selection of the three final forms of the MAP operational tests unless there are content requirements for using them. In other words, for Mathematics six forms were field tested in the fall of 1996 and three forms were selected for use in the spring of 1997, 1998, and 1999. An additional form was selected for use in 2000 in 1999. For Mathematics this process was repeated in the fall of 1999 and three more final forms were selected for use in 2001, 2002, and 2003.

For Communication Arts and Science, six field test forms were administered for each subject in 1997 and the fit statistics results incorporated in the item selection process. Three final forms were selected in each of these two subjects for use in 1998, 1999, and 2000. Fourth forms were selected for use in 2001.

In Social Studies, six field test forms were similarly administered in 1998 and three operational forms were selected for use in 1999, 2000, and 2001.

The following tables show fit statistics for operational tests for items that were flagged for poor fit. If no items in a grade-subject combination were flagged then no chart will appear for that combination. For each item a chi-square is given along with a z-score transformation on which the flag is keyed. Also the average percent across ten cells of observed percentage correct and predicted percentage correct is provided. The difference between the observed and predicted percentages provides an indication of how well the modeled response curves reflect the empirical curves.

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With large numbers of observations such as there are for fast track samples many of the items will be flagged for statistically significant differences, but may not be of practical importance. Basically this means that there were regions of the ability continuum where either fewer or more students got the item right than the model predicts at segments along the ability continuum. This could mean the item is not acting like a continuous measure of the ability. Or it could be that the item is not monotonic because instruction has not yet been adopted in the schools that addresses it as well as assessors might wish. There is also a tendency for multiple-choice items to be modeled as less discriminating and constructed-response tasks to be modeled as more discriminating when they are scaled together. Because the understanding of the causes of misfit are currently the subject of continuing investigation misfitting items that have content validity are often retained for use in an assessment and monitored over a period of usage. A large number of misfitting items in an assessment indicates that caution should be exercised in the interpretation of the overall score. Certainly high-stakes decisions should be moderated by evidence in addition to the test scores.

Items Flagged for Misfit

	1998		1999	
Grade/Content Area	No. of Items	N	No. of Items	N
4/Math	26	3,475	3	2,815
8/Math	10	3,834	3	1,803
10/Math	11	3,475	6	2,498
3/CommArts	11	3,195	5	2,713
7/CommArts	15	4,282	3	1,976
11/CommArts	19	3,067	3	1,853
3/Science			4	2,592
7/Science			4	1,991
10/Science	15	3,530	5	2,040
4/SocStudies				
8/SocStudies			4	2,122
11/SocStudies				

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Item Level Fit Statistics 1998

Mathematics Grade 4

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
4	1	166.27	17	3475	25.6	0.8387	0.8508	-0.0121
6	1	69.30	17	3475	8.97	0.6876	0.7036	-0.0160
7	1	45.17	17	3475	4.83	0.7246	0.7396	-0.0150
13	1	84.48	35	3475	5.91	0.2988	0.3134	-0.0146
1	2	74.44	35	3475	4.71	0.4404	0.4537	-0.0132
2	2	51.55	17	3475	5.93	0.6249	0.6388	-0.0139
3	2	32.08	8	3475	6.02	0.7545	0.7656	-0.0111
5	2	46.69	17	3475	5.09	0.7509	0.7621	-0.0111
6	2	61.10	26	3475	4.87	0.5961	0.6104	-0.0144
7	2	53.88	17	3475	6.32	0.5735	0.5892	-0.0157
8	2	46.28	8	3475	9.57	0.5951	0.6115	-0.0164
4	3	27.37	7	3475	5.44	0.9206	0.9214	-0.0009
6	3	23.69	7	3475	4.46	0.7640	0.7739	-0.0099
7	3	26.15	7	3475	5.12	0.7514	0.7630	-0.0116
13	3	40.15	7	3475	8.86	0.8622	0.8420	0.0202
14	3	67.20	7	3475	16.09	0.8869	0.8671	0.0198
15	3	27.14	7	3475	5.38	0.8055	0.7930	0.0125
16	3	53.64	7	3475	12.47	0.9324	0.9099	0.0225
17	3	26.54	7	3475	5.22	0.8515	0.8359	0.0156
18	3	23.79	7	3475	4.49	0.7894	0.7731	0.0162
20	3	28.59	7	3475	5.77	0.8705	0.8521	0.0184
26	3	29.36	7	3475	5.97	0.8003	0.7821	0.0182
28	3	52.50	7	3475	12.16	0.7876	0.7666	0.0210
29	3	33.08	7	3475	6.97	0.4696	0.4624	0.0072
31	3	29.89	7	3475	6.12	0.775	0.7544	0.0206
32	3	25.25	7	3475	4.88	0.5416	0.5276	0.0139

Mathematics Grade 8

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
1	1	50.79	17	3834	5.79	0.5597	0.572	-0.0123
2	1	64.52	17	3834	8.15	0.5176	0.5314	-0.0138
3	1	78.02	17	3834	10.47	0.6901	0.7023	-0.0122
4	1	55.91	17	3834	6.67	0.7117	0.7204	-0.0088
7	1	127.9	17	3834	19.02	0.496	0.5048	-0.0089
8	1	62.88	17	3834	7.87	0.3666	0.3753	-0.0087
10	1	69.15	35	3834	4.08	0.4659	0.4758	-0.0099
2	2	111.05	17	3834	16.13	0.5048	0.518	-0.0132
4	2	41.38	17	3834	4.18	0.409	0.4237	-0.0148
7	2	74.80	26	3834	6.77	0.4038	0.4122	-0.0083

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Mathematics Grade 10

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
7	1	78.51	26	3570	7.28	0.1256	0.1285	-0.0029
4	2	80.10	26	3570	7.5	0.4777	0.482	-0.0043
5	2	67.17	26	3570	5.71	0.4300	0.4356	-0.0056
6	2	100.12	26	3570	10.28	0.2497	0.2532	-0.0035
7	2	72.61	26	3570	6.46	0.2512	0.2552	-0.0040
10	2	104.91	26	3570	10.94	0.1148	0.1177	-0.0030
7	3	23.83	7	3570	4.5	0.4779	0.4816	-0.0037
15	3	28.06	7	3570	5.63	0.7597	0.7398	0.0199
16	3	22.43	7	3570	4.12	0.7204	0.7018	0.0186
17	3	22.85	7	3570	4.24	0.6445	0.6274	0.0171
18	3	30.47	7	3570	6.27	0.8078	0.784	0.0239
22	3	42.09	7	3570	9.38	0.7782	0.7538	0.0244

Communication Arts Grade 3

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
8	1	47.26	17	3195	5.19	0.207	0.2028	0.0043
11	1	41.16	17	3195	4.14	0.4102	0.4165	-0.0063
12	1	52.61	17	3195	6.11	0.3074	0.3075	-0.0001
1	2	122.75	35	3195	10.49	0.4397	0.4354	0.0043
1	3	3568.26	7	3195	951.79	0.9537	0.9828	-0.0292
3	3	26.00	7	3195	5.08	0.7693	0.7408	0.0285
11	3	38.16	7	3195	8.33	0.5505	0.5911	-0.0406
15	3	25.76	7	3195	5.01	0.7972	0.8093	-0.0121
31	3	79.55	7	3195	19.39	0.7565	0.7751	-0.0186
33	3	24.71	7	3195	4.73	0.7099	0.7248	-0.0149
36	3	46.69	7	3195	10.61	0.8886	0.9053	-0.0167

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Communication Arts Grade 7

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
10	1	67.30	17	4282	8.63	0.5375	0.5539	-0.0164
11	1	25.36	8	4282	4.34	0.7527	0.7712	-0.0185
12	1	54.22	17	4282	6.38	0.4715	0.4849	-0.0134
13	1	64.25	17	4282	8.10	0.5502	0.5705	-0.0203
14	1	120.94	17	4282	17.83	0.3789	0.4155	-0.0366
15	1	214.4	8	4282	51.60	0.7027	0.784	-0.0813
1	2	311.07	35	4282	33.00	0.5924	0.5851	0.0073
13	3	47.10	7	4282	10.72	0.7742	0.7635	0.0107
21	3	22.76	7	4282	4.21	0.6502	0.6447	0.0054
23	3	25.38	7	4282	4.91	0.7952	0.7878	0.0073
32	3	35.96	7	4282	7.74	0.6504	0.6641	-0.0137
33	3	23.05	7	4282	4.29	0.7240	0.7376	-0.0136
41	3	61.60	7	4282	14.59	0.2929	0.2932	-0.0003
42	3	24.50	7	4282	4.68	0.5082	0.5066	0.0016
43	3	23.25	7	4282	4.34	0.4472	0.4614	-0.0142

Communication Arts Grade 11

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
8	1	46.21	17	3067	5.01	0.5978	0.6160	-0.0182
10	1	47.26	17	3067	5.19	0.3446	0.3583	-0.0136
11	1	68.22	17	3067	8.78	0.4656	0.4865	-0.0209
12	1	93.08	17	3067	13.05	0.1303	0.1822	-0.052
13	1	1105.75	8	3067	274.44	0.3724	0.6232	-0.2509
14	1	130.65	17	3067	19.49	0.4113	0.4599	-0.0486
15	1	147.35	26	3067	16.83	0.2435	0.2852	-0.0418
16	1	138.01	26	3067	15.53	0.2271	0.2715	-0.0443
1	2	1164.57	35	3067	135.01	0.5435	0.5454	-0.0018
2	3	44.18	7	3067	9.94	0.9201	0.8933	0.0269
6	3	22.29	7	3067	4.09	0.8031	0.7898	0.0133
11	3	33.66	7	3067	7.13	0.7685	0.7502	0.0183
15	3	46.13	7	3067	10.46	0.7538	0.7187	0.0352
16	3	26.81	7	3067	5.29	0.7382	0.7100	0.0281
18	3	25.34	7	3067	4.9	0.6560	0.6287	0.0273
20	3	29.77	7	3067	6.09	0.7590	0.7476	0.0114
21	3	23.16	7	3067	4.32	0.7620	0.7476	0.0144
41	3	24.15	7	3067	4.58	0.7910	0.7675	0.0235
44	3	48.18	7	3067	11.01	0.2775	0.2776	-0.0002

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Science Grade 10

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
2	1	123.14	17	3530	18.2	0.5351	0.553	-0.0179
3	1	35.03	8	3530	6.76	0.553	0.5798	-0.0269
7	1	64.86	17	3530	8.21	0.6462	0.6444	0.0017
10	1	99.66	26	3530	10.21	0.2741	0.2933	-0.0192
4	2	230.07	80	3530	11.86	0.6537	0.6662	-0.0125
5	2	41.13	7	3530	9.12	0.8224	0.8069	0.0154
6	2	73.96	7	3530	17.9	0.9275	0.8947	0.0328
7	2	47.72	7	3530	10.88	0.8796	0.8523	0.0273
8	2	43.48	7	3530	9.75	0.9006	0.8756	0.0250
9	2	80.46	7	3530	19.63	0.8762	0.8421	0.0341
10	2	36.13	7	3530	7.79	0.8289	0.802	0.0269
1	3	30.93	7	3530	6.39	0.7377	0.7093	0.0284
8	3	23.78	7	3530	4.49	0.3187	0.3094	0.0093
9	3	33.95	7	3530	7.2	0.645	0.6229	0.0221
24	3	45.73	8	3530	9.43	0.166	0.1746	-0.0086

Item Level Fit Statistics 1999

Mathematics Grade 4

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
5	1	65.32	17	2815	8.29	0.8510	0.8503	0.0007
24	3	23.29	7	2815	4.35	0.4799	0.4852	-0.0052
28	3	22.13	7	2815	4.04	0.7957	0.7972	-0.0015

Mathematics Grade 8

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
4	1	84.67	17	1803	11.61	0.5177	0.5178	-0.0000
7	1	42.99	17	1803	4.46	0.3641	0.3663	-0.0022
5	2	26.35	8	1803	4.59	0.5025	0.5029	-0.0004

Mathematics Grade 10

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
4	1	57.50	26	2498	4.37	0.4331	0.432	0.0012
5	1	128.82	17	2498	19.18	0.3645	0.3669	-0.0024
6	1	80.77	26	2498	7.59	0.4158	0.4179	-0.0021
1	2	74.73	35	2498	4.75	0.3127	0.3161	-0.0034
2	2	63.51	26	2498	5.2	0.4997	0.4993	0.0004
6	2	168.08	26	2498	19.7	0.5036	0.5050	-0.0014

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Communication Arts Grade 3

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
1	1	59.29	17	2713	7.25	0.6312	0.6309	0.0003
3	1	52	17	2713	6	0.458	0.4608	-0.0028
9	1	69.43	17	2713	8.99	0.4585	0.462	-0.0034
1	2	132.28	35	2713	11.63	0.4224	0.4249	-0.0025
10	3	22.83	7	2713	4.23	0.9742	0.9716	0.0026

Communication Arts Grade 7

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
4	1	125.21	17	1976	18.56	0.3558	0.3596	-0.0039
3	8	24.27	7	1976	4.62	0.6230	0.6238	-0.0009
3	17	36.96	7	1976	8.01	0.7515	0.7536	-0.0021

Communication Arts Grade 11

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
11	3	31.58	7	1853	6.57	0.7809	0.7822	-0.0013
28	3	23.71	7	1853	4.47	0.6589	0.6593	-0.0004
44	3	34.18	7	1853	7.26	0.2736	0.2767	-0.0031

Science Grade 3

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
12	1	50.16	17	2592	5.69	0.4307	0.4344	-0.0037
16	3	60.84	7	2592	14.39	0.8461	0.8459	0.0001
21	3	49.77	17	2592	5.62	0.5351	0.5353	-0.0002
23	3	29.24	8	2592	5.31	0.216	0.2224	-0.0064

Science Grade 7

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
1	1	63.13	17	1991	7.91	0.719	0.7173	0.0017
3	1	66.15	26	1991	5.57	0.5716	0.5687	0.0028
4	1	53.69	17	1991	6.29	0.5337	0.5345	-0.0008
6	1	70.37	17	1991	9.15	0.1464	0.1519	-0.0055

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Science Grade 10

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
7	1	85.09	17	2040	11.68	0.5529	0.5520	0.0009
12	1	62.83	26	2040	5.11	0.2794	0.2814	-0.0020
12	3	62.80	7	2040	14.91	0.2191	0.2189	0.0002
17	3	28.62	7	2040	5.78	0.5206	0.5249	-0.0043
28	3	49.02	17	2040	5.49	0.4618	0.4637	-0.0020

Social Studies Grade 8

Item	Session	Chi Square	DF	Total N	Z	Observed	Predicted	Obs-Pred
8	1	30.36	7	2122	6.24	0.6032	0.6083	-0.0051
16	1	44.55	17	2122	4.72	0.3959	0.3980	-0.0022
26	1	44.90	17	2122	4.78	0.1953	0.2011	-0.0058
6	2	41.85	17	2122	4.26	0.5846	0.5856	-0.0011

Achievement-Level-Setting

Because of the extensiveness of the Achievement Level Setting evidence it is published separately as *Final Report of the Achievement Level Setting for Mathematics* (1997), …*Communication Arts and Science (*1998*)*, and …*Social Studies (*1999*)*. In these publications descriptions of the agenda for the process, participants, results of judging, descriptions of Achievement Levels, estimated impact of cut scores, and percents in each Achievement Level for all Missouri students during the voluntary year are provided. Achievement regions that were established by the Standard Setting process on the Missouri scale are presented below.

As part of the Achievement Level Setting participating teachers were asked to provide judgments of students' Achievement Levels who were in classes they were teaching in order that the relationship between MAP test scores and these teachers' judgments of actual student performance could be estimated.

Association of Student Achievement Levels given by Teachers' Judgments and MAP Mathematics Scores

Teachers were asked to rate their own students using the descriptors derived from the workshop.

Surveys were sent to the participants and responses were received July-August 1997. Students for whom teacher ratings were received were matched against the files for the operational administration of Form 3 of MAP Mathematics given in May 1997. Test scores and teacher ratings were matched for 114 grade 4 students, 409 grade 8 students, and 302 grade 10 students.

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The analysis of the data is based on the division of the mathematics proficiency trait into five levels of achievement (ALs). Each level of achievement has a descriptor of what students know and are able to do in order to be members of the level. Each rating, one by the test, and one by teachers, is thought of as an attribute of the student. The test rating is based on Achievement Level (AL) cut scores panelists set when considering what the test behavior represents. The teacher rating is based on student behavior in the classroom perceived in terms of the descriptors written to represent that test behavior. The first attribute is the independent variable, test behavior, and the second attribute will be the dependent variable, teacher rating of the student's proficiency.

The descriptors the teacher used to make his/her rating are presumably applied to a large domain of behavior in the classroom, observed over time. Although the descriptors narrow and focus what the teacher is asked to consider in rating his/her students, the teacher may be influenced by many aspects of mathematics proficiency not included in the test performance. The test scores are presumed to be more homogeneous, internally consistent, and reliable.

The percent of perfect agreement between the two methods of classifying students by the descriptors was 48% in grade 4, 39% in grade 8, and 42% in grade 10. Considering adjacent scores (± one point) increased the percentage agreement by 45% in grade 4, 45% in grade 8, and 46% in grade 10. Considering percentage of agreement as being classified either in the same level or the adjacent level, the agreement percentages for grades 4-10 were 93%, 84%, and 88%.

In grade 4 teachers rated 25% of their students higher than the test did, and 27% lower. In grade 8, 51% of students were rated higher, and 10% lower. In grade 10, 37% higher, 21% lower.

Teachers rated 44% of their students Proficient or above in grade 4; the test rated 41% of these teachers' students Proficient or above. In grade 8, teachers rated 31% of their students Proficient or above; the test rated 13% Proficient or above.
In grade 10, teachers rated 24% of their students Proficient or above; the test rated 18% Proficient or above.

In grade 4 only two students were rated as Step 1 by their teachers; only one student was rated Step 1 by the test. In grade 8, teachers rated 12% of their students as Step 1; the test rated 27% as Step 1. In grade 10, teachers rated 20% of their students as Step 1; the test, 29%.

These attributes, teacher rating of student AL, and MAP classification of student AL, are definitely associated. Treating the data as qualitative and using Cramér's statistic as an index of strength of association (Hays 1973) gave φ's for grades 4, 8, and 10 of 0.38, 0.36, and 0.37 (based on χ^2's that were highly significant for 16 degrees of freedom). A measure of predictive association for categorical data was computed[2] indicating that for grade 4 the error in predicting a teacher's rating of a student's AL can be reduced by 28% on average if conditioned on the test rating. This reduction drops to 17% for grades 8 and 10.

Since the levels of achievement are numerical scores we can test the relation between MAP Mathematics ALs and the teacher-assigned ALs using a linear rule. The correlations for grades 4-10 are all approximately 0.63. The strength of the linear relationship in the two sets of ratings

[2] **index of predictive association** [Goodman and Kruskal1954] Hays 1973.

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(the coefficient of determination) is therefor approximately 40% (40% of the variance is accounted for by a linear relationship).

Conclusions

The teachers who rated their students using the MAP Mathematics descriptors for the ALs (Achievement Levels) were more familiar with the MAP Mathematics test items/tasks than teachers-at-large in Missouri. In order for these teachers to classify a student in an AL they would have had to decide which descriptor best described the student's proficiency in mathematics. Presumably they would have found this descriptor by also considering that the next higher descriptor was a worse descriptor. Judgment tasks are influenced by the strategies used, and in fact, we don't know what strategies the various teachers used in classifying their students into the ALs. The strength of the association between the test ALs and the teacher ALs is modest, but real.

A modest relationship is perhaps not unexpected for this exercise. Teachers did not rate their students immediately upon conclusion of the workshop. There was a period of a few weeks intervening in which the memory for the test items/tasks must have faded. Perhaps this moderates the difference we might expect if the exercise were repeated with teachers not familiar with the items/tasks.

Although the data suggests a consistent, similar strength of association between the test scores and the teacher ratings across the grades, the difference in the nature of the relationship across the grades is worthy of comment. The grade 8 teachers, and to a lesser extent, the grade 10 teachers, rated many of their students higher than the test did. Even though differences in the means for the test and the teachers is not large, many exceptions of at least one level occurred, and many of these were exceptions where the teacher thought the student was more proficient than the test score would suggest.

Association of Student Achievement Levels given by Teachers' Judgments and MAP Social Studies Scores

Responses were received July-August 1999. Students for whom teacher ratings were received were matched against the files for the operational administration of MAP Social Studies given in May 1999. Test scores and teacher ratings were matched for 174 grade 4 students, 751 grade 8 students, and 366 grade 11 students.

The analysis of the data is based on the division of the Social Studies proficiency trait into five levels of achievement. The study is similar to the study for Mathematics.

The descriptors the teacher used to make his/her rating are presumably applied to a large domain of behavior in the classroom, observed over time. Although the descriptors narrow and focus what the teacher is asked to consider in rating his/her students, the teacher may be influenced by many aspects of Social Studies proficiency not included in the test performance. The test scores are presumed to be more homogeneous, internally consistent, and reliable.

The percent of perfect agreement between the two methods of classifying students by the descriptors was 50% in grade 4, 42% in grade 8, and 30% in grade 11. Considering adjacent scores (± one point) increased the percentage agreement by 48% in grade 4, 44% in grade 8,

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and 49% in grade 11. Considering percentage of agreement as being classified either in the same level or the adjacent level, the agreement percentages for grades 4-11 were 98%, 86%, and 79%

In grade 4 teachers rated 24% of their students higher than the test did, and 26% lower. In grade 8, 20% of students were rated higher and 38% lower. In grade 11, 25% higher, 46% lower.

Teachers rated 37% of their students Proficient or above in grade 4; the test rated 30% of these teachers' students Proficient or above. In grade 8, teachers rated 32% of their students Proficient or above; the test rated 43% Proficient or above. In grade 11, teachers rated 22% of their students Proficient or above; the test rated 20% Proficient or above.

In grade 4, the teachers rated 13% of their students as Step 1 while 6% were rated Step 1 by the test. Grade 8 teachers rated 16% of their students as Step 1; the test rated 10% as Step 1. In grade 11, teachers rated 23% of their students as Step 1; the test, 17%.

These attributes, teacher rating of student AL, and MAP classification of student AL, are definitely associated. Treating the data as qualitative and using Cramér's statistic as an index of strength of association (Hays 1973) gave φ's for grades 4, 8, and 10 of 0.49, 0.37, and 0.30 (based on χ^2's that were highly significant for 16 degrees of freedom). A measure of predictive association for categorical data was computed indicating that for grade 4 the error in predicting a teacher's rating of a student's AL can be reduced by 31% on average if conditioned on the test rating. This reduction drops to 18% and 11% for grades 8 and 11 respectively.

The correlation between these scores for grade 4 is nearly 0.78; at grade 8, the correlation is almost 0.64, and for grade 11, it is approximately 0.51. The strength of the linear relationship in the two sets of ratings is therefor approximately 61% for grade 4 (61% of the variance is accounted for by a linear relationship), 40% for grade 8, and 26% for grade 11.

Conclusions

The data suggests a decreasing strength of association between the test scores and the teacher ratings across the grades. The grade 11 teachers, and to a lesser extent, the grade 8 teachers, rated many of their students lower than the test did. Many exceptions of at least one level occurred, and many of these were exceptions where the teacher thought the student was less proficient than the test score would suggest.

Based on the indices of association there was greater agreement between the test and teachers in Grade 4 than in the remaining grades. By grade 11, the test and the teachers were reflecting diverging views of performance. Either the teachers were ignoring the descriptors, or their descriptors of proficiency were becoming less accurate descriptions of test content. In any event, the validity of the descriptors declines from grade 4 to grade 11 based on this sample of teachers.

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The Missouri Achievement Levels: Regional Average SEM on the Scale

All the Achievement Level Setting Workshops resulted in Achievement Levels comprised of regions on the MAP scale. These regions comprise a range of scale scores. These scale score regions are given below along with the average standard error of measurement (SEM) across the region of scale scores. Although the average SEM will vary somewhat from form to form the values given for MAP 1999 forms are fairly typical as can also be determined by inspecting the graphs of standard error curves presented earlier. Whenever the Standard Error of Measurement is needed for an individual's scale score the precise value should be taken from tables of Standard Errors rather than using these average values.

Mathematics Grade 4

		Avg. 99 SEM
Step 1	422—567	43.00
Progressing	568—613	9.75
Nearing Proficient	614—652	9.00
Proficient	653—691	12.00
Advanced	692—851	38.00

Mathematics Grade 8

Step 1	541—667	20.00
Progressing	668—707	9.00
Nearing Proficient	708—743	9.00
Proficient	744—784	12.00
Advanced	785—915	36.00

Mathematics Grade 10

Step 1	581—700	31.00
Progressing	701—742	11.00
Nearing Proficient	743—783	10.50
Proficient	784—831	14.00
Advanced	832—979	40.00

Communication Arts Grade 3

Step 1	472—592	22.00
Progressing	593—622	9.00
Nearing Proficient	623—654	9.00
Proficient	655—706	12.00
Advanced	707—849	39.00

Communication Arts Grade 7

Step 1	528—642	21.00
Progressing	643—666	8.00
Nearing Proficient	667—691	9.00
Proficient	692—736	11.00
Advanced	737—900	44.00

Communication Arts Grade 11

Step 1	563—686	20.00
Progressing	687—705	8.00
Nearing Proficient	706—737	9.00
Proficient	738—782	12.00
Advanced	783—915	42.00

Science Grade 3

		Avg. 99 SEM
Step 1	444—572	25.00
Progressing	573—602	9.75
Nearing Proficient	603—640	9.00
Proficient	641—681	11.00
Advanced	682—872	44.00

Science Grade 7

Step 1	520—656	26.00
Progressing	657—693	10.00
Nearing Proficient	694—717	10.00
Proficient	718—744	11.00
Advanced	745—925	25.00

Science Grade 10

Step 1	553—681	29.00
Progressing	682—717	10.00
Nearing Proficient	718—760	8.60
Proficient	761—783	10.00
Advanced	784—941	26.00

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Social Studies Grade 4

Step 1	518—618	20.50
Progressing	619—641	6.30
Nearing Proficient	642—660	5.40
Proficient	661—678	6.00
Advanced	679—852	18.00

Social Studies Grade 8

Step 1	545—663	21.00
Progressing	664—677	8.00
Nearing Proficient	678—697	7.00
Proficient	698—721	7.00
Advanced	722—889	20.75

Social Studies Grade 11

Step 1	584—698	18.00
Progressing	699—712	6.50
Nearing Proficient	713—738	6.00
Proficient	739—751	6.40
Advanced	752—919	20.00

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Fairness

1997 DIF Statistics
Number of Flagged Items

	Caucasian		African-American		Hispanic	
Grade/ Content Area	No. of Items with Pos.	No. of Items with Neg.	No. of Items with Pos.	No. of Items with Neg.	No. of Items with Pos.	No. of Items with Neg.
4/Math	0	0	1	1	0	0
	n=1,622		*n=354*		*n=85*	
8/Math	0	0	0	1	0	0
	n=1,686		*n=482*		*n=98*	
10/Math	0	0	1	2	0	0
	n=2,055		*n=457*		*n=150*	

1997 Item Level Statistics for Items flagged for DIF

Mathematics Grade 4

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
3	1	Black	2	4.15	0.11
11	3	Black	1	- 2.64	- 0.10

Mathematics Grade 8

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
11	3	Black	1	- 3.67	- 0.11

Mathematics Grade 10

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
2	2	Black	2	5.98	0.13
8	3	Black	1	- 4.01	- 0.12
16	3	Black	1	- 3.78	- 0.13

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1998 DIF Statistics
Number of Flagged Items

	Caucasian		African-American		Hispanic	
Grade/ Content Area	No. of Items with Pos.	No. of Items with Neg.	No. of Items with Pos.	No. of Items with Neg.	No. of Items with Pos.	No. of Items with Neg.
3/CommArts	0	0	2	3		
	n=2,386		*n=586*			
3/Science	0	0	1	1		
	n=2,421		*n=580*			
4/Math	0	0	0	5	0	0
	n=2,629		*n=606*		*n=67*	
7/CommArts	0	0	0	5	0	2
	n=2,969		*n=869*		*n=64*	
7/Science	0	1	1	0	0	0
	n=2,410		*n=756*		*n=87*	
8/Math	0	0	0	5	1	0
	n=2,689		*n=692*		*n=85*	
10/Science	0	0	4	4	1	0
	n=2,219		*n=908*		*n=84*	
10/Math	0	0	0	0	0	0
	n=2,479		*n=638*		*n=82*	
11/CommArts	0	4	1	6	0	2
	n=2,202		*n=492*		*n=57*	

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1998 Item Level Statistics for Items flagged for DIF

Mathematics Grade 4

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
4	1	Black	2	- 4.19	- 0.15
10	1	Black	3	- 4.78	- 0.21
13	1	Black	4	- 4.63	- 0.15
6	2	Black	3	-2.86	- 0.11
7	2	Black	2	- 3.76	- 0.11

Mathematics Grade 8

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
2	1	Black	2	- 5.21	- 0.13
10	1	Black	4	- 5.33	- 0.24
2	2	Black	2	- 3.39	- 0.11
7	2	Black	3	- 3.88	- 0.12
8	2	Black	2	- 3.96	- 0.12
5	3	Hispanic	1	3.73	0.19

Communication Arts Grade 3

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
7	1	Black	2	- 3.76	- 0.10
9	1	Black	2	- 5.05	- 0.11
11	3	Black	1	- 5.62	- 0.11
39	3	Black	1	5.78	0.12
40	3	Black	1	5.94	0.10

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Communication Arts Grade 7

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
2	1	Black	3	- 3.65	- 0.12
10	1	Black	2	- 6.66	- 0.15
12	1	Black	2	- 4.40	- 0.12
14	1	Black	2	- 6.56	- 0.12
15	1	Black	1	- 7.81	- 0.12
10	1	Hispanic	2	- 3.45	- 0.30
15	1	Hispanic	1	- 3.59	- 0.19

Communication Arts Grade 11

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
11	1	Black	2	- 4.39	- 0.10
12	1	Black	2	- 5.21	- 0.12
13	1	Black	1	- 15.44	- 0.32
14	1	Black	2	- 5.74	- 0.17
15	1	Black	3	- 6.18	- 0.17
16	1	Black	3	- 7.15	- 0.23
15	3	Black	1	5.44	0.11
13	1	Hispanic	1	- 4.69	- 0.29
15	1	Hispanic	3	- 2.71	- 0.24
12	1	White	2	- 7.59	- 0.10
13	1	White	1	- 25.20	- 0.23
15	1	White	3	- 6.09	- 0.11
16	1	White	3	- 5.77	- 0.11

Science Grade 3

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
6	2	Black	3	6.87	0.25
26	3	Black	2	- 6.06	- 0.13

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Science Grade 7

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
7	2	Black	3	2.98	0.12
4	2	White	4	- 6.45	- 0.11

Science Grade 10

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
2	1	Black	2	- 6.50	- 0.13
3	1	Black	1	- 8.84	- 0.12
6	1	Black	3	- 4.70	- 0.12
5	2	Black	9	- 5.64	- 0.40
2	3	Black	1	9.32	0.12
5	3	Black	1	8.95	0.12
6	3	Black	1	7.91	0.11
7	3	Black	1	7.19	0.11
3	3	Hispanic	1	2.68	0.10

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1999 DIF Statistics
Number of Flagged Items

	Caucasian		African-American	
Grade/ Content Area	No. of Items with Pos.	No. of Items with Neg.	No. of Items with Pos.	No. of Items with Neg.
4/Math	0	0	1	0
	n=1,870		*n=432*	
8/Math	0	0	1	3
	n=1,182		*n=244*	
10/Math	0	0	7	5
	n=1,571		*n=431*	
3/CommArts	0	0	2	2
	n=1,869		*n=371*	
7/CommArts	0	0	3	4
	n=1,445		*n=211*	
11/CommArts	0	0	0	1
	n=1,132		*n=404*	
3/Science	0	0	1	0
	n=1,734		*n=377*	
7/Science	0	0	1	2
	n=1,440		*n=224*	
10/Science	0	0	4	0
	n=1,303		*n=340*	
4/Social Studies	0	0	1	2
	n=1348		*n=419*	
8/Social Studies	0	0	1	1
	n=1698		*n=288*	
11/Social Studies	0	0	2	0
	n=734		*n=515*	

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1999 Item Level Statistics for Items flagged for DIF

Mathematics Grade 4

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
1	1	Black	3	3.21	0.15

Mathematics Grade 8

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
5	1	Black	2	- 3.24	- 0.13
7	1	Black	2	- 2.71	- 0.12
8	1	Black	4	- 3.77	- 0.18
1	2	Black	4	2.81	- 0.21

Mathematics Grade 10

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
2	1	Black	2	- 3.75	- 0.13
3	1	Black	2	- 4.34	- 0.13
4	1	Black	3	4.52	0.27
7	1	Black	2	- 4.07	- 0.12
9	1	Black	4	- 5.97	- 0.20
10	1	Black	2	- 4.60	- 0.17
11	1	Black	2	5.71	0.28
13	1	Black	2	3.14	0.13
1	3	Black	1	5.41	0.19
3	3	Black	1	4.38	0.10
4	3	Black	1	5.62	0.11
30	3	Black	1	4.41	0.11

Communication Arts Grade 3

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
7	1	Black	2	- 3.62	- 0.13
9	1	Black	2	- 3.31	- 0.13
54	3	Black	1	7.57	0.19
56	3	Black	1	6.18	0.14

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Item Level Statistics for Items flagged for DIF
1999 (Cont'd)

Communication Arts Grade 7

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
4	1	Black	2	- 2.95	- 0.14
7	1	Black	2	- 3.05	- 0.13
12	1	Black	2	- 3.49	- 0.18
13	1	Black	2	- 4.05	- 0.19
15	3	Black	1	4.14	0.18
43	3	Black	1	3.62	0.12
44	3	Black	1	3.30	0.11

Communication Arts Grade 11

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
7	1	Black	2	- 2.81	- 0.10

Science Grade 3

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
9	1	Black	2	3.44	0.14

Science Grade 7

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
2	1	Black	2	3.08	0.13
11	1	Black	3	- 4.08	- 0.15
18	3	Black	1	- 3.11	- 0.11

Science Grade 10

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
10	1	Black	2	3.60	0.10
14	1	Black	3	3.73	0.14
7	3	Black	1	4.48	0.10
27	3	Black	2	3.35	0.10

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Item Level Statistics for Items flagged for DIF
1999 (Cont'd)

Social Studies Grade 4

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
1	1	Black	1	-5.09	-0.11
3	2	Black	2	3.93	0.13
6	3	Black	1	-4.71	-1.10

Social Studies Grade 8

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
6	1	Black	2	4.14	0.18
24	3	Black	1	-4.23	-0.12

Social Studies Grade 11

Item	Session	Ethnic Group	Number of Points	Z Statistic	DIF
3	2	Black	2	3.79	0.10
7	3	Black	1	6.37	0.14

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Mathematics Impact Item Statistics Summary
1997

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
4	American Indian	0.66	0.20	0.68	0.16	0.62	0.17	0.40	0.17	0.39	0.20	0.42	0.10
	Asian	0.74	0.17	0.77	0.16	0.70	0.16	0.45	0.17	0.42	0.20	0.50	0.11
	Black	0.57	0.20	0.58	0.18	0.55	0.18	0.42	0.12	0.39	0.15	0.45	0.10
	Hispanic	0.62	0.20	0.64	0.17	0.60	0.17	0.46	0.13	0.43	0.16	0.49	0.10
	Pacific Islander	0.71	0.19	0.73	0.17	0.68	0.16	0.48	0.15	0.45	0.18	0.53	0.14
	White	0.72	0.19	0.74	0.17	0.70	0.15	0.41	0.13	0.40	0.17	0.42	0.08
	Female	0.69	0.20	0.71	0.18	0.67	0.22	0.42	0.13	0.41	0.16	0.45	0.09
	Male	0.69	0.19	0.71	0.16	0.66	0.22	0.44	0.13	0.43	0.16	0.46	0.08
8	American Indian	0.46	0.22	0.55	0.15	0.31	0.22	0.43	0.09	0.41	0.11	0.47	0.13
	Asian	0.60	0.22	0.69	0.10	0.45	0.18	0.46	0.12	0.41	0.12	0.54	0.11
	Black	0.36	0.21	0.46	0.17	0.21	0.24	0.41	0.09	0.39	0.08	0.44	0.10
	Hispanic	0.45	0.21	0.54	0.14	0.31	0.22	0.47	0.10	0.43	0.10	0.53	0.10
	Pacific Islander	0.54	0.22	0.64	0.13	0.39	0.20	0.47	0.12	0.42	0.12	0.55	0.14
	White	0.57	0.22	0.65	0.12	0.43	0.20	0.45	0.09	0.42	0.09	0.50	0.11
	Female	0.52	0.22	0.61	0.13	0.39	0.21	0.47	0.09	0.43	0.10	0.52	0.11
	Male	0.53	0.21	0.62	0.12	0.39	0.22	0.48	0.09	0.45	0.08	0.53	0.10
10	American Indian	0.40	0.20	0.51	0.15	0.24	0.15	0.46	0.09	0.42	0.06	0.50	0.10
	Asian	0.53	0.20	0.65	0.13	0.37	0.15	0.54	0.12	0.48	0.09	0.62	0.10
	Black	0.30	0.19	0.42	0.15	0.14	0.11	0.45	0.09	0.41	0.06	0.51	0.09
	Hispanic	0.40	0.20	0.52	0.14	0.24	0.15	0.51	0.08	0.47	0.07	0.55	0.08
	Pacific Islander	0.47	0.20	0.60	0.13	0.31	0.14	0.50	0.14	0.42	0.11	0.61	0.09
	White	0.50	0.20	0.62	0.15	0.35	0.17	0.49	0.09	0.44	0.06	0.57	0.07
	Female	0.46	0.21	0.58	0.16	0.31	0.17	0.50	0.09	0.44	0.07	0.57	0.07
	Male	0.47	0.19	0.59	0.13	0.32	0.14	0.52	0.09	0.47	0.06	0.59	0.07

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Mathematics Impact Item Statistics Summary
1998

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
4	American Indian	0.72	0.17	0.74	0.14	0.69	0.21	0.37	0.13	0.36	0.12	0.38	0.16
	Asian	0.80	0.14	0.82	0.10	0.77	0.18	0.42	0.11	0.42	0.10	0.43	0.13
	Black	0.62	0.20	0.63	0.17	0.60	0.24	0.40	0.10	0.38	0.08	0.43	0.12
	Hispanic	0.69	0.17	0.70	0.14	0.69	0.21	0.41	0.12	0.40	0.11	0.42	0.14
	Pacific Islander	0.74	0.17	0.75	0.14	0.71	0.20	0.37	0.17	0.36	0.17	0.40	0.18
	White	0.76	0.15	0.78	0.12	0.74	0.19	0.39	0.11	0.38	0.09	0.40	0.13
	Female	0.74	0.17	0.75	0.14	0.72	0.20	0.41	0.12	0.40	0.10	0.42	0.14
	Male	0.74	0.16	0.76	0.12	0.71	0.20	0.42	0.10	0.41	0.08	0.42	0.13
8	American Indian	0.50	0.21	0.58	0.17	0.38	0.20	0.40	0.10	0.37	0.09	0.45	0.10
	Asian	0.65	0.19	0.71	0.15	0.56	0.20	0.47	0.10	0.44	0.08	0.52	0.10
	Black	0.41	0.20	0.49	0.17	0.29	0.18	0.38	0.11	0.34	0.09	0.44	0.11
	Hispanic	0.50	0.20	0.57	0.17	0.39	0.19	0.42	0.10	0.38	0.09	0.49	0.09
	Pacific Islander	0.55	0.20	0.61	0.17	0.45	0.21	0.42	0.11	0.37	0.09	0.49	0.09
	White	0.59	0.21	0.66	0.17	0.48	0.21	0.43	0.09	0.39	0.07	0.49	0.09
	Female	0.56	0.21	0.63	0.18	0.45	0.21	0.43	0.10	0.39	0.08	0.50	0.09
	Male	0.56	0.20	0.64	0.16	0.45	0.20	0.45	0.09	0.41	0.08	0.51	0.09
10	American Indian	0.46	0.20	0.57	0.14	0.31	0.16	0.49	0.10	0.42	0.06	0.59	0.07
	Asian	0.61	0.19	0.72	0.12	0.45	0.17	0.52	0.11	0.46	0.08	0.60	0.07
	Black	0.34	0.21	0.46	0.17	0.18	0.14	0.42	0.10	0.36	0.07	0.51	0.06
	Hispanic	0.47	0.20	0.58	0.15	0.32	0.17	0.49	0.11	0.43	0.08	0.58	0.06
	Pacific Islander	0.50	0.21	0.61	0.15	0.33	0.09	0.48	0.12	0.41	0.08	0.58	0.17
	White	0.54	0.21	0.65	0.15	0.39	0.06	0.48	0.10	0.42	0.07	0.57	0.18
	Female	0.51	0.21	0.62	0.16	0.36	0.18	0.48	0.10	0.42	0.08	0.57	0.05
	Male	0.52	0.20	0.63	0.14	0.36	0.16	0.51	0.10	0.44	0.07	0.60	0.06

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Mathematics Impact Item Statistics Summary
1999

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
4	American Indian	0.72	0.18	0.76	0.15	0.67	0.22	0.33	0.12	0.32	0.11	0.35	0.13
	Asian	0.79	0.14	0.82	0.10	0.75	0.18	0.42	0.12	0.41	0.11	0.44	0.11
	Black	0.63	0.20	0.66	0.17	0.59	0.24	0.42	0.09	0.40	0.07	0.45	0.10
	Hispanic	0.69	0.18	0.72	0.14	0.65	0.22	0.42	0.10	0.40	0.10	0.44	0.10
	Pacific Islander	0.75	0.16	0.78	0.13	0.70	0.20	0.44	0.13	0.44	0.12	0.45	0.14
	White	0.77	0.16	0.80	0.12	0.72	0.20	0.40	0.10	0.39	0.09	0.42	0.11
	Female	0.74	0.17	0.77	0.13	0.70	0.21	0.41	0.11	0.40	0.10	0.44	0.11
	Male	0.74	0.16	0.77	0.12	0.69	0.22	0.43	0.09	0.42	0.08	0.44	0.10
8	American Indian	0.53	0.19	0.60	0.17	0.42	0.16	0.44	0.12	0.37	0.08	0.53	0.09
	Asian	0.66	0.17	0.72	0.15	0.56	0.15	0.47	0.10	0.43	0.08	0.54	0.10
	Black	0.42	0.19	0.50	0.17	0.30	0.15	0.41	0.12	0.35	0.09	0.50	0.09
	Hispanic	0.53	0.18	0.59	0.17	0.43	0.16	0.43	0.11	0.38	0.08	0.51	0.10
	Pacific Islander	0.61	0.20	0.68	0.19	0.52	0.18	0.41	0.13	0.37	0.13	0.48	0.10
	White	0.61	0.18	0.68	0.17	0.52	0.17	0.44	0.10	0.39	0.08	0.52	0.09
	Female	0.58	0.19	0.64	0.18	0.49	0.17	0.45	0.11	0.40	0.08	0.54	0.09
	Male	0.58	0.18	0.65	0.16	0.48	0.15	0.46	0.11	0.41	0.08	0.55	0.09
10	American Indian	0.49	0.19	0.57	0.16	0.36	0.18	0.47	0.12	0.41	0.09	0.55	0.11
	Asian	0.65	0.18	0.73	0.13	0.52	0.17	0.51	0.12	0.46	0.10	0.58	0.09
	Black	0.39	0.20	0.48	0.18	0.26	0.15	0.42	0.12	0.35	0.06	0.50	0.12
	Hispanic	0.50	0.19	0.59	0.16	0.38	0.17	0.47	0.11	0.42	0.07	0.55	0.10
	Pacific Islander	0.54	0.19	0.63	0.15	0.41	0.17	0.47	0.12	0.42	0.09	0.55	0.12
	White	0.58	0.19	0.66	0.15	0.46	0.19	0.47	0.10	0.41	0.07	0.54	0.10
	Female	0.55	0.20	0.63	0.16	0.44	0.18	0.47	0.11	0.42	0.08	0.55	0.10
	Male	0.56	0.19	0.64	0.14	0.43	0.18	0.49	0.11	0.44	0.08	0.56	0.10

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Mathematics Grade 4 Impact Item Statistics—Race/Ethnicity
1997

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	3	MC	1	193	0.89	0.25	309	0.92	0.29	8161	0.84	0.38	593	0.87	0.39	63	0.94	0.50	32529	0.91	0.28
2	3	MC	1	193	0.86	0.40	309	0.95	0.29	8161	0.82	0.40	593	0.87	0.43	63	0.89	0.49	32529	0.90	0.38
3	3	MC	1	193	0.58	0.27	309	0.77	0.38	8161	0.57	0.35	593	0.54	0.40	63	0.62	0.42	32529	0.66	0.38
4	3	MC	1	193	0.91	0.14	309	0.92	0.27	8161	0.87	0.31	593	0.88	0.31	63	0.89	0.33	32529	0.91	0.26
5	3	MC	1	193	0.82	0.17	309	0.82	0.21	8161	0.77	0.28	593	0.75	0.27	63	0.79	0.15	32529	0.81	0.21
6	3	MC	1	193	0.17	-0.48	309	0.11	-0.46	8161	0.20	-0.28	593	0.14	-0.28	63	0.11	-0.08	32529	0.08	-0.28
7	3	MC	1	193	0.62	0.60	309	0.84	0.57	8161	0.56	0.55	593	0.64	0.54	63	0.79	0.64	32529	0.77	0.54
8	3	MC	1	193	0.78	0.44	309	0.91	0.49	8161	0.77	0.46	593	0.83	0.46	63	0.83	0.33	32529	0.89	0.42
9	3	MC	1	193	0.72	0.46	309	0.81	0.48	8161	0.60	0.41	593	0.68	0.52	63	0.76	0.38	32529	0.79	0.47
10	3	MC	1	193	0.54	0.29	309	0.72	0.40	8161	0.49	0.38	593	0.50	0.35	63	0.65	0.51	32529	0.61	0.40
11	3	MC	1	193	0.52	0.39	309	0.71	0.38	8161	0.45	0.31	593	0.53	0.32	63	0.62	0.36	32529	0.56	0.37
12	3	MC	1	193	0.74	0.62	309	0.84	0.46	8161	0.67	0.53	593	0.66	0.55	63	0.79	0.61	32529	0.84	0.50
13	3	MC	1	193	0.84	0.32	309	0.90	0.21	8161	0.76	0.40	593	0.81	0.36	63	0.94	0.42	32529	0.86	0.33
14	3	MC	1	193	0.82	0.42	309	0.87	0.55	8161	0.81	0.50	593	0.83	0.49	63	0.92	0.56	32529	0.91	0.40
15	3	MC	1	193	0.76	0.49	309	0.84	0.47	8161	0.65	0.49	593	0.75	0.51	63	0.81	0.42	32529	0.84	0.41
16	3	MC	1	193	0.91	0.50	309	0.92	0.45	8161	0.83	0.51	593	0.86	0.55	63	0.97	0.39	32529	0.94	0.42
17	3	MC	1	193	0.78	0.40	309	0.85	0.40	8161	0.68	0.44	593	0.76	0.52	63	0.81	0.39	32529	0.86	0.41
18	3	MC	1	193	0.79	0.44	309	0.82	0.50	8161	0.64	0.41	593	0.71	0.42	63	0.83	0.34	32529	0.81	0.39
19	3	MC	1	193	0.74	0.50	309	0.80	0.57	8161	0.59	0.48	593	0.65	0.54	63	0.78	0.59	32529	0.83	0.49
20	3	MC	1	193	0.84	0.52	309	0.86	0.57	8161	0.74	0.50	593	0.74	0.58	63	0.89	0.63	32529	0.89	0.49
21	3	MC	1	193	0.57	0.40	309	0.72	0.54	8161	0.44	0.35	593	0.51	0.40	63	0.59	0.49	32529	0.63	0.43
22	3	MC	1	193	0.60	0.40	309	0.75	0.42	8161	0.53	0.42	593	0.63	0.46	63	0.68	0.36	32529	0.68	0.43
23	3	MC	1	193	0.55	0.38	309	0.59	0.53	8161	0.37	0.37	593	0.44	0.44	63	0.67	0.45	32529	0.64	0.43
24	3	MC	1	193	0.44	0.48	309	0.59	0.59	8161	0.23	0.31	593	0.38	0.44	63	0.49	0.63	32529	0.55	0.53
25	3	MC	1	193	0.52	0.52	309	0.62	0.54	8161	0.34	0.39	593	0.45	0.46	63	0.65	0.47	32529	0.62	0.47
26	3	MC	1	193	0.73	0.56	309	0.77	0.55	8161	0.59	0.52	593	0.65	0.59	63	0.79	0.66	32529	0.84	0.53
27	3	MC	1	193	0.59	0.54	309	0.66	0.60	8161	0.42	0.48	593	0.51	0.57	63	0.68	0.60	32529	0.72	0.55
28	3	MC	1	193	0.66	0.51	309	0.80	0.38	8161	0.64	0.49	593	0.69	0.52	63	0.79	0.54	32529	0.80	0.42
29	3	MC	1	193	0.46	0.38	309	0.60	0.49	8161	0.33	0.29	593	0.37	0.38	63	0.44	0.46	32529	0.50	0.41
30	3	MC	1	193	0.60	0.65	309	0.72	0.57	8161	0.48	0.51	593	0.55	0.54	63	0.70	0.57	32529	0.74	0.51

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Mathematics Grade 4 Impact Item Statistics—Race/Ethnicity
1997 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
31	3	MC	1	193	0.74	0.28	309	0.86	0.47	8161	0.57	0.39	593	0.71	0.45	63	0.76	0.53	32529	0.80	0.36
32	3	MC	1	193	0.57	0.38	309	0.69	0.35	8161	0.42	0.30	593	0.50	0.33	63	0.52	0.13	32529	0.62	0.39
1	1	CR	2	193	0.69	0.45	309	0.82	0.51	8161	0.66	0.50	593	0.70	0.49	63	0.75	0.69	32529	0.78	0.46
2	1	CR	2	193	0.79	0.28	309	0.84	0.52	8161	0.71	0.45	593	0.78	0.49	63	0.81	0.56	32529	0.88	0.38
3	1	CR	2	193	0.55	0.51	309	0.65	0.47	8161	0.51	0.49	593	0.57	0.45	63	0.65	0.58	32529	0.63	0.41
4	1	CR	2	193	0.97	0.20	309	0.93	0.44	8161	0.91	0.39	593	0.91	0.46	63	0.94	0.46	32529	0.96	0.31
5	1	CR	2	193	0.61	0.40	309	0.67	0.51	8161	0.56	0.52	593	0.58	0.52	63	0.62	0.55	32529	0.68	0.45
6	1	CR	3	193	0.38	0.55	309	0.55	0.57	8161	0.26	0.53	593	0.36	0.57	63	0.54	0.65	32529	0.51	0.58
7	1	CR	2	193	0.87	0.31	309	0.89	0.45	8161	0.78	0.42	593	0.85	0.43	63	0.89	0.62	32529	0.89	0.37
8	1	CR	1	193	0.73	0.50	309	0.78	0.55	8161	0.62	0.49	593	0.68	0.48	63	0.81	0.54	32529	0.84	0.41
9	1	CR	1	193	0.51	0.48	309	0.63	0.50	8161	0.37	0.49	593	0.41	0.51	63	0.62	0.57	32529	0.62	0.47
10	1	CR	3	193	0.79	0.42	309	0.83	0.64	8161	0.69	0.56	593	0.76	0.61	63	0.80	0.61	32529	0.85	0.45
11	1	CR	1	193	0.24	0.29	309	0.33	0.30	8161	0.21	0.28	593	0.26	0.29	63	0.33	0.28	32529	0.32	0.27
12	1	CR	2	193	0.18	0.37	309	0.44	0.50	8161	0.18	0.36	593	0.23	0.45	63	0.29	0.41	32529	0.31	0.46
13	1	CR	4	193	0.29	0.52	309	0.43	0.63	8161	0.26	0.50	593	0.29	0.53	63	0.32	0.54	32529	0.37	0.57
1	2	CR	4	193	0.31	0.46	309	0.39	0.61	8161	0.26	0.52	593	0.30	0.54	63	0.35	0.61	32529	0.38	0.57
2	2	CR	2	193	0.41	0.40	309	0.60	0.59	8161	0.34	0.47	593	0.44	0.52	63	0.52	0.61	32529	0.53	0.50
3	2	CR	2	193	0.93	0.44	309	0.94	0.49	8161	0.88	0.47	593	0.89	0.54	63	0.97	0.57	32529	0.96	0.34
4	2	CR	1	193	0.95	0.36	309	0.96	0.25	8161	0.90	0.38	593	0.89	0.43	63	0.97	0.27	32529	0.95	0.25
5	2	CR	1	193	0.83	0.33	309	0.87	0.41	8161	0.75	0.36	593	0.79	0.43	63	0.84	0.48	32529	0.90	0.31
6	2	CR	2	193	0.52	0.50	309	0.66	0.51	8161	0.44	0.42	593	0.52	0.49	63	0.63	0.52	32529	0.61	0.41
7	2	CR	2	193	0.50	0.37	309	0.50	0.41	8161	0.43	0.34	593	0.42	0.41	63	0.54	0.45	32529	0.54	0.35
8	2	CR	1	193	0.83	0.38	309	0.86	0.49	8161	0.75	0.43	593	0.82	0.53	63	0.78	0.49	32529	0.90	0.37
9	2	CR	2	193	0.61	0.60	309	0.74	0.60	8161	0.50	0.56	593	0.55	0.61	63	0.70	0.66	32529	0.74	0.54
10	2	CR	1	193	0.85	0.51	309	0.83	0.53	8161	0.71	0.44	593	0.77	0.51	63	0.87	0.43	32529	0.88	0.35

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Mathematics Grade 4 Impact Item Statistics—Gender
1997

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	3	MC	1	21975	0.89	0.32	21125	0.91	0.31
2	3	MC	1	21975	0.88	0.42	21125	0.89	0.38
3	3	MC	1	21975	0.62	0.39	21125	0.66	0.36
4	3	MC	1	21975	0.90	0.30	21125	0.91	0.25
5	3	MC	1	21975	0.79	0.25	21125	0.81	0.20
6	3	MC	1	21975	0.10	-0.31	21125	0.10	-0.32
7	3	MC	1	21975	0.73	0.56	21125	0.72	0.56
8	3	MC	1	21975	0.86	0.46	21125	0.87	0.43
9	3	MC	1	21975	0.77	0.49	21125	0.73	0.47
10	3	MC	1	21975	0.60	0.42	21125	0.57	0.38
11	3	MC	1	21975	0.55	0.37	21125	0.52	0.35
12	3	MC	1	21975	0.80	0.53	21125	0.81	0.51
13	3	MC	1	21975	0.83	0.38	21125	0.86	0.33
14	3	MC	1	21975	0.87	0.46	21125	0.90	0.42
15	3	MC	1	21975	0.79	0.47	21125	0.81	0.45
16	3	MC	1	21975	0.90	0.49	21125	0.93	0.44
17	3	MC	1	21975	0.82	0.47	21125	0.83	0.42
18	3	MC	1	21975	0.78	0.44	21125	0.77	0.40
19	3	MC	1	21975	0.78	0.54	21125	0.78	0.52
20	3	MC	1	21975	0.85	0.54	21125	0.86	0.49
21	3	MC	1	21975	0.61	0.45	21125	0.58	0.42
22	3	MC	1	21975	0.65	0.44	21125	0.65	0.43
23	3	MC	1	21975	0.58	0.47	21125	0.58	0.44
24	3	MC	1	21975	0.52	0.53	21125	0.45	0.53
25	3	MC	1	21975	0.57	0.49	21125	0.56	0.50
26	3	MC	1	21975	0.78	0.57	21125	0.79	0.55
27	3	MC	1	21975	0.66	0.57	21125	0.66	0.57
28	3	MC	1	21975	0.74	0.48	21125	0.78	0.44
29	3	MC	1	21975	0.49	0.42	21125	0.44	0.39
30	3	MC	1	21975	0.71	0.55	21125	0.66	0.54
31	3	MC	1	21975	0.78	0.42	21125	0.73	0.41
32	3	MC	1	21975	0.59	0.40	21125	0.58	0.39
1	2	CR	2	21975	0.76	0.49	21125	0.75	0.46
2	2	CR	2	21975	0.86	0.43	21125	0.84	0.45
3	2	CR	2	21975	0.61	0.45	21125	0.59	0.44
4	2	CR	2	21975	0.95	0.35	21125	0.95	0.34

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Mathematics Grade 4 Impact Item Statistics - Gender
1997 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
5	2	CR	2	21975	0.65	0.47	21125	0.66	0.50
6	3	CR	3	21975	0.46	0.60	21125	0.45	0.58
7	2	CR	2	21975	0.87	0.41	21125	0.87	0.41
8	1	CR	1	21975	0.77	0.48	21125	0.81	0.46
9	1	CR	1	21975	0.55	0.52	21125	0.59	0.49
10	3	CR	3	21975	0.80	0.52	21125	0.84	0.51
11	1	CR	1	21975	0.29	0.28	21125	0.31	0.29
12	2	CR	2	21975	0.29	0.47	21125	0.28	0.44
13	4	CR	4	21975	0.33	0.56	21125	0.36	0.57
1	4	CR	4	21975	0.34	0.57	21125	0.36	0.58
2	2	CR	2	21975	0.49	0.52	21125	0.49	0.51
3	2	CR	2	21975	0.94	0.41	21125	0.94	0.40
4	1	CR	1	21975	0.93	0.31	21125	0.95	0.29
5	1	CR	1	21975	0.86	0.38	21125	0.87	0.35
6	2	CR	2	21975	0.59	0.46	21125	0.56	0.45
7	2	CR	2	21975	0.51	0.37	21125	0.52	0.37
8	1	CR	1	21975	0.87	0.43	21125	0.87	0.42
9	2	CR	2	21975	0.68	0.58	21125	0.70	0.57
10	1	CR	1	21975	0.82	0.43	21125	0.87	0.39

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Mathematics Grade 4 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	349	0.92	0.29	562	0.93	0.37	10380	0.84	0.38	943	0.92	0.31	113	0.93	0.29	49816	0.93	0.29
2	1	CR	2	369	0.59	0.41	581	0.74	0.45	10773	0.46	0.49	987	0.59	0.42	118	0.55	0.49	51547	0.66	0.46
3	1	CR	1	370	0.96	0.07	580	0.97	0.18	10831	0.95	0.16	984	0.97	0.06	118	0.98	0.14	51606	0.97	0.13
4	1	CR	2	368	0.82	0.48	580	0.89	0.49	10742	0.71	0.45	980	0.78	0.50	117	0.82	0.62	51490	0.88	0.43
5	1	CR	1	370	0.96	0.13	582	0.96	0.20	10835	0.94	0.27	987	0.95	0.22	117	0.97	-0.08	51629	0.97	0.16
6	1	CR	2	368	0.66	0.52	576	0.80	0.58	10728	0.50	0.61	984	0.63	0.63	116	0.71	0.63	51522	0.75	0.54
7	1	CR	2	363	0.68	0.50	578	0.81	0.56	10441	0.59	0.54	963	0.70	0.54	118	0.74	0.46	50769	0.76	0.51
8	1	CR	1	370	0.98	0.05	583	0.98	0.16	10811	0.95	0.27	983	0.98	0.14	118	0.95	0.29	51529	0.98	0.19
9	1	CR	2	370	0.94	0.19	582	0.96	0.25	10737	0.93	0.26	984	0.96	0.29	118	0.98	0.13	51556	0.97	0.18
10	1	CR	3	366	0.87	0.26	581	0.89	0.41	10692	0.79	0.39	980	0.86	0.33	118	0.81	0.50	51454	0.90	0.32
11	1	CR	2	365	0.54	0.42	577	0.64	0.46	10536	0.47	0.51	960	0.53	0.46	117	0.56	0.50	50965	0.60	0.47
12	1	CR	2	370	0.85	0.36	581	0.91	0.36	10756	0.77	0.48	979	0.84	0.41	118	0.86	0.38	51546	0.88	0.39
13	1	CR	4	368	0.29	0.55	578	0.40	0.60	10540	0.16	0.49	972	0.27	0.56	118	0.33	0.59	51301	0.35	0.57
1	2	CR	4	369	0.39	0.56	582	0.54	0.58	10715	0.34	0.47	981	0.44	0.54	117	0.50	0.52	51446	0.48	0.52
2	2	CR	2	369	0.60	0.42	581	0.70	0.51	10723	0.52	0.48	984	0.61	0.47	117	0.68	0.46	51515	0.66	0.43
3	2	CR	1	368	0.76	0.30	583	0.81	0.36	10761	0.59	0.34	984	0.75	0.36	117	0.82	0.22	51502	0.81	0.33
4	2	CR	1	366	0.29	0.36	576	0.35	0.43	10512	0.20	0.36	966	0.25	0.38	117	0.28	0.36	51078	0.33	0.38
5	2	CR	2	369	0.77	0.40	582	0.82	0.48	10714	0.65	0.53	976	0.73	0.49	117	0.75	0.38	51420	0.80	0.44
6	2	CR	3	352	0.54	0.55	570	0.67	0.47	10259	0.48	0.54	945	0.56	0.53	116	0.66	0.44	50278	0.65	0.50
7	2	CR	2	368	0.55	0.58	581	0.66	0.57	10694	0.38	0.57	977	0.54	0.56	118	0.56	0.54	51501	0.63	0.55
8	2	CR	1	366	0.54	0.44	580	0.67	0.52	10653	0.41	0.51	975	0.56	0.53	118	0.54	0.51	51455	0.65	0.47
9	2	CR	2	366	0.67	0.45	581	0.82	0.41	10652	0.64	0.46	974	0.68	0.42	118	0.73	0.38	51376	0.71	0.46
1	3	MC	1	366	0.90	0.26	581	0.94	0.29	10662	0.85	0.32	979	0.90	0.24	118	0.93	0.07	51259	0.92	0.22
2	3	MC	1	364	0.90	0.28	581	0.96	0.22	10615	0.83	0.36	975	0.89	0.29	118	0.91	0.28	51187	0.91	0.34
3	3	MC	1	365	0.65	0.28	581	0.75	0.34	10564	0.59	0.34	973	0.62	0.36	117	0.72	0.27	51018	0.68	0.34
4	3	MC	1	367	0.91	0.16	581	0.93	0.22	10609	0.90	0.26	977	0.91	0.17	118	0.93	0.12	51199	0.93	0.19
5	3	MC	1	367	0.80	0.11	581	0.84	0.20	10620	0.80	0.21	977	0.82	0.11	118	0.88	0.08	51187	0.83	0.17
6	3	MC	1	366	0.76	0.39	581	0.84	0.44	10596	0.61	0.47	979	0.71	0.47	118	0.72	0.42	51167	0.80	0.39
7	3	MC	1	366	0.71	0.49	581	0.85	0.53	10541	0.58	0.52	979	0.68	0.51	118	0.67	0.55	51058	0.78	0.52
8	3	MC	1	366	0.87	0.36	578	0.92	0.44	10515	0.79	0.40	972	0.86	0.37	117	0.96	0.28	50977	0.90	0.37
9	3	MC	1	364	0.77	0.22	578	0.87	0.45	10410	0.64	0.38	968	0.69	0.43	117	0.71	0.53	50748	0.80	0.44
10	3	MC	1	359	0.59	0.34	577	0.76	0.41	10273	0.52	0.34	947	0.58	0.32	117	0.63	0.52	50205	0.64	0.38
11	3	MC	1	357	0.56	0.32	572	0.69	0.41	10172	0.46	0.29	940	0.53	0.33	116	0.53	0.40	49744	0.58	0.35

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Mathematics Grade 4 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
12	3	MC	1	365	0.81	0.43	580	0.87	0.50	10596	0.69	0.46	975	0.70	0.51	117	0.80	0.56	51161	0.84	0.45
13	3	MC	1	366	0.87	0.19	580	0.90	0.30	10595	0.80	0.34	977	0.86	0.30	118	0.92	0.12	51206	0.87	0.29
14	3	MC	1	367	0.91	0.33	580	0.90	0.42	10585	0.84	0.42	976	0.86	0.47	118	0.85	0.44	51196	0.92	0.34
15	3	MC	1	367	0.80	0.36	579	0.87	0.47	10592	0.69	0.47	978	0.77	0.50	118	0.82	0.33	51209	0.84	0.39
16	3	MC	1	367	0.95	0.25	579	0.96	0.43	10581	0.86	0.44	978	0.89	0.48	118	0.97	0.28	51169	0.95	0.35
17	3	MC	1	365	0.81	0.44	579	0.88	0.38	10561	0.73	0.39	976	0.80	0.38	118	0.85	0.14	51154	0.88	0.37
18	3	MC	1	366	0.77	0.41	578	0.85	0.44	10544	0.67	0.34	975	0.74	0.42	117	0.83	0.11	51093	0.82	0.37
19	3	MC	1	367	0.80	0.41	578	0.83	0.51	10567	0.63	0.45	976	0.68	0.49	118	0.73	0.58	51161	0.84	0.45
20	3	MC	1	365	0.86	0.42	575	0.91	0.45	10555	0.78	0.43	974	0.83	0.42	118	0.92	0.26	51132	0.90	0.45
21	3	MC	1	367	0.54	0.47	578	0.73	0.43	10546	0.47	0.35	974	0.55	0.44	118	0.60	0.41	51136	0.63	0.39
22	3	MC	1	367	0.70	0.38	579	0.82	0.43	10550	0.62	0.39	974	0.69	0.34	118	0.76	0.41	51138	0.75	0.40
23	3	MC	1	367	0.59	0.38	578	0.70	0.47	10541	0.41	0.36	973	0.56	0.39	117	0.65	0.47	51105	0.66	0.42
24	3	MC	1	366	0.47	0.52	578	0.60	0.57	10526	0.25	0.34	972	0.43	0.44	117	0.44	0.58	51071	0.58	0.51
25	3	MC	1	365	0.52	0.44	579	0.67	0.46	10498	0.35	0.39	972	0.48	0.46	118	0.57	0.56	51067	0.62	0.46
26	3	MC	1	366	0.77	0.55	576	0.83	0.52	10483	0.63	0.50	972	0.72	0.55	117	0.73	0.50	51019	0.86	0.50
27	3	MC	1	366	0.66	0.55	577	0.71	0.56	10476	0.46	0.46	971	0.58	0.52	118	0.66	0.62	51054	0.74	0.52
28	3	MC	1	365	0.76	0.50	579	0.85	0.47	10465	0.68	0.44	969	0.72	0.47	118	0.75	0.25	51004	0.82	0.39
29	3	MC	1	364	0.46	0.35	577	0.58	0.48	10407	0.36	0.25	967	0.44	0.31	118	0.47	0.18	50881	0.51	0.38
30	3	MC	1	364	0.76	0.47	578	0.77	0.58	10427	0.53	0.50	965	0.63	0.55	117	0.71	0.57	50911	0.76	0.49
31	3	MC	1	365	0.79	0.23	579	0.86	0.30	10420	0.62	0.37	964	0.74	0.35	118	0.85	0.34	50899	0.82	0.33
32	3	MC	1	364	0.50	0.20	578	0.67	0.35	10403	0.41	0.27	963	0.53	0.34	118	0.60	0.28	50845	0.59	0.35

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Mathematics Grade 4 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	32074	0.91	0.34	30882	0.92	0.33
2	1	CR	2	33349	0.65	0.49	31880	0.60	0.48
3	1	CR	1	33407	0.96	0.14	31933	0.97	0.13
4	1	CR	2	33266	0.84	0.47	31860	0.86	0.46
5	1	CR	1	33441	0.96	0.18	31928	0.96	0.21
6	1	CR	2	33286	0.70	0.58	31857	0.71	0.60
7	1	CR	2	32544	0.70	0.54	31508	0.76	0.53
8	1	CR	1	33350	0.98	0.22	31891	0.98	0.21
9	1	CR	2	33312	0.96	0.22	31872	0.96	0.20
10	1	CR	3	33211	0.88	0.37	31815	0.88	0.36
11	1	CR	2	32813	0.58	0.49	31541	0.57	0.50
12	1	CR	2	33324	0.87	0.43	31873	0.86	0.43
13	1	CR	4	33019	0.32	0.58	31693	0.32	0.59
1	2	CR	4	33219	0.44	0.52	31821	0.47	0.53
2	2	CR	2	33290	0.63	0.46	31833	0.64	0.44
3	2	CR	1	33325	0.80	0.37	31820	0.74	0.38
4	2	CR	1	32903	0.32	0.40	31539	0.30	0.38
5	2	CR	2	33217	0.77	0.48	31794	0.78	0.49
6	2	CR	3	32021	0.58	0.54	31300	0.65	0.53
7	2	CR	2	33286	0.59	0.57	31781	0.59	0.60
8	2	CR	1	33233	0.62	0.50	31739	0.60	0.52
9	2	CR	2	33171	0.68	0.46	31721	0.72	0.45
1	3	MC	1	33144	0.90	0.27	31656	0.92	0.24
2	3	MC	1	33078	0.89	0.37	31597	0.90	0.33
3	3	MC	1	32951	0.66	0.35	31504	0.67	0.33
4	3	MC	1	33079	0.92	0.24	31601	0.93	0.17
5	3	MC	1	33072	0.82	0.20	31605	0.84	0.15
6	3	MC	1	33050	0.77	0.43	31580	0.77	0.45
7	3	MC	1	32974	0.75	0.54	31493	0.73	0.54
8	3	MC	1	32915	0.88	0.39	31429	0.88	0.40
9	3	MC	1	32777	0.79	0.44	31229	0.75	0.45

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Mathematics Grade 4 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
10	3	MC	1	32502	0.63	0.39	30788	0.61	0.36
11	3	MC	1	32294	0.58	0.35	30406	0.55	0.34
12	3	MC	1	33038	0.81	0.47	31587	0.81	0.47
13	3	MC	1	33059	0.85	0.33	31612	0.87	0.29
14	3	MC	1	33040	0.90	0.38	31613	0.92	0.36
15	3	MC	1	33062	0.81	0.44	31614	0.82	0.43
16	3	MC	1	33020	0.93	0.41	31602	0.95	0.38
17	3	MC	1	32997	0.85	0.42	31588	0.86	0.39
18	3	MC	1	32972	0.80	0.40	31532	0.79	0.37
19	3	MC	1	33015	0.80	0.50	31586	0.81	0.47
20	3	MC	1	32986	0.88	0.47	31563	0.87	0.45
21	3	MC	1	32981	0.63	0.41	31566	0.58	0.40
22	3	MC	1	32990	0.73	0.41	31563	0.73	0.40
23	3	MC	1	32966	0.62	0.45	31541	0.61	0.43
24	3	MC	1	32939	0.55	0.52	31523	0.49	0.52
25	3	MC	1	32922	0.57	0.48	31504	0.56	0.48
26	3	MC	1	32877	0.81	0.53	31490	0.82	0.53
27	3	MC	1	32902	0.69	0.54	31493	0.69	0.54
28	3	MC	1	32852	0.78	0.43	31480	0.81	0.41
29	3	MC	1	32759	0.50	0.39	31380	0.46	0.36
30	3	MC	1	32789	0.75	0.51	31394	0.69	0.53
31	3	MC	1	32780	0.81	0.38	31390	0.76	0.38
32	3	MC	1	32743	0.57	0.36	31352	0.55	0.35

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Mathematics Grade 4 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	Rit	N	p-value	Rit	N	p-value	Rit	N	p-value	Rit	N	p-value	Rit	N	p-value	Rit
1	1	CR	3	241	0.85	0.30	594	0.94	0.42	11825	0.83	0.50	1023	0.87	0.50	91	0.91	0.57	51939	0.90	0.43
2	1	CR	2	245	0.54	0.42	599	0.61	0.42	12035	0.47	0.42	1032	0.52	0.44	91	0.64	0.57	52513	0.58	0.41
3	1	CR	3	245	0.77	0.35	600	0.86	0.42	11965	0.72	0.54	1030	0.76	0.49	91	0.79	0.51	52382	0.82	0.45
4	1	CR	1	246	0.61	0.43	598	0.77	0.49	11948	0.48	0.49	1028	0.60	0.48	91	0.59	0.62	52331	0.68	0.49
5	1	CR	2	245	0.81	0.28	599	0.90	0.33	12014	0.82	0.29	1032	0.83	0.34	91	0.86	0.28	52440	0.87	0.28
6	1	CR	2	243	0.44	0.32	596	0.53	0.44	11906	0.37	0.46	1020	0.43	0.42	91	0.53	0.47	52214	0.52	0.42
7	1	CR	1	246	0.60	0.31	599	0.75	0.44	11980	0.53	0.37	1026	0.61	0.36	91	0.68	0.23	52380	0.68	0.32
8	1	CR	2	246	0.69	0.41	598	0.72	0.44	11988	0.61	0.43	1032	0.66	0.43	90	0.67	0.48	52421	0.71	0.42
9	1	CR	2	246	0.77	0.40	599	0.78	0.62	11952	0.57	0.61	1029	0.65	0.61	91	0.74	0.51	52345	0.79	0.56
10	1	CR	2	246	0.80	0.35	598	0.87	0.44	11944	0.74	0.53	1027	0.81	0.44	90	0.86	0.52	52358	0.85	0.45
11	1	CR	4	246	0.65	0.59	597	0.75	0.64	11942	0.52	0.65	1029	0.63	0.63	91	0.68	0.63	52422	0.72	0.63
1	2	CR	4	243	0.21	0.54	598	0.42	0.66	11908	0.14	0.49	1025	0.19	0.54	90	0.30	0.53	52038	0.28	0.57
2	2	CR	1	245	0.81	0.20	599	0.85	0.34	11969	0.75	0.40	1032	0.80	0.41	91	0.80	0.38	52341	0.85	0.32
3	2	CR	1	242	0.95	0.09	597	0.96	0.31	11776	0.93	0.26	1023	0.95	0.22	90	0.93	0.17	52097	0.96	0.21
4	2	CR	2	245	0.56	0.36	600	0.69	0.48	12014	0.48	0.44	1031	0.55	0.42	91	0.67	0.37	52451	0.65	0.42
5	2	CR	1	245	0.67	0.34	600	0.73	0.48	11979	0.50	0.47	1026	0.63	0.42	90	0.73	0.54	52405	0.74	0.41
6	2	CR	2	245	0.97	0.13	599	0.97	0.24	11920	0.95	0.27	1027	0.97	0.24	90	0.97	0.20	52229	0.98	0.20
7	2	CR	3	244	0.95	0.20	597	0.97	0.25	11912	0.91	0.46	1029	0.93	0.50	91	0.94	0.39	52201	0.96	0.38
8	2	CR	1	245	0.26	0.43	599	0.37	0.45	11973	0.17	0.39	1030	0.21	0.42	91	0.24	0.43	52394	0.32	0.42
9	2	CR	2	245	0.90	0.36	598	0.92	0.40	11989	0.80	0.47	1030	0.87	0.46	91	0.89	0.56	52406	0.92	0.38
10	2	CR	1	245	0.36	0.32	598	0.46	0.46	11976	0.19	0.35	1030	0.31	0.36	91	0.40	0.26	52387	0.43	0.45
11	2	CR	2	244	0.62	0.63	597	0.73	0.62	11883	0.44	0.53	1029	0.55	0.59	91	0.67	0.62	52292	0.70	0.55
1	3	MC	1	241	0.93	0.16	599	0.95	0.22	11973	0.88	0.34	1029	0.90	0.31	91	0.89	0.34	52318	0.93	0.23
2	3	MC	1	239	0.88	0.26	598	0.94	0.28	11924	0.83	0.39	1025	0.88	0.38	91	0.92	0.53	52181	0.91	0.35
3	3	MC	1	241	0.66	0.21	593	0.78	0.36	11829	0.61	0.35	1011	0.61	0.30	90	0.78	0.40	51884	0.69	0.34
4	3	MC	1	241	0.94	0.17	594	0.96	0.14	11886	0.91	0.27	1021	0.93	0.15	90	0.93	0.14	52017	0.94	0.21
5	3	MC	1	244	0.86	0.06	600	0.88	0.19	11978	0.86	0.25	1028	0.88	0.15	91	0.92	0.23	52341	0.87	0.18
6	3	MC	1	244	0.77	0.42	599	0.83	0.43	11959	0.63	0.45	1025	0.72	0.46	91	0.78	0.52	52280	0.81	0.43
7	3	MC	1	243	0.72	0.53	600	0.85	0.59	11875	0.61	0.54	1013	0.70	0.59	91	0.81	0.59	52071	0.79	0.54
8	3	MC	1	243	0.89	0.33	589	0.93	0.45	11597	0.83	0.41	995	0.89	0.38	90	0.88	0.51	51676	0.92	0.37

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Mathematics Grade 4 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
9	3	MC	1	240	0.78	0.34	594	0.86	0.42	11683	0.68	0.40	1009	0.76	0.39	91	0.81	0.53	51537	0.82	0.43
10	3	MC	1	237	0.61	0.32	594	0.75	0.38	11536	0.54	0.35	1001	0.59	0.35	88	0.64	0.39	51320	0.65	0.36
11	3	MC	1	238	0.56	0.33	589	0.73	0.42	11522	0.49	0.33	991	0.56	0.32	88	0.64	0.29	51068	0.62	0.37
12	3	MC	1	239	0.81	0.41	590	0.90	0.45	11875	0.71	0.48	1027	0.73	0.50	90	0.84	0.37	51950	0.85	0.46
13	3	MC	1	244	0.90	0.15	600	0.94	0.24	11981	0.82	0.36	1030	0.88	0.26	91	0.90	0.54	52319	0.89	0.28
14	3	MC	1	243	0.93	0.28	599	0.92	0.43	11977	0.88	0.40	1030	0.88	0.44	91	0.93	0.52	52301	0.94	0.33
15	3	MC	1	244	0.81	0.42	599	0.84	0.45	11920	0.71	0.46	1026	0.79	0.45	91	0.91	0.43	52231	0.85	0.39
16	3	MC	1	244	0.97	0.23	596	0.95	0.43	11875	0.88	0.43	1023	0.93	0.44	89	0.93	0.37	52075	0.97	0.33
17	3	MC	1	245	0.87	0.25	596	0.86	0.46	11887	0.73	0.39	1023	0.81	0.39	90	0.82	0.37	52042	0.88	0.37
18	3	MC	1	243	0.80	0.38	591	0.86	0.38	11866	0.72	0.34	1024	0.78	0.37	91	0.90	0.23	52005	0.85	0.35
19	3	MC	1	243	0.83	0.35	596	0.83	0.45	11965	0.68	0.47	1030	0.73	0.46	91	0.80	0.38	52290	0.86	0.45
20	3	MC	1	241	0.91	0.23	595	0.91	0.42	11915	0.82	0.44	1026	0.85	0.51	91	0.87	0.57	52193	0.92	0.43
21	3	MC	1	243	0.57	0.32	595	0.75	0.43	11903	0.50	0.36	1026	0.59	0.38	91	0.68	0.54	52163	0.66	0.40
22	3	MC	1	240	0.70	0.22	591	0.82	0.32	11879	0.63	0.40	1018	0.69	0.41	91	0.69	0.27	52006	0.74	0.38
23	3	MC	1	243	0.66	0.45	595	0.70	0.48	11880	0.48	0.41	1029	0.56	0.41	91	0.64	0.41	52154	0.70	0.41
24	3	MC	1	245	0.41	0.46	599	0.56	0.52	11928	0.26	0.35	1028	0.40	0.46	91	0.46	0.54	52282	0.56	0.52
25	3	MC	1	245	0.49	0.39	598	0.65	0.56	11916	0.38	0.41	1031	0.52	0.46	91	0.58	0.58	52208	0.63	0.48
26	3	MC	1	245	0.83	0.44	599	0.79	0.55	11867	0.64	0.52	1022	0.73	0.54	90	0.72	0.53	52096	0.86	0.50
27	3	MC	1	244	0.68	0.44	596	0.76	0.58	11876	0.50	0.50	1022	0.60	0.54	91	0.77	0.48	51983	0.76	0.54
28	3	MC	1	242	0.76	0.37	598	0.85	0.41	11933	0.71	0.44	1031	0.76	0.47	91	0.79	0.43	52283	0.82	0.36
29	3	MC	1	242	0.45	0.30	594	0.61	0.41	11747	0.39	0.27	1013	0.46	0.31	90	0.54	0.42	51675	0.53	0.40
30	3	MC	1	245	0.76	0.51	597	0.80	0.57	11892	0.58	0.54	1025	0.66	0.56	91	0.73	0.63	52204	0.80	0.51
31	3	MC	1	245	0.82	0.20	598	0.88	0.23	11899	0.65	0.39	1023	0.75	0.34	91	0.80	0.49	52229	0.84	0.34
32	3	MC	1	244	0.63	0.29	595	0.73	0.39	11873	0.53	0.29	1024	0.62	0.37	91	0.70	0.40	52165	0.67	0.34

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Mathematics Grade 4 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	3	34359	0.88	0.45	33128	0.88	0.45
2	1	CR	2	34838	0.55	0.43	33477	0.57	0.41
3	1	CR	3	34704	0.80	0.47	33406	0.81	0.49
4	1	CR	1	34656	0.63	0.51	33377	0.66	0.51
5	1	CR	2	34775	0.85	0.31	33442	0.86	0.28
6	1	CR	2	34546	0.48	0.44	33305	0.50	0.44
7	1	CR	1	34698	0.63	0.34	33417	0.67	0.35
8	1	CR	2	34731	0.68	0.44	33437	0.71	0.43
9	1	CR	2	34685	0.75	0.60	33368	0.75	0.59
10	1	CR	2	34664	0.83	0.49	33386	0.83	0.46
11	1	CR	4	34724	0.66	0.66	33400	0.71	0.65
1	2	CR	4	34434	0.24	0.55	33254	0.26	0.58
2	2	CR	1	34667	0.27	0.36	33408	0.84	0.35
3	2	CR	1	34373	0.95	0.24	33245	0.96	0.22
4	2	CR	2	34792	0.60	0.45	33439	0.64	0.45
5	2	CR	1	34740	0.70	0.46	33405	0.69	0.47
6	2	CR	2	34596	0.97	0.25	33314	0.97	0.22
7	2	CR	3	34560	0.95	0.42	33310	0.95	0.40
8	2	CR	1	34734	0.31	0.43	33398	0.26	0.42
9	2	CR	2	34742	0.89	0.43	33416	0.90	0.43
10	2	CR	1	34738	0.40	0.46	33386	0.37	0.46
11	2	CR	2	34580	0.67	0.57	33350	0.63	0.59
1	3	MC	1	34680	0.92	0.29	33359	0.93	0.25
2	3	MC	1	34577	0.89	0.39	33268	0.90	0.36
3	3	MC	1	34371	0.66	0.35	33045	0.69	0.33
4	3	MC	1	34451	0.93	0.24	33178	0.94	0.19
5	3	MC	1	34714	0.86	0.22	33360	0.88	0.15
6	3	MC	1	34646	0.77	0.45	33341	0.78	0.47
7	3	MC	1	34481	0.76	0.56	33185	0.76	0.56

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Mathematics Grade 4 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
8	3	MC	1	34093	0.90	0.40	32852	0.90	0.39
9	3	MC	1	34075	0.81	0.44	32826	0.78	0.44
10	3	MC	1	34029	0.63	0.38	32487	0.63	0.35
11	3	MC	1	33931	0.61	0.38	32296	0.58	0.36
12	3	MC	1	34385	0.82	0.48	33156	0.83	0.47
13	3	MC	1	34678	0.87	0.32	33376	0.88	0.29
14	3	MC	1	34663	0.92	0.38	33369	0.94	0.34
15	3	MC	1	34583	0.81	0.43	33311	0.83	0.41
16	3	MC	1	34463	0.95	0.40	33219	0.96	0.36
17	3	MC	1	34418	0.85	0.41	33249	0.85	0.39
18	3	MC	1	34408	0.83	0.38	33190	0.82	0.36
19	3	MC	1	34659	0.82	0.49	33346	0.82	0.46
20	3	MC	1	34575	0.91	0.45	33271	0.90	0.44
21	3	MC	1	34539	0.65	0.42	33267	0.61	0.40
22	3	MC	1	34457	0.71	0.40	33133	0.73	0.39
23	3	MC	1	34524	0.65	0.45	33246	0.65	0.43
24	3	MC	1	34631	0.53	0.52	33332	0.47	0.53
25	3	MC	1	34605	0.58	0.49	33267	0.58	0.49
26	3	MC	1	34494	0.81	0.54	33206	0.83	0.54
27	3	MC	1	34414	0.71	0.56	33174	0.71	0.56
28	3	MC	1	34643	0.79	0.40	33322	0.82	0.38
29	3	MC	1	34122	0.52	0.39	32997	0.49	0.37
30	3	MC	1	34573	0.78	0.55	33263	0.74	0.55
31	3	MC	1	34586	0.83	0.38	33279	0.78	0.39
32	3	MC	1	34556	0.65	0.35	33217	0.64	0.34

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Mathematics Grade 8 Impact Item Statistics—Race/Ethnicity
1997

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	363	0.41	0.58	339	0.59	0.52	6317	0.26	0.57	658	0.44	0.62	87	0.53	0.58	30901	0.57	0.56
2	1	CR	2	363	0.08	0.46	339	0.23	0.61	6317	0.02	0.31	658	0.08	0.46	87	0.16	0.59	30901	0.16	0.52
3	1	CR	3	363	0.47	0.44	339	0.61	0.54	6317	0.36	0.50	658	0.47	0.52	87	0.55	0.61	30901	0.59	0.44
4	1	CR	2	363	0.34	0.40	339	0.38	0.37	6317	0.18	0.32	658	0.33	0.40	87	0.32	0.23	30901	0.45	0.38
5	1	CR	2	363	0.37	0.50	339	0.59	0.59	6317	0.32	0.56	658	0.43	0.58	87	0.47	0.64	30901	0.56	0.53
6	1	CR	2	363	0.17	0.56	339	0.30	0.58	6317	0.06	0.48	658	0.16	0.55	87	0.25	0.69	30898	0.29	0.60
7	1	CR	2	363	0.19	0.48	339	0.33	0.61	6317	0.06	0.36	658	0.16	0.50	87	0.25	0.55	30901	0.28	0.56
8	1	CR	1	363	0.71	0.38	339	0.79	0.27	6317	0.66	0.31	658	0.72	0.36	87	0.83	0.36	30901	0.82	0.31
9	1	CR	4	363	0.10	0.54	339	0.20	0.61	6317	0.03	0.39	658	0.09	0.54	87	0.14	0.64	30901	0.17	0.57
1	2	CR	4	363	0.15	0.64	339	0.25	0.69	6317	0.08	0.55	658	0.14	0.69	87	0.17	0.72	30901	0.24	0.67
2	2	CR	2	363	0.41	0.50	339	0.57	0.64	6317	0.23	0.51	658	0.33	0.55	87	0.53	0.53	30901	0.53	0.48
3	2	CR	2	363	0.41	0.63	339	0.68	0.62	6317	0.26	0.55	658	0.41	0.68	87	0.55	0.68	30901	0.62	0.63
4	2	CR	2	363	0.10	0.48	339	0.24	0.57	6317	0.03	0.39	658	0.12	0.55	87	0.20	0.63	30901	0.20	0.54
5	2	CR	2	363	0.08	0.43	339	0.22	0.56	6317	0.03	0.35	658	0.08	0.48	87	0.14	0.62	30901	0.17	0.53
6	2	CR	1	363	0.52	0.25	339	0.64	0.42	6317	0.39	0.45	658	0.50	0.44	87	0.60	0.52	30901	0.63	0.28
7	2	CR	2	363	0.13	0.45	339	0.30	0.60	6317	0.05	0.45	658	0.14	0.54	87	0.27	0.58	30901	0.27	0.58
8	2	CR	2	363	0.56	0.56	339	0.70	0.62	6317	0.35	0.60	658	0.55	0.65	87	0.67	0.52	30901	0.73	0.53
9	2	CR	2	363	0.23	0.40	339	0.47	0.48	6317	0.13	0.41	658	0.24	0.50	87	0.29	0.43	30901	0.38	0.51
10	2	CR	1	363	0.05	0.29	339	0.18	0.48	6317	0.02	0.31	658	0.06	0.40	87	0.13	0.41	30901	0.14	0.44
11	2	CR	2	363	0.74	0.42	339	0.77	0.52	6317	0.60	0.42	658	0.70	0.50	87	0.76	0.52	30901	0.82	0.40
1	3	MC	1	363	0.57	0.44	339	0.75	0.34	6317	0.48	0.39	658	0.56	0.37	87	0.62	0.57	30901	0.66	0.43
2	3	MC	1	363	0.68	0.40	339	0.80	0.41	6317	0.55	0.37	658	0.62	0.39	87	0.71	0.31	30901	0.73	0.39
3	3	MC	1	363	0.63	0.45	339	0.83	0.42	6317	0.52	0.51	658	0.62	0.54	87	0.77	0.52	30901	0.75	0.50
4	3	MC	1	363	0.68	0.52	339	0.79	0.44	6317	0.52	0.52	658	0.63	0.51	87	0.78	0.40	30901	0.76	0.44
5	3	MC	1	363	0.43	0.45	339	0.62	0.39	6317	0.34	0.38	658	0.44	0.38	87	0.49	0.42	30901	0.54	0.40
6	3	MC	1	363	0.41	0.39	339	0.65	0.25	6317	0.38	0.31	658	0.43	0.37	87	0.44	0.43	30901	0.51	0.38
7	3	MC	1	363	0.53	0.37	339	0.69	0.43	6317	0.47	0.31	658	0.52	0.37	87	0.55	0.34	30901	0.62	0.40
8	3	MC	1	363	0.45	0.41	339	0.58	0.30	6317	0.36	0.33	658	0.43	0.32	87	0.60	0.40	30901	0.53	0.40
9	3	MC	1	363	0.73	0.47	339	0.85	0.45	6317	0.55	0.55	658	0.67	0.53	87	0.83	0.46	30901	0.83	0.47
10	3	MC	1	363	0.52	0.43	339	0.73	0.45	6317	0.41	0.41	658	0.50	0.51	87	0.59	0.37	30901	0.66	0.46

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Mathematics Grade 8 Impact Item Statistics—Race/Ethnicity
1997 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
11	3	MC	1	363	0.80	0.39	339	0.87	0.30	6317	0.71	0.40	658	0.80	0.37	87	0.82	0.40	30901	0.86	0.35
12	3	MC	1	363	0.76	0.50	339	0.90	0.45	6317	0.65	0.54	658	0.72	0.56	87	0.82	0.41	30901	0.86	0.47
13	3	MC	1	363	0.73	0.38	339	0.85	0.34	6317	0.66	0.40	658	0.74	0.44	87	0.76	0.40	30901	0.81	0.39
14	3	MC	1	363	0.48	0.38	339	0.57	0.37	6317	0.40	0.32	658	0.45	0.31	87	0.54	0.36	30901	0.56	0.34
15	3	MC	1	363	0.86	0.38	339	0.94	0.28	6317	0.77	0.45	658	0.86	0.46	87	0.90	0.35	30901	0.92	0.37
16	3	MC	1	363	0.81	0.46	339	0.86	0.39	6317	0.72	0.49	658	0.76	0.50	87	0.89	0.50	30901	0.89	0.42
17	3	MC	1	363	0.70	0.51	339	0.71	0.49	6317	0.55	0.43	658	0.62	0.54	87	0.76	0.45	30901	0.79	0.43
18	3	MC	1	363	0.63	0.38	339	0.64	0.33	6317	0.47	0.33	658	0.57	0.39	87	0.71	0.50	30901	0.67	0.35
19	3	MC	1	363	0.74	0.44	339	0.92	0.33	6317	0.64	0.51	658	0.72	0.54	87	0.83	0.53	30901	0.85	0.46
20	3	MC	1	363	0.28	0.35	339	0.39	0.48	6317	0.15	0.26	658	0.28	0.46	87	0.47	0.19	30901	0.37	0.45
21	3	MC	1	363	0.58	0.46	339	0.74	0.53	6317	0.41	0.43	658	0.54	0.54	87	0.74	0.44	30901	0.70	0.50
22	3	MC	1	363	0.58	0.50	339	0.76	0.41	6317	0.51	0.45	658	0.58	0.47	87	0.64	0.54	30901	0.70	0.48
23	3	MC	1	363	0.47	0.25	339	0.57	0.29	6317	0.46	0.30	658	0.54	0.29	87	0.62	0.24	30901	0.58	0.28
24	3	MC	1	363	0.50	0.43	339	0.60	0.34	6317	0.43	0.39	658	0.53	0.43	87	0.58	0.45	30901	0.65	0.45
25	3	MC	1	363	0.64	0.37	339	0.84	0.27	6317	0.56	0.36	658	0.63	0.45	87	0.78	0.33	30901	0.77	0.39
26	3	MC	1	363	0.35	0.49	339	0.44	0.61	6317	0.17	0.35	658	0.29	0.51	87	0.44	0.54	30901	0.46	0.55
27	3	MC	1	363	0.42	0.51	339	0.67	0.47	6317	0.37	0.43	658	0.47	0.46	87	0.54	0.56	30901	0.58	0.49
28	3	MC	1	363	0.39	0.28	339	0.41	0.49	6317	0.29	0.29	658	0.37	0.34	87	0.41	0.35	30901	0.45	0.33
29	3	MC	1	363	0.28	0.43	339	0.50	0.54	6317	0.17	0.41	658	0.26	0.45	87	0.36	0.46	30901	0.40	0.49
30	3	MC	1	363	0.26	0.32	339	0.46	0.52	6317	0.24	0.27	658	0.32	0.39	87	0.45	0.48	30901	0.40	0.40
31	3	MC	1	363	0.26	0.25	339	0.37	0.46	6317	0.22	0.23	658	0.26	0.21	87	0.30	0.32	30901	0.33	0.31

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Mathematics Grade 8 Impact Item Statistics—Gender
1997

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	3	MC	1	20516	0.61	0.45	20226	0.64	0.42
2	3	MC	1	20516	0.71	0.41	20226	0.68	0.42
3	3	MC	1	20516	0.70	0.54	20226	0.72	0.51
4	3	MC	1	20516	0.71	0.48	20226	0.72	0.50
5	3	MC	1	20516	0.49	0.44	20226	0.52	0.41
6	3	MC	1	20516	0.47	0.39	20226	0.50	0.37
7	3	MC	1	20516	0.59	0.40	20226	0.59	0.40
8	3	MC	1	20516	0.52	0.42	20226	0.48	0.39
9	3	MC	1	20516	0.79	0.51	20226	0.75	0.54
10	3	MC	1	20516	0.61	0.48	20226	0.61	0.49
11	3	MC	1	20516	0.83	0.38	20226	0.82	0.38
12	3	MC	1	20516	0.81	0.52	20226	0.84	0.49
13	3	MC	1	20516	0.77	0.42	20226	0.80	0.41
14	3	MC	1	20516	0.50	0.36	20226	0.56	0.36
15	3	MC	1	20516	0.89	0.42	20226	0.89	0.40
16	3	MC	1	20516	0.85	0.47	20226	0.87	0.45
17	3	MC	1	20516	0.76	0.47	20226	0.73	0.47
18	3	MC	1	20516	0.65	0.40	20226	0.62	0.36
19	3	MC	1	20516	0.82	0.51	20226	0.81	0.48
20	3	MC	1	20516	0.37	0.46	20226	0.29	0.46
21	3	MC	1	20516	0.68	0.54	20226	0.62	0.51
22	3	MC	1	20516	0.65	0.53	20226	0.67	0.46
23	3	MC	1	20516	0.54	0.32	20226	0.57	0.27
24	3	MC	1	20516	0.60	0.49	20226	0.61	0.45
25	3	MC	1	20516	0.73	0.44	20226	0.73	0.39
26	3	MC	1	20516	0.44	0.57	20226	0.37	0.55
27	3	MC	1	20516	0.52	0.51	20226	0.57	0.50
28	3	MC	1	20516	0.46	0.37	20226	0.39	0.32
29	3	MC	1	20516	0.38	0.52	20226	0.33	0.49

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Mathematics Grade 8 Impact Item Statistics- Gender
1997 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
30	3	MC	1	20516	0.37	0.39	20226	0.37	0.41
31	3	MC	1	20516	0.32	0.32	20226	0.30	0.29
1	1	CR	2	20516	0.52	0.59	20226	0.51	0.61
2	1	CR	2	20516	0.16	0.55	20226	0.11	0.49
3	1	CR	3	20516	0.55	0.49	20226	0.55	0.48
4	1	CR	2	20516	0.40	0.41	20226	0.40	0.43
5	1	CR	2	20516	0.52	0.57	20226	0.51	0.54
6	1	CR	2	20514	0.25	0.61	20225	0.25	0.61
7	1	CR	2	20516	0.25	0.57	20226	0.23	0.56
8	1	CR	1	20516	0.78	0.35	20226	0.80	0.33
9	1	CR	4	20516	0.14	0.57	20226	0.14	0.58
1	2	CR	4	20516	0.20	0.68	20226	0.22	0.69
2	2	CR	2	20516	0.46	0.53	20226	0.49	0.53
3	2	CR	2	20516	0.54	0.67	20226	0.56	0.64

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Mathematics Grade 8 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	508	0.51	0.57	8537	0.39	0.56	999	0.51	0.58	999	0.51	0.58	134	0.57	0.42	49644	0.63	0.56
2	1	CR	2	510	0.42	0.54	8533	0.26	0.57	1004	0.43	0.60	1004	0.43	0.60	135	0.44	0.53	49761	0.58	0.57
3	1	CR	2	514	0.63	0.56	8644	0.50	0.56	1011	0.62	0.55	1011	0.62	0.55	133	0.77	0.48	49835	0.76	0.52
4	1	CR	2	522	0.65	0.55	8815	0.54	0.54	1026	0.66	0.57	1026	0.66	0.57	135	0.74	0.49	50272	0.77	0.54
5	1	CR	1	451	0.10	0.32	7299	0.04	0.23	897	0.11	0.36	897	0.11	0.36	118	0.14	0.50	46038	0.15	0.37
6	1	CR	2	496	0.58	0.43	8212	0.43	0.44	984	0.60	0.41	984	0.60	0.41	129	0.62	0.49	49144	0.66	0.43
7	1	CR	2	516	0.49	0.44	8585	0.39	0.45	1010	0.47	0.43	1010	0.47	0.43	133	0.56	0.37	49984	0.55	0.42
8	1	CR	2	497	0.31	0.42	8368	0.29	0.34	982	0.34	0.40	982	0.34	0.40	128	0.45	0.36	48838	0.41	0.38
9	1	CR	2	464	0.31	0.34	7700	0.26	0.34	901	0.34	0.45	901	0.34	0.45	125	0.46	0.43	46935	0.45	0.46
10	1	CR	4	466	0.42	0.52	7563	0.32	0.53	910	0.44	0.58	910	0.44	0.58	125	0.50	0.69	47970	0.53	0.57
1	2	CR	3	456	0.07	0.35	7778	0.06	0.38	913	0.10	0.52	913	0.10	0.52	124	0.14	0.53	45658	0.15	0.53
2	2	CR	2	491	0.47	0.51	8086	0.33	0.46	988	0.48	0.55	988	0.48	0.55	130	0.50	0.48	49084	0.59	0.54
3	2	CR	1	496	0.21	0.30	8080	0.14	0.28	975	0.25	0.29	975	0.25	0.29	131	0.28	0.37	48965	0.27	0.31
4	2	CR	2	453	0.37	0.57	7513	0.28	0.57	922	0.37	0.61	922	0.37	0.61	123	0.44	0.62	46992	0.52	0.60
5	2	CR	3	489	0.11	0.38	8018	0.06	0.40	966	0.13	0.47	966	0.13	0.47	129	0.16	0.50	48704	0.19	0.46
6	2	CR	2	500	0.80	0.40	8327	0.72	0.44	1002	0.76	0.40	1002	0.76	0.40	128	0.88	0.35	49325	0.84	0.37
7	2	CR	3	488	0.35	0.44	7959	0.29	0.50	939	0.39	0.50	939	0.39	0.50	122	0.43	0.59	48556	0.46	0.50
8	2	CR	2	487	0.42	0.54	8090	0.23	0.42	966	0.37	0.49	966	0.37	0.49	128	0.43	0.50	48913	0.50	0.52
9	2	CR	2	461	0.32	0.56	7803	0.18	0.52	943	0.33	0.58	943	0.33	0.58	127	0.39	0.49	48057	0.46	0.61
10	2	CR	2	473	0.05	0.31	7810	0.03	0.29	942	0.07	0.45	942	0.07	0.45	129	0.11	0.53	48230	0.13	0.47
1	3	MC	1	513	0.60	0.36	8612	0.54	0.37	1022	0.58	0.42	1022	0.58	0.42	133	0.57	0.43	49735	0.68	0.43
2	3	MC	1	518	0.66	0.31	8738	0.59	0.31	1031	0.66	0.31	1031	0.66	0.31	134	0.69	0.35	49939	0.74	0.37
3	3	MC	1	519	0.63	0.51	8706	0.52	0.51	1035	0.61	0.53	1035	0.61	0.53	135	0.75	0.43	49872	0.73	0.50
4	3	MC	1	519	0.68	0.42	8703	0.52	0.47	1035	0.66	0.47	1035	0.66	0.47	134	0.75	0.34	49918	0.76	0.42
5	3	MC	1	518	0.47	0.40	8634	0.37	0.36	1029	0.48	0.34	1029	0.48	0.34	135	0.53	0.30	49767	0.56	0.38
6	3	MC	1	512	0.44	0.29	8566	0.41	0.28	1020	0.47	0.32	1020	0.47	0.32	133	0.43	0.30	49544	0.52	0.36
7	3	MC	1	514	0.54	0.34	8582	0.49	0.26	1025	0.53	0.28	1025	0.53	0.28	134	0.59	0.32	49574	0.63	0.35
8	3	MC	1	507	0.49	0.32	8532	0.40	0.26	1017	0.47	0.34	1017	0.47	0.34	133	0.48	0.33	49360	0.54	0.38
9	3	MC	1	518	0.71	0.50	8709	0.57	0.51	1033	0.69	0.50	1033	0.69	0.50	133	0.83	0.40	49891	0.83	0.44

Mathematics Grade 8 Impact Item Statistics—Race/Ethnicity

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1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
10	3	MC	1	516	0.56	0.42	8663	0.44	0.35	1029	0.54	0.40	1029	0.54	0.40	132	0.64	0.36	49813	0.67	0.45
11	3	MC	1	519	0.83	0.24	8723	0.76	0.33	1034	0.81	0.32	1034	0.81	0.32	133	0.87	0.30	49916	0.88	0.30
12	3	MC	1	518	0.76	0.48	8705	0.66	0.50	1034	0.75	0.49	1034	0.75	0.49	133	0.84	0.45	49876	0.86	0.45
13	3	MC	1	520	0.77	0.30	8683	0.69	0.35	1029	0.77	0.33	1029	0.77	0.33	132	0.73	0.38	49860	0.83	0.34
14	3	MC	1	518	0.52	0.28	8666	0.46	0.23	1033	0.51	0.29	1033	0.51	0.29	133	0.41	0.30	49828	0.58	0.30
15	3	MC	1	520	0.90	0.39	8722	0.83	0.35	1035	0.90	0.33	1035	0.90	0.33	133	0.93	0.37	49904	0.94	0.29
16	3	MC	1	519	0.83	0.42	8706	0.75	0.43	1035	0.82	0.44	1035	0.82	0.44	133	0.87	0.42	49892	0.91	0.38
17	3	MC	1	514	0.72	0.40	8697	0.59	0.39	1032	0.67	0.44	1032	0.67	0.44	133	0.69	0.45	49869	0.81	0.40
18	3	MC	1	518	0.55	0.41	8634	0.50	0.27	1031	0.62	0.34	1031	0.62	0.34	132	0.61	0.29	49764	0.68	0.32
19	3	MC	1	519	0.80	0.46	8694	0.69	0.46	1035	0.78	0.49	1035	0.78	0.49	133	0.84	0.25	49859	0.87	0.43
20	3	MC	1	518	0.28	0.29	8687	0.15	0.26	1032	0.30	0.42	1032	0.30	0.42	132	0.43	0.49	49851	0.38	0.45
21	3	MC	1	518	0.61	0.42	8624	0.47	0.39	1030	0.61	0.46	1030	0.61	0.46	131	0.63	0.47	49788	0.73	0.48
22	3	MC	1	517	0.60	0.50	8677	0.53	0.41	1031	0.59	0.43	1031	0.59	0.43	133	0.65	0.38	49822	0.70	0.46
23	3	MC	1	517	0.55	0.22	8643	0.49	0.24	1029	0.53	0.23	1029	0.53	0.23	133	0.56	0.36	49814	0.58	0.23
24	3	MC	1	518	0.57	0.40	8636	0.45	0.32	1030	0.55	0.40	1030	0.55	0.40	133	0.53	0.48	49781	0.66	0.41
25	3	MC	1	518	0.74	0.39	8641	0.61	0.30	1027	0.71	0.31	1027	0.71	0.31	133	0.64	0.26	49816	0.79	0.34
26	3	MC	1	516	0.35	0.46	8616	0.19	0.34	1023	0.32	0.48	1023	0.32	0.48	133	0.31	0.52	49729	0.48	0.53
27	3	MC	1	514	0.48	0.34	8624	0.42	0.40	1024	0.47	0.45	1024	0.47	0.45	133	0.49	0.54	49759	0.61	0.47
28	3	MC	1	515	0.41	0.29	8587	0.31	0.23	1025	0.39	0.25	1025	0.39	0.25	132	0.50	0.24	49664	0.46	0.30
29	3	MC	1	516	0.31	0.40	8575	0.19	0.37	1023	0.29	0.43	1023	0.29	0.43	133	0.37	0.51	49607	0.40	0.46
30	3	MC	1	516	0.31	0.33	8533	0.26	0.26	1018	0.30	0.38	1018	0.30	0.38	133	0.45	0.34	49542	0.42	0.42
31	3	MC	1	516	0.29	0.16	8556	0.23	0.19	1020	0.26	0.17	1020	0.26	0.17	133	0.33	0.17	49612	0.30	0.26

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Mathematics Grade 8 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	30433	0.55	0.58	30591	0.63	0.59
2	1	CR	2	30527	0.52	0.61	30603	0.55	0.60
3	1	CR	2	30588	0.70	0.56	30738	0.73	0.55
4	1	CR	2	31056	0.72	0.59	30904	0.74	0.56
5	1	CR	1	27528	0.14	0.38	28300	0.13	0.37
6	1	CR	2	30076	0.65	0.47	30042	0.59	0.45
7	1	CR	2	30720	0.51	0.44	30680	0.54	0.45
8	1	CR	2	29821	0.39	0.40	30131	0.39	0.37
9	1	CR	2	28325	0.42	0.47	28920	0.43	0.47
10	1	CR	4	28544	0.48	0.59	29579	0.52	0.59
1	2	CR	4	27329	0.13	0.53	28624	0.14	0.52
2	2	CR	2	29908	0.56	0.57	30004	0.54	0.55
3	2	CR	1	29867	0.28	0.34	29926	0.22	0.30
4	2	CR	2	28080	0.45	0.62	28977	0.51	0.61
5	2	CR	3	29567	0.19	0.48	29859	0.15	0.47
6	2	CR	2	30112	0.81	0.41	30314	0.83	0.37
7	2	CR	3	29243	0.42	0.50	29917	0.46	0.55
8	2	CR	2	29666	0.46	0.54	30039	0.46	0.54
9	2	CR	2	28990	0.44	0.64	29472	0.39	0.60
10	2	CR	2	29172	0.13	0.49	29493	0.10	0.44
1	3	MC	1	30713	0.64	0.45	30473	0.68	0.41
2	3	MC	1	30890	0.73	0.37	30666	0.70	0.38
3	3	MC	1	30820	0.69	0.53	30632	0.71	0.51
4	3	MC	1	30860	0.73	0.45	30636	0.72	0.46
5	3	MC	1	30738	0.52	0.41	30522	0.54	0.39
6	3	MC	1	30602	0.49	0.36	30351	0.52	0.35
7	3	MC	1	30636	0.61	0.36	30377	0.60	0.35
8	3	MC	1	30488	0.54	0.39	30231	0.51	0.36
9	3	MC	1	30850	0.80	0.48	30627	0.77	0.50
10	3	MC	1	30780	0.63	0.46	30552	0.63	0.46
11	3	MC	1	30871	0.87	0.31	30643	0.86	0.33
12	3	MC	1	30844	0.81	0.50	30609	0.85	0.45
13	3	MC	1	30821	0.80	0.38	30593	0.81	0.34
14	3	MC	1	30776	0.53	0.31	30591	0.59	0.30
15	3	MC	1	30862	0.92	0.33	30641	0.93	0.31
16	3	MC	1	30843	0.87	0.43	30633	0.90	0.39
17	3	MC	1	30813	0.78	0.43	30621	0.75	0.42
18	3	MC	1	30725	0.67	0.35	30538	0.64	0.32
19	3	MC	1	30804	0.84	0.47	30618	0.83	0.44

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Mathematics Grade 8 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
20	3	MC	1	30804	0.39	0.46	30595	0.30	0.46
21	3	MC	1	30741	0.71	0.51	30539	0.66	0.49
22	3	MC	1	30778	0.67	0.50	30591	0.68	0.43
23	3	MC	1	30743	0.56	0.25	30578	0.57	0.22
24	3	MC	1	30720	0.63	0.44	30553	0.62	0.40
25	3	MC	1	30750	0.76	0.39	30573	0.75	0.32
26	3	MC	1	30673	0.46	0.55	30529	0.39	0.53
27	3	MC	1	30694	0.54	0.48	30543	0.61	0.47
28	3	MC	1	30626	0.48	0.33	30490	0.40	0.29
29	3	MC	1	30589	0.39	0.49	30447	0.34	0.46
30	3	MC	1	30539	0.39	0.41	30387	0.40	0.41
31	3	MC	1	30594	0.31	0.26	30432	0.27	0.25

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Mathematics Grade 8 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	505	0.41	0.56	616	0.53	0.49	9426	0.21	0.47	1069	0.40	0.50	113	0.51	0.46	51105	0.49	0.51
2	1	CR	2	512	0.33	0.43	610	0.46	0.40	9688	0.29	0.38	1083	0.36	0.37	116	0.37	0.32	51169	0.39	0.39
3	1	CR	2	526	0.74	0.48	624	0.81	0.43	10039	0.39	0.51	1115	0.73	0.46	117	0.78	0.40	52334	0.80	0.40
4	1	CR	2	514	0.44	0.46	619	0.59	0.59	9721	0.36	0.47	1087	0.48	0.50	115	0.55	0.55	51694	0.54	0.50
5	1	CR	2	494	0.24	0.50	603	0.42	0.54	9132	0.15	0.40	1051	0.26	0.41	108	0.37	0.37	50422	0.33	0.48
6	1	CR	2	515	0.79	0.51	620	0.89	0.47	9837	0.70	0.53	1102	0.79	0.53	115	0.89	0.42	51968	0.85	0.48
7	1	CR	2	504	0.33	0.48	608	0.47	0.52	9212	0.16	0.47	1072	0.35	0.45	110	0.40	0.58	51318	0.43	0.49
8	1	CR	4	511	0.22	0.69	614	0.38	0.77	9388	0.08	0.58	1077	0.22	0.72	115	0.28	0.68	51613	0.34	0.73
1	2	CR	4	514	0.59	0.72	619	0.73	0.68	9694	0.44	0.70	1079	0.60	0.73	116	0.68	0.60	51610	0.71	0.66
2	2	CR	3	520	0.41	0.60	615	0.54	0.59	9550	0.28	0.53	1080	0.42	0.53	112	0.52	0.48	51601	0.48	0.57
3	2	CR	3	524	0.57	0.62	619	0.73	0.59	9652	0.45	0.62	1091	0.60	0.59	115	0.72	0.51	51884	0.67	0.58
4	2	CR	2	506	0.54	0.51	608	0.70	0.52	9287	0.36	0.54	1062	0.53	0.54	114	0.72	0.55	51104	0.65	0.53
5	2	CR	1	521	0.47	0.53	621	0.54	0.48	9659	0.31	0.49	1083	0.45	0.48	113	0.58	0.55	51827	0.56	0.46
6	2	CR	1	502	0.39	0.43	605	0.56	0.49	9077	0.31	0.41	1055	0.41	0.41	112	0.55	0.43	50609	0.51	0.44
7	2	CR	1	471	0.39	0.43	588	0.57	0.48	8414	0.10	0.39	1000	0.43	0.44	108	0.46	0.35	48357	0.26	0.46
8	2	CR	3	487	0.35	0.65	600	0.58	0.69	8876	0.28	0.62	1042	0.40	0.59	113	0.51	0.52	50155	0.48	0.64
9	2	CR	2	506	0.39	0.51	611	0.55	0.55	9212	0.22	0.40	1072	0.36	0.51	112	0.46	0.55	51099	0.47	0.54
10	2	CR	2	513	0.36	0.62	618	0.58	0.67	9442	0.26	0.57	1088	0.40	0.60	115	0.48	0.51	51593	0.49	0.62
11	2	CR	2	510	0.30	0.47	608	0.44	0.46	9266	0.20	0.50	1073	0.31	0.48	114	0.36	0.49	51445	0.40	0.47
12	2	CR	2	497	0.16	0.49	594	0.24	0.43	8392	0.05	0.36	1028	0.14	0.40	111	0.12	0.33	50215	0.19	0.46
1	3	MC	1	524	0.57	0.38	623	0.78	0.44	9816	0.55	0.34	1098	0.63	0.41	116	0.70	0.27	51958	0.70	0.41
2	3	MC	1	525	0.67	0.32	624	0.81	0.41	10005	0.58	0.28	1111	0.67	0.30	117	0.68	0.34	52175	0.73	0.35
3	3	MC	1	524	0.60	0.51	621	0.84	0.46	9936	0.51	0.49	1107	0.62	0.50	116	0.73	0.47	52050	0.72	0.50
4	3	MC	1	524	0.70	0.44	623	0.79	0.49	9982	0.55	0.49	1114	0.69	0.49	117	0.78	0.45	52251	0.79	0.42
5	3	MC	1	519	0.47	0.36	623	0.66	0.39	9861	0.39	0.35	1109	0.51	0.41	115	0.58	0.49	52023	0.58	0.38
6	3	MC	1	520	0.43	0.29	621	0.62	0.42	9734	0.41	0.30	1094	0.47	0.30	114	0.54	0.25	51721	0.52	0.36
7	3	MC	1	520	0.59	0.30	623	0.71	0.41	9789	0.51	0.24	1100	0.62	0.28	115	0.69	0.17	51824	0.64	0.34
8	3	MC	1	520	0.47	0.42	617	0.61	0.42	9720	0.42	0.29	1094	0.49	0.28	116	0.60	0.31	51485	0.56	0.39
9	3	MC	1	522	0.77	0.51	623	0.88	0.47	9962	0.56	0.50	1108	0.73	0.49	117	0.85	0.44	52205	0.84	0.44
10	3	MC	1	520	0.67	0.40	624	0.79	0.50	9883	0.50	0.41	1110	0.63	0.43	117	0.68	0.49	52078	0.72	0.47
11	3	MC	1	524	0.84	0.29	624	0.90	0.33	10004	0.77	0.34	1116	0.81	0.34	117	0.94	0.18	52226	0.88	0.31
12	3	MC	1	521	0.76	0.51	624	0.89	0.47	9964	0.67	0.53	1111	0.78	0.50	117	0.87	0.45	52167	0.86	0.47
13	3	MC	1	521	0.79	0.33	623	0.87	0.35	9958	0.71	0.33	1114	0.77	0.34	117	0.82	0.35	52166	0.84	0.32

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Mathematics Grade 8 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
14	3	MC	1	518	0.48	0.29	621	0.56	0.30	9881	0.44	0.26	1106	0.47	0.24	117	0.52	0.28	52007	0.57	0.30
15	3	MC	1	523	0.89	0.37	624	0.96	0.29	9988	0.83	0.36	1112	0.90	0.28	117	0.97	0.29	52201	0.95	0.29
16	3	MC	1	522	0.84	0.41	624	0.91	0.44	9973	0.75	0.44	1112	0.83	0.44	117	0.92	0.37	52174	0.92	0.38
17	3	MC	1	523	0.73	0.39	622	0.79	0.44	9911	0.59	0.39	1108	0.69	0.44	117	0.80	0.53	52070	0.82	0.41
18	3	MC	1	509	0.64	0.37	614	0.70	0.38	9761	0.52	0.28	1099	0.63	0.35	115	0.77	0.13	51650	0.71	0.33
19	3	MC	1	522	0.84	0.42	621	0.91	0.41	9965	0.72	0.44	1110	0.80	0.42	117	0.91	0.23	52188	0.89	0.40
20	3	MC	1	523	0.28	0.38	622	0.47	0.55	9972	0.15	0.28	1112	0.29	0.43	117	0.35	0.47	52173	0.38	0.46
21	3	MC	1	521	0.64	0.47	622	0.76	0.51	9911	0.48	0.39	1107	0.63	0.43	117	0.76	0.57	52134	0.74	0.47
22	3	MC	1	522	0.60	0.48	621	0.81	0.45	9940	0.56	0.41	1109	0.62	0.44	117	0.74	0.49	52159	0.73	0.45
23	3	MC	1	523	0.56	0.19	622	0.65	0.27	9963	0.54	0.22	1110	0.56	0.23	117	0.54	0.29	52183	0.60	0.20
24	3	MC	1	523	0.56	0.36	621	0.63	0.44	9932	0.46	0.30	1107	0.52	0.40	116	0.68	0.43	52099	0.66	0.38
25	3	MC	1	524	0.75	0.31	622	0.86	0.34	9960	0.66	0.30	1111	0.75	0.35	117	0.90	0.17	52181	0.81	0.34
26	3	MC	1	522	0.36	0.45	618	0.53	0.59	9886	0.18	0.34	1108	0.33	0.48	117	0.42	0.55	52048	0.46	0.53
27	3	MC	1	522	0.55	0.46	621	0.73	0.48	9888	0.43	0.42	1107	0.54	0.48	117	0.67	0.40	52068	0.63	0.50
28	3	MC	1	522	0.44	0.25	617	0.52	0.37	9861	0.33	0.23	1108	0.42	0.30	116	0.43	0.30	52059	0.49	0.30
29	3	MC	1	518	0.36	0.40	619	0.52	0.53	9828	0.21	0.34	1098	0.34	0.44	117	0.32	0.52	51952	0.41	0.45
30	3	MC	1	521	0.34	0.32	615	0.53	0.45	9800	0.25	0.30	1104	0.33	0.39	115	0.44	0.44	51934	0.43	0.42
31	3	MC	1	516	0.31	0.23	615	0.39	0.42	9792	0.26	0.19	1103	0.30	0.25	117	0.32	0.24	51963	0.34	0.27

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Mathematics Grade 8 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	32939	0.29	0.52	32243	0.49	0.54
2	1	CR	2	33221	0.35	0.40	32309	0.40	0.40
3	1	CR	2	34340	0.50	0.47	32859	0.79	0.44
4	1	CR	2	33658	0.50	0.52	32477	0.52	0.52
5	1	CR	2	32460	0.31	0.50	31661	0.30	0.49
6	1	CR	2	33868	0.80	0.52	32696	0.86	0.48
7	1	CR	2	33085	0.38	0.50	32086	0.39	0.53
8	1	CR	4	33482	0.32	0.75	32193	0.28	0.74
1	2	CR	4	33508	0.64	0.71	32491	0.69	0.69
2	2	CR	3	33423	0.45	0.59	32433	0.46	0.59
3	2	CR	3	33738	0.62	0.62	32552	0.66	0.61
4	2	CR	2	32995	0.59	0.56	32042	0.61	0.56
5	2	CR	1	33642	0.50	0.49	32564	0.54	0.49
6	2	CR	1	32514	0.50	0.44	31747	0.46	0.46
7	2	CR	1	30831	0.17	0.48	30293	0.47	0.47
8	2	CR	3	32074	0.44	0.65	31466	0.47	0.65
9	2	CR	2	32945	0.43	0.57	32012	0.43	0.53
10	2	CR	2	33387	0.47	0.64	32368	0.44	0.63
11	2	CR	2	33157	0.33	0.50	32222	0.41	0.49
12	2	CR	2	32040	0.19	0.48	31076	0.15	0.44
1	3	MC	1	34014	0.66	0.42	32554	0.70	0.39
2	3	MC	1	34213	0.73	0.36	32781	0.69	0.36
3	3	MC	1	34083	0.68	0.53	32703	0.70	0.51
4	3	MC	1	34276	0.76	0.46	32775	0.75	0.48
5	3	MC	1	34099	0.54	0.41	32572	0.56	0.39
6	3	MC	1	33861	0.49	0.36	32348	0.52	0.35
7	3	MC	1	33965	0.63	0.34	32411	0.62	0.32
8	3	MC	1	33782	0.55	0.41	32169	0.53	0.37
9	3	MC	1	34236	0.81	0.49	32737	0.78	0.50
10	3	MC	1	34075	0.68	0.49	32682	0.70	0.48
11	3	MC	1	34265	0.87	0.33	32786	0.86	0.34
12	3	MC	1	34198	0.81	0.52	32741	0.86	0.47
13	3	MC	1	34198	0.81	0.36	32739	0.83	0.32
14	3	MC	1	34013	0.51	0.31	32656	0.57	0.30
15	3	MC	1	34215	0.93	0.33	32786	0.93	0.33
16	3	MC	1	34192	0.88	0.44	32766	0.90	0.41
17	3	MC	1	34068	0.79	0.43	32709	0.76	0.45
18	3	MC	1	33660	0.70	0.36	32483	0.65	0.34

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Mathematics Grade 8 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
19	3	MC	1	34193	0.87	0.45	32759	0.85	0.42
20	3	MC	1	34188	0.38	0.48	32757	0.31	0.47
21	3	MC	1	34154	0.73	0.50	32681	0.66	0.49
22	3	MC	1	34164	0.69	0.50	32727	0.71	0.42
23	3	MC	1	34198	0.58	0.21	32755	0.59	0.21
24	3	MC	1	34115	0.64	0.42	32708	0.61	0.37
25	3	MC	1	34196	0.80	0.37	32752	0.77	0.33
26	3	MC	1	34062	0.45	0.55	32662	0.38	0.53
27	3	MC	1	34060	0.57	0.50	32690	0.63	0.49
28	3	MC	1	34075	0.50	0.33	32638	0.42	0.30
29	3	MC	1	33974	0.41	0.47	32583	0.35	0.45
30	3	MC	1	33960	0.39	0.42	32551	0.40	0.42
31	3	MC	1	33970	0.34	0.27	32561	0.30	0.27

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Mathematics Grade 10 Impact Item Statistics—Race/Ethnicity
1997

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	299	0.28	0.55	338	0.52	0.68	4058	0.17	0.57	499	0.27	0.53	134	0.37	0.72	25836	0.42	0.60
2	1	CR	2	299	0.08	0.41	338	0.15	0.48	4058	0.02	0.34	499	0.09	0.46	134	0.18	0.57	25836	0.16	0.52
3	1	CR	2	299	0.33	0.60	338	0.44	0.70	4058	0.12	0.59	499	0.31	0.66	134	0.41	0.59	25836	0.45	0.61
4	1	CR	3	299	0.13	0.44	338	0.22	0.61	4058	0.07	0.52	499	0.12	0.57	134	0.15	0.64	25836	0.18	0.57
5	1	CR	3	299	0.06	0.34	338	0.18	0.53	4058	0.04	0.38	499	0.08	0.45	134	0.18	0.58	25836	0.14	0.47
6	1	CR	2	299	0.14	0.42	338	0.24	0.61	4058	0.06	0.52	499	0.14	0.52	134	0.21	0.58	25836	0.24	0.55
7	1	CR	2	299	0.34	0.28	338	0.44	0.47	4058	0.27	0.33	499	0.38	0.43	134	0.41	0.41	25836	0.46	0.41
8	1	CR	3	299	0.10	0.42	338	0.20	0.66	4058	0.04	0.44	499	0.09	0.55	134	0.14	0.61	25836	0.17	0.57
9	1	CR	4	299	0.26	0.57	338	0.40	0.74	4058	0.21	0.58	499	0.27	0.66	134	0.34	0.77	25836	0.36	0.65
1	2	CR	4	299	0.22	0.52	338	0.29	0.61	4058	0.15	0.48	499	0.20	0.52	134	0.27	0.68	25836	0.27	0.58
2	2	CR	2	299	0.47	0.46	338	0.50	0.42	4058	0.26	0.55	499	0.40	0.53	134	0.48	0.52	25836	0.55	0.46
3	2	CR	2	299	0.13	0.54	338	0.25	0.66	4058	0.05	0.49	499	0.17	0.61	134	0.18	0.67	25836	0.24	0.58
4	2	CR	2	299	0.53	0.60	338	0.69	0.55	4058	0.39	0.58	499	0.57	0.53	134	0.58	0.52	25836	0.69	0.53
5	2	CR	2	299	0.16	0.50	338	0.37	0.61	4058	0.07	0.55	499	0.16	0.55	134	0.26	0.66	25836	0.28	0.61
6	2	CR	2	299	0.09	0.50	338	0.23	0.63	4058	0.03	0.40	499	0.08	0.47	134	0.16	0.66	25836	0.17	0.60
7	2	CR	2	299	0.20	0.49	338	0.37	0.68	4058	0.12	0.54	499	0.23	0.59	134	0.31	0.56	25836	0.35	0.59
8	2	CR	3	299	0.25	0.56	338	0.42	0.70	4058	0.11	0.58	499	0.22	0.61	134	0.26	0.53	25836	0.37	0.63
9	2	CR	4	299	0.34	0.70	338	0.51	0.79	4058	0.21	0.65	499	0.34	0.71	134	0.38	0.75	25836	0.47	0.71
10	2	CR	2	299	0.52	0.57	338	0.58	0.65	4058	0.30	0.57	499	0.50	0.57	134	0.56	0.51	25836	0.64	0.51
1	3	MC	1	299	0.63	0.37	338	0.82	0.42	4058	0.52	0.39	499	0.58	0.42	134	0.66	0.39	25836	0.72	0.39
2	3	MC	1	299	0.42	0.37	338	0.61	0.39	4058	0.36	0.37	499	0.41	0.43	134	0.45	0.36	25836	0.52	0.38
3	3	MC	1	299	0.71	0.46	338	0.84	0.27	4058	0.66	0.45	499	0.69	0.52	134	0.79	0.33	25836	0.81	0.40
4	3	MC	1	299	0.28	0.44	338	0.43	0.56	4058	0.17	0.37	499	0.26	0.45	134	0.43	0.61	25836	0.37	0.48
5	3	MC	1	299	0.20	0.34	338	0.33	0.54	4058	0.15	0.20	499	0.23	0.30	134	0.31	0.28	25836	0.28	0.35
6	3	MC	1	299	0.48	0.43	338	0.56	0.52	4058	0.29	0.40	499	0.48	0.50	134	0.60	0.57	25836	0.57	0.48
7	3	MC	1	299	0.40	0.47	338	0.56	0.59	4058	0.22	0.40	499	0.38	0.46	134	0.52	0.52	25836	0.51	0.53
8	3	MC	1	299	0.42	0.44	338	0.57	0.56	4058	0.29	0.40	499	0.43	0.49	134	0.49	0.50	25836	0.53	0.48
9	3	MC	1	299	0.60	0.34	338	0.64	0.28	4058	0.50	0.32	499	0.58	0.34	134	0.64	0.11	25836	0.63	0.27
10	3	MC	1	299	0.52	0.41	338	0.70	0.58	4058	0.42	0.46	499	0.52	0.56	134	0.63	0.47	25836	0.64	0.51
11	3	MC	1	299	0.53	0.42	338	0.73	0.52	4058	0.50	0.43	499	0.57	0.44	134	0.62	0.46	25836	0.64	0.44

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Mathematics Grade 10 Impact Item Statistics—Race/Ethnicity
1997 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
12	3	MC	1	299	0.66	0.43	338	0.78	0.40	4058	0.65	0.37	499	0.71	0.46	134	0.72	0.42	25836	0.79	0.37
13	3	MC	1	299	0.68	0.46	338	0.78	0.45	4058	0.54	0.47	499	0.63	0.53	134	0.75	0.29	25836	0.75	0.44
14	3	MC	1	299	0.57	0.47	338	0.61	0.51	4058	0.37	0.43	499	0.52	0.59	134	0.62	0.50	25836	0.66	0.51
15	3	MC	1	299	0.63	0.39	338	0.75	0.45	4058	0.61	0.42	499	0.70	0.48	134	0.72	0.37	25836	0.77	0.40
16	3	MC	1	299	0.60	0.45	338	0.67	0.51	4058	0.51	0.46	499	0.63	0.52	134	0.63	0.30	25836	0.71	0.44
17	3	MC	1	299	0.57	0.37	338	0.58	0.48	4058	0.45	0.37	499	0.51	0.44	134	0.62	0.48	25836	0.64	0.39
18	3	MC	1	299	0.71	0.56	338	0.86	0.40	4058	0.63	0.48	499	0.74	0.52	134	0.79	0.44	25836	0.83	0.42
19	3	MC	1	299	0.62	0.57	338	0.66	0.67	4058	0.35	0.53	499	0.60	0.60	134	0.69	0.55	25836	0.71	0.55
20	3	MC	1	299	0.40	0.36	338	0.55	0.48	4058	0.30	0.40	499	0.46	0.52	134	0.51	0.59	25836	0.53	0.47
21	3	MC	1	299	0.31	0.38	338	0.60	0.43	4058	0.26	0.35	499	0.38	0.41	134	0.47	0.41	25836	0.44	0.45
22	3	MC	1	299	0.69	0.40	338	0.77	0.44	4058	0.63	0.39	499	0.70	0.42	134	0.76	0.45	25836	0.79	0.37
23	3	MC	1	299	0.51	0.44	338	0.63	0.49	4058	0.41	0.47	499	0.51	0.50	134	0.63	0.48	25836	0.65	0.46
24	3	MC	1	299	0.49	0.50	338	0.62	0.59	4058	0.35	0.46	499	0.49	0.45	134	0.63	0.44	25836	0.60	0.47
25	3	MC	1	299	0.24	0.30	338	0.50	0.48	4058	0.23	0.36	499	0.34	0.40	134	0.33	0.32	25836	0.38	0.43

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Mathematics Grade 10 Impact Item Statistics—Gender
1997

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	3	MC	1	16464	0.68	0.43	16975	0.69	0.41
2	3	MC	1	16464	0.49	0.43	16975	0.50	0.36
3	3	MC	1	16464	0.76	0.45	16975	0.81	0.41
4	3	MC	1	16464	0.39	0.51	16975	0.29	0.47
5	3	MC	1	16464	0.29	0.36	16975	0.23	0.34
6	3	MC	1	16464	0.59	0.52	16975	0.46	0.50
7	3	MC	1	16464	0.49	0.54	16975	0.44	0.55
8	3	MC	1	16464	0.49	0.49	16975	0.49	0.51
9	3	MC	1	16464	0.60	0.28	16975	0.62	0.31
10	3	MC	1	16464	0.59	0.55	16975	0.61	0.50
11	3	MC	1	16464	0.60	0.47	16975	0.63	0.44
12	3	MC	1	16464	0.74	0.42	16975	0.78	0.36
13	3	MC	1	16464	0.73	0.50	16975	0.70	0.44
14	3	MC	1	16464	0.62	0.54	16975	0.61	0.52
15	3	MC	1	16464	0.73	0.45	16975	0.75	0.39
16	3	MC	1	16464	0.65	0.48	16975	0.69	0.45
17	3	MC	1	16464	0.62	0.46	16975	0.60	0.36
18	3	MC	1	16464	0.78	0.48	16975	0.81	0.45
19	3	MC	1	16464	0.68	0.58	16975	0.63	0.60
20	3	MC	1	16464	0.52	0.50	16975	0.47	0.48
21	3	MC	1	16464	0.42	0.47	16975	0.40	0.44
22	3	MC	1	16464	0.75	0.42	16975	0.76	0.38
23	3	MC	1	16464	0.60	0.50	16975	0.62	0.48
24	3	MC	1	16464	0.58	0.49	16975	0.55	0.51
25	3	MC	1	16464	0.37	0.43	16975	0.35	0.44
1	1	CR	2	16464	0.37	0.63	16975	0.39	0.61
2	1	CR	2	16464	0.16	0.53	16975	0.12	0.50
3	1	CR	2	16464	0.41	0.64	16975	0.38	0.64
4	1	CR	3	16464	0.17	0.59	16975	0.17	0.57
5	1	CR	3	16464	0.12	0.47	16975	0.13	0.47
6	1	CR	2	16464	0.22	0.57	16975	0.20	0.56
7	1	CR	2	16464	0.42	0.46	16975	0.45	0.40
8	1	CR	3	16464	0.16	0.58	16975	0.14	0.56
9	1	CR	4	16464	0.35	0.68	16975	0.33	0.63
1	2	CR	4	16464	0.26	0.61	16975	0.25	0.57
2	2	CR	2	16464	0.53	0.50	16975	0.48	0.51
3	2	CR	2	16464	0.23	0.60	16975	0.19	0.59
4	2	CR	2	16464	0.61	0.59	16975	0.67	0.55

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Mathematics Grade 10 Impact Item Statistics—Gender
1997 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
5	2	CR	2	16464	0.27	0.63	16975	0.23	0.61
6	2	CR	2	16464	0.18	0.62	16975	0.12	0.56
7	2	CR	2	16464	0.32	0.61	16975	0.32	0.60
8	2	CR	3	16464	0.33	0.64	16975	0.33	0.65
9	2	CR	4	16464	0.42	0.74	16975	0.44	0.72
10	2	CR	2	16464	0.55	0.58	16975	0.62	0.55

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Mathematics Grade 10 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	441	0.19	0.55	663	0.33	0.66	5965	0.04	0.41	770	0.17	0.55	167	0.20	0.59	42323	0.24	0.57
2	1	CR	2	462	0.27	0.58	666	0.44	0.61	6273	0.12	0.49	805	0.26	0.52	181	0.32	0.58	43952	0.37	0.58
3	1	CR	2	449	0.20	0.52	654	0.29	0.55	6094	0.07	0.42	782	0.18	0.55	168	0.24	0.56	42602	0.25	0.54
4	1	CR	3	449	0.28	0.64	678	0.42	0.68	6289	0.15	0.52	793	0.25	0.57	178	0.26	0.47	43502	0.32	0.61
5	1	CR	2	442	0.30	0.53	643	0.45	0.58	5660	0.16	0.47	752	0.31	0.56	171	0.37	0.51	42455	0.39	0.54
6	1	CR	2	445	0.66	0.48	670	0.78	0.44	6083	0.58	0.49	770	0.70	0.48	173	0.73	0.41	43218	0.76	0.44
7	1	CR	3	447	0.11	0.46	659	0.21	0.57	5882	0.04	0.45	780	0.12	0.55	172	0.16	0.66	43117	0.16	0.56
8	1	CR	4	372	0.22	0.69	579	0.35	0.71	4401	0.11	0.56	637	0.22	0.68	141	0.25	0.71	38253	0.28	0.67
1	2	CR	4	399	0.20	0.61	624	0.31	0.65	5047	0.13	0.57	690	0.21	0.63	151	0.21	0.65	39859	0.25	0.61
2	2	CR	3	426	0.37	0.65	637	0.55	0.66	5579	0.21	0.54	742	0.39	0.66	165	0.37	0.69	41878	0.45	0.62
3	2	CR	2	432	0.62	0.58	640	0.74	0.57	5614	0.41	0.58	737	0.65	0.57	171	0.65	0.55	42289	0.71	0.53
4	2	CR	3	406	0.50	0.68	629	0.58	0.66	5559	0.34	0.63	734	0.50	0.66	159	0.49	0.65	41634	0.59	0.63
5	2	CR	3	398	0.46	0.66	627	0.60	0.63	5106	0.26	0.62	696	0.42	0.62	156	0.45	0.61	40395	0.56	0.59
6	2	CR	3	426	0.29	0.52	618	0.41	0.50	5300	0.18	0.49	697	0.31	0.51	167	0.30	0.47	40639	0.34	0.47
7	2	CR	3	425	0.23	0.57	617	0.34	0.59	5299	0.14	0.50	719	0.24	0.60	162	0.25	0.48	41555	0.31	0.57
8	2	CR	2	417	0.42	0.64	636	0.66	0.64	4974	0.26	0.54	688	0.46	0.65	153	0.44	0.66	41249	0.54	0.61
9	2	CR	2	395	0.19	0.66	622	0.40	0.64	4848	0.07	0.52	671	0.19	0.62	152	0.21	0.63	40378	0.27	0.62
10	2	CR	3	380	0.13	0.58	612	0.24	0.55	4400	0.04	0.43	644	0.13	0.50	146	0.13	0.53	39008	0.16	0.52
1	3	MC	1	464	0.66	0.40	678	0.82	0.36	6603	0.58	0.32	812	0.70	0.33	186	0.72	0.32	44134	0.74	0.36
2	3	MC	1	462	0.46	0.43	677	0.70	0.39	6503	0.40	0.29	808	0.51	0.42	186	0.48	0.44	44032	0.53	0.38
3	3	MC	1	464	0.72	0.43	678	0.89	0.34	6592	0.71	0.41	809	0.74	0.45	186	0.87	0.26	44103	0.82	0.39
4	3	MC	1	464	0.31	0.42	675	0.55	0.53	6566	0.21	0.37	806	0.33	0.47	186	0.39	0.38	44077	0.39	0.48
5	3	MC	1	463	0.30	0.31	675	0.39	0.48	6540	0.18	0.20	805	0.28	0.33	184	0.33	0.23	43967	0.31	0.35
6	3	MC	1	463	0.53	0.43	679	0.61	0.55	6569	0.32	0.38	810	0.50	0.44	184	0.57	0.48	44074	0.58	0.46
7	3	MC	1	463	0.44	0.50	678	0.63	0.55	6529	0.25	0.39	804	0.45	0.53	183	0.53	0.42	44005	0.54	0.54
8	3	MC	1	462	0.48	0.46	678	0.64	0.47	6551	0.32	0.39	809	0.47	0.49	182	0.52	0.52	44073	0.56	0.47
9	3	MC	1	463	0.64	0.27	677	0.66	0.36	6546	0.56	0.25	811	0.62	0.23	182	0.57	0.30	44059	0.66	0.25
10	3	MC	1	464	0.56	0.51	679	0.78	0.52	6566	0.44	0.42	810	0.57	0.48	183	0.65	0.46	44071	0.65	0.50
11	3	MC	1	462	0.59	0.39	678	0.80	0.46	6490	0.58	0.36	805	0.62	0.46	183	0.62	0.43	43983	0.69	0.44
12	3	MC	1	464	0.73	0.40	678	0.84	0.34	6563	0.71	0.30	810	0.79	0.35	183	0.79	0.33	44061	0.80	0.35
13	3	MC	1	463	0.69	0.47	677	0.84	0.40	6540	0.58	0.44	810	0.71	0.42	183	0.81	0.34	44049	0.77	0.43
14	3	MC	1	463	0.59	0.45	674	0.71	0.57	6535	0.38	0.37	809	0.57	0.50	183	0.61	0.46	44024	0.67	0.49
15	3	MC	1	462	0.71	0.42	676	0.81	0.38	6546	0.67	0.32	809	0.74	0.33	183	0.71	0.42	44052	0.79	0.37
16	3	MC	1	462	0.65	0.40	676	0.80	0.40	6526	0.60	0.39	807	0.72	0.42	183	0.72	0.39	44018	0.76	0.40

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Mathematics Grade 10 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
17	3	MC	1	463	0.63	0.44	678	0.66	0.41	6516	0.51	0.30	805	0.61	0.37	183	0.63	0.36	44033	0.69	0.36
18	3	MC	1	464	0.77	0.46	677	0.90	0.39	6492	0.70	0.39	805	0.78	0.44	183	0.81	0.40	43994	0.86	0.38
19	3	MC	1	463	0.67	0.50	675	0.77	0.60	6487	0.39	0.50	804	0.63	0.58	183	0.68	0.57	43994	0.75	0.53
20	3	MC	1	463	0.51	0.48	671	0.62	0.55	6477	0.33	0.38	804	0.49	0.50	183	0.50	0.47	43899	0.58	0.47
21	3	MC	1	459	0.38	0.35	669	0.63	0.47	6426	0.27	0.29	802	0.42	0.41	183	0.44	0.51	43855	0.45	0.43
22	3	MC	1	459	0.78	0.35	669	0.87	0.35	6435	0.70	0.30	798	0.78	0.32	183	0.81	0.36	43864	0.82	0.33
23	3	MC	1	459	0.58	0.48	668	0.73	0.54	6404	0.45	0.44	795	0.58	0.50	183	0.63	0.41	43835	0.69	0.46
24	3	MC	1	459	0.57	0.42	666	0.69	0.50	6355	0.40	0.38	792	0.56	0.47	183	0.57	0.43	43744	0.63	0.44
25	3	MC	1	458	0.34	0.44	662	0.60	0.50	6355	0.26	0.33	790	0.34	0.41	183	0.37	0.45	43735	0.41	0.45

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Mathematics Grade 10 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	24959	0.23	0.59	26210	0.20	0.57
2	1	CR	2	26069	0.35	0.60	27129	0.33	0.59
3	1	CR	2	25206	0.24	0.57	26354	0.21	0.54
4	1	CR	3	25797	0.31	0.63	26951	0.29	0.61
5	1	CR	2	24908	0.36	0.57	26038	0.37	0.54
6	1	CR	2	25538	0.71	0.49	26676	0.77	0.44
7	1	CR	3	25465	0.16	0.57	26443	0.13	0.56
8	1	CR	4	21237	0.27	0.69	23871	0.25	0.66
1	2	CR	4	22570	0.23	0.63	24966	0.24	0.61
2	2	CR	3	24471	0.44	0.65	25765	0.41	0.61
3	2	CR	2	24702	0.67	0.57	25979	0.68	0.56
4	2	CR	3	24081	0.54	0.68	25861	0.57	0.63
5	2	CR	3	23168	0.52	0.64	24990	0.52	0.59
6	2	CR	3	23401	0.31	0.50	25217	0.34	0.49
7	2	CR	3	24113	0.30	0.59	25442	0.28	0.57
8	2	CR	2	23777	0.51	0.65	25100	0.50	0.59
9	2	CR	2	22994	0.27	0.64	24812	0.23	0.61
10	2	CR	3	22428	0.17	0.55	23477	0.13	0.50
1	3	MC	1	26473	0.72	0.37	27278	0.72	0.36
2	3	MC	1	26376	0.51	0.43	27170	0.52	0.33
3	3	MC	1	26449	0.79	0.42	27257	0.83	0.37
4	3	MC	1	26424	0.41	0.51	27221	0.32	0.46
5	3	MC	1	26366	0.32	0.35	27144	0.27	0.35
6	3	MC	1	26430	0.62	0.49	27220	0.48	0.48
7	3	MC	1	26364	0.53	0.55	27160	0.49	0.56
8	3	MC	1	26402	0.52	0.48	27224	0.53	0.49
9	3	MC	1	26385	0.64	0.24	27221	0.65	0.28
10	3	MC	1	26411	0.62	0.52	27238	0.63	0.49
11	3	MC	1	26309	0.65	0.44	27153	0.69	0.42
12	3	MC	1	26406	0.77	0.37	27225	0.81	0.32
13	3	MC	1	26380	0.76	0.48	27210	0.73	0.42
14	3	MC	1	26374	0.64	0.52	27194	0.62	0.50
15	3	MC	1	26397	0.77	0.41	27209	0.78	0.33
16	3	MC	1	26358	0.72	0.43	27191	0.76	0.39
17	3	MC	1	26354	0.68	0.43	27197	0.66	0.33
18	3	MC	1	26309	0.83	0.41	27171	0.86	0.39
19	3	MC	1	26325	0.73	0.55	27157	0.68	0.58
20	3	MC	1	26275	0.57	0.49	27095	0.53	0.48

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Mathematics Grade 10 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
21	3	MC	1	26216	0.45	0.44	27034	0.41	0.43
22	3	MC	1	26224	0.80	0.36	27050	0.81	0.31
23	3	MC	1	26188	0.65	0.49	27024	0.66	0.46
24	3	MC	1	26146	0.62	0.44	26914	0.58	0.47
25	3	MC	1	26143	0.39	0.45	26903	0.39	0.44

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Mathematics Grade 10 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	1	412	0.37	0.47	655	0.47	0.47	7578	0.18	0.35	911	0.32	0.46	139	0.42	0.35	46505	0.43	0.41
2	1	CR	2	410	0.55	0.49	653	0.66	0.43	7354	0.44	0.47	915	0.62	0.44	140	0.59	0.36	46381	0.64	0.43
3	1	CR	2	382	0.43	0.67	629	0.56	0.68	6580	0.22	0.58	854	0.43	0.62	133	0.48	0.60	44563	0.56	0.62
4	1	CR	3	366	0.34	0.44	604	0.50	0.54	6818	0.29	0.48	833	0.38	0.46	130	0.37	0.45	43495	0.46	0.47
5	1	CR	2	388	0.33	0.39	623	0.52	0.57	6718	0.24	0.42	852	0.34	0.50	134	0.43	0.58	44699	0.42	0.49
6	1	CR	3	408	0.33	0.62	651	0.54	0.62	7318	0.23	0.61	895	0.37	0.64	138	0.45	0.53	46067	0.45	0.59
7	1	CR	2	386	0.36	0.48	637	0.50	0.54	6839	0.21	0.45	874	0.36	0.46	135	0.40	0.52	45209	0.43	0.44
8	1	CR	2	387	0.04	0.33	638	0.14	0.40	6729	0.01	0.21	860	0.05	0.35	133	0.05	0.30	45043	0.07	0.35
9	1	CR	4	379	0.23	0.52	603	0.38	0.60	6471	0.17	0.52	831	0.26	0.56	130	0.29	0.55	44450	0.32	0.56
1	2	CR	4	392	0.26	0.70	623	0.44	0.73	6606	0.13	0.60	849	0.27	0.70	130	0.32	0.76	44641	0.37	0.69
2	2	CR	3	386	0.43	0.71	630	0.69	0.67	6598	0.35	0.64	842	0.48	0.68	132	0.47	0.67	43984	0.57	0.68
3	2	CR	4	351	0.44	0.65	619	0.66	0.61	6027	0.35	0.63	774	0.49	0.63	117	0.53	0.65	41988	0.60	0.63
4	2	CR	3	346	0.54	0.66	629	0.72	0.67	6411	0.40	0.64	828	0.53	0.68	122	0.58	0.66	43124	0.64	0.64
5	2	CR	3	327	0.07	0.46	579	0.20	0.50	5229	0.03	0.34	706	0.09	0.45	108	0.14	0.58	38794	0.13	0.50
6	2	CR	3	381	0.45	0.59	634	0.56	0.64	6598	0.31	0.59	856	0.44	0.64	128	0.45	0.62	44611	0.54	0.57
7	2	CR	2	397	0.78	0.56	636	0.86	0.53	7042	0.62	0.53	893	0.75	0.54	136	0.80	0.51	45731	0.85	0.46
8	2	CR	3	382	0.43	0.59	630	0.59	0.59	6630	0.33	0.53	860	0.44	0.58	130	0.46	0.61	44605	0.53	0.56
9	2	CR	2	362	0.18	0.57	593	0.43	0.62	6138	0.13	0.47	821	0.23	0.57	132	0.22	0.57	43227	0.29	0.55
1	3	MC	1	415	0.67	0.35	652	0.83	0.45	7596	0.60	0.31	929	0.65	0.37	139	0.69	0.31	46389	0.75	0.36
2	3	MC	1	410	0.47	0.36	652	0.68	0.45	7460	0.42	0.30	920	0.46	0.32	138	0.54	0.36	46183	0.53	0.37
3	3	MC	1	416	0.76	0.46	655	0.92	0.29	7577	0.73	0.41	929	0.76	0.42	139	0.84	0.34	46366	0.83	0.40
4	3	MC	1	412	0.30	0.48	652	0.59	0.53	7515	0.22	0.37	924	0.31	0.44	138	0.34	0.35	46288	0.40	0.47
5	3	MC	1	413	0.22	0.26	652	0.35	0.47	7492	0.15	0.23	926	0.26	0.37	139	0.27	0.33	46214	0.31	0.36
6	3	MC	1	414	0.51	0.35	653	0.66	0.53	7522	0.33	0.36	924	0.51	0.46	139	0.52	0.45	46296	0.61	0.46
7	3	MC	1	413	0.43	0.53	653	0.64	0.59	7500	0.27	0.38	919	0.46	0.54	138	0.54	0.57	46193	0.57	0.54
8	3	MC	1	412	0.46	0.52	653	0.65	0.49	7502	0.31	0.39	926	0.46	0.49	139	0.51	0.46	46231	0.56	0.49
9	3	MC	1	407	0.65	0.20	646	0.71	0.26	7462	0.62	0.24	916	0.67	0.29	138	0.73	0.28	46017	0.71	0.21
10	3	MC	1	413	0.54	0.48	650	0.73	0.56	7540	0.46	0.41	929	0.56	0.50	139	0.58	0.60	46276	0.66	0.49
11	3	MC	1	408	0.63	0.41	649	0.82	0.47	7400	0.58	0.38	917	0.64	0.42	138	0.72	0.32	45832	0.72	0.45
12	3	MC	1	411	0.74	0.36	647	0.87	0.28	7469	0.74	0.28	923	0.78	0.35	139	0.77	0.45	46001	0.82	0.34
13	3	MC	1	410	0.68	0.54	649	0.85	0.41	7453	0.58	0.46	913	0.68	0.53	139	0.76	0.45	45967	0.77	0.46
14	3	MC	1	411	0.56	0.49	652	0.70	0.53	7495	0.36	0.32	925	0.53	0.46	137	0.64	0.40	46250	0.65	0.47
15	3	MC	1	409	0.71	0.35	647	0.85	0.40	7471	0.69	0.35	923	0.76	0.33	138	0.74	0.50	46201	0.81	0.36
16	3	MC	1	411	0.70	0.38	651	0.83	0.41	7486	0.60	0.35	922	0.73	0.41	138	0.69	0.42	46186	0.77	0.37

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Mathematics Grade 10 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
17	3	MC	1	411	0.66	0.39	651	0.75	0.40	7457	0.55	0.29	921	0.68	0.38	139	0.65	0.38	46116	0.72	0.37
18	3	MC	1	410	0.78	0.46	651	0.90	0.30	7456	0.74	0.38	921	0.82	0.36	138	0.84	0.39	46196	0.89	0.37
19	3	MC	1	412	0.68	0.57	647	0.76	0.64	7429	0.42	0.48	918	0.65	0.55	138	0.74	0.56	46176	0.75	0.52
20	3	MC	1	413	0.47	0.43	651	0.61	0.54	7406	0.34	0.39	914	0.51	0.47	139	0.51	0.48	46087	0.58	0.48
21	3	MC	1	409	0.38	0.37	652	0.60	0.53	7331	0.27	0.30	907	0.40	0.35	139	0.47	0.42	46022	0.46	0.42
22	3	MC	1	411	0.80	0.38	650	0.89	0.30	7344	0.74	0.29	902	0.81	0.31	136	0.82	0.28	45865	0.85	0.29
23	3	MC	1	413	0.63	0.46	649	0.76	0.49	7370	0.50	0.43	908	0.63	0.44	138	0.66	0.50	46048	0.71	0.46
24	3	MC	1	406	0.56	0.44	647	0.72	0.53	7244	0.42	0.37	900	0.57	0.39	138	0.64	0.48	45799	0.65	0.42
25	3	MC	1	412	0.34	0.34	648	0.62	0.54	7252	0.29	0.36	906	0.35	0.42	138	0.41	0.38	45827	0.45	0.43

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Mathematics Grade 10 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	1	29885	0.41	0.44	29725	0.37	0.43
2	1	CR	2	29710	0.61	0.46	29532	0.62	0.46
3	1	CR	2	27996	0.53	0.64	28338	0.50	0.65
4	1	CR	3	27444	0.42	0.51	27954	0.44	0.47
5	1	CR	2	28090	0.38	0.50	28536	0.41	0.49
6	1	CR	3	29401	0.44	0.62	29441	0.40	0.61
7	1	CR	2	28473	0.40	0.49	28855	0.41	0.46
8	1	CR	2	28262	0.07	0.36	28755	0.06	0.35
9	1	CR	4	27661	0.27	0.57	28372	0.32	0.59
1	2	CR	4	27985	0.35	0.71	28450	0.33	0.70
2	2	CR	3	27714	0.53	0.70	28057	0.55	0.68
3	2	CR	4	25783	0.56	0.65	27095	0.58	0.64
4	2	CR	3	26795	0.60	0.68	27721	0.63	0.64
5	2	CR	3	23763	0.14	0.52	24704	0.10	0.47
6	2	CR	3	27844	0.50	0.61	28548	0.51	0.59
7	2	CR	2	29009	0.82	0.50	29139	0.82	0.49
8	2	CR	3	27835	0.48	0.60	28594	0.53	0.55
9	2	CR	2	26735	0.27	0.57	27610	0.28	0.55
1	3	MC	1	29861	0.72	0.38	29644	0.73	0.36
2	3	MC	1	29679	0.52	0.41	29441	0.51	0.32
3	3	MC	1	29836	0.80	0.43	29626	0.84	0.39
4	3	MC	1	29758	0.41	0.49	29543	0.34	0.46
5	3	MC	1	29689	0.32	0.38	29505	0.26	0.35
6	3	MC	1	29753	0.64	0.49	29559	0.50	0.48
7	3	MC	1	29659	0.54	0.55	29512	0.51	0.55
8	3	MC	1	29678	0.53	0.49	29540	0.52	0.51
9	3	MC	1	29504	0.70	0.21	29422	0.70	0.24
10	3	MC	1	29731	0.62	0.51	29575	0.64	0.48
11	3	MC	1	29363	0.68	0.45	29309	0.72	0.45
12	3	MC	1	29477	0.79	0.36	29445	0.82	0.30
13	3	MC	1	29455	0.76	0.51	29409	0.72	0.45
14	3	MC	1	29712	0.63	0.49	29517	0.59	0.49
15	3	MC	1	29634	0.79	0.40	29504	0.80	0.35
16	3	MC	1	29646	0.74	0.40	29508	0.75	0.38
17	3	MC	1	29571	0.72	0.42	29463	0.68	0.34
18	3	MC	1	29624	0.85	0.39	29494	0.87	0.39
19	3	MC	1	29621	0.74	0.54	29447	0.68	0.57
20	3	MC	1	29542	0.57	0.50	29405	0.53	0.48
21	3	MC	1	29467	0.45	0.43	29333	0.42	0.42

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Mathematics Grade 10 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
22	3	MC	1	29344	0.83	0.33	29294	0.84	0.28
23	3	MC	1	29512	0.67	0.48	29355	0.68	0.47
24	3	MC	1	29308	0.64	0.42	29140	0.59	0.46
25	3	MC	1	29329	0.43	0.44	29171	0.43	0.43

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Communication Arts Impact Item Statistics Summary
1998

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
3	American Indian	0.64	0.21	0.73	0.15	0.39	0.15	0.43	0.10	0.43	0.10	0.46	0.09
	Asian	0.69	0.20	0.77	0.14	0.45	0.15	0.46	0.08	0.45	0.08	0.50	0.08
	Black	0.55	0.22	0.64	0.18	0.29	0.14	0.41	0.08	0.40	0.08	0.44	0.08
	Hispanic	0.60	0.21	0.68	0.16	0.36	0.15	0.44	0.09	0.43	0.08	0.47	0.08
	Pacific Islander	0.65	0.22	0.74	0.16	0.41	0.15	0.42	0.13	0.42	0.14	0.43	0.12
	White	0.69	0.21	0.77	0.14	0.43	0.15	0.41	0.08	0.40	0.08	0.45	0.08
	Female	0.67	0.21	0.76	0.15	0.41	0.14	0.43	0.09	0.41	0.08	0.48	0.08
	Male	0.64	0.21	0.73	0.15	0.39	0.15	0.43	0.08	0.43	0.08	0.46	0.07
7	American Indian	0.57	0.15	0.62	0.12	0.45	0.16	0.41	0.11	0.40	0.12	0.46	0.07
	Asian	0.69	0.16	0.74	0.13	0.55	0.17	0.44	0.11	0.42	0.12	0.50	0.09
	Black	0.52	0.16	0.58	0.13	0.38	0.16	0.40	0.11	0.38	0.11	0.45	0.05
	Hispanic	0.59	0.16	0.63	0.13	0.46	0.16	0.43	0.11	0.41	0.12	0.47	0.06
	Pacific Islander	0.62	0.16	0.66	0.14	0.49	0.15	0.44	0.14	0.43	0.16	0.47	0.07
	White	0.66	0.16	0.70	0.14	0.54	0.16	0.41	0.10	0.40	0.11	0.47	0.06
	Female	0.67	0.16	0.72	0.14	0.54	0.17	0.41	0.11	0.38	0.11	0.48	0.06
	Male	0.60	0.16	0.64	0.13	0.47	0.16	0.43	0.11	0.41	0.12	0.48	0.05
11	American Indian	0.56	0.18	0.59	0.17	0.47	0.17	0.41	0.14	0.38	0.15	0.51	0.05
	Asian	0.64	0.17	0.66	0.17	0.58	0.15	0.45	0.12	0.42	0.11	0.55	0.07
	Black	0.53	0.18	0.55	0.18	0.46	0.18	0.37	0.13	0.34	0.13	0.45	0.07
	Hispanic	0.60	0.18	0.62	0.18	0.53	0.17	0.40	0.13	0.38	0.13	0.48	0.07
	Pacific Islander	0.57	0.17	0.59	0.16	0.49	0.17	0.42	0.14	0.41	0.15	0.46	0.10
	White	0.63	0.19	0.66	0.19	0.55	0.17	0.41	0.12	0.38	0.12	0.48	0.08
	Female	0.65	0.19	0.67	0.20	0.59	0.17	0.38	0.11	0.36	0.11	0.46	0.07
	Male	0.58	0.18	0.62	0.17	0.49	0.18	0.42	0.12	0.40	0.13	0.49	0.07

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Communication Arts Impact Item Statistics Summary
1999

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
3	American Indian	0.67	0.19	0.73	0.16	0.51	0.17	0.42	0.10	0.40	0.09	0.47	0.08
	Asian	0.74	0.18	0.80	0.14	0.59	0.19	0.42	0.09	0.41	0.08	0.45	0.09
	Black	0.59	0.20	0.65	0.17	0.42	0.18	0.41	0.07	0.39	0.07	0.45	0.07
	Hispanic	0.64	0.19	0.70	0.16	0.50	0.19	0.42	0.08	0.41	0.08	0.44	0.09
	Pacific Islander	0.70	0.18	0.75	0.15	0.56	0.18	0.46	0.12	0.43	0.11	0.51	0.13
	White	0.72	0.18	0.77	0.14	0.56	0.18	0.40	0.08	0.39	0.08	0.43	0.08
	Female	0.71	0.18	0.77	0.15	0.55	0.18	0.41	0.09	0.40	0.08	0.46	0.07
	Male	0.68	0.19	0.74	0.15	0.52	0.18	0.42	0.08	0.41	0.08	0.44	0.08
7	American Indian	0.61	0.17	0.65	0.14	0.50	0.21	0.38	0.10	0.37	0.11	0.41	0.09
	Asian	0.73	0.16	0.76	0.13	0.61	0.19	0.42	0.11	0.41	0.12	0.46	0.09
	Black	0.56	0.18	0.60	0.14	0.43	0.22	0.38	0.11	0.38	0.11	0.40	0.09
	Hispanic	0.62	0.17	0.65	0.14	0.50	0.21	0.40	0.11	0.39	0.11	0.43	0.11
	Pacific Islander	0.67	0.18	0.71	0.14	0.54	0.21	0.36	0.14	0.35	0.15	0.39	0.10
	White	0.68	0.17	0.72	0.14	0.57	0.21	0.39	0.10	0.38	0.10	0.42	0.08
	Female	0.70	0.17	0.73	0.15	0.57	0.20	0.38	0.11	0.37	0.11	0.42	0.09
	Male	0.63	0.17	0.67	0.14	0.52	0.21	0.40	0.10	0.39	0.11	0.42	0.08
11	American Indian	0.61	0.20	0.64	0.18	0.54	0.22	0.40	0.13	0.38	0.14	0.47	0.08
	Asian	0.66	0.19	0.67	0.18	0.62	0.20	0.43	0.12	0.40	0.12	0.49	0.08
	Black	0.55	0.19	0.56	0.18	0.50	0.22	0.36	0.12	0.33	0.12	0.43	0.07
	Hispanic	0.61	0.20	0.62	0.19	0.57	0.22	0.38	0.13	0.37	0.14	0.42	0.09
	Pacific Islander	0.65	0.19	0.67	0.19	0.60	0.19	0.39	0.12	0.37	0.12	0.46	0.10
	White	0.66	0.20	0.68	0.19	0.62	0.21	0.38	0.11	0.36	0.12	0.43	0.08
	Female	0.67	0.20	0.68	0.20	0.64	0.21	0.37	0.11	0.35	0.11	0.41	0.08
	Male	0.62	0.19	0.64	0.18	0.56	0.21	0.40	0.12	0.38	0.13	0.45	0.08

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Communication Arts Grade 3 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	147	0.48	0.39	493	0.53	0.47	10739	0.39	0.46	725	0.46	0.45	70	0.58	0.26	38085	0.53	0.42
2	1	CR	2	147	0.34	0.33	488	0.41	0.42	10511	0.29	0.38	717	0.34	0.44	69	0.39	0.48	37798	0.39	0.38
3	1	CR	2	147	0.72	0.60	494	0.75	0.60	10639	0.57	0.57	726	0.63	0.63	70	0.67	0.43	38057	0.72	0.55
4	1	CR	2	146	0.36	0.57	483	0.55	0.61	10310	0.29	0.54	716	0.38	0.55	69	0.46	0.53	37754	0.46	0.55
5	1	CR	2	146	0.15	0.40	480	0.25	0.45	10130	0.08	0.35	708	0.13	0.40	69	0.19	0.50	37627	0.20	0.42
6	1	CR	1	142	0.49	0.41	483	0.47	0.44	10194	0.27	0.32	708	0.39	0.38	67	0.45	0.27	37327	0.51	0.33
7	1	CR	2	143	0.51	0.48	483	0.56	0.47	10203	0.39	0.43	709	0.47	0.48	69	0.53	0.38	37683	0.57	0.44
8	1	CR	2	143	0.21	0.33	481	0.23	0.35	10007	0.11	0.30	704	0.16	0.36	68	0.20	0.42	37426	0.21	0.34
9	1	CR	2	141	0.28	0.42	470	0.35	0.54	9862	0.17	0.38	693	0.23	0.47	68	0.21	0.48	37073	0.31	0.44
10	1	CR	2	143	0.52	0.55	480	0.59	0.46	10121	0.45	0.45	707	0.52	0.46	70	0.56	0.24	37590	0.56	0.40
11	1	CR	2	142	0.41	0.45	473	0.46	0.51	9773	0.32	0.45	693	0.37	0.48	68	0.48	0.51	37290	0.44	0.43
12	1	CR	2	140	0.27	0.50	460	0.40	0.55	9461	0.22	0.49	680	0.26	0.52	69	0.31	0.51	36811	0.36	0.53
13	1	CR	2	138	0.26	0.43	463	0.27	0.52	9377	0.16	0.43	676	0.21	0.44	67	0.26	0.30	36818	0.27	0.46
1	2	CR	4	148	0.43	0.53	491	0.55	0.64	10712	0.37	0.56	718	0.43	0.60	69	0.47	0.64	38014	0.47	0.59
1	3	MC	1	136	0.99	0.11	477	0.98	0.32	10324	0.96	0.25	692	0.98	0.28	66	0.99	0.16	36769	0.99	0.17
2	3	MC	1	146	0.96	0.30	495	0.96	0.38	10845	0.93	0.33	732	0.93	0.41	68	0.99	0.28	38038	0.98	0.27
3	3	MC	1	147	0.80	0.50	494	0.79	0.43	10810	0.70	0.37	732	0.73	0.41	68	0.79	0.39	37966	0.80	0.38
4	3	MC	1	147	0.76	0.34	491	0.78	0.32	10793	0.76	0.35	729	0.76	0.24	68	0.82	0.26	37832	0.81	0.23
5	3	MC	1	145	0.92	0.42	496	0.94	0.44	10804	0.84	0.46	731	0.89	0.42	68	0.87	0.53	38052	0.94	0.40
6	3	MC	1	146	0.91	0.40	496	0.91	0.47	10824	0.85	0.40	732	0.87	0.38	67	0.93	0.27	38038	0.93	0.35
7	3	MC	1	145	0.89	0.55	496	0.92	0.41	10808	0.80	0.41	731	0.86	0.41	68	0.90	0.48	38018	0.91	0.39
8	3	MC	1	145	0.92	0.48	496	0.94	0.45	10748	0.86	0.45	728	0.87	0.52	68	0.94	0.38	37957	0.95	0.41
9	3	MC	1	146	0.78	0.48	495	0.78	0.54	10736	0.52	0.44	730	0.63	0.48	67	0.67	0.54	37881	0.79	0.48
10	3	MC	1	145	0.96	0.32	492	0.97	0.34	10713	0.95	0.31	728	0.95	0.36	67	0.97	0.33	37938	0.98	0.25
11	3	MC	1	132	0.52	0.29	473	0.65	0.35	9910	0.38	0.27	656	0.49	0.36	62	0.53	0.28	34774	0.65	0.34
12	3	MC	1	147	0.57	0.49	495	0.57	0.50	10802	0.42	0.48	729	0.47	0.51	68	0.47	0.46	37990	0.62	0.51
13	3	MC	1	146	0.67	0.37	495	0.72	0.36	10758	0.52	0.41	732	0.58	0.46	68	0.69	0.59	37900	0.71	0.40
14	3	MC	1	147	0.36	0.38	495	0.40	0.38	10748	0.30	0.28	728	0.38	0.30	68	0.31	0.46	37861	0.44	0.38
15	3	MC	1	146	0.80	0.48	488	0.81	0.51	10584	0.67	0.51	717	0.73	0.49	67	0.81	0.42	37400	0.86	0.47
16	3	MC	1	147	0.79	0.59	495	0.84	0.55	10777	0.68	0.53	732	0.75	0.57	67	0.82	0.61	38042	0.88	0.49

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Communication Arts Grade 3 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
17	3	MC	1	147	0.50	0.37	495	0.68	0.38	10704	0.50	0.31	728	0.52	0.33	68	0.65	0.35	37920	0.60	0.33
18	3	MC	1	142	0.82	0.50	492	0.79	0.47	10617	0.71	0.47	727	0.73	0.52	68	0.82	0.39	37723	0.85	0.44
19	3	MC	1	145	0.48	0.40	493	0.53	0.40	10609	0.37	0.24	724	0.39	0.32	68	0.50	0.27	37700	0.55	0.44
20	3	MC	1	146	0.81	0.44	492	0.80	0.53	10794	0.76	0.46	730	0.75	0.56	68	0.87	0.50	37955	0.89	0.39
21	3	MC	1	146	0.53	0.41	495	0.47	0.47	10760	0.31	0.34	734	0.35	0.34	68	0.53	0.51	37903	0.55	0.42
22	3	MC	1	143	0.64	0.43	489	0.70	0.45	10707	0.55	0.40	730	0.59	0.43	68	0.60	0.51	37758	0.68	0.50
23	3	MC	1	145	0.68	0.36	494	0.69	0.52	10574	0.54	0.37	719	0.59	0.41	67	0.73	0.44	37816	0.69	0.39
24	3	MC	1	144	0.72	0.49	495	0.74	0.50	10588	0.62	0.51	723	0.64	0.54	67	0.61	0.55	37741	0.78	0.48
25	3	MC	1	144	0.56	0.49	491	0.61	0.35	10523	0.49	0.35	717	0.55	0.29	68	0.60	0.29	37598	0.61	0.39
26	3	MC	1	144	0.63	0.37	494	0.72	0.43	10585	0.53	0.40	724	0.55	0.41	67	0.66	0.19	37642	0.70	0.43
27	3	MC	1	146	0.72	0.50	486	0.76	0.48	10688	0.58	0.47	726	0.68	0.44	68	0.65	0.46	37702	0.75	0.51
28	3	MC	1	146	0.77	0.54	481	0.84	0.50	10506	0.70	0.44	710	0.74	0.44	67	0.78	0.56	37064	0.82	0.43
29	3	MC	1	145	0.85	0.50	493	0.91	0.44	10736	0.76	0.46	732	0.81	0.50	68	0.90	0.48	37925	0.90	0.43
30	3	MC	1	144	0.63	0.44	494	0.63	0.37	10692	0.57	0.46	729	0.58	0.42	68	0.62	0.46	37807	0.70	0.35
31	3	MC	1	140	0.79	0.62	479	0.78	0.67	10424	0.57	0.54	711	0.64	0.57	67	0.78	0.60	36603	0.84	0.54
32	3	MC	1	145	0.82	0.51	493	0.82	0.62	10654	0.67	0.52	725	0.73	0.54	68	0.79	0.46	37726	0.86	0.48
33	3	MC	1	145	0.71	0.38	493	0.69	0.47	10644	0.57	0.42	730	0.57	0.47	68	0.60	0.60	37822	0.76	0.43
34	3	MC	1	145	0.49	0.31	495	0.58	0.52	10655	0.34	0.34	732	0.42	0.38	68	0.43	0.59	37875	0.51	0.43
35	3	MC	1	145	0.75	0.61	494	0.82	0.53	10594	0.61	0.49	730	0.67	0.54	67	0.70	0.61	37694	0.82	0.51
36	3	MC	1	144	0.91	0.35	489	0.93	0.38	10655	0.85	0.36	730	0.88	0.36	68	0.96	0.21	37789	0.93	0.31
37	3	MC	1	144	0.71	0.30	493	0.77	0.41	10675	0.64	0.34	728	0.70	0.33	68	0.78	0.23	37893	0.75	0.34
38	3	MC	1	143	0.72	0.30	493	0.75	0.44	10665	0.56	0.42	730	0.63	0.41	68	0.68	0.46	37851	0.69	0.41
39	3	MC	1	145	0.55	0.36	494	0.71	0.43	10681	0.57	0.36	732	0.58	0.40	67	0.73	0.15	37921	0.58	0.38
40	3	MC	1	144	0.83	0.60	494	0.92	0.52	10690	0.83	0.46	732	0.84	0.49	67	0.91	0.58	37939	0.88	0.42
41	3	MC	1	143	0.80	0.42	494	0.87	0.44	10671	0.76	0.40	730	0.73	0.39	67	0.88	0.37	37918	0.80	0.36

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Communication Arts Grade 3 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	25555	0.47	0.44	25028	0.54	0.45
2	1	CR	2	25186	0.35	0.39	24878	0.39	0.39
3	1	CR	2	25446	0.68	0.58	25009	0.69	0.58
4	1	CR	2	25045	0.42	0.55	24753	0.44	0.59
5	1	CR	2	24838	0.16	0.41	24644	0.19	0.44
6	1	CR	1	24681	0.49	0.38	24560	0.44	0.38
7	1	CR	2	24932	0.52	0.47	24700	0.54	0.48
8	1	CR	2	24631	0.19	0.35	24535	0.19	0.36
9	1	CR	2	24305	0.28	0.46	24324	0.29	0.46
10	1	CR	2	24821	0.53	0.43	24618	0.53	0.43
11	1	CR	2	24405	0.39	0.44	24357	0.44	0.46
12	1	CR	2	23919	0.32	0.53	24017	0.34	0.55
13	1	CR	2	23930	0.22	0.45	23931	0.27	0.48
1	2	CR	4	25473	0.41	0.57	24995	0.49	0.61
1	3	MC	1	24464	0.98	0.22	24287	0.99	0.20
2	3	MC	1	25631	0.96	0.32	24995	0.97	0.28
3	3	MC	1	25575	0.75	0.40	24944	0.81	0.38
4	3	MC	1	25507	0.78	0.27	24868	0.81	0.24
5	3	MC	1	25615	0.91	0.43	24991	0.92	0.43
6	3	MC	1	25609	0.90	0.39	25009	0.93	0.36
7	3	MC	1	25592	0.86	0.42	24987	0.91	0.39
8	3	MC	1	25519	0.91	0.45	24937	0.94	0.41
9	3	MC	1	25464	0.72	0.51	24902	0.74	0.52
10	3	MC	1	25495	0.97	0.30	24902	0.98	0.24
11	3	MC	1	23184	0.61	0.38	23119	0.58	0.38
12	3	MC	1	25572	0.54	0.51	24973	0.61	0.54
13	3	MC	1	25499	0.64	0.43	24911	0.69	0.42
14	3	MC	1	25471	0.40	0.37	24890	0.42	0.37
15	3	MC	1	25111	0.80	0.51	24600	0.83	0.50
16	3	MC	1	25596	0.82	0.54	24974	0.85	0.52
17	3	MC	1	25501	0.57	0.34	24873	0.59	0.33
18	3	MC	1	25327	0.81	0.48	24749	0.83	0.46
19	3	MC	1	25319	0.49	0.41	24726	0.53	0.43
20	3	MC	1	25560	0.86	0.45	24942	0.87	0.43
21	3	MC	1	25494	0.53	0.45	24925	0.46	0.44
22	3	MC	1	25392	0.63	0.49	24820	0.68	0.46
23	3	MC	1	25317	0.66	0.40	24818	0.65	0.42
24	3	MC	1	25299	0.74	0.52	24773	0.75	0.49

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Communication Arts Grade 3 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
25	3	MC	1	25187	0.57	0.39	24668	0.60	0.39
26	3	MC	1	25255	0.64	0.43	24717	0.68	0.44
27	3	MC	1	25359	0.68	0.51	24763	0.75	0.52
28	3	MC	1	24883	0.78	0.45	24394	0.81	0.44
29	3	MC	1	25489	0.85	0.48	24929	0.88	0.44
30	3	MC	1	25418	0.66	0.40	24828	0.68	0.38
31	3	MC	1	24573	0.78	0.58	24145	0.79	0.57
32	3	MC	1	25336	0.80	0.52	24777	0.83	0.51
33	3	MC	1	25396	0.72	0.47	24816	0.71	0.45
34	3	MC	1	25447	0.44	0.42	24828	0.50	0.43
35	3	MC	1	25322	0.74	0.53	24708	0.81	0.53
36	3	MC	1	25388	0.90	0.36	24801	0.93	0.32
37	3	MC	1	25457	0.70	0.36	24861	0.75	0.34
38	3	MC	1	25426	0.62	0.40	24838	0.70	0.43
39	3	MC	1	25485	0.55	0.36	24871	0.60	0.35
40	3	MC	1	25499	0.84	0.44	24881	0.91	0.40
41	3	MC	1	25472	0.74	0.37	24870	0.84	0.35

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Communication Arts Grade 3 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	171	0.56	0.45	574	0.63	0.41	12515	0.51	0.41	1115	0.53	0.45	92	0.51	0.54	52737	0.60	0.39
2	1	CR	2	168	0.14	0.30	568	0.14	0.34	12368	0.09	0.27	1104	0.11	0.28	90	0.12	0.37	52407	0.16	0.33
3	1	CR	2	164	0.47	0.43	570	0.56	0.54	12229	0.39	0.48	1094	0.43	0.51	89	0.51	0.56	52146	0.51	0.48
4	1	CR	2	167	0.51	0.46	575	0.54	0.50	12370	0.41	0.42	1108	0.47	0.44	91	0.54	0.62	52587	0.54	0.40
5	1	CR	2	167	0.47	0.42	566	0.49	0.48	12195	0.33	0.45	1090	0.41	0.48	90	0.56	0.64	52216	0.46	0.47
6	1	CR	2	167	0.59	0.47	572	0.71	0.34	12324	0.55	0.36	1105	0.64	0.31	90	0.65	0.29	52579	0.65	0.30
7	1	CR	2	168	0.51	0.54	568	0.65	0.55	12094	0.35	0.52	1091	0.49	0.52	89	0.62	0.53	52218	0.60	0.52
8	1	CR	1	164	0.84	0.41	565	0.93	0.37	11725	0.76	0.47	1078	0.84	0.41	90	0.90	0.37	51905	0.88	0.38
9	1	CR	2	161	0.46	0.54	558	0.53	0.51	11442	0.28	0.49	1057	0.40	0.49	87	0.54	0.51	51409	0.49	0.50
10	1	CR	1	165	0.81	0.43	564	0.89	0.31	11739	0.70	0.47	1073	0.83	0.39	87	0.86	0.32	52065	0.86	0.35
11	1	CR	2	163	0.39	0.54	557	0.50	0.45	11577	0.29	0.52	1063	0.37	0.52	88	0.45	0.66	51817	0.45	0.51
12	1	CR	2	159	0.38	0.54	544	0.46	0.49	11116	0.31	0.48	1041	0.37	0.40	86	0.44	0.61	51086	0.43	0.45
13	1	CR	2	161	0.66	0.42	557	0.74	0.34	11425	0.66	0.36	1067	0.71	0.30	87	0.72	0.47	51741	0.74	0.36
14	1	CR	2	162	0.48	0.52	554	0.57	0.53	11167	0.37	0.45	1043	0.48	0.50	87	0.51	0.71	51299	0.54	0.49
1	2	CR	4	172	0.41	0.65	573	0.48	0.54	12504	0.34	0.53	1115	0.39	0.57	91	0.48	0.50	52796	0.42	0.54
1	3	MC	1	163	0.98	0.22	557	0.99	0.16	11947	0.96	0.24	1085	0.98	0.18				50848	0.99	0.16
2	3	MC	1	171	0.97	0.36	574	0.98	0.27	12537	0.94	0.31	1124	0.96	0.33	92	0.98	0.33	52812	0.98	0.23
3	3	MC	1	171	0.78	0.27	572	0.85	0.41	12526	0.74	0.36	1125	0.75	0.37	92	0.80	0.36	52718	0.81	0.37
4	3	MC	1	171	0.80	0.34	573	0.84	0.22	12502	0.78	0.33	1115	0.80	0.25	92	0.74	0.33	52598	0.82	0.21
5	3	MC	1	171	0.92	0.48	574	0.94	0.43	12507	0.85	0.44	1123	0.88	0.46	92	0.94	0.37	52759	0.93	0.40
6	3	MC	1	171	0.93	0.27	572	0.94	0.42	12519	0.86	0.38	1120	0.89	0.39	92	0.87	0.45	52750	0.94	0.33
7	3	MC	1	171	0.88	0.39	573	0.94	0.39	12508	0.82	0.40	1119	0.87	0.37	92	0.88	0.47	52684	0.91	0.37
8	3	MC	1	170	0.92	0.45	572	0.96	0.33	12490	0.87	0.42	1119	0.91	0.40	92	0.95	0.38	52664	0.95	0.38
9	3	MC	1	171	0.74	0.45	571	0.81	0.50	12450	0.53	0.43	1114	0.63	0.49	91	0.68	0.63	52578	0.78	0.46
10	3	MC	1	171	0.98	0.28	572	0.99	0.24	12441	0.96	0.29	1117	0.97	0.29	91	0.99	0.23	52562	0.99	0.20
11	3	MC	1	161	0.70	0.30	533	0.72	0.34	11615	0.45	0.29	1045	0.61	0.38	80	0.65	0.47	49167	0.70	0.33
12	3	MC	1	171	0.53	0.55	573	0.65	0.51	12533	0.46	0.48	1122	0.47	0.53	92	0.60	0.47	52747	0.63	0.52
13	3	MC	1	170	0.59	0.35	573	0.70	0.45	12506	0.53	0.40	1119	0.60	0.36	92	0.70	0.53	52682	0.70	0.39
14	3	MC	1	169	0.41	0.45	570	0.45	0.37	12466	0.30	0.29	1112	0.37	0.39	92	0.49	0.37	52571	0.45	0.38
15	3	MC	1	169	0.79	0.49	566	0.87	0.44	12351	0.69	0.49	1102	0.75	0.47	90	0.83	0.41	51924	0.86	0.44
16	3	MC	1	171	0.83	0.58	571	0.86	0.50	12475	0.69	0.49	1117	0.77	0.55	92	0.87	0.52	52686	0.88	0.46
17	3	MC	1	171	0.55	0.32	571	0.73	0.35	12408	0.53	0.32	1117	0.56	0.32	92	0.58	0.38	52543	0.60	0.31
18	3	MC	1	170	0.80	0.37	569	0.81	0.53	12362	0.71	0.44	1107	0.72	0.46	91	0.78	0.50	52345	0.85	0.42
19	3	MC	1	170	0.44	0.45	566	0.51	0.51	12330	0.38	0.26	1107	0.41	0.34	91	0.48	0.49	52329	0.55	0.44
20	3	MC	1	171	0.86	0.38	571	0.86	0.47	12502	0.78	0.42	1123	0.80	0.42	92	0.87	0.42	52692	0.90	0.36

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Communication Arts Grade 3 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
21	3	MC	1	171	0.47	0.34	568	0.47	0.45	12476	0.32	0.36	1116	0.37	0.38	92	0.47	0.46	52664	0.51	0.41
22	3	MC	1	171	0.61	0.41	565	0.75	0.49	12418	0.57	0.39	1117	0.61	0.43	92	0.55	0.48	52440	0.69	0.49
23	3	MC	1	169	0.59	0.32	568	0.72	0.41	12293	0.55	0.39	1107	0.61	0.41	91	0.66	0.49	52413	0.69	0.40
24	3	MC	1	170	0.69	0.53	569	0.79	0.46	12345	0.65	0.50	1108	0.68	0.48	90	0.70	0.66	52380	0.78	0.46
25	3	MC	1	170	0.55	0.31	569	0.66	0.37	12302	0.51	0.33	1099	0.54	0.38	91	0.54	0.34	52287	0.60	0.38
26	3	MC	1	168	0.66	0.40	567	0.75	0.45	12304	0.54	0.40	1104	0.60	0.39	92	0.66	0.34	52249	0.70	0.42
27	3	MC	1	167	0.64	0.52	567	0.78	0.50	12354	0.58	0.48	1116	0.67	0.53	91	0.76	0.67	52342	0.75	0.50
28	3	MC	1	165	0.80	0.48	561	0.86	0.42	12200	0.72	0.42	1104	0.77	0.45	90	0.88	0.29	51657	0.84	0.42
29	3	MC	1	170	0.91	0.37	571	0.92	0.39	12425	0.78	0.43	1116	0.84	0.46	92	0.87	0.45	52588	0.90	0.41
30	3	MC	1	169	0.68	0.38	570	0.65	0.37	12412	0.59	0.41	1112	0.62	0.38	92	0.60	0.40	52503	0.71	0.33
31	3	MC	1	163	0.78	0.44	556	0.81	0.55	12046	0.58	0.50	1085	0.68	0.57	91	0.75	0.67	50910	0.84	0.52
32	3	MC	1	170	0.82	0.62	568	0.87	0.42	12344	0.68	0.50	1111	0.77	0.51	92	0.84	0.43	52363	0.87	0.44
33	3	MC	1	168	0.70	0.50	568	0.74	0.41	12321	0.58	0.42	1113	0.64	0.42	91	0.76	0.66	52420	0.76	0.42
34	3	MC	1	170	0.41	0.44	564	0.61	0.44	12357	0.38	0.34	1115	0.40	0.36	91	0.56	0.42	52480	0.49	0.40
35	3	MC	1	169	0.75	0.49	561	0.87	0.49	12275	0.66	0.49	1113	0.75	0.50	90	0.80	0.44	52270	0.82	0.49
36	3	MC	1	169	0.91	0.26	567	0.94	0.35	12393	0.87	0.35	1119	0.90	0.38	90	0.94	0.29	52570	0.94	0.30
37	3	MC	1	169	0.69	0.45	568	0.80	0.34	12423	0.63	0.34	1117	0.65	0.34	92	0.83	0.49	52612	0.73	0.35
38	3	MC	1	169	0.64	0.44	569	0.79	0.45	12390	0.58	0.40	1118	0.62	0.46	92	0.72	0.46	52610	0.69	0.39
39	3	MC	1	169	0.61	0.49	570	0.75	0.44	12434	0.59	0.35	1118	0.54	0.32	92	0.62	0.47	52613	0.57	0.37
40	3	MC	1	169	0.89	0.31	570	0.95	0.43	12443	0.83	0.42	1121	0.82	0.44	92	0.92	0.44	52640	0.87	0.40
41	3	MC	1	168	0.82	0.36	570	0.88	0.41	12421	0.76	0.37	1119	0.74	0.36	92	0.76	0.38	52609	0.78	0.35

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Communication Arts Grade 3 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	35197	0.57	0.41	33945	0.59	0.42
2	1	CR	2	34850	0.13	0.30	33782	0.17	0.35
3	1	CR	2	34555	0.47	0.48	33648	0.51	0.50
4	1	CR	2	34957	0.50	0.42	33870	0.53	0.42
5	1	CR	2	34541	0.40	0.47	33702	0.46	0.48
6	1	CR	2	34929	0.60	0.30	33847	0.67	0.35
7	1	CR	2	34557	0.56	0.56	33598	0.55	0.56
8	1	CR	1	34197	0.86	0.41	33248	0.86	0.43
9	1	CR	2	33745	0.49	0.54	32866	0.42	0.53
10	1	CR	1	34269	0.83	0.38	33340	0.84	0.43
11	1	CR	2	34034	0.41	0.52	33129	0.44	0.53
12	1	CR	2	33282	0.39	0.46	32614	0.43	0.48
13	1	CR	2	33957	0.71	0.36	32978	0.74	0.37
14	1	CR	2	33503	0.49	0.50	32671	0.54	0.51
1	2	CR	4	35215	0.38	0.53	33980	0.44	0.56
1	3	MC	1	33618	0.98	0.22	32892	0.99	0.17
2	3	MC	1	35276	0.97	0.28	33964	0.97	0.25
3	3	MC	1	35223	0.77	0.38	33914	0.83	0.35
4	3	MC	1	35141	0.80	0.25	33841	0.82	0.23
5	3	MC	1	35227	0.91	0.43	33929	0.93	0.41
6	3	MC	1	35218	0.91	0.36	33935	0.94	0.36
7	3	MC	1	35171	0.87	0.40	33906	0.91	0.38
8	3	MC	1	35138	0.92	0.42	33891	0.95	0.39
9	3	MC	1	35071	0.72	0.48	33825	0.74	0.50
10	3	MC	1	35061	0.98	0.26	33818	0.99	0.21
11	3	MC	1	32468	0.67	0.37	31908	0.63	0.36
12	3	MC	1	35226	0.56	0.51	33943	0.64	0.53
13	3	MC	1	35186	0.64	0.41	33881	0.70	0.40
14	3	MC	1	35073	0.41	0.37	33827	0.43	0.38
15	3	MC	1	34647	0.81	0.48	33456	0.84	0.47
16	3	MC	1	35164	0.82	0.50	33878	0.86	0.49
17	3	MC	1	35031	0.58	0.33	33794	0.59	0.31
18	3	MC	1	34906	0.82	0.45	33646	0.83	0.44
19	3	MC	1	34873	0.50	0.41	33627	0.54	0.43
20	3	MC	1	35186	0.88	0.40	33896	0.88	0.40
21	3	MC	1	35149	0.50	0.44	33869	0.44	0.42
22	3	MC	1	34971	0.65	0.48	33745	0.69	0.46
23	3	MC	1	34840	0.66	0.41	33723	0.66	0.42

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Communication Arts Grade 3 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
24	3	MC	1	34891	0.75	0.49	33683	0.76	0.47
25	3	MC	1	34821	0.57	0.38	33609	0.59	0.36
26	3	MC	1	34802	0.64	0.43	33596	0.69	0.43
27	3	MC	1	34910	0.67	0.51	33643	0.76	0.50
28	3	MC	1	34372	0.80	0.44	33309	0.83	0.42
29	3	MC	1	35065	0.86	0.44	33828	0.89	0.42
30	3	MC	1	35008	0.68	0.37	33771	0.70	0.35
31	3	MC	1	33820	0.79	0.55	32894	0.80	0.55
32	3	MC	1	34881	0.82	0.48	33688	0.85	0.48
33	3	MC	1	34909	0.73	0.46	33690	0.73	0.43
34	3	MC	1	34965	0.43	0.38	33736	0.51	0.40
35	3	MC	1	34807	0.76	0.50	33583	0.83	0.50
36	3	MC	1	35043	0.91	0.34	33785	0.94	0.32
37	3	MC	1	35068	0.68	0.35	33832	0.75	0.35
38	3	MC	1	35051	0.63	0.38	33819	0.71	0.41
39	3	MC	1	35077	0.55	0.34	33836	0.61	0.34
40	3	MC	1	35092	0.83	0.40	33865	0.91	0.38
41	3	MC	1	35056	0.72	0.35	33840	0.83	0.33

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Communication Arts Grade 7 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	458	0.27	0.34	514	0.31	0.43	8412	0.21	0.37	761	0.28	0.43	91	0.31	0.51	37504	0.34	0.39
2	1	CR	3	452	0.39	0.48	511	0.48	0.62	8331	0.28	0.49	743	0.39	0.49	89	0.45	0.59	37289	0.48	0.52
3	1	CR	2	435	0.31	0.46	497	0.41	0.49	8019	0.26	0.41	738	0.30	0.45	85	0.37	0.47	36573	0.38	0.47
4	1	CR	2	439	0.39	0.54	507	0.52	0.54	8045	0.32	0.45	743	0.40	0.51	89	0.44	0.47	37155	0.48	0.53
5	1	CR	2	453	0.49	0.40	511	0.56	0.43	8254	0.44	0.40	753	0.47	0.45	90	0.50	0.41	37404	0.52	0.43
6	1	CR	2	459	0.65	0.47	508	0.68	0.56	8387	0.53	0.50	762	0.63	0.54	88	0.68	0.57	37734	0.74	0.48
7	1	CR	2	443	0.26	0.49	503	0.33	0.52	8079	0.20	0.45	736	0.27	0.48	87	0.32	0.45	37393	0.33	0.46
8	1	CR	2	452	0.23	0.48	501	0.34	0.51	8197	0.14	0.37	742	0.23	0.39	88	0.30	0.49	37568	0.34	0.48
9	1	CR	1	443	0.36	0.40	498	0.51	0.40	7941	0.31	0.43	735	0.41	0.44	89	0.44	0.46	37276	0.46	0.46
10	1	CR	2	448	0.47	0.45	499	0.60	0.56	7870	0.40	0.46	718	0.49	0.56	89	0.49	0.33	37107	0.60	0.48
11	1	CR	1	439	0.73	0.44	496	0.87	0.38	7817	0.68	0.43	724	0.75	0.42	87	0.79	0.41	37042	0.84	0.38
12	1	CR	2	441	0.43	0.42	495	0.54	0.58	7798	0.33	0.47	723	0.43	0.53	88	0.44	0.41	37111	0.53	0.48
13	1	CR	2	433	0.51	0.51	493	0.62	0.47	7470	0.42	0.50	692	0.51	0.52	82	0.57	0.43	36475	0.61	0.50
14	1	CR	2	391	0.39	0.46	464	0.51	0.50	6449	0.32	0.48	617	0.40	0.45	78	0.42	0.48	34446	0.47	0.47
15	1	CR	1	392	0.77	0.38	466	0.88	0.34	6489	0.72	0.40	619	0.80	0.33	78	0.77	0.44	34493	0.84	0.36
1	2	CR	4	454	0.56	0.63	520	0.65	0.67	8455	0.52	0.56	774	0.57	0.56	92	0.58	0.55	37587	0.62	0.58
1	3	MC	1	461	0.89	0.33	521	0.94	0.38	8548	0.89	0.36	787	0.90	0.38	92	0.89	0.55	37867	0.92	0.31
2	3	MC	1	462	0.54	0.19	521	0.67	0.32	8523	0.45	0.17	787	0.54	0.22	93	0.59	0.21	37848	0.59	0.28
3	3	MC	1	461	0.75	0.40	521	0.79	0.44	8538	0.66	0.38	786	0.74	0.43	93	0.72	0.47	37825	0.81	0.39
4	3	MC	1	461	0.61	0.45	521	0.74	0.54	8504	0.51	0.43	783	0.63	0.51	93	0.67	0.48	37787	0.75	0.49
5	3	MC	1	461	0.39	0.29	521	0.54	0.45	8524	0.34	0.36	784	0.42	0.39	93	0.39	0.41	37801	0.48	0.41
6	3	MC	1	461	0.77	0.52	520	0.81	0.57	8531	0.70	0.44	786	0.76	0.53	93	0.81	0.47	37818	0.84	0.44
7	3	MC	1	457	0.56	0.34	521	0.71	0.37	8519	0.52	0.34	785	0.62	0.37	92	0.69	0.54	37826	0.64	0.34
8	3	MC	1	462	0.54	0.41	520	0.65	0.48	8506	0.39	0.39	784	0.55	0.46	92	0.61	0.35	37820	0.64	0.40
9	3	MC	1	461	0.36	0.23	519	0.45	0.30	8499	0.33	0.20	784	0.41	0.31	93	0.44	0.37	37798	0.44	0.33
10	3	MC	1	460	0.83	0.50	519	0.88	0.51	8505	0.80	0.47	785	0.83	0.53	93	0.87	0.58	37819	0.89	0.45
11	3	MC	1	459	0.61	0.46	519	0.72	0.48	8492	0.54	0.45	779	0.63	0.49	93	0.74	0.45	37803	0.73	0.47
12	3	MC	1	459	0.68	0.42	519	0.71	0.46	8485	0.57	0.40	783	0.66	0.39	93	0.72	0.49	37803	0.72	0.41
13	3	MC	1	461	0.72	0.45	520	0.86	0.44	8486	0.69	0.46	785	0.73	0.43	93	0.84	0.49	37787	0.81	0.40
14	3	MC	1	459	0.60	0.34	520	0.68	0.26	8492	0.58	0.26	782	0.60	0.29	93	0.58	0.11	37804	0.68	0.29
15	3	MC	1	459	0.72	0.42	520	0.84	0.46	8481	0.72	0.41	780	0.75	0.43	92	0.75	0.48	37769	0.82	0.42
16	3	MC	1	461	0.58	0.37	520	0.70	0.34	8475	0.57	0.27	780	0.61	0.31	93	0.55	0.37	37791	0.67	0.32
17	3	MC	1	461	0.65	0.48	519	0.81	0.41	8483	0.67	0.36	781	0.66	0.38	93	0.69	0.47	37787	0.74	0.39
18	3	MC	1	461	0.56	0.26	521	0.63	0.30	8469	0.54	0.26	780	0.63	0.27	92	0.65	0.29	37768	0.67	0.28

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Communication Arts Grade 7 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
19	3	MC	1	458	0.74	0.62	521	0.86	0.58	8415	0.70	0.56	780	0.76	0.61	93	0.83	0.69	37694	0.86	0.54
20	3	MC	1	457	0.71	0.44	521	0.83	0.44	8416	0.65	0.41	779	0.73	0.47	93	0.82	0.68	37708	0.83	0.44
21	3	MC	1	458	0.60	0.37	519	0.69	0.37	8413	0.55	0.35	779	0.64	0.37	93	0.75	0.31	37703	0.68	0.34
22	3	MC	1	459	0.60	0.36	521	0.64	0.46	8406	0.54	0.42	780	0.58	0.43	93	0.61	0.40	37711	0.69	0.41
23	3	MC	1	457	0.72	0.54	520	0.87	0.52	8324	0.69	0.55	779	0.76	0.54	93	0.76	0.61	37604	0.84	0.51
24	3	MC	1	455	0.62	0.51	518	0.79	0.54	8290	0.62	0.46	776	0.67	0.50	93	0.68	0.47	37593	0.76	0.47
25	3	MC	1	456	0.78	0.59	517	0.85	0.63	8274	0.74	0.55	773	0.81	0.56	92	0.84	0.53	37552	0.89	0.50
26	3	MC	1	456	0.73	0.52	517	0.86	0.55	8273	0.73	0.53	772	0.75	0.56	93	0.79	0.65	37525	0.85	0.50
27	3	MC	1	456	0.47	0.29	519	0.63	0.35	8221	0.45	0.29	770	0.45	0.33	93	0.54	0.35	37463	0.56	0.37
28	3	MC	1	456	0.59	0.48	518	0.74	0.43	8224	0.54	0.41	769	0.60	0.50	93	0.60	0.48	37455	0.70	0.45
29	3	MC	1	450	0.67	0.51	512	0.84	0.55	8030	0.60	0.48	755	0.70	0.46	91	0.79	0.44	37166	0.78	0.51
30	3	MC	1	448	0.57	0.50	510	0.77	0.46	8042	0.54	0.48	754	0.57	0.49	92	0.57	0.52	37155	0.68	0.48
31	3	MC	1	449	0.60	0.51	509	0.82	0.61	7989	0.56	0.54	750	0.66	0.58	92	0.69	0.63	37032	0.75	0.58
32	3	MC	1	447	0.59	0.47	511	0.74	0.45	7975	0.52	0.46	754	0.65	0.50	90	0.64	0.48	37033	0.71	0.48
33	3	MC	1	445	0.66	0.56	507	0.86	0.55	7969	0.60	0.56	750	0.70	0.58	92	0.72	0.62	36980	0.79	0.57
34	3	MC	1	444	0.46	0.32	507	0.65	0.40	7937	0.39	0.31	751	0.49	0.35	92	0.57	0.36	36921	0.57	0.42
35	3	MC	1	446	0.55	0.39	507	0.72	0.39	7960	0.48	0.36	752	0.53	0.43	91	0.58	0.37	36944	0.64	0.43
36	3	MC	1	453	0.78	0.36	517	0.89	0.25	8405	0.77	0.29	780	0.81	0.26	92	0.80	0.37	37682	0.85	0.28
37	3	MC	1	452	0.65	0.34	518	0.76	0.35	8389	0.53	0.31	777	0.65	0.29	92	0.64	0.39	37666	0.69	0.34
38	3	MC	1	451	0.62	0.38	517	0.73	0.43	8384	0.44	0.34	779	0.58	0.45	92	0.59	0.24	37645	0.65	0.40
39	3	MC	1	453	0.69	0.53	518	0.89	0.50	8350	0.64	0.45	774	0.70	0.51	92	0.79	0.56	37619	0.81	0.45
40	3	MC	1	452	0.72	0.43	515	0.89	0.39	8354	0.71	0.42	775	0.75	0.47	91	0.85	0.46	37622	0.84	0.44
41	3	MC	1	453	0.31	0.02	515	0.27	0.02	8361	0.31	0.01	777	0.26	0.05	92	0.20	-0.09	37566	0.30	-0.01
42	3	MC	1	453	0.48	0.21	517	0.58	0.30	8354	0.50	0.23	777	0.44	0.29	92	0.54	0.30	37549	0.52	0.27
43	3	MC	1	451	0.43	0.25	517	0.54	0.30	8297	0.47	0.28	775	0.43	0.27	92	0.47	0.10	37451	0.47	0.22
44	3	MC	1	453	0.56	0.19	516	0.65	0.23	8332	0.61	0.26	777	0.52	0.17	91	0.46	0.25	37499	0.56	0.21
45	3	MC	1	452	0.49	0.38	516	0.72	0.45	8341	0.56	0.36	776	0.53	0.41	92	0.60	0.39	37523	0.61	0.37

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Communication Arts Grade 7 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	24406	0.30	0.40	23970	0.33	0.41
2	1	CR	3	24218	0.41	0.52	23860	0.48	0.54
3	1	CR	2	23383	0.31	0.46	23582	0.40	0.46
4	1	CR	2	23874	0.40	0.52	23747	0.50	0.54
5	1	CR	2	24119	0.46	0.41	23991	0.55	0.43
6	1	CR	2	24507	0.68	0.52	24083	0.72	0.51
7	1	CR	2	24032	0.29	0.48	23840	0.32	0.49
8	1	CR	2	24248	0.28	0.48	23941	0.33	0.49
9	1	CR	1	23854	0.39	0.46	23761	0.47	0.45
10	1	CR	2	23690	0.54	0.50	23691	0.58	0.52
11	1	CR	1	23607	0.78	0.42	23642	0.83	0.40
12	1	CR	2	23628	0.46	0.50	23675	0.53	0.48
13	1	CR	2	22913	0.52	0.51	23338	0.62	0.51
14	1	CR	2	20792	0.40	0.48	22195	0.48	0.49
15	1	CR	1	20851	0.78	0.39	22234	0.86	0.35
1	2	CR	4	24511	0.56	0.58	24052	0.65	0.58
1	3	MC	1	24817	0.89	0.35	24125	0.95	0.25
2	3	MC	1	24794	0.56	0.27	24108	0.57	0.30
3	3	MC	1	24790	0.75	0.42	24098	0.80	0.39
4	3	MC	1	24744	0.68	0.51	24073	0.73	0.50
5	3	MC	1	24755	0.42	0.40	24093	0.49	0.41
6	3	MC	1	24773	0.78	0.47	24099	0.86	0.42
7	3	MC	1	24761	0.59	0.36	24102	0.66	0.33
8	3	MC	1	24770	0.57	0.44	24076	0.61	0.43
9	3	MC	1	24742	0.44	0.38	24074	0.39	0.29
10	3	MC	1	24758	0.85	0.47	24090	0.90	0.43
11	3	MC	1	24736	0.66	0.49	24081	0.72	0.47
12	3	MC	1	24741	0.65	0.43	24070	0.73	0.40
13	3	MC	1	24731	0.75	0.45	24067	0.82	0.39
14	3	MC	1	24740	0.62	0.29	24074	0.70	0.28
15	3	MC	1	24710	0.75	0.43	24059	0.84	0.39
16	3	MC	1	24722	0.61	0.33	24061	0.69	0.28
17	3	MC	1	24727	0.68	0.42	24061	0.78	0.31
18	3	MC	1	24707	0.63	0.29	24051	0.66	0.29
19	3	MC	1	24606	0.78	0.57	24021	0.87	0.53
20	3	MC	1	24626	0.78	0.49	24011	0.81	0.43
21	3	MC	1	24622	0.63	0.37	24002	0.67	0.34
22	3	MC	1	24628	0.64	0.44	24011	0.68	0.41

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Communication Arts Grade 7 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
23	3	MC	1	24508	0.76	0.55	23935	0.86	0.48
24	3	MC	1	24483	0.68	0.48	23900	0.78	0.46
25	3	MC	1	24429	0.83	0.55	23898	0.90	0.49
26	3	MC	1	24416	0.78	0.53	23875	0.88	0.47
27	3	MC	1	24345	0.50	0.34	23827	0.58	0.37
28	3	MC	1	24344	0.63	0.46	23824	0.71	0.44
29	3	MC	1	24049	0.71	0.52	23602	0.79	0.51
30	3	MC	1	24082	0.61	0.50	23559	0.70	0.46
31	3	MC	1	23972	0.66	0.58	23494	0.77	0.57
32	3	MC	1	23965	0.62	0.51	23485	0.73	0.46
33	3	MC	1	23932	0.69	0.58	23448	0.82	0.55
34	3	MC	1	23904	0.51	0.41	23392	0.56	0.42
35	3	MC	1	23939	0.58	0.44	23404	0.65	0.42
36	3	MC	1	24624	0.81	0.31	23976	0.87	0.25
37	3	MC	1	24606	0.60	0.33	23959	0.73	0.34
38	3	MC	1	24582	0.56	0.39	23955	0.66	0.41
39	3	MC	1	24546	0.70	0.48	23930	0.86	0.41
40	3	MC	1	24556	0.76	0.45	23926	0.87	0.40
41	3	MC	1	24535	0.28	-0.01	23906	0.31	-0.02
42	3	MC	1	24525	0.46	0.26	23894	0.57	0.21
43	3	MC	1	24440	0.43	0.23	23822	0.51	0.19
44	3	MC	1	24480	0.46	0.17	23860	0.67	0.16
45	3	MC	1	24503	0.56	0.39	23873	0.64	0.33

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Communication Arts Grade 7 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	502	0.93	0.29	627	0.96	0.47	10278	0.90	0.40	1068	0.91	0.44	103	0.96	0.26	52561	0.96	0.34
2	1	CR	2	502	0.48	0.46	625	0.56	0.56	10299	0.36	0.51	1068	0.44	0.52	103	0.47	0.56	52538	0.53	0.47
3	1	CR	2	498	0.44	0.50	623	0.60	0.56	10154	0.36	0.51	1057	0.45	0.53	103	0.56	0.53	52345	0.52	0.48
4	1	CR	2	489	0.37	0.30	620	0.44	0.38	9901	0.34	0.31	1046	0.38	0.33	98	0.37	0.29	51793	0.42	0.30
5	1	CR	2	481	0.50	0.53	618	0.66	0.55	9459	0.42	0.50	1040	0.50	0.57	98	0.59	0.38	51308	0.60	0.56
6	1	CR	1	482	0.26	0.38	617	0.40	0.42	9637	0.18	0.29	1038	0.25	0.29	99	0.31	0.24	51582	0.32	0.37
7	1	CR	2	475	0.27	0.49	616	0.43	0.53	9320	0.21	0.45	1019	0.31	0.51	98	0.33	0.40	50828	0.38	0.50
8	1	CR	1	476	0.79	0.34	612	0.89	0.32	9283	0.78	0.36	1032	0.83	0.33	98	0.81	0.34	51093	0.85	0.33
9	1	CR	2	476	0.30	0.43	612	0.42	0.49	9268	0.24	0.42	1030	0.30	0.47	98	0.37	0.34	51068	0.37	0.43
10	1	CR	1	489	0.43	0.37	620	0.56	0.29	9723	0.38	0.24	1045	0.46	0.27	102	0.40	0.54	51845	0.50	0.33
11	1	CR	1	480	0.67	0.38	616	0.75	0.41	9362	0.56	0.39	1023	0.64	0.44	100	0.75	0.45	51155	0.76	0.40
12	1	CR	2	472	0.76	0.30	611	0.80	0.42	9098	0.67	0.35	1011	0.75	0.32	99	0.77	0.32	50935	0.80	0.35
13	1	CR	2	478	0.26	0.46	616	0.40	0.47	9090	0.17	0.39	1008	0.25	0.43	100	0.31	0.35	50904	0.33	0.41
1	2	CR	4	504	0.52	0.54	625	0.66	0.56	10313	0.49	0.53	1063	0.55	0.57	103	0.60	0.45	52545	0.59	0.55
1	3	MC	1	505	0.91	0.29	627	0.94	0.42	10310	0.90	0.37	1070	0.91	0.38	102	0.94	0.08	52517	0.94	0.29
2	3	MC	1	505	0.56	0.31	627	0.72	0.37	10290	0.46	0.18	1068	0.51	0.27	103	0.58	0.26	52535	0.57	0.29
3	3	MC	1	506	0.78	0.37	628	0.83	0.48	10329	0.66	0.40	1068	0.72	0.42	104	0.88	0.29	52559	0.82	0.40
4	3	MC	1	501	0.66	0.45	628	0.76	0.56	10255	0.49	0.45	1066	0.63	0.52	104	0.76	0.29	52459	0.75	0.49
5	3	MC	1	504	0.42	0.37	627	0.63	0.49	10267	0.35	0.35	1064	0.41	0.38	104	0.59	0.27	52425	0.49	0.41
6	3	MC	1	505	0.79	0.41	626	0.87	0.50	10309	0.72	0.45	1066	0.78	0.48	104	0.88	0.36	52489	0.86	0.42
7	3	MC	1	504	0.58	0.32	628	0.69	0.37	10292	0.53	0.33	1065	0.63	0.34	104	0.68	0.35	52469	0.65	0.33
8	3	MC	1	505	0.56	0.43	628	0.64	0.44	10289	0.41	0.38	1068	0.52	0.41	104	0.59	0.52	52508	0.63	0.39
9	3	MC	1	506	0.37	0.24	627	0.49	0.42	10280	0.34	0.18	1069	0.41	0.27	104	0.45	0.43	52481	0.43	0.31
10	3	MC	1	502	0.85	0.44	629	0.90	0.48	10284	0.83	0.47	1066	0.85	0.46	104	0.87	0.34	52482	0.91	0.43
11	3	MC	1	506	0.64	0.43	628	0.77	0.45	10274	0.56	0.47	1069	0.59	0.52	104	0.69	0.57	52484	0.73	0.48
12	3	MC	1	505	0.69	0.44	627	0.74	0.38	10247	0.61	0.40	1062	0.67	0.37	104	0.68	0.48	52352	0.74	0.38
13	3	MC	1	505	0.76	0.37	623	0.86	0.38	10222	0.71	0.44	1062	0.77	0.39	103	0.77	0.41	52261	0.83	0.35
14	3	MC	1	504	0.67	0.22	626	0.69	0.31	10268	0.61	0.24	1065	0.65	0.29	104	0.71	0.10	52414	0.70	0.26
15	3	MC	1	499	0.78	0.39	620	0.86	0.49	10121	0.75	0.41	1056	0.77	0.40	103	0.82	0.38	51883	0.84	0.41
16	3	MC	1	505	0.60	0.33	626	0.72	0.24	10260	0.60	0.23	1066	0.64	0.25	104	0.69	0.25	52413	0.69	0.26
17	3	MC	1	494	0.70	0.39	618	0.83	0.37	9994	0.72	0.31	1051	0.73	0.31	103	0.70	0.35	51151	0.78	0.33
18	3	MC	1	499	0.61	0.29	625	0.65	0.31	10224	0.55	0.23	1068	0.64	0.27	104	0.60	0.24	52429	0.67	0.27
19	3	MC	1	499	0.79	0.51	626	0.88	0.57	10205	0.72	0.58	1067	0.79	0.59	104	0.84	0.63	52398	0.88	0.52
20	3	MC	1	497	0.80	0.31	624	0.86	0.40	10120	0.68	0.37	1064	0.78	0.39	103	0.85	0.25	52195	0.86	0.39

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Communication Arts Grade 7 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
21	3	MC	1	496	0.67	0.27	625	0.73	0.31	10109	0.58	0.37	1062	0.63	0.37	103	0.75	0.22	52137	0.69	0.31
22	3	MC	1	495	0.60	0.38	623	0.65	0.43	10064	0.56	0.40	1056	0.58	0.37	102	0.68	0.34	51967	0.68	0.39
23	3	MC	1	498	0.79	0.52	621	0.90	0.54	10060	0.74	0.53	1064	0.79	0.56	102	0.87	0.35	52193	0.86	0.48
24	3	MC	1	491	0.68	0.47	615	0.81	0.53	9841	0.66	0.48	1050	0.70	0.50	99	0.79	0.53	51425	0.79	0.47
25	3	MC	1	497	0.87	0.46	623	0.89	0.55	10042	0.79	0.52	1062	0.85	0.53	101	0.93	0.42	52214	0.93	0.44
26	3	MC	1	496	0.80	0.53	622	0.90	0.48	10018	0.78	0.51	1059	0.82	0.51	101	0.88	0.48	52129	0.89	0.46
27	3	MC	1	490	0.48	0.25	623	0.63	0.49	9942	0.45	0.30	1055	0.50	0.36	100	0.57	0.32	51996	0.57	0.38
28	3	MC	1	488	0.60	0.39	621	0.73	0.49	9914	0.55	0.42	1057	0.61	0.50	100	0.70	0.33	51876	0.70	0.46
29	3	MC	1	486	0.74	0.47	615	0.86	0.58	9673	0.65	0.46	1043	0.77	0.51	101	0.80	0.39	51567	0.83	0.48
30	3	MC	1	483	0.61	0.45	616	0.83	0.50	9697	0.61	0.45	1046	0.65	0.45	102	0.74	0.59	51574	0.73	0.48
31	3	MC	1	481	0.69	0.59	615	0.88	0.53	9632	0.62	0.55	1042	0.70	0.53	101	0.76	0.57	51467	0.78	0.57
32	3	MC	1	481	0.66	0.45	613	0.78	0.32	9601	0.56	0.47	1041	0.66	0.47	101	0.63	0.34	51406	0.74	0.45
33	3	MC	1	479	0.72	0.59	613	0.88	0.57	9536	0.67	0.54	1035	0.77	0.50	100	0.76	0.58	51185	0.83	0.53
34	3	MC	1	481	0.45	0.31	609	0.64	0.43	9515	0.39	0.30	1038	0.49	0.37	100	0.54	0.42	51182	0.57	0.43
35	3	MC	1	480	0.57	0.35	608	0.74	0.39	9510	0.52	0.37	1037	0.57	0.40	101	0.64	0.30	51140	0.67	0.42
36	3	MC	1	501	0.82	0.26	625	0.90	0.28	10204	0.79	0.32	1050	0.81	0.35	104	0.84	0.29	52311	0.87	0.28
37	3	MC	1	502	0.62	0.33	621	0.81	0.29	10168	0.54	0.32	1046	0.67	0.31	103	0.67	0.31	52175	0.70	0.35
38	3	MC	1	503	0.54	0.44	626	0.74	0.33	10208	0.45	0.37	1052	0.58	0.43	104	0.65	0.24	52294	0.66	0.39
39	3	MC	1	503	0.76	0.40	625	0.90	0.36	10196	0.69	0.44	1051	0.76	0.44	102	0.86	0.34	52273	0.85	0.41
40	3	MC	1	501	0.74	0.36	625	0.92	0.43	10179	0.75	0.39	1051	0.79	0.42	102	0.82	0.56	52240	0.86	0.40
41	3	MC	1	504	0.25	0.11	621	0.25	-0.08	10156	0.29	0.05	1048	0.28	0.00	103	0.19	0.01	52205	0.28	0.03
42	3	MC	1	504	0.48	0.24	624	0.61	0.33	10153	0.54	0.27	1046	0.49	0.25	103	0.57	0.19	52174	0.53	0.26
43	3	MC	1	503	0.44	0.21	623	0.61	0.27	10129	0.51	0.27	1047	0.47	0.23	101	0.63	0.18	52094	0.50	0.22
44	3	MC	1	504	0.53	0.12	625	0.68	0.32	10173	0.67	0.23	1048	0.56	0.18	103	0.58	0.06	52216	0.60	0.19
45	3	MC	1	503	0.50	0.38	624	0.75	0.49	10150	0.55	0.36	1049	0.55	0.38	102	0.61	0.31	52191	0.61	0.38

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Communication Arts Grade 7 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	34687	0.94	0.38	32983	0.96	0.35
2	1	CR	2	34636	0.47	0.50	33038	0.54	0.49
3	1	CR	2	34373	0.46	0.49	32916	0.53	0.50
4	1	CR	2	33869	0.40	0.31	32570	0.42	0.33
5	1	CR	2	33253	0.54	0.57	32176	0.60	0.55
6	1	CR	1	33471	0.26	0.35	32446	0.33	0.38
7	1	CR	2	32676	0.32	0.50	32086	0.39	0.51
8	1	CR	1	32824	0.80	0.35	32172	0.88	0.29
9	1	CR	2	32797	0.32	0.43	32153	0.38	0.45
10	1	CR	1	33770	0.43	0.32	32536	0.53	0.31
11	1	CR	1	33045	0.72	0.42	32129	0.73	0.43
12	1	CR	2	32761	0.76	0.36	31890	0.80	0.38
13	1	CR	2	32717	0.29	0.42	31875	0.32	0.42
1	2	CR	4	34701	0.53	0.55	32994	0.61	0.54
1	3	MC	1	34692	0.91	0.34	32972	0.95	0.26
2	3	MC	1	34685	0.55	0.28	32978	0.54	0.29
3	3	MC	1	34716	0.78	0.42	33012	0.81	0.41
4	3	MC	1	34615	0.68	0.51	32930	0.73	0.51
5	3	MC	1	34612	0.43	0.39	32905	0.49	0.42
6	3	MC	1	34663	0.81	0.45	32974	0.87	0.42
7	3	MC	1	34637	0.60	0.34	32951	0.66	0.32
8	3	MC	1	34679	0.58	0.42	32957	0.61	0.41
9	3	MC	1	34647	0.44	0.34	32950	0.39	0.27
10	3	MC	1	34649	0.87	0.46	32946	0.91	0.42
11	3	MC	1	34637	0.67	0.49	32954	0.73	0.48
12	3	MC	1	34535	0.69	0.40	32886	0.75	0.38
13	3	MC	1	34448	0.79	0.41	32842	0.83	0.35
14	3	MC	1	34581	0.66	0.26	32922	0.71	0.26
15	3	MC	1	34167	0.78	0.41	32606	0.86	0.39
16	3	MC	1	34554	0.65	0.28	32952	0.70	0.24
17	3	MC	1	33555	0.74	0.35	32323	0.80	0.28
18	3	MC	1	34550	0.64	0.27	32924	0.67	0.29
19	3	MC	1	34522	0.82	0.55	32902	0.89	0.53
20	3	MC	1	34368	0.83	0.42	32752	0.82	0.41
21	3	MC	1	34275	0.66	0.34	32762	0.69	0.32
22	3	MC	1	34115	0.65	0.41	32685	0.67	0.40
23	3	MC	1	34265	0.80	0.51	32781	0.89	0.45
24	3	MC	1	33593	0.71	0.49	32409	0.82	0.46

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Communication Arts Grade 7 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
25	3	MC	1	34263	0.88	0.49	32779	0.92	0.45
26	3	MC	1	34197	0.83	0.50	32733	0.91	0.44
27	3	MC	1	34070	0.52	0.35	32636	0.59	0.38
28	3	MC	1	33969	0.64	0.46	32577	0.71	0.46
29	3	MC	1	33654	0.77	0.50	32300	0.83	0.49
30	3	MC	1	33687	0.67	0.48	32294	0.75	0.46
31	3	MC	1	33566	0.71	0.57	32226	0.81	0.56
32	3	MC	1	33521	0.67	0.48	32172	0.76	0.43
33	3	MC	1	33327	0.75	0.55	32063	0.85	0.52
34	3	MC	1	33337	0.51	0.42	32021	0.56	0.43
35	3	MC	1	33317	0.61	0.43	31994	0.67	0.41
36	3	MC	1	34478	0.83	0.31	32837	0.88	0.25
37	3	MC	1	34373	0.61	0.34	32753	0.74	0.36
38	3	MC	1	34462	0.57	0.40	32845	0.67	0.41
39	3	MC	1	34438	0.75	0.45	32833	0.89	0.37
40	3	MC	1	34405	0.79	0.42	32810	0.89	0.37
41	3	MC	1	34388	0.26	0.03	32763	0.30	0.01
42	3	MC	1	34355	0.48	0.24	32759	0.59	0.22
43	3	MC	1	34284	0.46	0.22	32721	0.54	0.19
44	3	MC	1	34394	0.52	0.14	32790	0.70	0.15
45	3	MC	1	34365	0.57	0.40	32768	0.63	0.35

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Communication Arts Grade 11 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	273	0.54	0.49	459	0.63	0.55	4473	0.53	0.46	512	0.60	0.49	134	0.60	0.48	28709	0.63	0.48
2	1	CR	2	284	0.80	0.49	466	0.84	0.47	4654	0.78	0.41	523	0.84	0.41	138	0.80	0.41	29157	0.86	0.36
3	1	CR	2	277	0.48	0.52	453	0.61	0.57	4553	0.47	0.47	515	0.53	0.52	133	0.52	0.54	28902	0.56	0.51
4	1	CR	1	280	0.79	0.43	451	0.74	0.52	4491	0.72	0.37	506	0.80	0.41	139	0.77	0.37	28899	0.86	0.34
5	1	CR	2	272	0.33	0.46	445	0.40	0.57	4371	0.31	0.41	493	0.40	0.52	129	0.36	0.42	28329	0.42	0.47
6	1	CR	2	255	0.52	0.52	441	0.65	0.64	4200	0.46	0.52	475	0.58	0.54	136	0.54	0.53	27873	0.61	0.56
7	1	CR	1	252	0.50	0.48	425	0.58	0.34	4093	0.54	0.31	468	0.55	0.39	126	0.53	0.21	27305	0.55	0.40
8	1	CR	2	254	0.59	0.55	438	0.74	0.53	4232	0.62	0.49	479	0.67	0.45	129	0.61	0.52	27812	0.67	0.52
9	1	CR	2	251	0.44	0.50	425	0.58	0.58	4197	0.46	0.46	479	0.49	0.48	124	0.36	0.41	27848	0.51	0.52
10	1	CR	2	246	0.36	0.50	415	0.47	0.55	3960	0.36	0.44	459	0.40	0.47	122	0.34	0.39	27072	0.41	0.52
11	1	CR	2	251	0.44	0.56	416	0.61	0.57	3989	0.46	0.53	457	0.54	0.53	119	0.50	0.55	27433	0.56	0.55
12	1	CR	2	143	0.17	0.42	291	0.36	0.56	1979	0.16	0.39	290	0.23	0.42	82	0.23	0.36	17864	0.26	0.42
13	1	CR	1	151	0.62	0.55	300	0.76	0.49	2057	0.64	0.35	293	0.71	0.38	85	0.68	0.41	18246	0.73	0.39
14	1	CR	2	228	0.43	0.58	359	0.57	0.63	3309	0.39	0.54	398	0.50	0.59	106	0.47	0.63	25661	0.53	0.56
15	1	CR	3	210	0.29	0.61	334	0.39	0.64	2925	0.21	0.50	369	0.32	0.60	93	0.26	0.58	24160	0.33	0.57
16	1	CR	3	206	0.20	0.44	322	0.34	0.56	2807	0.21	0.45	355	0.26	0.40	92	0.24	0.50	23799	0.30	0.47
1	2	CR	4	265	0.55	0.53	445	0.65	0.64	4390	0.55	0.56	500	0.62	0.58	129	0.56	0.56	28233	0.63	0.59
1	3	MC	1	267	0.52	0.44	459	0.56	0.58	4498	0.36	0.43	509	0.47	0.54	136	0.54	0.45	28619	0.56	0.49
2	3	MC	1	266	0.91	0.44	460	0.90	0.37	4516	0.91	0.35	508	0.92	0.35	136	0.88	0.46	28640	0.93	0.37
3	3	MC	1	265	0.78	0.45	460	0.76	0.50	4504	0.70	0.40	508	0.77	0.42	135	0.77	0.48	28614	0.80	0.41
4	3	MC	1	266	0.71	0.42	460	0.71	0.43	4509	0.57	0.37	508	0.75	0.39	136	0.71	0.32	28625	0.74	0.36
5	3	MC	1	265	0.41	0.28	460	0.49	0.26	4488	0.22	0.17	509	0.37	0.31	135	0.40	0.30	28610	0.37	0.30
6	3	MC	1	265	0.79	0.44	460	0.79	0.40	4512	0.74	0.33	508	0.78	0.39	136	0.81	0.48	28628	0.84	0.38
7	3	MC	1	266	0.71	0.49	459	0.79	0.50	4501	0.72	0.43	509	0.78	0.43	135	0.76	0.37	28607	0.80	0.46
8	3	MC	1	266	0.69	0.57	458	0.75	0.47	4504	0.69	0.41	510	0.76	0.46	136	0.71	0.56	28599	0.78	0.47
9	3	MC	1	266	0.65	0.55	458	0.71	0.57	4486	0.58	0.46	509	0.67	0.50	134	0.68	0.62	28594	0.74	0.48
10	3	MC	1	265	0.80	0.44	458	0.83	0.37	4495	0.75	0.38	509	0.82	0.34	136	0.78	0.46	28611	0.83	0.42
11	3	MC	1	265	0.74	0.33	457	0.75	0.43	4499	0.64	0.39	510	0.77	0.36	136	0.73	0.43	28612	0.82	0.32
12	3	MC	1	266	0.92	0.35	457	0.96	0.29	4501	0.93	0.31	509	0.95	0.29	135	0.87	0.48	28602	0.96	0.33
13	3	MC	1	266	0.64	0.39	456	0.67	0.45	4494	0.58	0.33	510	0.66	0.35	136	0.71	0.44	28612	0.73	0.38
14	3	MC	1	266	0.76	0.31	455	0.82	0.40	4494	0.75	0.35	509	0.76	0.42	136	0.68	0.48	28600	0.81	0.42
15	3	MC	1	266	0.68	0.57	456	0.79	0.56	4466	0.68	0.54	509	0.79	0.51	135	0.67	0.63	28561	0.79	0.54
16	3	MC	1	265	0.71	0.53	456	0.80	0.47	4471	0.69	0.45	508	0.75	0.50	136	0.64	0.56	28560	0.77	0.53
17	3	MC	1	266	0.65	0.45	457	0.73	0.49	4479	0.65	0.44	510	0.72	0.43	136	0.64	0.52	28586	0.74	0.48

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Communication Arts Grade 11 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
18	3	MC	1	266	0.59	0.49	457	0.65	0.53	4466	0.59	0.45	508	0.67	0.46	136	0.54	0.59	28563	0.70	0.50
19	3	MC	1	265	0.69	0.41	457	0.76	0.37	4460	0.67	0.38	508	0.75	0.34	136	0.72	0.36	28546	0.76	0.40
20	3	MC	1	266	0.71	0.48	451	0.82	0.39	4408	0.73	0.42	507	0.78	0.46	135	0.67	0.51	28480	0.80	0.46
21	3	MC	1	265	0.78	0.54	451	0.81	0.60	4410	0.68	0.53	507	0.79	0.54	136	0.71	0.63	28491	0.83	0.55
22	3	MC	1	265	0.49	0.38	452	0.52	0.39	4389	0.44	0.39	506	0.55	0.47	136	0.45	0.51	28471	0.56	0.42
23	3	MC	1	264	0.77	0.53	450	0.88	0.51	4394	0.73	0.50	508	0.78	0.57	135	0.70	0.52	28468	0.83	0.53
24	3	MC	1	264	0.49	0.34	450	0.54	0.47	4384	0.39	0.36	507	0.54	0.41	136	0.50	0.36	28449	0.54	0.41
25	3	MC	1	264	0.51	0.44	450	0.52	0.39	4362	0.43	0.26	506	0.47	0.37	135	0.46	0.35	28435	0.56	0.34
26	3	MC	1	263	0.59	0.40	447	0.60	0.44	4388	0.50	0.31	504	0.61	0.38	136	0.56	0.37	28446	0.66	0.39
27	3	MC	1	264	0.47	0.23	444	0.56	0.39	4364	0.46	0.25	498	0.47	0.31	135	0.45	0.25	28407	0.51	0.30
28	3	MC	1	264	0.56	0.42	446	0.68	0.43	4339	0.54	0.39	498	0.59	0.46	136	0.58	0.37	28386	0.64	0.41
29	3	MC	1	264	0.40	0.25	444	0.52	0.42	4304	0.41	0.34	496	0.46	0.38	136	0.47	0.38	28336	0.50	0.33
30	3	MC	1	263	0.30	0.10	444	0.40	0.33	4292	0.28	0.19	492	0.33	0.26	135	0.36	0.28	28314	0.37	0.25
31	3	MC	1	263	0.61	0.48	443	0.68	0.58	4274	0.52	0.43	497	0.65	0.53	136	0.61	0.58	28301	0.71	0.49
32	3	MC	1	261	0.26	0.14	443	0.27	0.23	4276	0.26	0.16	495	0.27	0.10	134	0.28	0.07	28285	0.31	0.18
33	3	MC	1	261	0.29	0.26	443	0.44	0.33	4223	0.31	0.19	490	0.36	0.26	135	0.34	0.36	28226	0.39	0.29
34	3	MC	1	259	0.51	0.46	445	0.56	0.47	4194	0.44	0.32	488	0.54	0.43	135	0.46	0.45	28131	0.59	0.40
35	3	MC	1	258	0.60	0.53	440	0.73	0.52	4153	0.55	0.44	485	0.64	0.52	135	0.67	0.57	28109	0.74	0.48
36	3	MC	1	256	0.69	0.51	441	0.79	0.52	4152	0.61	0.46	487	0.68	0.48	134	0.70	0.46	28109	0.78	0.48
37	3	MC	1	255	0.50	0.33	436	0.59	0.36	4139	0.45	0.27	486	0.49	0.27	133	0.57	0.43	28054	0.56	0.32
38	3	MC	1	255	0.60	0.14	437	0.64	0.40	4130	0.53	0.26	483	0.61	0.25	134	0.55	0.31	27991	0.65	0.29
39	3	MC	1	261	0.70	0.44	453	0.79	0.44	4358	0.64	0.38	505	0.72	0.43	134	0.70	0.39	28376	0.78	0.41
40	3	MC	1	261	0.35	0.13	451	0.42	0.40	4355	0.28	0.10	504	0.34	0.17	134	0.40	0.42	28362	0.39	0.22
41	3	MC	1	260	0.68	0.53	452	0.88	0.40	4338	0.74	0.41	505	0.77	0.46	131	0.74	0.53	28343	0.83	0.46
42	3	MC	1	261	0.70	0.50	452	0.79	0.50	4334	0.70	0.42	502	0.72	0.54	132	0.71	0.40	28322	0.80	0.44
43	3	MC	1	262	0.50	0.19	455	0.57	0.32	4326	0.46	0.14	504	0.48	0.13	132	0.40	0.07	28323	0.47	0.15
44	3	MC	1	262	0.30	-0.02	456	0.32	-0.02	4326	0.31	-0.07	503	0.28	-0.05	132	0.30	-0.04	28311	0.28	-0.03
45	3	MC	1	262	0.43	0.16	455	0.55	0.34	4318	0.45	0.28	504	0.43	0.29	132	0.43	0.23	28288	0.49	0.29
46	3	MC	1	262	0.19	0.04	456	0.26	0.24	4319	0.18	0.03	503	0.20	0.09	132	0.29	0.10	28286	0.18	0.06

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Communication Arts Grade 11 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	16833	0.56	0.49	18441	0.67	0.45
2	1	CR	2	17278	0.82	0.39	18664	0.88	0.34
3	1	CR	2	16955	0.47	0.51	18581	0.62	0.47
4	1	CR	1	17012	0.83	0.37	18470	0.84	0.36
5	1	CR	2	16477	0.36	0.47	18265	0.44	0.45
6	1	CR	2	15943	0.53	0.56	18127	0.65	0.54
7	1	CR	1	15703	0.51	0.38	17657	0.58	0.36
8	1	CR	2	15939	0.58	0.52	18074	0.73	0.47
9	1	CR	2	15884	0.43	0.52	18129	0.58	0.46
10	1	CR	2	15170	0.35	0.51	17741	0.46	0.47
11	1	CR	2	15459	0.48	0.56	17865	0.61	0.51
12	1	CR	2	9247	0.20	0.42	11766	0.29	0.43
13	1	CR	1	9557	0.65	0.42	11954	0.78	0.34
14	1	CR	2	14146	0.44	0.56	16480	0.58	0.55
15	1	CR	3	13134	0.26	0.55	15469	0.37	0.57
16	1	CR	3	12782	0.22	0.47	15265	0.34	0.45
1	2	CR	4	16390	0.56	0.59	18249	0.67	0.56
1	3	MC	1	16899	0.52	0.49	18286	0.54	0.51
2	3	MC	1	16912	0.90	0.40	18312	0.95	0.30
3	3	MC	1	16876	0.77	0.42	18305	0.81	0.42
4	3	MC	1	16890	0.73	0.40	18309	0.71	0.39
5	3	MC	1	16879	0.38	0.33	18284	0.33	0.30
6	3	MC	1	16897	0.81	0.44	18308	0.85	0.32
7	3	MC	1	16876	0.76	0.47	18300	0.82	0.44
8	3	MC	1	16875	0.72	0.48	18296	0.80	0.42
9	3	MC	1	16864	0.69	0.51	18281	0.74	0.47
10	3	MC	1	16876	0.78	0.45	18294	0.84	0.36
11	3	MC	1	16877	0.78	0.37	18299	0.81	0.33
12	3	MC	1	16869	0.93	0.37	18299	0.98	0.22
13	3	MC	1	16877	0.72	0.41	18295	0.70	0.40
14	3	MC	1	16868	0.76	0.43	18288	0.84	0.35
15	3	MC	1	16827	0.71	0.57	18260	0.84	0.48
16	3	MC	1	16832	0.69	0.54	18259	0.83	0.46
17	3	MC	1	16855	0.67	0.47	18277	0.78	0.46
18	3	MC	1	16829	0.62	0.50	18264	0.74	0.47
19	3	MC	1	16815	0.71	0.43	18257	0.79	0.34
20	3	MC	1	16753	0.75	0.47	18188	0.84	0.41
21	3	MC	1	16758	0.76	0.58	18196	0.86	0.51

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Communication Arts Grade 11 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
22	3	MC	1	16732	0.53	0.44	18177	0.55	0.42
23	3	MC	1	16734	0.78	0.55	18176	0.86	0.48
24	3	MC	1	16706	0.52	0.43	18172	0.52	0.42
25	3	MC	1	16702	0.54	0.35	18138	0.54	0.36
26	3	MC	1	16699	0.61	0.40	18174	0.67	0.38
27	3	MC	1	16665	0.47	0.30	18137	0.54	0.29
28	3	MC	1	16630	0.61	0.46	18127	0.65	0.37
29	3	MC	1	16582	0.46	0.31	18085	0.53	0.36
30	3	MC	1	16559	0.39	0.27	18073	0.34	0.27
31	3	MC	1	16546	0.64	0.53	18052	0.72	0.45
32	3	MC	1	16534	0.30	0.18	18048	0.31	0.19
33	3	MC	1	16482	0.37	0.27	17989	0.38	0.31
34	3	MC	1	16435	0.54	0.42	17914	0.59	0.40
35	3	MC	1	16414	0.69	0.52	17849	0.73	0.47
36	3	MC	1	16403	0.72	0.52	17859	0.78	0.45
37	3	MC	1	16370	0.57	0.40	17811	0.52	0.28
38	3	MC	1	16336	0.61	0.32	17771	0.65	0.27
39	3	MC	1	16669	0.71	0.43	18109	0.80	0.38
40	3	MC	1	16654	0.36	0.21	18102	0.40	0.23
41	3	MC	1	16637	0.75	0.49	18082	0.87	0.39
42	3	MC	1	16615	0.72	0.45	18077	0.85	0.39
43	3	MC	1	16621	0.43	0.13	18062	0.50	0.16
44	3	MC	1	16612	0.31	-0.02	18057	0.26	-0.03
45	3	MC	1	16595	0.45	0.30	18045	0.52	0.27
46	3	MC	1	16592	0.18	0.05	18046	0.18	0.07

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Communication Arts Grade 11 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	320	0.80	0.55	656	0.87	0.50	6076	0.79	0.49	772	0.85	0.44	163	0.85	0.45	41576	0.88	0.46
2	1	CR	2	314	0.74	0.45	652	0.76	0.55	5947	0.61	0.46	765	0.73	0.46	163	0.79	0.46	41126	0.79	0.46
3	1	CR	2	319	0.61	0.59	654	0.70	0.51	5991	0.58	0.46	771	0.64	0.48	163	0.68	0.46	41491	0.68	0.47
4	1	CR	1	310	0.85	0.41	630	0.88	0.45	5572	0.78	0.39	729	0.88	0.29	156	0.85	0.35	40204	0.90	0.35
5	1	CR	1	310	0.87	0.38	630	0.92	0.38	5570	0.84	0.32	729	0.91	0.30	156	0.89	0.24	40201	0.92	0.28
6	1	CR	2	302	0.27	0.43	637	0.36	0.43	5739	0.23	0.34	744	0.30	0.36	155	0.40	0.47	40360	0.33	0.38
7	1	CR	2	299	0.26	0.37	624	0.36	0.42	5565	0.25	0.35	723	0.29	0.30	152	0.34	0.43	40176	0.37	0.35
8	1	CR	2	306	0.49	0.52	638	0.62	0.41	5743	0.50	0.43	746	0.57	0.38	153	0.56	0.49	40725	0.59	0.43
9	1	CR	2	307	0.62	0.60	612	0.72	0.63	5569	0.60	0.54	736	0.66	0.56	154	0.65	0.61	40449	0.70	0.56
10	1	CR	2	286	0.30	0.37	598	0.45	0.55	5061	0.27	0.44	667	0.32	0.46	144	0.41	0.57	38188	0.38	0.43
11	1	CR	2	299	0.35	0.45	620	0.38	0.50	5407	0.25	0.39	725	0.31	0.44	148	0.37	0.49	40112	0.38	0.44
12	1	CR	2	294	0.31	0.38	587	0.40	0.47	5090	0.29	0.37	682	0.37	0.38	149	0.44	0.33	38930	0.42	0.33
13	1	CR	2	298	0.68	0.49	602	0.75	0.37	5349	0.65	0.46	719	0.73	0.39	151	0.77	0.47	39783	0.75	0.42
14	1	CR	2	293	0.63	0.53	586	0.72	0.61	5108	0.53	0.56	690	0.62	0.55	150	0.63	0.59	38957	0.69	0.54
15	1	CR	2	288	0.68	0.44	575	0.76	0.45	4984	0.65	0.38	661	0.70	0.44	147	0.70	0.36	38426	0.76	0.37
16	1	CR	2	284	0.25	0.43	567	0.35	0.50	4769	0.19	0.42	656	0.27	0.41	139	0.32	0.53	38166	0.31	0.44
1	2	CR	4	306	0.53	0.54	642	0.62	0.57	5888	0.49	0.53	759	0.56	0.56	159	0.60	0.60	40999	0.60	0.54
1	3	MC	1	312	0.48	0.52	647	0.52	0.59	6046	0.33	0.45	760	0.47	0.55	158	0.51	0.56	41420	0.55	0.53
2	3	MC	1	312	0.93	0.38	648	0.93	0.39	6079	0.91	0.37	762	0.93	0.37	158	0.96	0.40	41460	0.94	0.38
3	3	MC	1	312	0.78	0.44	647	0.76	0.39	6069	0.69	0.40	761	0.75	0.42	158	0.82	0.40	41443	0.82	0.38
4	3	MC	1	312	0.77	0.32	647	0.67	0.46	6074	0.57	0.35	762	0.70	0.34	158	0.80	0.26	41442	0.75	0.35
5	3	MC	1	312	0.36	0.28	646	0.42	0.24	6045	0.22	0.14	761	0.31	0.32	157	0.34	0.40	41394	0.36	0.31
6	3	MC	1	312	0.83	0.35	648	0.81	0.40	6076	0.73	0.34	759	0.78	0.37	156	0.84	0.43	41424	0.86	0.35
7	3	MC	1	312	0.74	0.52	649	0.78	0.51	6067	0.71	0.45	760	0.73	0.52	158	0.83	0.52	41389	0.81	0.47
8	3	MC	1	311	0.75	0.41	649	0.77	0.49	6066	0.69	0.40	762	0.74	0.47	158	0.80	0.36	41380	0.79	0.43
9	3	MC	1	311	0.70	0.58	648	0.68	0.60	6057	0.55	0.47	761	0.66	0.52	157	0.71	0.44	41383	0.75	0.48
10	3	MC	1	312	0.79	0.50	648	0.85	0.37	6058	0.76	0.32	758	0.82	0.34	157	0.80	0.47	41343	0.84	0.41
11	3	MC	1	312	0.80	0.37	649	0.77	0.49	6067	0.63	0.36	763	0.76	0.36	159	0.86	0.31	41395	0.83	0.30
12	3	MC	1	312	0.96	0.33	648	0.97	0.30	6062	0.95	0.29	762	0.97	0.27	158	0.95	0.20	41400	0.98	0.26
13	3	MC	1	312	0.78	0.44	648	0.67	0.46	6064	0.57	0.32	759	0.66	0.44	159	0.79	0.34	41389	0.75	0.37
14	3	MC	1	312	0.84	0.41	649	0.81	0.38	6066	0.76	0.33	762	0.80	0.37	159	0.81	0.34	41387	0.84	0.36
15	3	MC	1	312	0.75	0.52	649	0.82	0.57	6046	0.71	0.52	762	0.77	0.55	158	0.75	0.61	41371	0.82	0.53
16	3	MC	1	312	0.73	0.47	649	0.81	0.47	6028	0.72	0.44	761	0.77	0.44	157	0.80	0.43	41354	0.80	0.50
17	3	MC	1	312	0.68	0.46	649	0.76	0.51	6028	0.65	0.43	760	0.70	0.47	158	0.70	0.48	41335	0.75	0.49
18	3	MC	1	311	0.68	0.48	647	0.72	0.42	5988	0.59	0.45	757	0.66	0.47	157	0.67	0.49	41209	0.72	0.48
19	3	MC	1	311	0.72	0.42	647	0.79	0.38	5983	0.68	0.37	756	0.75	0.39	156	0.76	0.40	41156	0.78	0.38
20	3	MC	1	308	0.82	0.52	643	0.89	0.38	5934	0.78	0.42	759	0.81	0.43	157	0.85	0.43	41172	0.85	0.42
21	3	MC	1	309	0.80	0.56	645	0.83	0.55	5932	0.72	0.52	758	0.80	0.53	157	0.87	0.52	41186	0.86	0.51
22	3	MC	1	309	0.53	0.52	645	0.60	0.39	5917	0.46	0.34	754	0.51	0.45	157	0.61	0.52	41161	0.59	0.41

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Communication Arts Grade 11 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
23	3	MC	1	309	0.83	0.56	642	0.91	0.45	5924	0.78	0.48	756	0.82	0.49	157	0.85	0.57	41147	0.87	0.51
24	3	MC	1	308	0.48	0.49	642	0.49	0.53	5911	0.38	0.33	754	0.47	0.47	157	0.59	0.44	41134	0.54	0.42
25	3	MC	1	309	0.54	0.35	640	0.49	0.33	5902	0.42	0.27	750	0.45	0.30	158	0.61	0.32	41114	0.57	0.35
26	3	MC	1	307	0.65	0.32	643	0.61	0.41	5911	0.51	0.28	754	0.61	0.39	158	0.69	0.39	41157	0.69	0.34
27	3	MC	1	299	0.50	0.25	636	0.65	0.33	5768	0.47	0.23	740	0.50	0.25	153	0.60	0.42	40503	0.56	0.31
28	3	MC	1	306	0.60	0.39	640	0.71	0.41	5841	0.56	0.37	748	0.59	0.47	157	0.68	0.42	40977	0.69	0.38
29	3	MC	1	307	0.46	0.31	637	0.52	0.44	5805	0.40	0.32	736	0.45	0.29	158	0.52	0.45	40882	0.51	0.32
30	3	MC	1	305	0.35	0.21	635	0.35	0.36	5788	0.26	0.26	733	0.29	0.36	158	0.51	0.33	40830	0.37	0.30
31	3	MC	1	307	0.70	0.46	635	0.69	0.50	5768	0.56	0.40	737	0.67	0.45	157	0.71	0.47	40853	0.74	0.45
32	3	MC	1	307	0.38	0.11	636	0.32	0.17	5770	0.25	0.14	738	0.31	0.19	158	0.31	0.13	40892	0.31	0.16
33	3	MC	1	308	0.36	0.30	633	0.39	0.34	5725	0.31	0.20	731	0.37	0.21	157	0.34	0.35	40781	0.39	0.31
34	3	MC	1	304	0.60	0.38	631	0.57	0.49	5677	0.46	0.31	725	0.53	0.43	158	0.57	0.31	40694	0.62	0.39
35	3	MC	1	304	0.73	0.48	629	0.78	0.49	5595	0.61	0.44	720	0.73	0.47	157	0.78	0.23	40504	0.79	0.46
36	3	MC	1	302	0.76	0.43	628	0.82	0.53	5607	0.66	0.48	724	0.74	0.53	156	0.86	0.35	40475	0.82	0.46
37	3	MC	1	301	0.57	0.39	626	0.64	0.38	5530	0.47	0.29	717	0.53	0.33	153	0.52	0.16	40262	0.59	0.32
38	3	MC	1	301	0.66	0.26	622	0.68	0.25	5522	0.59	0.23	717	0.65	0.23	152	0.65	0.26	40261	0.69	0.25
39	3	MC	1	306	0.72	0.47	645	0.83	0.45	5937	0.64	0.38	754	0.76	0.40	157	0.85	0.35	41041	0.81	0.38
40	3	MC	1	305	0.35	0.25	644	0.45	0.34	5922	0.32	0.08	754	0.35	0.17	157	0.39	0.28	41006	0.42	0.23
41	3	MC	1	306	0.79	0.48	645	0.89	0.35	5933	0.75	0.39	753	0.79	0.38	157	0.83	0.40	41037	0.85	0.43
42	3	MC	1	305	0.76	0.46	644	0.80	0.55	5917	0.70	0.40	752	0.74	0.45	157	0.87	0.32	41000	0.81	0.44
43	3	MC	1	306	0.44	0.14	639	0.57	0.26	5841	0.45	0.19	750	0.45	0.09	157	0.36	0.16	40845	0.47	0.16
44	3	MC	1	305	0.28	0.03	643	0.29	0.00	5850	0.31	-0.05	750	0.31	-0.12	157	0.27	0.10	40885	0.27	-0.03
45	3	MC	1	305	0.49	0.24	642	0.58	0.33	5831	0.46	0.26	746	0.50	0.19	157	0.59	0.28	40847	0.52	0.27
46	3	MC	1	305	0.21	-0.01	642	0.29	0.10	5819	0.20	0.08	747	0.19	0.06	157	0.24	0.14	40846	0.19	0.08

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Communication Arts Grade 11 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	25602	0.83	0.49	26231	0.91	0.42
2	1	CR	2	25275	0.74	0.49	25932	0.79	0.47
3	1	CR	2	25498	0.62	0.48	26150	0.72	0.44
4	1	CR	1	24224	0.85	0.39	25543	0.92	0.32
5	1	CR	1	24221	0.89	0.33	25540	0.93	0.25
6	1	CR	2	24495	0.28	0.39	25653	0.36	0.37
7	1	CR	2	24280	0.31	0.37	25426	0.39	0.33
8	1	CR	2	24720	0.54	0.45	25802	0.62	0.41
9	1	CR	2	24298	0.65	0.58	25700	0.73	0.53
10	1	CR	2	22686	0.35	0.46	24292	0.38	0.43
11	1	CR	2	24070	0.32	0.44	25392	0.41	0.44
12	1	CR	2	23383	0.38	0.34	24421	0.43	0.34
13	1	CR	2	23969	0.71	0.45	25055	0.76	0.41
14	1	CR	2	23289	0.62	0.57	24569	0.72	0.51
15	1	CR	2	22953	0.69	0.39	24147	0.79	0.35
16	1	CR	2	22502	0.25	0.44	24104	0.33	0.45
1	2	CR	4	25068	0.54	0.55	25912	0.63	0.53
1	3	MC	1	25525	0.50	0.53	26107	0.54	0.54
2	3	MC	1	25560	0.91	0.40	26149	0.96	0.31
3	3	MC	1	25542	0.78	0.40	26135	0.82	0.40
4	3	MC	1	25542	0.74	0.38	26140	0.72	0.38
5	3	MC	1	25501	0.37	0.34	26100	0.33	0.31
6	3	MC	1	25532	0.82	0.41	26127	0.86	0.31
7	3	MC	1	25510	0.77	0.47	26106	0.83	0.46
8	3	MC	1	25506	0.75	0.45	26102	0.81	0.40
9	3	MC	1	25505	0.70	0.51	26095	0.74	0.48
10	3	MC	1	25475	0.81	0.42	26081	0.85	0.36
11	3	MC	1	25508	0.80	0.35	26118	0.81	0.33
12	3	MC	1	25504	0.96	0.31	26118	0.98	0.20
13	3	MC	1	25494	0.74	0.39	26113	0.72	0.40
14	3	MC	1	25497	0.80	0.37	26114	0.85	0.33
15	3	MC	1	25487	0.74	0.56	26086	0.86	0.48
16	3	MC	1	25455	0.73	0.50	26077	0.86	0.43
17	3	MC	1	25441	0.69	0.49	26069	0.79	0.46
18	3	MC	1	25340	0.65	0.48	25991	0.75	0.46
19	3	MC	1	25288	0.72	0.42	25982	0.81	0.32
20	3	MC	1	25294	0.80	0.44	25939	0.87	0.38
21	3	MC	1	25286	0.81	0.54	25957	0.88	0.49

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Communication Arts Grade 11 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
22	3	MC	1	25266	0.57	0.42	25929	0.58	0.41
23	3	MC	1	25265	0.83	0.54	25916	0.89	0.45
24	3	MC	1	25247	0.52	0.44	25909	0.52	0.43
25	3	MC	1	25220	0.55	0.35	25905	0.54	0.37
26	3	MC	1	25228	0.65	0.35	25955	0.68	0.35
27	3	MC	1	24732	0.51	0.31	25583	0.59	0.28
28	3	MC	1	25056	0.66	0.43	25846	0.68	0.34
29	3	MC	1	25008	0.47	0.30	25739	0.52	0.35
30	3	MC	1	24953	0.37	0.32	25718	0.34	0.31
31	3	MC	1	24952	0.68	0.49	25723	0.75	0.42
32	3	MC	1	24967	0.30	0.15	25759	0.31	0.17
33	3	MC	1	24889	0.38	0.29	25666	0.39	0.32
34	3	MC	1	24807	0.58	0.40	25595	0.62	0.39
35	3	MC	1	24677	0.76	0.49	25436	0.78	0.46
36	3	MC	1	24659	0.78	0.50	25437	0.82	0.46
37	3	MC	1	24504	0.60	0.38	25273	0.55	0.30
38	3	MC	1	24502	0.66	0.27	25266	0.70	0.24
39	3	MC	1	25216	0.75	0.41	25881	0.82	0.37
40	3	MC	1	25181	0.39	0.20	25861	0.43	0.24
41	3	MC	1	25213	0.78	0.47	25863	0.89	0.35
42	3	MC	1	25182	0.74	0.45	25841	0.86	0.39
43	3	MC	1	25043	0.43	0.15	25742	0.50	0.16
44	3	MC	1	25060	0.30	-0.03	25772	0.25	-0.03
45	3	MC	1	25037	0.48	0.26	25735	0.54	0.27
46	3	MC	1	25015	0.18	0.06	25742	0.19	0.08

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Science Impact Item Statistics Summary
1998

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
3	American Indian	0.65	0.24	0.77	0.28	0.57	0.20	0.35	0.11	0.33	0.11	0.36	0.11
	Asian	0.68	0.22	0.77	0.15	0.61	0.23	0.43	0.10	0.41	0.10	0.45	0.10
	Black	0.51	0.23	0.61	0.21	0.44	0.23	0.39	0.08	0.35	0.06	0.42	0.08
	Hispanic	0.59	0.23	0.69	0.18	0.52	0.24	0.39	0.08	0.38	0.07	0.40	0.09
	Pacific Islander	0.68	0.24	0.78	0.17	0.61	0.25	0.34	0.15	0.32	0.18	0.34	0.14
	White	0.68	0.23	0.79	0.17	0.60	0.23	0.37	0.10	0.34	0.09	0.39	0.09
	Female	0.63	0.23	0.73	0.19	0.56	0.23	0.40	0.09	0.37	0.08	0.42	0.09
	Male	0.65	0.22	0.76	0.16	0.57	0.23	0.41	0.09	0.39	0.09	0.42	0.08
7	American Indian	0.51	0.24	0.65	0.17	0.37	0.23	0.40	0.11	0.34	0.09	0.45	0.09
	Asian	0.55	0.22	0.68	0.15	0.43	0.22	0.46	0.11	0.41	0.10	0.52	0.10
	Black	0.39	0.23	0.52	0.17	0.25	0.21	0.37	0.10	0.32	0.09	0.41	0.08
	Hispanic	0.49	0.23	0.62	0.16	0.36	0.22	0.42	0.11	0.37	0.09	0.47	0.09
	Pacific Islander	0.55	0.24	0.68	0.17	0.42	0.22	0.41	0.13	0.36	0.13	0.46	0.11
	White	0.57	0.25	0.71	0.17	0.44	0.24	0.39	0.10	0.33	0.08	0.44	0.10
	Female	0.52	0.25	0.66	0.18	0.39	0.23	0.42	0.11	0.36	0.09	0.48	0.09
	Male	0.55	0.24	0.68	0.16	0.42	0.23	0.42	0.10	0.37	0.08	0.47	0.09
10	American Indian	0.51	0.24	0.63	0.19	0.38	0.21	0.41	0.09	0.38	0.08	0.45	0.08
	Asian	0.55	0.21	0.66	0.22	0.42	0.18	0.48	0.13	0.41	0.11	0.56	0.11
	Black	0.40	0.24	0.52	0.22	0.25	0.18	0.37	0.11	0.30	0.07	0.44	0.11
	Hispanic	0.50	0.23	0.61	0.19	0.37	0.21	0.42	0.10	0.37	0.08	0.49	0.08
	Pacific Islander	0.55	0.23	0.66	0.19	0.42	0.21	0.41	0.09	0.37	0.07	0.44	0.10
	White	0.57	0.24	0.68	0.19	0.43	0.23	0.40	0.10	0.34	0.08	0.46	0.07
	Female	0.53	0.25	0.64	0.21	0.39	0.23	0.40	0.11	0.33	0.08	0.48	0.08
	Male	0.56	0.23	0.67	0.18	0.42	0.21	0.44	0.10	0.38	0.08	0.50	0.07

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Science Impact Item Statistics Summary
1999

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
3	American Indian	0.66	0.22	0.75	0.21	0.60	0.20	0.41	0.12	0.36	0.12	0.44	0.11
	Asian	0.70	0.22	0.79	0.19	0.65	0.18	0.41	0.10	0.38	0.14	0.43	0.08
	Black	0.54	0.25	0.64	0.23	0.48	0.18	0.40	0.08	0.36	0.10	0.42	0.09
	Hispanic	0.63	0.24	0.72	0.21	0.56	0.19	0.40	0.08	0.37	0.12	0.42	0.08
	Pacific Islander	0.67	0.23	0.76	0.21	0.61	0.20	0.39	0.12	0.36	0.13	0.39	0.09
	White	0.70	0.22	0.79	0.22	0.63	0.20	0.37	0.09	0.33	0.11	0.39	0.07
	Female	0.65	0.23	0.75	0.23	0.59	0.21	0.40	0.09	0.37	0.12	0.43	0.07
	Male	0.68	0.22	0.77	0.20	0.61	0.19	0.40	0.09	0.37	0.12	0.43	0.07
7	American Indian	0.55	0.23	0.68	0.17	0.41	0.16	0.37	0.12	0.33	0.08	0.42	0.09
	Asian	0.62	0.21	0.73	0.15	0.51	0.15	0.44	0.12	0.39	0.08	0.49	0.10
	Black	0.43	0.21	0.55	0.17	0.30	0.15	0.38	0.11	0.33	0.09	0.44	0.09
	Hispanic	0.53	0.22	0.65	0.17	0.40	0.16	0.40	0.12	0.35	0.08	0.45	0.10
	Pacific Islander	0.61	0.23	0.73	0.19	0.47	0.18	0.37	0.12	0.33	0.13	0.42	0.10
	White	0.61	0.23	0.72	0.17	0.48	0.17	0.37	0.11	0.33	0.08	0.43	0.09
	Female	0.57	0.23	0.68	0.18	0.44	0.17	0.40	0.12	0.35	0.08	0.45	0.09
	Male	0.58	0.22	0.71	0.16	0.45	0.15	0.41	0.11	0.37	0.08	0.46	0.09
10	American Indian	0.53	0.23	0.64	0.17	0.43	0.24	0.39	0.12	0.34	0.10	0.43	0.12
	Asian	0.58	0.21	0.67	0.16	0.48	0.23	0.45	0.13	0.38	0.09	0.51	0.10
	Black	0.42	0.23	0.52	0.20	0.32	0.26	0.35	0.11	0.29	0.06	0.41	0.08
	Hispanic	0.50	0.22	0.61	0.18	0.41	0.25	0.39	0.12	0.34	0.06	0.44	0.08
	Pacific Islander	0.56	0.23	0.66	0.17	0.46	0.26	0.39	0.12	0.34	0.12	0.45	0.10
	White	0.57	0.23	0.67	0.17	0.47	0.23	0.37	0.11	0.31	0.09	0.42	0.09
	Female	0.54	0.24	0.64	0.19	0.44	0.24	0.37	0.12	0.31	0.08	0.43	0.09
	Male	0.56	0.22	0.67	0.16	0.46	0.23	0.40	0.11	0.35	0.08	0.44	0.09

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Science Grade 3 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	1	126	0.89	0.29	482	0.84	0.35	10504	0.74	0.34	696	0.80	0.30	69	0.91	0.36	36405	0.87	0.26
2	1	CR	1	129	0.75	0.44	489	0.78	0.48	10558	0.58	0.43	705	0.69	0.40	69	0.78	0.34	37003	0.78	0.34
3	1	CR	1	129	0.88	0.38	482	0.89	0.47	10468	0.70	0.45	701	0.79	0.41	68	0.93	0.15	36915	0.89	0.40
4	1	CR	1	126	0.66	0.40	483	0.72	0.50	10384	0.52	0.40	697	0.63	0.36	68	0.66	0.22	36400	0.74	0.39
5	1	CR	2	129	0.49	0.39	481	0.61	0.52	10289	0.39	0.47	690	0.45	0.45	68	0.64	0.39	36706	0.57	0.41
6	1	CR	1	129	0.95	-0.01	490	0.94	0.37	10705	0.80	0.35	712	0.87	0.37	69	0.93	0.06	37111	0.90	0.28
7	1	CR	2	128	0.63	0.34	486	0.62	0.39	10416	0.41	0.44	699	0.56	0.37	69	0.70	0.28	36721	0.62	0.37
8	1	CR	1	126	0.54	0.25	473	0.56	0.36	10036	0.37	0.38	676	0.40	0.32	67	0.43	0.15	36446	0.54	0.28
9	1	CR	1	128	0.62	0.37	487	0.65	0.56	10440	0.41	0.48	700	0.51	0.45	68	0.68	0.40	36967	0.65	0.45
10	1	CR	2	126	0.62	0.39	475	0.58	0.56	10052	0.40	0.47	691	0.48	0.52	66	0.61	0.44	36394	0.60	0.47
11	1	CR	2	127	0.54	0.40	480	0.57	0.44	10268	0.46	0.45	701	0.52	0.43	67	0.55	0.44	36698	0.55	0.36
12	1	CR	2	128	0.75	0.20	482	0.79	0.40	10361	0.64	0.46	703	0.71	0.45	68	0.77	0.43	36952	0.80	0.38
1	2	CR	1	126	0.95	0.31	478	0.96	0.19	10398	0.89	0.32	691	0.95	0.26	68	0.94	0.33	36428	0.96	0.17
2	2	CR	3	126	0.79	0.43	487	0.83	0.41	10463	0.63	0.44	705	0.77	0.37	68	0.82	0.34	36851	0.80	0.38
3	2	CR	2	127	0.76	0.33	487	0.79	0.45	10704	0.68	0.40	710	0.72	0.33	69	0.83	0.30	37111	0.79	0.35
4	2	CR	2	127	0.72	0.39	488	0.78	0.35	10682	0.67	0.40	709	0.72	0.33	69	0.75	0.19	37106	0.76	0.33
5	2	CR	1	125	0.58	0.40	474	0.63	0.51	10114	0.40	0.43	676	0.50	0.43	68	0.65	0.40	36268	0.62	0.42
6	2	CR	3	127	0.50	0.42	486	0.59	0.50	10554	0.46	0.52	704	0.53	0.46	69	0.64	0.44	37047	0.56	0.48
7	2	CR	3	119	0.60	0.57	462	0.62	0.68	9675	0.32	0.62	661	0.48	0.65	64	0.65	0.67	35721	0.57	0.64
8	2	CR	2	125	0.32	0.46	470	0.43	0.50	10008	0.25	0.48	682	0.30	0.45	63	0.34	0.47	36551	0.38	0.50
9	2	CR	2	126	0.29	0.33	484	0.35	0.44	10384	0.20	0.33	700	0.24	0.39	68	0.21	0.45	36940	0.35	0.42
10	2	CR	2	127	0.22	0.34	475	0.30	0.47	9905	0.19	0.38	686	0.24	0.39	66	0.20	0.39	36338	0.30	0.40
1	3	MC	1	127	0.98	0.35	487	0.95	0.35	10716	0.91	0.33	712	0.93	0.32	69	1.00		37034	0.98	0.23
2	3	MC	1	127	0.90	0.25	487	0.90	0.31	10722	0.82	0.31	712	0.85	0.31	69	0.93	0.02	37058	0.92	0.23
3	3	MC	1	127	0.89	0.40	488	0.83	0.39	10708	0.67	0.38	711	0.76	0.37	69	0.86	0.37	37056	0.85	0.34
4	3	MC	1	127	0.96	0.13	486	0.92	0.39	10727	0.83	0.30	709	0.89	0.29	69	0.96	0.14	37057	0.93	0.25
5	3	MC	1	127	0.92	0.28	482	0.96	0.29	10591	0.85	0.27	705	0.88	0.26	69	0.96	0.20	36827	0.94	0.25
6	3	MC	1	127	0.95	0.27	488	0.96	0.30	10659	0.84	0.35	709	0.89	0.36	67	0.93	0.15	36928	0.95	0.27
7	3	MC	1	127	0.80	0.37	488	0.76	0.48	10703	0.51	0.45	709	0.61	0.44	69	0.81	0.33	37015	0.76	0.43
8	3	MC	1	127	0.86	0.36	488	0.86	0.45	10667	0.64	0.42	710	0.76	0.47	67	0.84	0.43	36932	0.89	0.39
9	3	MC	1	126	0.73	0.46	489	0.72	0.55	10689	0.50	0.44	712	0.59	0.48	69	0.64	0.59	37012	0.78	0.45
10	3	MC	1	103	0.67	0.42	453	0.65	0.36	9579	0.47	0.37	646	0.53	0.40	65	0.63	0.39	32923	0.68	0.41
11	3	MC	1	127	0.56	0.40	487	0.62	0.54	10603	0.44	0.35	708	0.56	0.46	68	0.68	0.38	36885	0.65	0.46
12	3	MC	1	126	0.74	0.40	486	0.75	0.47	10579	0.56	0.40	701	0.64	0.41	68	0.77	0.59	36670	0.77	0.39

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Science Grade 3 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
13	3	MC	1	127	0.61	0.21	488	0.70	0.45	10687	0.39	0.34	710	0.59	0.35	69	0.74	0.49	36992	0.61	0.36
14	3	MC	1	125	0.90	0.34	487	0.84	0.52	10530	0.72	0.39	694	0.79	0.44	69	0.83	0.35	36593	0.92	0.30
15	3	MC	1	127	0.85	0.41	486	0.87	0.34	10643	0.74	0.41	704	0.79	0.49	68	0.91	0.38	36866	0.88	0.38
16	3	MC	1	126	0.83	0.12	487	0.77	0.13	10657	0.77	0.31	709	0.79	0.26	69	0.80	-0.09	37002	0.82	0.12
17	3	MC	1	124	0.90	0.43	487	0.88	0.43	10629	0.73	0.42	704	0.84	0.37	69	0.93	0.41	36907	0.91	0.33
18	3	MC	1	126	0.58	0.18	485	0.57	0.39	10533	0.38	0.22	703	0.46	0.31	68	0.56	0.33	36741	0.58	0.31
19	3	MC	1	125	0.46	0.39	487	0.55	0.49	10547	0.31	0.33	704	0.40	0.41	66	0.59	0.44	36794	0.51	0.45
20	3	MC	1	127	0.33	0.42	486	0.41	0.45	10559	0.20	0.26	703	0.28	0.36	68	0.34	0.44	36846	0.38	0.43
21	3	CR	2	126	0.73	0.56	487	0.66	0.60	10568	0.50	0.57	703	0.60	0.55	68	0.71	0.46	36979	0.70	0.50
22	3	CR	2	120	0.28	0.41	462	0.35	0.45	9550	0.19	0.43	655	0.25	0.41	66	0.27	0.13	35420	0.30	0.45
23	3	CR	1	125	0.22	0.33	473	0.25	0.42	9989	0.11	0.34	680	0.18	0.30	66	0.17	0.27	36301	0.26	0.39
24	3	CR	1	121	0.05	0.20	465	0.12	0.32	9807	0.04	0.23	671	0.06	0.26	67	0.15	0.29	35863	0.09	0.24
25	3	CR	1	123	0.15	0.32	477	0.26	0.31	9960	0.11	0.31	677	0.15	0.31	67	0.30	0.34	36234	0.23	0.33
26	3	CR	2	123	0.22	0.44	474	0.25	0.42	10095	0.11	0.39	674	0.21	0.44	67	0.30	0.36	36525	0.31	0.41
27	3	CR	1	120	0.84	0.28	472	0.87	0.38	9850	0.71	0.41	667	0.78	0.42	68	0.88	0.12	36095	0.85	0.31
28	3	CR	1	125	0.69	0.48	475	0.73	0.62	9886	0.46	0.55	676	0.57	0.55	68	0.78	0.55	36512	0.74	0.49

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Science Grade 3 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	1	24530	0.84	0.31	24140	0.84	0.32
2	1	CR	1	24978	0.75	0.41	24389	0.73	0.40
3	1	CR	1	24878	0.85	0.45	24289	0.84	0.46
4	1	CR	1	24539	0.70	0.44	24024	0.68	0.42
5	1	CR	2	24625	0.52	0.45	24156	0.54	0.47
6	1	CR	1	25135	0.88	0.33	24500	0.88	0.32
7	1	CR	2	24678	0.57	0.40	24262	0.58	0.44
8	1	CR	1	24342	0.55	0.34	23892	0.46	0.32
9	1	CR	1	24874	0.61	0.48	24337	0.58	0.50
10	1	CR	2	24302	0.56	0.51	23921	0.55	0.50
11	1	CR	2	24626	0.54	0.43	24138	0.52	0.39
12	1	CR	2	24819	0.76	0.44	24302	0.77	0.45
1	2	CR	1	24554	0.94	0.27	24041	0.95	0.23
2	2	CR	3	24849	0.77	0.44	24271	0.76	0.42
3	2	CR	2	25140	0.75	0.41	24486	0.77	0.39
4	2	CR	2	25116	0.72	0.38	24479	0.75	0.36
5	2	CR	1	24238	0.58	0.45	23898	0.57	0.46
6	2	CR	3	24997	0.54	0.49	24409	0.54	0.49
7	2	CR	3	23713	0.54	0.66	23407	0.51	0.67
8	2	CR	2	24376	0.37	0.51	23951	0.34	0.51
9	2	CR	2	24843	0.31	0.41	24279	0.33	0.44
10	2	CR	2	24131	0.28	0.40	23891	0.27	0.41
1	3	MC	1	25122	0.96	0.30	24428	0.96	0.28
2	3	MC	1	25149	0.89	0.30	24432	0.91	0.28
3	3	MC	1	25152	0.85	0.39	24414	0.77	0.40
4	3	MC	1	25152	0.91	0.31	24427	0.91	0.29
5	3	MC	1	24939	0.91	0.31	24262	0.93	0.27
6	3	MC	1	25038	0.93	0.33	24343	0.92	0.34
7	3	MC	1	25111	0.74	0.47	24407	0.67	0.49
8	3	MC	1	25039	0.86	0.46	24362	0.81	0.46
9	3	MC	1	25108	0.71	0.50	24398	0.71	0.50
10	3	MC	1	22017	0.62	0.42	22110	0.65	0.44
11	3	MC	1	24988	0.61	0.47	24297	0.59	0.45
12	3	MC	1	24830	0.74	0.45	24204	0.71	0.42
13	3	MC	1	25105	0.68	0.43	24379	0.44	0.37
14	3	MC	1	24748	0.88	0.38	24165	0.87	0.40
15	3	MC	1	25001	0.84	0.43	24306	0.85	0.39
16	3	MC	1	25082	0.79	0.15	24375	0.83	0.20

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Science Grade 3 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
17	3	MC	1	25012	0.87	0.42	24314	0.87	0.38
18	3	MC	1	24865	0.56	0.36	24200	0.51	0.29
19	3	MC	1	24891	0.53	0.47	24241	0.41	0.42
20	3	MC	1	24950	0.35	0.41	24246	0.34	0.42
21	3	CR	2	24997	0.67	0.55	24336	0.63	0.55
22	3	CR	2	23574	0.30	0.44	23071	0.27	0.45
23	3	CR	1	24168	0.22	0.39	23859	0.23	0.40
24	3	CR	1	23828	0.08	0.25	23568	0.08	0.25
25	3	CR	1	24174	0.23	0.34	23772	0.18	0.34
26	3	CR	2	24374	0.24	0.44	23994	0.29	0.46
27	3	CR	1	24069	0.83	0.37	23601	0.81	0.36
28	3	CR	1	24295	0.72	0.54	23852	0.64	0.56

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Science Grade 3 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	166	0.93	0.43	569	0.95	0.32	12499	0.85	0.43	1105	0.91	0.39	99	0.91	0.27	52503	0.95	0.32
2	1	CR	3	167	0.52	0.45	570	0.54	0.42	12514	0.42	0.42	1102	0.49	0.39	101	0.50	0.35	52538	0.55	0.38
3	1	CR	3	167	0.70	0.53	572	0.76	0.44	12568	0.58	0.50	1108	0.68	0.50	101	0.79	0.37	52601	0.77	0.45
4	1	CR	2	166	0.77	0.40	572	0.84	0.49	12506	0.68	0.53	1103	0.76	0.49	100	0.87	0.44	52508	0.83	0.41
5	1	CR	4	166	0.62	0.64	571	0.69	0.63	12434	0.52	0.63	1103	0.62	0.61	100	0.65	0.65	52458	0.70	0.54
6	1	CR	1	166	0.69	0.47	568	0.69	0.52	12238	0.49	0.43	1092	0.61	0.39	99	0.70	0.29	52282	0.70	0.38
7	1	CR	1	164	0.31	0.52	564	0.39	0.42	12078	0.18	0.41	1085	0.27	0.41	98	0.35	0.41	52040	0.36	0.42
8	1	CR	2	166	0.33	0.51	571	0.39	0.50	12212	0.23	0.46	1091	0.30	0.47	100	0.38	0.44	52322	0.36	0.44
9	1	CR	2	166	0.62	0.47	569	0.76	0.54	12275	0.54	0.50	1098	0.63	0.52	100	0.71	0.39	52416	0.72	0.49
10	1	CR	2	167	0.53	0.51	566	0.57	0.52	12065	0.44	0.52	1095	0.50	0.49	99	0.52	0.42	52238	0.57	0.48
11	1	CR	1	166	0.36	0.29	568	0.37	0.33	12008	0.19	0.29	1086	0.27	0.33	99	0.34	0.28	52180	0.32	0.28
12	1	CR	2	165	0.41	0.63	563	0.51	0.57	11815	0.26	0.54	1078	0.36	0.52	99	0.44	0.55	52008	0.48	0.51
13	1	CR	1	166	0.48	0.60	560	0.56	0.53	11782	0.29	0.48	1080	0.40	0.50	99	0.54	0.49	51918	0.55	0.51
1	2	CR	1	165	0.95	0.23	573	0.97	0.26	12507	0.92	0.30	1105	0.96	0.27	100	0.99	0.06	52558	0.97	0.20
2	2	CR	1	164	0.98	0.01	573	0.98	0.28	12484	0.95	0.28	1104	0.97	0.28	100	1.00		52551	0.98	0.17
3	2	CR	1	164	0.91	0.39	571	0.94	0.45	12417	0.80	0.50	1103	0.86	0.51	99	0.95	0.48	52485	0.94	0.36
4	2	CR	1	153	0.79	0.52	537	0.87	0.28	11042	0.70	0.38	1023	0.80	0.37	90	0.80	0.36	49914	0.86	0.34
5	2	CR	1	157	0.87	0.46	557	0.92	0.43	11135	0.72	0.45	1049	0.81	0.44	96	0.90	0.27	50986	0.88	0.45
6	2	CR	1	163	0.77	0.50	569	0.81	0.40	12211	0.58	0.49	1087	0.69	0.47	99	0.78	0.45	52210	0.78	0.43
7	2	CR	1	163	0.93	0.29	570	0.96	0.29	12205	0.89	0.33	1091	0.91	0.29	99	0.92	0.50	52218	0.94	0.26
8	2	CR	1	163	0.92	0.36	565	0.94	0.36	12182	0.83	0.41	1076	0.92	0.33	99	0.91	0.47	51695	0.95	0.32
9	2	CR	1	164	0.35	0.36	561	0.41	0.49	12098	0.11	0.31	1079	0.27	0.44	96	0.44	0.49	51796	0.35	0.45
10	2	CR	1	164	0.56	0.36	569	0.59	0.29	12285	0.39	0.39	1092	0.53	0.35	100	0.49	0.34	52302	0.58	0.32
11	2	CR	2	165	0.31	0.45	570	0.29	0.46	12266	0.18	0.41	1085	0.24	0.39	100	0.28	0.53	52276	0.30	0.43
12	2	CR	1	164	0.45	0.55	571	0.47	0.45	12144	0.24	0.38	1085	0.38	0.35	99	0.42	0.41	52211	0.48	0.42
13	2	CR	1	162	0.55	0.39	565	0.57	0.36	11901	0.40	0.39	1074	0.56	0.38	97	0.55	0.23	51854	0.62	0.35
14	2	CR	2	164	0.35	0.45	571	0.40	0.39	12110	0.30	0.42	1093	0.35	0.39	99	0.30	0.43	52233	0.40	0.40
1	3	MC	1	166	0.96	0.36	573	0.98	0.32	12524	0.95	0.29	1108	0.96	0.35	101	1.00		52536	0.99	0.17
2	3	MC	1	166	0.92	0.27	572	0.92	0.36	12529	0.83	0.33	1106	0.87	0.34	101	0.84	0.30	52540	0.92	0.25
3	3	MC	1	166	0.84	0.44	571	0.85	0.42	12516	0.72	0.37	1108	0.81	0.41	101	0.81	0.40	52448	0.88	0.35

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Science Grade 3 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
4	3	MC	1	166	0.89	0.17	572	0.92	0.21	12531	0.85	0.29	1106	0.92	0.29	101	0.92	0.37	52471	0.94	0.26
5	3	MC	1	166	0.87	0.18	570	0.94	0.33	12395	0.84	0.27	1096	0.90	0.32	100	0.90	0.26	52212	0.93	0.26
6	3	MC	1	166	0.95	0.36	572	0.97	0.34	12445	0.84	0.39	1101	0.93	0.34	100	0.96	0.12	52290	0.96	0.29
7	3	MC	1	166	0.77	0.49	571	0.83	0.44	12490	0.60	0.44	1105	0.77	0.46	101	0.82	0.40	52355	0.83	0.42
8	3	MC	1	166	0.80	0.37	568	0.80	0.47	12474	0.63	0.42	1101	0.72	0.44	100	0.85	0.50	52302	0.85	0.37
9	3	MC	1	165	0.68	0.38	571	0.75	0.50	12492	0.53	0.41	1109	0.61	0.43	101	0.74	0.51	52442	0.77	0.44
10	3	MC	1	145	0.59	0.42	540	0.62	0.39	11391	0.47	0.37	1006	0.54	0.40	94	0.68	0.55	47136	0.67	0.41
11	3	MC	1	164	0.59	0.51	570	0.70	0.49	12363	0.45	0.38	1098	0.56	0.41	100	0.61	0.48	52263	0.66	0.45
12	3	MC	1	161	0.64	0.33	569	0.79	0.35	12338	0.58	0.41	1097	0.69	0.45	99	0.74	0.41	51949	0.77	0.37
13	3	MC	1	165	0.61	0.48	573	0.70	0.40	12486	0.44	0.37	1109	0.63	0.35	101	0.62	0.32	52427	0.62	0.38
14	3	MC	1	164	0.88	0.33	569	0.87	0.44	12338	0.71	0.40	1099	0.81	0.36	100	0.86	0.52	52002	0.91	0.31
15	3	MC	1	165	0.84	0.40	571	0.91	0.40	12439	0.78	0.40	1109	0.86	0.39	101	0.88	0.42	52349	0.89	0.35
16	3	MC	1	166	0.86	0.20	574	0.87	0.14	12464	0.81	0.32	1108	0.83	0.26	99	0.83	0.16	52445	0.85	0.15
17	3	MC	1	163	0.91	0.36	571	0.91	0.44	12431	0.74	0.42	1104	0.82	0.45	100	0.91	0.40	52297	0.92	0.31
18	3	MC	1	162	0.52	0.27	571	0.57	0.31	12326	0.39	0.20	1102	0.51	0.27	99	0.47	0.41	52014	0.57	0.29
19	3	MC	1	165	0.50	0.41	570	0.52	0.45	12367	0.33	0.35	1097	0.38	0.34	99	0.48	0.21	52155	0.48	0.42
20	3	MC	1	165	0.41	0.45	569	0.42	0.41	12369	0.24	0.28	1098	0.36	0.34	98	0.35	0.51	52173	0.40	0.42
21	3	CR	2	166	0.49	0.51	569	0.61	0.57	12383	0.42	0.47	1099	0.47	0.49	99	0.56	0.56	52274	0.59	0.48
22	3	CR	2	164	0.35	0.49	570	0.39	0.41	12004	0.23	0.38	1096	0.30	0.37	99	0.35	0.38	52168	0.36	0.40
23	3	CR	1	164	0.13	0.42	552	0.24	0.38	11996	0.08	0.28	1067	0.13	0.33	98	0.14	0.26	51400	0.19	0.36
24	3	CR	2	166	0.53	0.46	573	0.65	0.42	12317	0.42	0.47	1100	0.52	0.45	100	0.52	0.53	52379	0.64	0.45

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Science Grade 3 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	35081	0.94	0.36	33821	0.93	0.40
2	1	CR	3	35117	0.53	0.39	33847	0.52	0.42
3	1	CR	3	35198	0.73	0.51	33897	0.73	0.50
4	1	CR	2	35093	0.80	0.48	33835	0.80	0.48
5	1	CR	4	35014	0.67	0.60	33789	0.65	0.60
6	1	CR	1	34791	0.67	0.42	33617	0.65	0.42
7	1	CR	1	34544	0.37	0.45	33433	0.28	0.42
8	1	CR	2	34780	0.35	0.47	33647	0.32	0.45
9	1	CR	2	34889	0.69	0.51	33705	0.68	0.51
10	1	CR	2	34659	0.55	0.50	33531	0.54	0.50
11	1	CR	1	34589	0.30	0.30	33471	0.30	0.30
12	1	CR	2	34368	0.44	0.55	33309	0.44	0.55
13	1	CR	1	34321	0.52	0.54	33228	0.48	0.51
1	2	CR	1	35140	0.97	0.25	33844	0.96	0.24
2	2	CR	1	35122	0.97	0.22	33830	0.97	0.21
3	2	CR	1	35045	0.91	0.43	33769	0.90	0.44
4	2	CR	1	32505	0.84	0.36	32095	0.82	0.39
5	2	CR	1	33318	0.88	0.44	32557	0.83	0.50
6	2	CR	1	34694	0.75	0.46	33606	0.74	0.49
7	2	CR	1	34691	0.92	0.30	33612	0.94	0.27
8	2	CR	1	34391	0.93	0.37	33312	0.92	0.38
9	2	CR	1	34383	0.35	0.47	33344	0.25	0.44
10	2	CR	1	34827	0.58	0.37	33649	0.51	0.35
11	2	CR	2	34783	0.28	0.44	33643	0.27	0.43
12	2	CR	1	34671	0.48	0.45	33559	0.39	0.43
13	2	CR	1	34323	0.58	0.38	33269	0.57	0.40
14	2	CR	2	34689	0.38	0.42	33533	0.38	0.42
1	3	MC	1	35150	0.98	0.24	33833	0.98	0.23
2	3	MC	1	35153	0.90	0.31	33835	0.91	0.29
3	3	MC	1	35095	0.87	0.38	33787	0.82	0.40
4	3	MC	1	35107	0.92	0.28	33808	0.92	0.30
5	3	MC	1	34895	0.91	0.29	33602	0.92	0.28
6	3	MC	1	34932	0.94	0.34	33704	0.93	0.36
7	3	MC	1	35010	0.82	0.46	33743	0.76	0.48
8	3	MC	1	34960	0.83	0.43	33712	0.78	0.43
9	3	MC	1	35070	0.72	0.46	33778	0.72	0.48
10	3	MC	1	31272	0.60	0.42	30800	0.65	0.44
11	3	MC	1	34877	0.63	0.47	33645	0.61	0.46

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Science Grade 3 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
12	3	MC	1	34654	0.75	0.41	33511	0.73	0.41
13	3	MC	1	35055	0.71	0.42	33774	0.46	0.37
14	3	MC	1	34674	0.88	0.38	33557	0.86	0.40
15	3	MC	1	34977	0.87	0.39	33712	0.87	0.37
16	3	MC	1	35068	0.83	0.19	33763	0.86	0.20
17	3	MC	1	34967	0.89	0.40	33666	0.88	0.37
18	3	MC	1	34736	0.55	0.33	33490	0.51	0.26
19	3	MC	1	34824	0.50	0.43	33589	0.41	0.40
20	3	MC	1	34842	0.38	0.41	33595	0.36	0.41
21	3	CR	2	34862	0.55	0.49	33694	0.57	0.50
22	3	CR	2	34574	0.37	0.43	33470	0.29	0.40
23	3	CR	1	34054	0.18	0.35	33149	0.17	0.36
24	3	CR	2	34923	0.57	0.48	33678	0.62	0.50

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Science Grade 7 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	456	0.73	0.28	511	0.75	0.38	8502	0.66	0.37	789	0.71	0.35	86	0.77	0.31	36996	0.78	0.33
2	1	CR	3	443	0.64	0.49	507	0.73	0.48	8003	0.54	0.48	764	0.65	0.51	83	0.68	0.50	36588	0.71	0.47
3	1	CR	3	457	0.65	0.33	507	0.65	0.43	8556	0.56	0.43	783	0.63	0.42	86	0.64	0.21	37008	0.68	0.32
4	1	CR	2	454	0.66	0.44	504	0.62	0.56	8545	0.44	0.45	773	0.59	0.52	85	0.61	0.41	36968	0.71	0.35
5	1	CR	1	447	0.64	0.46	500	0.58	0.54	8124	0.27	0.39	753	0.53	0.46	84	0.62	0.40	36593	0.70	0.37
6	1	CR	2	441	0.49	0.57	490	0.60	0.60	7712	0.31	0.53	735	0.49	0.54	81	0.59	0.57	36156	0.62	0.53
7	1	CR	3	450	0.50	0.59	504	0.50	0.68	8043	0.29	0.57	754	0.43	0.61	85	0.57	0.62	36583	0.57	0.54
8	1	CR	2	422	0.28	0.50	491	0.37	0.59	7608	0.16	0.40	718	0.29	0.54	82	0.39	0.51	35843	0.38	0.51
9	1	CR	2	420	0.33	0.41	485	0.31	0.33	7623	0.20	0.37	716	0.31	0.37	83	0.30	0.36	35560	0.39	0.35
10	1	CR	2	409	0.33	0.53	477	0.31	0.60	7336	0.12	0.46	676	0.26	0.56	77	0.34	0.55	35169	0.37	0.51
11	1	CR	1	417	0.25	0.41	482	0.29	0.46	7298	0.10	0.38	685	0.24	0.47	81	0.32	0.47	35096	0.30	0.41
12	1	CR	2	391	0.17	0.49	468	0.31	0.60	6596	0.08	0.35	644	0.17	0.51	79	0.29	0.50	32990	0.25	0.54
13	1	CR	2	427	0.12	0.38	492	0.19	0.39	7550	0.07	0.33	724	0.14	0.38	84	0.14	0.35	35869	0.16	0.36
14	1	CR	2	407	0.27	0.32	477	0.30	0.41	7119	0.15	0.39	691	0.22	0.38	83	0.32	0.42	34797	0.29	0.35
1	2	CR	3	440	0.17	0.50	507	0.24	0.58	8125	0.10	0.32	751	0.18	0.48	84	0.23	0.54	36349	0.25	0.56
2	2	CR	3	405	0.19	0.57	475	0.28	0.59	7325	0.09	0.42	687	0.19	0.53	80	0.22	0.63	34491	0.26	0.59
3	2	CR	1	420	0.10	0.33	497	0.16	0.42	7722	0.05	0.28	710	0.11	0.33	82	0.16	0.42	35405	0.14	0.34
4	2	CR	4	395	0.19	0.57	470	0.21	0.62	7151	0.10	0.51	684	0.18	0.57	76	0.21	0.62	34425	0.24	0.58
5	2	CR	2	393	0.52	0.45	474	0.63	0.47	7128	0.43	0.47	670	0.53	0.53	76	0.52	0.36	34476	0.59	0.44
6	2	CR	3	449	0.56	0.55	512	0.58	0.60	8397	0.38	0.51	773	0.51	0.63	86	0.61	0.46	36806	0.65	0.49
7	2	CR	3	442	0.84	0.41	511	0.88	0.55	8295	0.74	0.48	767	0.81	0.48	85	0.88	0.33	36665	0.90	0.39
1	3	MC	1	454	0.78	0.14	516	0.81	0.22	8412	0.77	0.24	783	0.79	0.17	88	0.83	-0.09	36836	0.83	0.13
2	3	MC	1	454	0.81	0.41	516	0.85	0.43	8422	0.67	0.43	781	0.80	0.44	88	0.89	0.34	36838	0.89	0.36
3	3	MC	1	451	0.69	0.38	516	0.76	0.32	8416	0.60	0.31	779	0.70	0.32	88	0.72	0.35	36841	0.76	0.26
4	3	MC	1	454	0.81	0.38	517	0.79	0.52	8422	0.65	0.46	781	0.76	0.39	88	0.82	0.38	36832	0.86	0.37
5	3	MC	1	454	0.80	0.35	517	0.84	0.37	8435	0.70	0.27	781	0.77	0.38	88	0.85	0.36	36844	0.85	0.32
6	3	MC	1	453	0.82	0.35	517	0.83	0.45	8433	0.72	0.40	781	0.79	0.40	88	0.86	0.26	36848	0.88	0.28
7	3	MC	1	452	0.77	0.30	517	0.80	0.37	8435	0.60	0.33	782	0.71	0.34	88	0.82	0.39	36844	0.81	0.36
8	3	MC	1	453	0.79	0.48	514	0.76	0.53	8416	0.56	0.39	782	0.74	0.48	88	0.80	0.58	36834	0.85	0.39
9	3	MC	1	453	0.77	0.33	515	0.79	0.28	8410	0.58	0.36	778	0.75	0.33	88	0.76	0.40	36834	0.78	0.28

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Science Grade 7 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
10	3	MC	1	452	0.78	0.37	517	0.78	0.56	8434	0.58	0.38	782	0.69	0.47	88	0.81	0.47	36831	0.84	0.36
11	3	MC	1	453	0.81	0.41	517	0.79	0.46	8436	0.68	0.36	782	0.73	0.44	88	0.85	0.38	36844	0.85	0.34
12	3	MC	1	449	0.81	0.18	517	0.75	0.19	8417	0.73	0.22	779	0.76	0.21	88	0.77	0.30	36832	0.81	0.17
13	3	MC	1	449	0.73	0.46	515	0.80	0.55	8391	0.61	0.47	778	0.71	0.54	88	0.83	0.46	36804	0.84	0.43
14	3	MC	1	450	0.64	0.28	516	0.65	0.38	8411	0.51	0.29	781	0.55	0.35	88	0.58	0.29	36827	0.68	0.27
15	3	MC	1	452	0.56	0.26	514	0.63	0.41	8411	0.50	0.31	781	0.57	0.34	88	0.53	0.17	36833	0.67	0.37
16	3	MC	1	451	0.50	0.34	515	0.58	0.40	8405	0.37	0.28	779	0.50	0.31	88	0.56	0.51	36834	0.55	0.38
17	3	MC	1	450	0.46	0.47	515	0.57	0.45	8358	0.34	0.36	778	0.47	0.43	88	0.53	0.40	36764	0.57	0.41
18	3	MC	1	451	0.79	0.43	514	0.80	0.47	8396	0.62	0.43	781	0.75	0.46	87	0.77	0.42	36811	0.85	0.40
19	3	MC	1	452	0.55	0.44	515	0.64	0.49	8367	0.46	0.36	780	0.56	0.48	88	0.67	0.43	36794	0.67	0.43
20	3	MC	1	452	0.46	0.31	515	0.52	0.43	8374	0.32	0.26	780	0.45	0.34	88	0.48	0.25	36786	0.54	0.35
21	3	MC	1	452	0.41	0.40	516	0.41	0.51	8360	0.21	0.26	778	0.36	0.40	88	0.46	0.48	36784	0.42	0.41
22	3	MC	1	452	0.61	0.38	515	0.66	0.45	8332	0.51	0.34	775	0.57	0.42	87	0.64	0.41	36754	0.68	0.42
23	3	MC	1	451	0.39	0.28	515	0.43	0.40	8331	0.25	0.19	778	0.36	0.32	88	0.42	0.44	36756	0.44	0.36
24	3	MC	1	452	0.41	0.30	516	0.44	0.44	8343	0.31	0.24	778	0.36	0.32	88	0.39	0.28	36778	0.43	0.32
25	3	MC	1	453	0.30	0.15	516	0.37	0.18	8354	0.24	0.09	778	0.31	0.17	88	0.36	0.24	36773	0.33	0.20
26	3	CR	2	436	0.42	0.53	499	0.53	0.62	7857	0.24	0.52	755	0.40	0.56	87	0.50	0.56	36124	0.54	0.56
27	3	CR	2	432	0.19	0.52	502	0.26	0.58	8014	0.07	0.34	741	0.17	0.43	85	0.26	0.59	35842	0.26	0.47
28	3	CR	4	436	0.13	0.38	495	0.14	0.46	7927	0.08	0.33	750	0.12	0.41	85	0.15	0.50	36279	0.14	0.38
29	3	CR	1	391	0.04	0.28	463	0.17	0.36	6704	0.04	0.23	657	0.06	0.29	76	0.08	0.32	34383	0.09	0.29

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Science Grade 7 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	24056	0.78	0.37	23435	0.74	0.35
2	1	CR	3	23587	0.70	0.50	22949	0.66	0.51
3	1	CR	3	24083	0.65	0.37	23464	0.66	0.42
4	1	CR	2	24018	0.67	0.42	23456	0.64	0.45
5	1	CR	1	23671	0.69	0.44	22969	0.54	0.49
6	1	CR	2	22979	0.57	0.57	22760	0.55	0.59
7	1	CR	3	23559	0.55	0.58	23005	0.48	0.62
8	1	CR	2	22682	0.35	0.52	22598	0.33	0.53
9	1	CR	2	22523	0.36	0.38	22492	0.34	0.38
10	1	CR	2	22413	0.39	0.55	21874	0.25	0.54
11	1	CR	1	22175	0.31	0.42	22015	0.22	0.44
12	1	CR	2	20655	0.28	0.58	20644	0.16	0.48
13	1	CR	2	22713	0.15	0.37	22577	0.14	0.38
14	1	CR	2	21769	0.26	0.39	21925	0.26	0.39
1	2	CR	3	23375	0.23	0.54	23007	0.21	0.54
2	2	CR	3	21644	0.24	0.58	21925	0.22	0.58
3	2	CR	1	22459	0.11	0.33	22476	0.14	0.37
4	2	CR	4	21430	0.21	0.58	21840	0.22	0.61
5	2	CR	2	21424	0.56	0.47	21905	0.57	0.49
6	2	CR	3	23785	0.58	0.57	23377	0.62	0.56
7	2	CR	3	23583	0.83	0.50	23327	0.90	0.43
1	3	MC	1	23885	0.81	0.16	23339	0.83	0.17
2	3	MC	1	23891	0.86	0.40	23336	0.83	0.44
3	3	MC	1	23894	0.74	0.31	23332	0.73	0.29
4	3	MC	1	23886	0.82	0.43	23339	0.82	0.43
5	3	MC	1	23903	0.84	0.36	23347	0.81	0.31
6	3	MC	1	23900	0.84	0.34	23348	0.85	0.36
7	3	MC	1	23904	0.81	0.37	23346	0.74	0.41
8	3	MC	1	23883	0.83	0.45	23334	0.76	0.47
9	3	MC	1	23891	0.79	0.33	23320	0.69	0.34
10	3	MC	1	23892	0.80	0.43	23343	0.77	0.42
11	3	MC	1	23908	0.81	0.39	23346	0.81	0.37
12	3	MC	1	23878	0.80	0.22	23336	0.79	0.17
13	3	MC	1	23839	0.78	0.48	23319	0.80	0.48
14	3	MC	1	23875	0.65	0.33	23333	0.65	0.28
15	3	MC	1	23876	0.60	0.38	23335	0.68	0.39
16	3	MC	1	23870	0.54	0.38	23332	0.50	0.38
17	3	MC	1	23788	0.51	0.44	23288	0.54	0.44

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Science Grade 7 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
18	3	MC	1	23856	0.80	0.47	23315	0.82	0.44
19	3	MC	1	23829	0.64	0.46	23296	0.62	0.43
20	3	MC	1	23838	0.54	0.38	23288	0.46	0.36
21	3	MC	1	23818	0.42	0.46	23289	0.34	0.38
22	3	MC	1	23779	0.63	0.44	23269	0.66	0.40
23	3	MC	1	23778	0.45	0.39	23271	0.36	0.34
24	3	MC	1	23802	0.44	0.35	23277	0.37	0.28
25	3	MC	1	23809	0.34	0.20	23278	0.28	0.18
26	3	CR	2	23045	0.49	0.58	22831	0.47	0.61
27	3	CR	2	22827	0.26	0.51	22898	0.20	0.47
28	3	CR	4	23114	0.15	0.44	22982	0.12	0.34
29	3	CR	1	20997	0.08	0.28	21763	0.08	0.30

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Science Grade 7 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	502	0.72	0.23	636	0.77	0.25	10377	0.57	0.27	1106	0.66	0.24	114	0.72	0.35	52587	0.72	0.28
2	1	CR	2	496	0.85	0.41	632	0.87	0.55	10250	0.73	0.48	1099	0.82	0.43	113	0.91	0.35	52459	0.90	0.36
3	1	CR	3	493	0.59	0.51	630	0.66	0.52	10081	0.49	0.47	1085	0.58	0.46	113	0.63	0.51	52002	0.64	0.48
4	1	CR	2	475	0.44	0.43	609	0.64	0.46	9337	0.39	0.50	1030	0.52	0.53	107	0.65	0.34	50064	0.58	0.45
5	1	CR	2	497	0.49	0.38	632	0.53	0.44	10215	0.36	0.38	1091	0.42	0.34	114	0.57	0.27	52208	0.54	0.33
6	1	CR	2	490	0.13	0.01	623	0.13	0.06	9793	0.14	0.08	1066	0.12	0.05	111	0.15	0.01	51639	0.14	0.00
7	1	CR	4	482	0.29	0.45	621	0.34	0.61	9796	0.20	0.52	1066	0.27	0.50	111	0.33	0.56	51469	0.33	0.48
8	1	CR	2	493	0.24	0.40	631	0.33	0.48	10129	0.12	0.38	1092	0.21	0.41	112	0.26	0.37	52251	0.30	0.43
9	1	CR	4	483	0.41	0.50	614	0.51	0.63	9605	0.27	0.52	1053	0.38	0.56	111	0.50	0.54	51112	0.48	0.58
10	1	CR	1	466	0.20	0.33	615	0.36	0.40	9356	0.15	0.38	1049	0.22	0.38	110	0.23	0.33	50645	0.26	0.40
11	1	CR	4	484	0.16	0.48	625	0.20	0.50	9600	0.08	0.45	1064	0.15	0.51	111	0.19	0.38	51828	0.19	0.45
1	2	CR	1	493	0.54	0.35	635	0.71	0.47	10231	0.42	0.32	1097	0.59	0.38	111	0.66	0.36	52281	0.33	0.35
2	2	CR	2	490	0.41	0.41	631	0.50	0.48	10198	0.32	0.45	1094	0.43	0.46	111	0.51	0.36	52119	0.50	0.44
3	2	CR	5	487	0.29	0.60	630	0.48	0.64	10164	0.20	0.60	1093	0.29	0.66	111	0.34	0.55	52115	0.37	0.63
4	2	CR	3	481	0.79	0.50	621	0.83	0.54	9696	0.63	0.54	1057	0.73	0.57	110	0.88	0.45	51580	0.84	0.45
5	2	CR	4	476	0.30	0.57	613	0.44	0.67	9404	0.21	0.58	1038	0.29	0.63	107	0.37	0.66	50881	0.39	0.59
6	2	CR	2	453	0.21	0.43	596	0.44	0.47	8933	0.18	0.45	1013	0.26	0.44	107	0.30	0.48	49511	0.33	0.46
1	3	MC	1	479	0.82	0.15	610	0.86	0.15	9784	0.77	0.22	1041	0.82	0.07	104	0.88	0.21	50200	0.84	0.13
2	3	MC	1	494	0.86	0.41	636	0.87	0.46	10281	0.70	0.42	1099	0.84	0.41	112	0.95	0.33	52412	0.90	0.35
3	3	MC	1	494	0.73	0.32	633	0.80	0.30	10267	0.60	0.32	1101	0.73	0.29	112	0.68	0.28	52426	0.77	0.27
4	3	MC	1	495	0.82	0.38	635	0.88	0.45	10290	0.68	0.45	1100	0.80	0.40	112	0.90	0.22	52431	0.88	0.37
5	3	MC	1	494	0.86	0.24	634	0.86	0.30	10270	0.71	0.26	1098	0.81	0.35	112	0.88	0.20	52351	0.85	0.31
6	3	MC	1	492	0.87	0.30	636	0.89	0.39	10234	0.75	0.40	1098	0.82	0.37	112	0.87	0.41	52259	0.90	0.29
7	3	MC	1	495	0.82	0.36	635	0.87	0.32	10302	0.64	0.32	1100	0.77	0.36	111	0.87	0.32	52398	0.84	0.35
8	3	MC	1	494	0.82	0.41	635	0.85	0.49	10274	0.57	0.42	1099	0.75	0.47	111	0.87	0.33	52347	0.86	0.39
9	3	MC	1	491	0.76	0.19	635	0.81	0.34	10186	0.59	0.39	1096	0.77	0.29	111	0.81	0.15	52224	0.80	0.28
10	3	MC	1	494	0.76	0.40	636	0.84	0.49	10289	0.63	0.40	1099	0.75	0.45	111	0.78	0.42	52383	0.86	0.36
11	3	MC	1	495	0.83	0.32	635	0.84	0.39	10293	0.71	0.35	1099	0.79	0.37	110	0.87	0.22	52377	0.87	0.32
12	3	MC	1	494	0.80	0.16	634	0.85	0.22	10226	0.75	0.21	1098	0.82	0.18	111	0.76	0.23	52290	0.83	0.14
13	3	MC	1	494	0.78	0.46	634	0.83	0.50	10235	0.66	0.46	1095	0.78	0.49	110	0.85	0.46	52284	0.88	0.42
14	3	MC	1	497	0.68	0.32	635	0.65	0.30	10268	0.54	0.32	1099	0.62	0.31	110	0.73	0.22	52340	0.71	0.26
15	3	MC	1	497	0.60	0.35	635	0.66	0.42	10239	0.53	0.33	1096	0.59	0.35	110	0.63	0.33	52321	0.68	0.37
16	3	MC	1	495	0.51	0.37	634	0.61	0.46	10264	0.39	0.32	1099	0.51	0.36	110	0.63	0.41	52353	0.57	0.40
17	3	MC	1	493	0.48	0.37	635	0.61	0.41	10223	0.37	0.35	1100	0.48	0.43	110	0.61	0.36	52304	0.57	0.40

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Science Grade 7 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
18	3	MC	1	492	0.80	0.38	634	0.85	0.38	10219	0.64	0.39	1098	0.79	0.43	110	0.86	0.47	52281	0.86	0.37
19	3	MC	1	490	0.60	0.47	633	0.68	0.50	10251	0.46	0.36	1099	0.56	0.40	111	0.68	0.47	52332	0.66	0.42
20	3	MC	1	491	0.46	0.28	635	0.52	0.38	10236	0.32	0.28	1099	0.48	0.32	110	0.56	0.43	52313	0.54	0.34
21	3	MC	1	486	0.42	0.42	635	0.51	0.44	10222	0.26	0.31	1099	0.37	0.40	110	0.43	0.42	52271	0.45	0.38
22	3	MC	1	489	0.67	0.35	635	0.77	0.45	10222	0.55	0.33	1099	0.62	0.41	109	0.76	0.41	52293	0.72	0.39
23	3	MC	1	488	0.39	0.34	633	0.48	0.46	10188	0.25	0.23	1096	0.39	0.35	109	0.51	0.37	52219	0.45	0.37
24	3	MC	1	494	0.39	0.33	636	0.51	0.41	10225	0.32	0.29	1100	0.38	0.32	110	0.56	0.26	52343	0.44	0.31
25	3	MC	1	491	0.33	0.09	635	0.40	0.26	10243	0.27	0.12	1100	0.30	0.16	110	0.28	0.29	52363	0.36	0.21
26	3	CR	2	489	0.44	0.36	631	0.48	0.44	9996	0.31	0.44	1085	0.41	0.43	110	0.41	0.43	51897	0.49	0.36
27	3	CR	1	486	0.60	0.42	629	0.73	0.55	9898	0.37	0.49	1080	0.55	0.50	112	0.71	0.41	51750	0.68	0.46
28	3	CR	1	487	0.62	0.44	632	0.70	0.47	9995	0.41	0.44	1089	0.60	0.48	111	0.66	0.44	52082	0.72	0.41
29	3	CR	3	453	0.22	0.51	614	0.38	0.61	8888	0.14	0.54	1013	0.25	0.55	105	0.33	0.55	49116	0.33	0.57
30	3	CR	2	458	0.19	0.38	590	0.25	0.42	8752	0.12	0.37	996	0.18	0.38	100	0.29	0.35	49403	0.25	0.37
31	3	CR	3	476	0.28	0.47	617	0.35	0.54	9498	0.19	0.45	1062	0.27	0.48	111	0.30	0.53	51251	0.33	0.46

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Science Grade 7 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	2	CR	34793	0.69	0.30	32982	0.71	0.33
2	1	2	CR	34606	0.87	0.43	32883	0.88	0.45
3	1	3	CR	34157	0.63	0.51	32656	0.60	0.48
4	1	2	CR	32614	0.55	0.49	31322	0.55	0.47
5	1	2	CR	34360	0.50	0.36	32826	0.53	0.37
6	1	2	CR	33714	0.13	0.02	32403	0.15	0.01
7	1	4	CR	33714	0.34	0.54	32220	0.27	0.49
8	1	2	CR	34312	0.29	0.45	32814	0.24	0.45
9	1	4	CR	33283	0.45	0.60	32045	0.44	0.59
10	1	1	CR	32754	0.25	0.40	31802	0.24	0.40
11	1	4	CR	33725	0.18	0.50	32373	0.17	0.49
1	2	1	CR	34426	0.62	0.39	32849	0.32	0.38
2	2	2	CR	34274	0.46	0.48	32784	0.48	0.47
3	2	5	CR	34243	0.33	0.65	32775	0.35	0.64
4	2	3	CR	33535	0.80	0.50	32384	0.81	0.50
5	2	4	CR	32830	0.34	0.61	32032	0.38	0.62
6	2	2	CR	31569	0.28	0.46	31311	0.33	0.47
1	3	1	MC	32700	0.81	0.16	31848	0.84	0.15
2	3	1	MC	34605	0.88	0.40	32865	0.86	0.42
3	3	1	MC	34605	0.74	0.31	32867	0.73	0.30
4	3	1	MC	34614	0.84	0.43	32889	0.84	0.42
5	3	1	MC	34540	0.84	0.34	32859	0.81	0.31
6	3	1	MC	34462	0.87	0.35	32795	0.88	0.35
7	3	1	MC	34593	0.85	0.36	32883	0.77	0.39
8	3	1	MC	34538	0.84	0.45	32856	0.78	0.46
9	3	1	MC	34406	0.82	0.32	32760	0.71	0.36
10	3	1	MC	34572	0.83	0.42	32874	0.81	0.40
11	3	1	MC	34575	0.84	0.37	32868	0.84	0.34
12	3	1	MC	34458	0.83	0.20	32821	0.82	0.14
13	3	1	MC	34471	0.83	0.47	32804	0.84	0.47
14	3	1	MC	34538	0.69	0.32	32843	0.67	0.28
15	3	1	MC	34496	0.61	0.37	32827	0.69	0.38
16	3	1	MC	34545	0.55	0.41	32841	0.52	0.40
17	3	1	MC	34483	0.52	0.42	32810	0.54	0.40
18	3	1	MC	34456	0.83	0.44	32808	0.82	0.40
19	3	1	MC	34500	0.64	0.45	32847	0.61	0.41
20	3	1	MC	34484	0.54	0.37	32827	0.46	0.35
21	3	1	MC	34448	0.45	0.43	32807	0.39	0.35

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Science Grade 7 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
22	3	1	MC	34462	0.69	0.41	32809	0.70	0.38
23	3	1	MC	34390	0.46	0.40	32764	0.37	0.35
24	3	1	MC	34511	0.45	0.35	32830	0.39	0.29
25	3	1	MC	34530	0.37	0.22	32846	0.31	0.19
26	3	2	CR	34021	0.46	0.40	32594	0.46	0.41
27	3	1	CR	33920	0.65	0.50	32435	0.61	0.52
28	3	1	CR	34169	0.71	0.48	32639	0.63	0.45
29	3	3	CR	31517	0.32	0.58	30900	0.27	0.58
30	3	2	CR	31923	0.25	0.41	30646	0.20	0.37
31	3	3	CR	33256	0.31	0.49	32144	0.31	0.49

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Science Grade 10 Impact Item Statistics—Race/Ethnicity
1998

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	308	0.64	0.49	531	0.59	0.64	5532	0.39	0.46	572	0.56	0.51	151	0.67	0.43	30640	0.67	0.47
2	1	CR	2	299	0.61	0.49	510	0.58	0.61	5222	0.42	0.47	559	0.58	0.48	145	0.63	0.29	30302	0.67	0.40
3	1	CR	1	307	0.65	0.37	506	0.53	0.57	5576	0.31	0.45	570	0.55	0.47	149	0.64	0.30	30777	0.69	0.37
4	1	CR	2	306	0.47	0.47	529	0.57	0.56	5696	0.41	0.49	576	0.50	0.48	147	0.54	0.46	30680	0.57	0.44
5	1	CR	2	297	0.33	0.47	494	0.45	0.62	5108	0.23	0.41	545	0.36	0.50	141	0.47	0.43	30072	0.41	0.49
6	1	CR	3	299	0.46	0.54	521	0.53	0.67	5352	0.31	0.55	556	0.47	0.60	143	0.49	0.56	29962	0.56	0.54
7	1	CR	2	302	0.67	0.37	505	0.70	0.57	5460	0.57	0.47	565	0.67	0.50	147	0.68	0.47	30586	0.73	0.39
8	1	CR	1	310	0.24	0.33	521	0.19	0.34	5582	0.10	0.26	573	0.15	0.27	142	0.35	0.22	30356	0.25	0.31
9	1	CR	2	288	0.21	0.39	494	0.31	0.51	4744	0.10	0.38	527	0.21	0.44	133	0.21	0.51	29017	0.24	0.44
10	1	CR	3	280	0.35	0.47	477	0.43	0.60	4386	0.19	0.53	509	0.33	0.52	124	0.44	0.59	28367	0.41	0.56
11	1	CR	2	296	0.19	0.39	497	0.28	0.46	5195	0.13	0.39	556	0.23	0.48	143	0.21	0.47	30480	0.26	0.44
1	2	CR	3	294	0.22	0.53	528	0.28	0.58	5527	0.09	0.44	562	0.22	0.56	147	0.24	0.47	30452	0.28	0.51
2	2	CR	1	290	0.60	0.45	522	0.73	0.48	5252	0.50	0.44	544	0.64	0.50	142	0.60	0.31	30164	0.72	0.40
3	2	CR	4	299	0.62	0.64	528	0.62	0.78	5573	0.46	0.67	568	0.62	0.65	141	0.68	0.50	30543	0.70	0.58
4	2	CR	3	300	0.11	0.36	519	0.17	0.45	5339	0.06	0.35	545	0.11	0.44	147	0.12	0.39	30224	0.15	0.44
5	2	CR	9	288	0.71	0.56	507	0.70	0.75	5206	0.58	0.70	537	0.71	0.64	144	0.69	0.55	30067	0.77	0.57
1	3	MC	1	304	0.81	0.40	532	0.74	0.36	5778	0.70	0.31	586	0.85	0.33	151	0.85	0.25	30644	0.90	0.28
2	3	MC	1	305	0.91	0.33	534	0.95	0.31	5864	0.93	0.26	588	0.92	0.29	152	0.91	0.32	30703	0.95	0.24
3	3	MC	1	305	0.91	0.41	533	0.87	0.52	5844	0.80	0.39	588	0.88	0.43	152	0.90	0.34	30703	0.96	0.29
4	3	MC	1	305	0.93	0.34	533	0.89	0.46	5857	0.85	0.34	588	0.90	0.37	152	0.93	0.40	30708	0.95	0.24
5	3	MC	1	305	0.88	0.36	534	0.87	0.47	5857	0.86	0.36	588	0.86	0.34	152	0.88	0.44	30691	0.91	0.25
6	3	MC	1	305	0.83	0.33	533	0.79	0.37	5858	0.83	0.30	587	0.81	0.33	152	0.81	0.25	30701	0.86	0.24
7	3	MC	1	306	0.75	0.47	534	0.80	0.44	5847	0.69	0.37	587	0.75	0.44	152	0.77	0.37	30702	0.82	0.38
8	3	MC	1	306	0.74	0.36	533	0.72	0.38	5833	0.61	0.37	584	0.71	0.39	152	0.74	0.33	30675	0.77	0.34
9	3	MC	1	305	0.76	0.29	530	0.76	0.23	5820	0.70	0.25	586	0.71	0.25	152	0.74	0.31	30679	0.78	0.25
10	3	MC	1	305	0.53	0.31	532	0.54	0.48	5843	0.32	0.27	586	0.45	0.35	152	0.63	0.39	30695	0.55	0.38
11	3	MC	1	305	0.60	0.44	531	0.73	0.43	5830	0.51	0.31	586	0.61	0.40	152	0.69	0.40	30694	0.71	0.40
12	3	MC	1	305	0.59	0.25	529	0.61	0.15	5820	0.46	0.18	585	0.57	0.29	151	0.62	0.31	30678	0.63	0.20
13	3	MC	1	305	0.77	0.47	531	0.77	0.52	5826	0.59	0.45	587	0.73	0.53	151	0.89	0.43	30667	0.85	0.41
14	3	MC	1	305	0.38	0.21	531	0.41	0.29	5826	0.29	0.17	587	0.33	0.23	151	0.38	0.46	30689	0.37	0.30
15	3	MC	1	305	0.64	0.49	531	0.73	0.48	5832	0.51	0.38	587	0.63	0.42	152	0.68	0.38	30701	0.73	0.43
16	3	MC	1	305	0.56	0.52	532	0.60	0.53	5820	0.37	0.36	586	0.56	0.42	152	0.63	0.46	30681	0.63	0.46
17	3	MC	1	305	0.48	0.54	531	0.54	0.51	5792	0.31	0.38	585	0.48	0.54	151	0.57	0.44	30660	0.58	0.47
18	3	MC	1	305	0.52	0.35	531	0.57	0.37	5817	0.39	0.30	586	0.49	0.38	151	0.58	0.44	30669	0.55	0.38

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Science Grade 10 Impact Item Statistics—Race/Ethnicity
1998 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
19	3	MC	1	305	0.64	0.40	531	0.64	0.52	5816	0.51	0.36	585	0.59	0.45	152	0.70	0.44	30672	0.71	0.40
20	3	MC	1	305	0.34	0.38	529	0.42	0.49	5803	0.20	0.29	585	0.33	0.37	151	0.34	0.43	30671	0.37	0.40
21	3	MC	1	305	0.53	0.44	531	0.58	0.35	5787	0.35	0.27	583	0.49	0.40	152	0.60	0.32	30627	0.59	0.41
22	3	MC	1	303	0.41	0.38	529	0.47	0.46	5759	0.33	0.23	584	0.39	0.32	151	0.39	0.25	30598	0.45	0.33
23	3	MC	1	305	0.29	0.31	527	0.40	0.30	5746	0.24	0.22	585	0.32	0.25	150	0.31	0.32	30599	0.34	0.27
24	3	MC	1	305	0.39	0.34	530	0.54	0.41	5760	0.36	0.28	583	0.44	0.33	152	0.45	0.37	30603	0.50	0.33
25	3	MC	1	305	0.49	0.38	529	0.56	0.38	5762	0.41	0.25	582	0.48	0.36	152	0.53	0.44	30621	0.54	0.35
26	3	CR	3	287	0.18	0.46	489	0.23	0.51	4974	0.11	0.34	528	0.16	0.43	138	0.23	0.50	29092	0.20	0.45
27	3	CR	3	277	0.11	0.40	486	0.15	0.50	4747	0.05	0.36	513	0.10	0.48	133	0.12	0.47	28708	0.14	0.49
28	3	CR	3	298	0.16	0.43	518	0.25	0.61	5359	0.10	0.44	567	0.17	0.49	144	0.25	0.50	30208	0.22	0.50
29	3	CR	4	292	0.19	0.53	505	0.19	0.58	5098	0.11	0.45	551	0.17	0.51	141	0.23	0.55	29898	0.22	0.50
30	3	CR	1	255	0.24	0.38	463	0.29	0.45	3936	0.08	0.28	497	0.20	0.37	128	0.29	0.36	27253	0.27	0.46

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Science Grade 10 Impact Item Statistics—Gender
1998

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	2	18805	0.68	0.51	19335	0.58	0.53
2	1	CR	2	18302	0.65	0.44	19129	0.61	0.48
3	1	CR	1	18784	0.67	0.42	19507	0.59	0.47
4	1	CR	2	18695	0.52	0.47	19655	0.58	0.48
5	1	CR	2	18069	0.38	0.53	18966	0.39	0.49
6	1	CR	3	18111	0.52	0.60	19134	0.52	0.57
7	1	CR	2	18483	0.70	0.44	19474	0.72	0.42
8	1	CR	1	18512	0.29	0.32	19392	0.17	0.31
9	1	CR	2	17065	0.24	0.45	18495	0.21	0.45
10	1	CR	3	16689	0.39	0.57	17795	0.37	0.58
11	1	CR	2	18320	0.25	0.48	19237	0.23	0.44
1	2	CR	3	18488	0.24	0.53	19449	0.26	0.54
2	2	CR	1	18092	0.67	0.42	19211	0.70	0.44
3	2	CR	4	18526	0.65	0.64	19556	0.67	0.64
4	2	CR	3	18250	0.15	0.46	19229	0.13	0.42
5	2	CR	9	17951	0.74	0.62	19202	0.74	0.65
1	3	MC	1	18842	0.86	0.35	19581	0.86	0.33
2	3	MC	1	18923	0.94	0.28	19652	0.96	0.21
3	3	MC	1	18910	0.92	0.37	19643	0.94	0.35
4	3	MC	1	18917	0.93	0.30	19650	0.93	0.29
5	3	MC	1	18916	0.88	0.32	19635	0.92	0.23
6	3	MC	1	18920	0.83	0.29	19645	0.88	0.20
7	3	MC	1	18909	0.78	0.41	19649	0.81	0.38
8	3	MC	1	18889	0.74	0.38	19626	0.76	0.36
9	3	MC	1	18890	0.75	0.29	19612	0.77	0.22
10	3	MC	1	18908	0.57	0.41	19636	0.45	0.38
11	3	MC	1	18899	0.68	0.44	19624	0.67	0.37
12	3	MC	1	18884	0.64	0.22	19609	0.57	0.23
13	3	MC	1	18876	0.81	0.49	19622	0.81	0.45
14	3	MC	1	18893	0.38	0.31	19621	0.34	0.24
15	3	MC	1	18908	0.70	0.47	19629	0.70	0.43
16	3	MC	1	18881	0.59	0.47	19623	0.58	0.48
17	3	MC	1	18853	0.54	0.51	19591	0.54	0.48
18	3	MC	1	18872	0.57	0.42	19617	0.48	0.35
19	3	MC	1	18871	0.72	0.46	19615	0.63	0.38
20	3	MC	1	18862	0.41	0.45	19609	0.28	0.35
21	3	MC	1	18829	0.62	0.48	19580	0.48	0.37
22	3	MC	1	18799	0.43	0.37	19551	0.43	0.30

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Science Grade 10 Impact Item Statistics—Gender
1998 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
23	3	MC	1	18803	0.34	0.30	19543	0.32	0.25
24	3	MC	1	18809	0.47	0.34	19555	0.48	0.34
25	3	MC	1	18815	0.51	0.38	19563	0.52	0.31
26	3	CR	3	17508	0.22	0.50	18390	0.16	0.38
27	3	CR	3	17024	0.14	0.52	18177	0.11	0.44
28	3	CR	3	18188	0.22	0.53	19305	0.19	0.48
29	3	CR	4	17834	0.24	0.55	19038	0.17	0.49
30	3	CR	1	16052	0.37	0.52	16810	0.13	0.37

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Science Grade 10 Impact Item Statistics—Race/Ethnicity
1999

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	1	385	0.20	0.37	646	0.31	0.45	6888	0.11	0.31	848	0.21	0.42	146	0.23	0.39	44900	0.26	0.38
2	1	CR	1	411	0.75	0.39	656	0.77	0.38	7423	0.61	0.41	896	0.70	0.41	153	0.78	0.31	46660	0.81	0.36
3	1	CR	2	400	0.74	0.40	644	0.79	0.52	7031	0.64	0.45	878	0.73	0.43	149	0.78	0.29	46006	0.81	0.36
4	1	CR	2	403	0.57	0.22	654	0.63	0.42	7310	0.43	0.32	899	0.53	0.37	150	0.58	0.36	46190	0.59	0.29
5	1	CR	1	407	0.66	0.32	647	0.66	0.46	7229	0.46	0.40	883	0.65	0.42	152	0.70	0.33	46015	0.69	0.36
6	1	CR	1	402	0.41	0.40	633	0.46	0.55	6848	0.23	0.42	858	0.36	0.44	149	0.46	0.46	45631	0.45	0.44
7	1	CR	2	405	0.49	0.32	656	0.61	0.53	7227	0.45	0.32	894	0.50	0.39	151	0.61	0.38	46114	0.55	0.39
8	1	CR	3	390	0.40	0.51	630	0.41	0.53	6792	0.27	0.44	857	0.37	0.45	146	0.42	0.60	44855	0.42	0.44
9	1	CR	2	410	0.24	0.45	658	0.20	0.52	7357	0.07	0.32	907	0.17	0.44	151	0.24	0.47	46508	0.24	0.45
10	1	CR	2	358	0.28	0.31	594	0.34	0.36	6136	0.23	0.33	787	0.29	0.40	137	0.30	0.41	43036	0.35	0.37
11	1	CR	2	408	0.28	0.39	662	0.36	0.41	7308	0.20	0.35	900	0.28	0.41	149	0.27	0.31	46515	0.35	0.35
12	1	CR	3	374	0.25	0.48	627	0.36	0.64	6176	0.17	0.50	803	0.25	0.53	144	0.29	0.54	43614	0.32	0.45
13	1	CR	3	380	0.13	0.40	632	0.28	0.51	6386	0.08	0.34	821	0.14	0.43	140	0.18	0.48	44163	0.20	0.48
14	1	CR	3	381	0.20	0.34	638	0.27	0.47	6705	0.15	0.23	840	0.18	0.26	149	0.27	0.37	44944	0.22	0.37
1	2	CR	3	400	0.58	0.51	658	0.60	0.54	7239	0.50	0.47	886	0.57	0.50	152	0.58	0.50	45976	0.64	0.40
2	2	CR	3	385	0.72	0.61	638	0.82	0.54	6757	0.64	0.58	847	0.75	0.57	147	0.79	0.53	44989	0.82	0.49
3	2	CR	1	389	0.48	0.57	631	0.56	0.59	6839	0.32	0.50	851	0.45	0.53	148	0.57	0.53	45188	0.56	0.50
4	2	CR	4	399	0.44	0.56	654	0.47	0.52	7128	0.35	0.49	880	0.44	0.54	149	0.49	0.54	46036	0.50	0.47
5	2	CR	3	394	0.42	0.57	652	0.51	0.60	6977	0.31	0.52	868	0.40	0.57	147	0.45	0.54	45532	0.50	0.53
6	2	CR	2	392	0.70	0.47	643	0.69	0.44	6759	0.58	0.44	865	0.69	0.45	149	0.71	0.37	45589	0.73	0.35
1	3	MC	1	409	0.88	0.38	664	0.86	0.31	7449	0.75	0.31	907	0.85	0.33	154	0.90	0.39	46426	0.92	0.24
2	3	MC	1	411	0.94	0.25	668	0.96	0.26	7548	0.93	0.24	912	0.94	0.27	154	0.96	0.41	46569	0.96	0.22
3	3	MC	1	410	0.93	0.37	668	0.89	0.42	7530	0.81	0.37	913	0.93	0.27	154	0.94	0.27	46538	0.97	0.26
4	3	MC	1	411	0.93	0.24	668	0.91	0.42	7534	0.86	0.31	911	0.90	0.33	154	0.96	0.31	46555	0.95	0.22
5	3	MC	1	409	0.87	0.38	666	0.87	0.40	7505	0.86	0.35	910	0.86	0.37	154	0.86	0.36	46413	0.92	0.23
6	3	MC	1	411	0.85	0.22	668	0.85	0.36	7524	0.83	0.30	913	0.81	0.31	154	0.87	0.19	46530	0.87	0.23
7	3	MC	1	410	0.79	0.48	668	0.87	0.39	7517	0.73	0.39	914	0.76	0.42	153	0.80	0.41	46520	0.86	0.38
8	3	MC	1	401	0.76	0.33	660	0.73	0.43	7370	0.60	0.35	888	0.68	0.35	150	0.79	0.33	45812	0.78	0.33
9	3	MC	1	410	0.76	0.22	667	0.82	0.22	7471	0.75	0.20	909	0.77	0.22	153	0.81	0.26	46429	0.81	0.21
10	3	MC	1	411	0.62	0.32	668	0.59	0.42	7508	0.35	0.28	910	0.51	0.36	153	0.58	0.32	46490	0.58	0.35
11	3	MC	1	408	0.69	0.33	666	0.73	0.41	7493	0.55	0.33	909	0.66	0.39	153	0.75	0.31	46442	0.73	0.39
12	3	MC	1	409	0.26	-0.07	663	0.23	-0.11	7458	0.27	-0.09	906	0.26	-0.11	152	0.21	0.01	46321	0.21	-0.08
13	3	MC	1	411	0.79	0.50	667	0.80	0.49	7510	0.56	0.44	912	0.73	0.50	153	0.83	0.41	46509	0.85	0.40
14	3	MC	1	411	0.41	0.29	669	0.44	0.32	7495	0.31	0.18	910	0.33	0.22	152	0.41	0.19	46489	0.40	0.27

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Science Grade 10 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
15	3	MC	1	410	0.69	0.48	668	0.75	0.49	7494	0.50	0.40	908	0.63	0.43	152	0.71	0.48	46489	0.73	0.41
16	3	MC	1	411	0.54	0.45	668	0.62	0.55	7502	0.38	0.36	914	0.52	0.47	153	0.60	0.46	46484	0.64	0.46
17	3	MC	1	411	0.55	0.45	666	0.54	0.52	7474	0.33	0.36	906	0.46	0.50	153	0.54	0.50	46477	0.59	0.46
18	3	MC	1	411	0.54	0.35	667	0.61	0.44	7484	0.38	0.32	906	0.48	0.43	153	0.65	0.50	46470	0.55	0.39
19	3	MC	1	410	0.67	0.42	666	0.66	0.50	7479	0.50	0.35	910	0.61	0.39	153	0.69	0.35	46466	0.71	0.39
20	3	MC	1	411	0.37	0.36	662	0.40	0.52	7450	0.20	0.24	907	0.30	0.39	153	0.37	0.52	46357	0.35	0.38
21	3	MC	1	409	0.60	0.36	664	0.62	0.43	7396	0.37	0.29	901	0.52	0.37	153	0.64	0.45	46264	0.60	0.40
22	3	MC	1	409	0.37	0.36	666	0.49	0.32	7419	0.30	0.22	900	0.39	0.31	152	0.41	0.19	46438	0.43	0.31
23	3	MC	1	408	0.35	0.33	667	0.44	0.25	7400	0.27	0.21	905	0.34	0.31	151	0.34	0.19	46397	0.38	0.27
24	3	MC	1	404	0.46	0.36	661	0.57	0.31	7303	0.38	0.26	896	0.48	0.30	148	0.52	0.17	45908	0.52	0.31
25	3	MC	1	408	0.44	0.40	663	0.53	0.46	7386	0.34	0.31	904	0.41	0.39	152	0.45	0.46	46309	0.51	0.37
26	3	CR	3	395	0.45	0.59	638	0.50	0.64	6710	0.32	0.48	853	0.44	0.52	144	0.49	0.50	45168	0.50	0.50
27	3	CR	2	363	0.22	0.28	585	0.26	0.37	5509	0.14	0.26	741	0.21	0.29	136	0.24	0.48	41052	0.23	0.35
28	3	CR	2	390	0.51	0.47	626	0.51	0.58	6389	0.31	0.43	826	0.44	0.41	141	0.50	0.53	44442	0.51	0.46
29	3	CR	2	373	0.53	0.49	606	0.56	0.51	6004	0.39	0.50	787	0.47	0.50	138	0.54	0.48	43231	0.58	0.42
30	3	CR	2	366	0.31	0.55	601	0.39	0.65	5776	0.17	0.51	770	0.29	0.57	137	0.34	0.50	42482	0.36	0.54
31	3	CR	1	364	0.10	0.32	616	0.24	0.49	6043	0.06	0.27	784	0.08	0.31	141	0.14	0.40	42644	0.13	0.38

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Science Grade 10 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	CR	1	28124	0.25	0.40	28585	0.23	0.38
2	1	CR	1	29664	0.78	0.39	29568	0.78	0.39
3	1	CR	2	29083	0.78	0.40	28995	0.78	0.43
4	1	CR	2	29332	0.58	0.31	29270	0.55	0.34
5	1	CR	1	29359	0.69	0.39	28963	0.63	0.41
6	1	CR	1	28826	0.45	0.45	28644	0.39	0.46
7	1	CR	2	29165	0.55	0.42	29262	0.53	0.36
8	1	CR	3	28221	0.42	0.47	28352	0.38	0.46
9	1	CR	2	29506	0.28	0.50	29511	0.14	0.41
10	1	CR	2	26557	0.32	0.39	27201	0.35	0.38
11	1	CR	2	29508	0.33	0.35	29445	0.32	0.41
12	1	CR	3	27002	0.30	0.49	27515	0.30	0.48
13	1	CR	3	27570	0.20	0.50	27724	0.17	0.44
14	1	CR	3	28107	0.23	0.37	28414	0.20	0.35
1	2	CR	3	28977	0.61	0.44	29287	0.62	0.43
2	2	CR	3	27815	0.77	0.55	28796	0.82	0.53
3	2	CR	1	28399	0.53	0.52	28529	0.52	0.52
4	2	CR	4	28965	0.47	0.50	29236	0.48	0.50
5	2	CR	3	28539	0.45	0.54	28944	0.49	0.56
6	2	CR	2	28495	0.71	0.40	28810	0.71	0.38
1	3	MC	1	29540	0.90	0.30	29459	0.90	0.29
2	3	MC	1	29694	0.95	0.26	29568	0.97	0.19
3	3	MC	1	29661	0.94	0.33	29547	0.95	0.32
4	3	MC	1	29679	0.94	0.27	29555	0.94	0.26
5	3	MC	1	29543	0.89	0.30	29504	0.92	0.24
6	3	MC	1	29645	0.85	0.27	29549	0.87	0.21
7	3	MC	1	29638	0.82	0.41	29540	0.85	0.38
8	3	MC	1	29136	0.74	0.37	29097	0.76	0.35
9	3	MC	1	29558	0.80	0.24	29470	0.81	0.19
10	3	MC	1	29616	0.61	0.38	29518	0.49	0.36
11	3	MC	1	29554	0.72	0.43	29504	0.69	0.37
12	3	MC	1	29457	0.24	-0.07	29426	0.21	-0.13
13	3	MC	1	29615	0.81	0.48	29539	0.81	0.43
14	3	MC	1	29599	0.41	0.28	29517	0.36	0.24
15	3	MC	1	29592	0.71	0.45	29519	0.69	0.43
16	3	MC	1	29602	0.61	0.46	29523	0.59	0.49
17	3	MC	1	29584	0.55	0.50	29494	0.56	0.46
18	3	MC	1	29575	0.58	0.42	29508	0.48	0.37

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Science Grade 10 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
19	3	MC	1	29573	0.73	0.43	29501	0.63	0.38
20	3	MC	1	29493	0.40	0.42	29433	0.26	0.33
21	3	MC	1	29359	0.65	0.46	29412	0.49	0.36
22	3	MC	1	29518	0.42	0.36	29445	0.41	0.26
23	3	MC	1	29498	0.37	0.30	29406	0.35	0.25
24	3	MC	1	29068	0.50	0.32	29186	0.51	0.31
25	3	MC	1	29387	0.50	0.40	29408	0.47	0.37
26	3	CR	3	28450	0.49	0.52	28346	0.46	0.51
27	3	CR	2	25586	0.25	0.38	25376	0.18	0.30
28	3	CR	2	27781	0.53	0.47	27831	0.44	0.48
29	3	CR	2	26485	0.55	0.45	27342	0.56	0.47
30	3	CR	2	25955	0.33	0.55	26830	0.35	0.57
31	3	CR	1	26392	0.14	0.39	26894	0.12	0.35

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Social Studies Impact Item Statistics Summary
1999

		P-Value						Correlation					
		All Items		MC Items		CR Items		All Items		MC Items		CR Items	
Grade	Sub Group	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
4	American Indian	0.66	0.22	0.71	0.19	0.46	0.22	0.30	0.13	0.27	0.11	0.43	0.10
	Asian	0.70	0.21	0.74	0.18	0.51	0.23	0.37	0.12	0.35	0.10	0.44	0.13
	Black	0.55	0.21	0.61	0.19	0.35	0.19	0.35	0.10	0.33	0.09	0.44	0.11
	Hispanic	0.61	0.21	0.66	0.18	0.42	0.22	0.36	0.11	0.34	0.09	0.45	0.10
	Pacific Islander	0.72	0.21	0.77	0.17	0.54	0.24	0.34	0.18	0.31	0.18	0.42	0.18
	White	0.68	0.21	0.73	0.18	0.49	0.23	0.34	0.10	0.32	0.09	0.43	0.11
	Female	0.66	0.21	0.70	0.13	0.47	0.21	0.36	0.11	0.33	0.10	0.46	0.11
	Male	0.66	0.21	0.71	0.12	0.46	0.22	0.38	0.10	0.36	0.08	0.45	0.10
8	American Indian	0.62	0.21	0.67	0.19	0.46	0.19	0.37	0.11	0.34	0.11	0.44	0.07
	Asian	0.67	0.19	0.71	0.18	0.54	0.17	0.44	0.11	0.42	0.11	0.52	0.06
	Black	0.52	0.21	0.56	0.20	0.39	0.19	0.36	0.12	0.33	0.11	0.46	0.07
	Hispanic	0.60	0.20	0.64	0.19	0.46	0.19	0.40	0.11	0.37	0.11	0.49	0.08
	Pacific Islander	0.66	0.20	0.70	0.18	0.53	0.20	0.39	0.11	0.38	0.12	0.42	0.08
	White	0.68	0.20	0.72	0.18	0.54	0.19	0.38	0.08	0.36	0.08	0.45	0.05
	Female	0.65	0.21	0.69	0.19	0.52	0.20	0.39	0.09	0.37	0.09	0.47	0.05
	Male	0.65	0.20	0.70	0.18	0.50	0.18	0.41	0.09	0.39	0.09	0.47	0.05
11	American Indian	0.59	0.20	0.64	0.17	0.41	0.19	0.39	0.11	0.37	0.10	0.42	0.10
	Asian	0.63	0.17	0.65	0.15	0.47	0.19	0.42	0.12	0.41	0.12	0.46	0.10
	Black	0.50	0.21	0.54	0.19	0.34	0.18	0.32	0.12	0.30	0.11	0.41	0.10
	Hispanic	0.58	0.20	0.62	0.18	0.41	0.18	0.38	0.12	0.36	0.11	0.44	0.10
	Pacific Islander	0.63	0.21	0.67	0.19	0.46	0.20	0.36	0.12	0.34	0.12	0.42	0.09
	White	0.63	0.21	0.67	0.18	0.45	0.22	0.36	0.10	0.35	0.09	0.42	0.11
	Female	0.60	0.21	0.64	0.19	0.45	0.22	0.35	0.11	0.33	0.10	0.42	0.13
	Male	0.62	0.20	0.66	0.17	0.43	0.22	0.38	0.10	0.37	0.09	0.44	0.11

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1999 Social Studies Impact Item Statistics—Race/Ethnicity
Grade 4

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	MC	1	206	0.73	0.13	473	0.79	0.33	10717	0.56	0.31	803	0.67	0.34	52	0.87	0.28	38881	0.78	0.30
2	1	MC	1	206	0.59	0.26	473	0.61	0.27	10700	0.47	0.31	799	0.58	0.37	52	0.69	0.51	38843	0.64	0.28
3	1	MC	1	205	0.97	0.24	473	0.97	0.38	10690	0.81	0.44	802	0.88	0.46	53	0.98	0.31	38852	0.96	0.32
4	1	CR	2	201	0.18	0.42	456	0.22	0.32	10139	0.13	0.34	769	0.16	0.42	49	0.25	0.50	37825	0.24	0.44
5	1	MC	1	204	0.28	0.17	468	0.40	0.23	10584	0.35	0.21	796	0.35	0.23	53	0.47	0.36	38550	0.39	0.24
6	1	CR	2	203	0.08	0.38	467	0.11	0.30	10414	0.03	0.23	786	0.06	0.28	52	0.14	0.20	38283	0.10	0.32
7	1	MC	1	206	0.52	0.33	472	0.56	0.19	10698	0.45	0.30	805	0.53	0.30	53	0.53	0.25	38847	0.57	0.27
8	1	MC	1	200	0.69	0.18	464	0.73	0.26	10532	0.51	0.22	799	0.61	0.32	53	0.83	0.08	38235	0.63	0.27
9	1	CR	3	205	0.35	0.51	468	0.42	0.43	10559	0.28	0.37	790	0.35	0.38	53	0.54	0.37	38651	0.39	0.42
10	1	MC	1	205	0.46	0.18	472	0.51	0.34	10682	0.43	0.34	802	0.45	0.33	53	0.47	0.31	38779	0.55	0.33
11	1	MC	1	205	0.85	0.26	469	0.84	0.48	10663	0.65	0.42	800	0.73	0.38	53	0.93	0.30	38758	0.83	0.35
12	1	MC	1	205	0.89	0.12	470	0.91	0.37	10620	0.82	0.34	801	0.85	0.33	53	0.89	-0.06	38665	0.91	0.24
13	1	MC	1	204	0.61	0.30	473	0.56	0.36	10664	0.46	0.28	802	0.50	0.25	53	0.70	0.24	38756	0.61	0.28
14	1	MC	1	205	0.81	0.35	473	0.83	0.40	10622	0.71	0.41	798	0.72	0.44	52	0.89	0.38	38679	0.81	0.41
15	1	CR	2	199	0.21	0.23	463	0.22	0.21	10316	0.20	0.31	775	0.20	0.30	50	0.17	0.09	37888	0.22	0.26
16	1	MC	1	205	0.44	0.32	474	0.49	0.41	10659	0.36	0.33	802	0.37	0.34	53	0.62	0.34	38778	0.47	0.38
17	1	CR	2	203	0.72	0.39	473	0.75	0.43	10442	0.55	0.45	789	0.66	0.43	53	0.75	0.39	38576	0.73	0.40
18	1	MC	1	206	0.94	0.19	474	0.97	0.32	10593	0.91	0.32	797	0.94	0.32	53	1.00		38750	0.96	0.24
19	1	CR	2	203	0.30	0.42	460	0.32	0.42	10296	0.18	0.40	780	0.24	0.44	52	0.36	0.31	38181	0.33	0.39
20	1	MC	1	205	0.57	0.23	473	0.42	0.31	10510	0.43	0.23	793	0.44	0.26	52	0.54	0.10	38622	0.48	0.24
21	1	MC	1	204	0.75	0.54	470	0.75	0.50	10505	0.61	0.45	794	0.67	0.47	53	0.85	0.44	38606	0.77	0.47
22	1	MC	1	204	0.61	0.50	472	0.69	0.51	10476	0.47	0.43	792	0.57	0.47	53	0.85	0.47	38561	0.71	0.51
23	1	CR	2	204	0.41	0.43	465	0.47	0.59	10236	0.28	0.52	780	0.35	0.51	52	0.54	0.71	38345	0.46	0.55
24	1	MC	1	205	0.59	0.33	470	0.60	0.31	10405	0.47	0.32	790	0.54	0.30	53	0.68	0.32	38546	0.60	0.30
25	1	MC	1	204	0.58	0.31	469	0.66	0.37	10369	0.49	0.37	788	0.54	0.39	53	0.68	0.45	38481	0.61	0.38
26	1	MC	1	204	0.64	0.23	472	0.58	0.27	10407	0.51	0.26	788	0.54	0.28	53	0.74	0.24	38526	0.61	0.26
27	1	CR	2	202	0.40	0.42	462	0.49	0.38	10029	0.34	0.38	776	0.39	0.42	53	0.42	0.32	38166	0.44	0.38
1	2	MC	1	204	0.90	0.28	472	0.93	0.40	10641	0.78	0.37	806	0.86	0.33	53	0.96	0.49	38729	0.92	0.29
2	2	MC	1	204	0.93	0.13	474	0.92	0.29	10668	0.87	0.33	804	0.87	0.36	53	0.89	0.19	38778	0.90	0.28
3	2	CR	2	203	0.63	0.39	472	0.73	0.52	10375	0.49	0.52	786	0.59	0.52	52	0.78	0.41	38455	0.66	0.49
4	2	MC	1	206	0.73	0.44	472	0.82	0.58	10615	0.59	0.48	805	0.68	0.52	53	0.79	0.62	38680	0.79	0.47
5	2	MC	1	205	0.88	0.33	472	0.91	0.49	10559	0.76	0.46	799	0.82	0.44	53	0.91	0.45	38430	0.91	0.41
6	2	MC	1	205	0.55	0.33	475	0.66	0.37	10688	0.53	0.30	805	0.50	0.30	52	0.52	0.19	38807	0.59	0.33
7	2	MC	1	198	0.39	0.13	459	0.43	0.17	10356	0.38	0.09	785	0.40	0.10	53	0.40	0.04	37577	0.40	0.18

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Social Studies Grade 4 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
8	2	CR	2	201	0.27	0.51	462	0.38	0.58	10019	0.19	0.50	756	0.25	0.56	50	0.42	0.59	37428	0.34	0.55
9	2	MC	1	205	0.63	0.06	474	0.66	0.34	10673	0.59	0.30	806	0.58	0.33	52	0.75	0.17	38768	0.68	0.27
10	2	CR	2	203	0.61	0.54	469	0.63	0.65	10298	0.38	0.56	784	0.49	0.58	51	0.65	0.63	38154	0.64	0.53
11	2	MC	1	206	0.85	0.17	471	0.82	0.42	10589	0.62	0.43	800	0.69	0.42	53	0.85	0.48	38590	0.83	0.37
12	2	MC	1	204	0.74	0.37	471	0.75	0.45	10578	0.52	0.45	798	0.62	0.45	53	0.81	0.37	38529	0.76	0.44
13	2	CR	2	206	0.82	0.28	473	0.82	0.35	10450	0.70	0.35	788	0.77	0.38	53	0.85	0.13	38384	0.82	0.27
14	2	CR	2	205	0.73	0.55	469	0.71	0.45	10218	0.52	0.48	777	0.66	0.51	52	0.80	0.51	38045	0.74	0.41
15	2	MC	1	206	0.48	0.10	473	0.37	0.01	10637	0.39	0.13	806	0.40	0.08	53	0.55	0.03	38760	0.48	0.15
16	2	MC	1	204	0.39	0.35	473	0.46	0.26	10559	0.32	0.22	800	0.41	0.24	52	0.50	0.35	38532	0.47	0.31
17	2	MC	1	206	0.89	0.28	473	0.91	0.34	10565	0.80	0.32	805	0.87	0.28	53	0.94	0.27	38669	0.90	0.31
18	2	CR	2	206	0.73	0.38	472	0.79	0.39	10441	0.62	0.50	796	0.71	0.45	52	0.85	0.52	38497	0.78	0.42
19	2	MC	1	206	0.78	0.10	473	0.84	0.31	10627	0.73	0.23	803	0.80	0.24	53	0.94	0.23	38720	0.84	0.21
20	2	MC	1	206	0.48	0.28	471	0.60	0.29	10587	0.40	0.25	796	0.48	0.24	53	0.66	0.24	38577	0.54	0.35
21	2	MC	1	205	0.23	0.03	474	0.27	0.09	10555	0.24	0.03	795	0.26	0.02	53	0.26	0.15	38480	0.26	0.11
22	2	MC	1	203	0.67	0.43	468	0.73	0.50	10464	0.55	0.41	791	0.64	0.43	52	0.71	0.68	38195	0.74	0.43
23	2	CR	5	206	0.50	0.64	473	0.58	0.63	10541	0.32	0.63	800	0.45	0.64	52	0.61	0.54	38722	0.54	0.64
1	3	MC	1	206	0.91	0.22	472	0.95	0.33	10668	0.81	0.34	803	0.89	0.31	53	0.94	0.00	38827	0.93	0.24
2	3	MC	1	205	0.82	0.24	468	0.89	0.37	10587	0.73	0.41	800	0.77	0.43	53	0.81	0.59	38636	0.88	0.30
3	3	MC	1	206	0.96	0.16	473	0.97	0.30	10647	0.91	0.32	804	0.94	0.37	53	0.96	-0.01	38771	0.97	0.23
4	3	MC	1	202	0.61	0.38	466	0.75	0.39	10456	0.47	0.39	792	0.57	0.42	52	0.73	0.44	38370	0.69	0.42
5	3	MC	1	205	0.88	0.38	472	0.95	0.45	10593	0.81	0.38	801	0.86	0.38	53	0.89	0.54	38490	0.92	0.36
6	3	MC	1	205	0.74	0.43	473	0.68	0.45	10636	0.50	0.37	800	0.58	0.42	53	0.77	0.48	38699	0.78	0.48
7	3	MC	1	205	0.84	0.26	473	0.88	0.22	10595	0.76	0.31	801	0.82	0.29	53	0.87	0.35	38525	0.82	0.21
8	3	MC	1	204	0.72	0.33	473	0.77	0.40	10566	0.54	0.40	800	0.62	0.42	52	0.81	0.45	38473	0.75	0.45
9	3	MC	1	205	0.95	0.20	472	0.94	0.29	10645	0.87	0.36	801	0.91	0.37	53	0.94	0.43	38723	0.95	0.28
10	3	MC	1	202	0.95	0.24	469	0.96	0.36	10591	0.90	0.38	796	0.91	0.38	53	0.96	0.49	38553	0.97	0.29
11	3	MC	1	206	0.96	0.22	468	0.94	0.40	10587	0.91	0.38	795	0.93	0.35	53	0.98	0.26	38463	0.97	0.27
12	3	MC	1	205	0.96	0.19	472	0.95	0.21	10587	0.89	0.30	799	0.90	0.28	53	0.93	-0.01	38511	0.94	0.17
13	3	MC	1	205	0.96	0.23	473	0.96	0.29	10639	0.81	0.43	805	0.92	0.42	53	0.94	0.30	38726	0.95	0.34
14	3	MC	1	198	0.60	0.24	467	0.85	0.30	10434	0.48	0.34	796	0.57	0.39	53	0.70	0.55	38301	0.62	0.37
15	3	MC	1	205	0.50	0.39	474	0.42	0.38	10614	0.34	0.25	804	0.35	0.24	53	0.51	0.22	38658	0.51	0.31
16	3	MC	1	205	0.56	0.29	471	0.70	0.46	10575	0.51	0.31	801	0.57	0.32	53	0.68	0.44	38553	0.64	0.35
17	3	MC	1	204	0.55	0.41	473	0.84	0.48	10588	0.48	0.38	796	0.56	0.42	53	0.74	0.58	38631	0.61	0.43
18	3	MC	1	205	0.91	0.38	470	0.95	0.35	10637	0.82	0.37	801	0.88	0.37	53	0.89	0.49	38697	0.92	0.33
19	3	MC	1	206	0.62	0.37	470	0.68	0.35	10594	0.53	0.35	797	0.61	0.37	53	0.72	0.45	38606	0.66	0.37

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Social Studies Grade 4 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
20	3	MC	1	204	0.59	0.33	470	0.65	0.44	10542	0.37	0.32	798	0.50	0.41	52	0.50	0.32	38538	0.61	0.47
21	3	MC	1	202	0.62	0.37	467	0.68	0.46	10422	0.40	0.34	788	0.50	0.40	52	0.67	0.33	38041	0.65	0.43
22	3	MC	1	204	0.80	0.15	471	0.86	0.22	10591	0.80	0.22	800	0.82	0.22	53	0.89	0.18	38660	0.84	0.21
23	3	MC	1	204	0.84	0.36	469	0.90	0.34	10568	0.81	0.41	797	0.82	0.43	53	0.94	-0.02	38587	0.86	0.44
24	3	MC	1	205	0.60	0.34	469	0.72	0.31	10553	0.56	0.32	795	0.60	0.33	53	0.74	0.31	38541	0.65	0.36
25	3	MC	1	203	0.90	0.24	469	0.90	0.30	10506	0.77	0.31	794	0.86	0.36	53	0.96	0.24	38429	0.90	0.32

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Social Studies Grade 4 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	MC	1	26859	0.77	0.35	25932	0.69	0.35
2	1	MC	1	26828	0.62	0.32	25904	0.58	0.31
3	1	MC	1	26833	0.92	0.41	25904	0.92	0.39
4	1	CR	2	25703	0.21	0.42	25359	0.21	0.44
5	1	MC	1	26617	0.40	0.24	25688	0.36	0.22
6	1	CR	2	26214	0.07	0.30	25635	0.10	0.35
7	1	MC	1	26846	0.54	0.28	25900	0.55	0.30
8	1	MC	1	26376	0.63	0.29	25551	0.58	0.27
9	1	CR	3	26586	0.35	0.40	25796	0.38	0.46
10	1	MC	1	26768	0.52	0.35	25889	0.54	0.34
11	1	MC	1	26741	0.80	0.40	25872	0.79	0.41
12	1	MC	1	26651	0.89	0.31	25822	0.89	0.26
13	1	MC	1	26759	0.60	0.31	25855	0.56	0.29
14	1	MC	1	26696	0.78	0.42	25794	0.80	0.41
15	1	CR	2	25873	0.21	0.26	25429	0.22	0.28
16	1	MC	1	26765	0.45	0.38	25868	0.45	0.37
17	1	CR	2	26423	0.68	0.44	25760	0.71	0.44
18	1	MC	1	26699	0.94	0.30	25832	0.97	0.26
19	1	CR	2	26066	0.29	0.42	25544	0.32	0.43
20	1	MC	1	26572	0.46	0.25	25735	0.48	0.23
21	1	MC	1	26555	0.73	0.49	25726	0.75	0.48
22	1	MC	1	26530	0.66	0.52	25681	0.67	0.52
23	1	CR	2	26159	0.39	0.56	25574	0.45	0.56
24	1	MC	1	26463	0.59	0.35	25645	0.57	0.30
25	1	MC	1	26414	0.59	0.39	25588	0.59	0.38
26	1	MC	1	26481	0.62	0.29	25618	0.56	0.26
27	1	CR	2	25945	0.42	0.39	25376	0.42	0.39
1	2	MC	1	26733	0.90	0.35	25837	0.87	0.36
2	2	MC	1	26786	0.91	0.28	25862	0.87	0.30
3	2	CR	2	26360	0.63	0.52	25638	0.62	0.52
4	2	MC	1	26700	0.74	0.51	25790	0.76	0.50
5	2	MC	1	26507	0.87	0.47	25654	0.89	0.43
6	2	MC	1	26812	0.58	0.32	25879	0.59	0.32
7	2	MC	1	25867	0.40	0.18	25179	0.39	0.13
8	2	CR	2	25445	0.33	0.57	25054	0.28	0.54
9	2	MC	1	26787	0.66	0.29	25858	0.65	0.29
10	2	CR	2	26015	0.58	0.58	25575	0.59	0.59
11	2	MC	1	26621	0.80	0.43	25747	0.76	0.43

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Social Studies Grade 4 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
12	2	MC	1	26548	0.71	0.50	25739	0.70	0.46
13	2	CR	2	26322	0.79	0.33	25680	0.79	0.32
14	2	CR	2	25968	0.70	0.46	25423	0.68	0.49
15	2	MC	1	26756	0.48	0.19	25841	0.45	0.14
16	2	MC	1	26570	0.42	0.30	25701	0.45	0.32
17	2	MC	1	26669	0.86	0.36	25762	0.90	0.31
18	2	CR	2	26398	0.73	0.46	25710	0.76	0.47
19	2	MC	1	26723	0.82	0.26	25819	0.82	0.23
20	2	MC	1	26616	0.53	0.39	25732	0.50	0.30
21	2	MC	1	26519	0.27	0.09	25692	0.24	0.09
22	2	MC	1	26271	0.68	0.45	25541	0.71	0.44
23	2	CR	5	26664	0.49	0.66	25787	0.50	0.68
1	3	MC	1	26813	0.91	0.32	25877	0.91	0.30
2	3	MC	1	26656	0.85	0.37	25751	0.84	0.36
3	3	MC	1	26762	0.95	0.29	25856	0.96	0.26
4	3	MC	1	26455	0.66	0.45	25532	0.62	0.44
5	3	MC	1	26533	0.89	0.41	25733	0.90	0.36
6	3	MC	1	26721	0.72	0.51	25799	0.73	0.48
7	3	MC	1	26599	0.82	0.28	25705	0.80	0.20
8	3	MC	1	26553	0.70	0.48	25659	0.72	0.45
9	3	MC	1	26739	0.93	0.33	25818	0.94	0.31
10	3	MC	1	26585	0.95	0.36	25721	0.96	0.31
11	3	MC	1	26575	0.96	0.33	25647	0.96	0.31
12	3	MC	1	26549	0.92	0.24	25723	0.94	0.19
13	3	MC	1	26743	0.93	0.41	25816	0.91	0.40
14	3	MC	1	26407	0.63	0.40	25482	0.55	0.36
15	3	MC	1	26681	0.50	0.32	25782	0.44	0.32
16	3	MC	1	26597	0.60	0.35	25711	0.63	0.36
17	3	MC	1	26661	0.61	0.44	25733	0.56	0.42
18	3	MC	1	26705	0.90	0.38	25811	0.90	0.35
19	3	MC	1	26637	0.63	0.39	25740	0.64	0.37
20	3	MC	1	26557	0.56	0.46	25700	0.55	0.47
21	3	MC	1	26144	0.61	0.45	25450	0.59	0.44
22	3	MC	1	26678	0.84	0.27	25758	0.83	0.16
23	3	MC	1	26615	0.84	0.44	25711	0.85	0.41
24	3	MC	1	26585	0.63	0.39	25678	0.64	0.33
25	3	MC	1	26472	0.87	0.36	25624	0.88	0.33

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1999 Social Studies Impact Item Statistics—Race/Ethnicity
Grade 8

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	MC	1	347	0.73	0.30	473	0.83	0.42	8996	0.71	0.28	880	0.75	0.32	95	0.81	0.25	39245	0.81	0.32
2	1	MC	1	344	0.70	0.22	472	0.78	0.34	8956	0.66	0.26	876	0.71	0.32	95	0.77	0.31	39153	0.77	0.31
3	1	CR	2	341	0.43	0.32	473	0.57	0.43	8792	0.39	0.41	865	0.43	0.44	92	0.53	0.27	38849	0.49	0.37
4	1	CR	2	321	0.37	0.47	455	0.40	0.54	8012	0.27	0.47	817	0.35	0.50	90	0.42	0.59	37589	0.42	0.45
5	1	MC	1	346	0.45	0.13	471	0.56	0.24	8961	0.38	0.18	879	0.42	0.21	94	0.45	0.15	39155	0.49	0.29
6	1	CR	2	328	0.72	0.43	467	0.81	0.58	8658	0.68	0.55	866	0.72	0.59	90	0.80	0.45	38425	0.81	0.49
7	1	MC	1	347	0.83	0.44	471	0.83	0.49	8990	0.69	0.44	881	0.79	0.50	95	0.86	0.60	39248	0.89	0.38
8	1	MC	1	345	0.61	0.30	470	0.62	0.41	8961	0.50	0.31	879	0.57	0.33	95	0.57	0.23	39176	0.63	0.29
9	1	MC	1	338	0.60	0.46	468	0.64	0.56	8851	0.42	0.42	872	0.50	0.54	94	0.60	0.41	38825	0.67	0.51
10	1	CR	2	326	0.60	0.44	458	0.61	0.58	8124	0.48	0.53	828	0.59	0.56	89	0.68	0.41	38007	0.67	0.43
11	1	MC	1	346	0.29	0.09	472	0.29	0.26	8958	0.24	0.06	880	0.28	0.17	95	0.26	0.10	39213	0.32	0.22
12	1	MC	1	345	0.76	0.37	471	0.77	0.41	8962	0.64	0.32	876	0.70	0.37	93	0.83	0.31	39165	0.81	0.33
13	1	MC	1	344	0.61	0.30	469	0.64	0.38	8898	0.48	0.24	873	0.63	0.29	95	0.65	0.42	39020	0.69	0.29
14	1	MC	1	346	0.69	0.50	472	0.62	0.56	8977	0.42	0.37	880	0.60	0.53	95	0.70	0.46	39215	0.74	0.43
15	1	CR	2	290	0.43	0.49	424	0.53	0.58	7281	0.30	0.44	756	0.41	0.51	71	0.49	0.50	34897	0.54	0.46
16	1	CR	2	301	0.40	0.39	454	0.45	0.47	7892	0.30	0.40	805	0.38	0.40	83	0.43	0.35	36990	0.46	0.36
17	1	MC	1	345	0.47	0.41	471	0.64	0.47	8907	0.39	0.39	880	0.49	0.41	94	0.54	0.41	39091	0.53	0.45
18	1	MC	1	343	0.29	0.21	471	0.44	0.35	8866	0.31	0.20	879	0.36	0.24	95	0.52	0.38	39022	0.40	0.29
19	1	MC	1	347	0.49	0.40	470	0.62	0.51	8911	0.36	0.31	878	0.48	0.40	95	0.54	0.43	39165	0.58	0.44
20	1	MC	1	343	0.70	0.42	469	0.68	0.47	8831	0.41	0.32	879	0.53	0.48	94	0.64	0.54	38773	0.71	0.41
21	1	CR	2	325	0.29	0.42	460	0.40	0.51	8077	0.17	0.46	825	0.27	0.53	89	0.36	0.43	37843	0.35	0.48
22	1	CR	2	324	0.21	0.50	460	0.26	0.51	8080	0.10	0.40	841	0.18	0.45	90	0.23	0.43	37893	0.25	0.48
1	2	MC	1	347	0.83	0.47	470	0.84	0.59	8959	0.66	0.52	880	0.76	0.53	95	0.88	0.52	39169	0.87	0.48
2	2	MC	1	348	0.68	0.42	470	0.79	0.49	8959	0.62	0.42	880	0.69	0.44	95	0.74	0.40	39147	0.76	0.40
3	2	MC	1	348	0.62	0.41	470	0.64	0.51	8935	0.46	0.39	877	0.55	0.43	94	0.70	0.38	39123	0.69	0.41
4	2	CR	2	302	0.14	0.42	437	0.31	0.50	7375	0.14	0.36	771	0.17	0.36	82	0.21	0.38	35380	0.24	0.46
5	2	CR	2	333	0.70	0.37	469	0.71	0.49	8769	0.63	0.42	854	0.67	0.48	91	0.79	0.46	38505	0.74	0.41
6	2	CR	3	331	0.52	0.56	457	0.60	0.65	8375	0.43	0.61	843	0.51	0.64	92	0.57	0.47	37940	0.62	0.54
7	2	MC	1	346	0.82	0.40	470	0.82	0.47	8915	0.68	0.36	875	0.78	0.34	95	0.80	0.30	39080	0.86	0.36
8	2	MC	1	344	0.74	0.27	470	0.76	0.50	8850	0.61	0.39	867	0.68	0.41	94	0.78	0.33	38891	0.77	0.38
9	2	MC	1	346	0.28	0.16	469	0.25	0.31	8904	0.20	0.08	877	0.23	0.16	95	0.33	0.34	39082	0.30	0.26
10	2	MC	1	345	0.64	0.36	469	0.70	0.48	8903	0.52	0.33	877	0.63	0.34	94	0.54	0.45	39075	0.72	0.40
11	2	CR	2	323	0.53	0.50	458	0.65	0.57	8358	0.48	0.52	820	0.54	0.53	90	0.62	0.33	37858	0.66	0.44
12	2	CR	2	335	0.56	0.46	466	0.70	0.50	8642	0.53	0.44	854	0.61	0.44	94	0.62	0.45	38626	0.68	0.46

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Social Studies Grade 8 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
13	2	CR	3	336	0.76	0.34	467	0.80	0.43	8651	0.71	0.42	854	0.77	0.42	94	0.82	0.37	38797	0.80	0.39
14	2	MC	1	343	0.82	0.28	469	0.80	0.43	8849	0.60	0.33	874	0.75	0.36	95	0.80	0.30	39044	0.83	0.31
15	2	MC	1	340	0.22	0.11	467	0.27	0.11	8808	0.21	0.09	875	0.25	0.12	95	0.36	0.11	38996	0.27	0.23
16	2	MC	1	340	0.60	0.38	468	0.68	0.35	8784	0.50	0.31	874	0.60	0.38	95	0.65	0.32	38920	0.67	0.35
17	2	CR	2	316	0.30	0.53	465	0.35	0.54	8015	0.23	0.49	821	0.27	0.48	90	0.31	0.44	37722	0.38	0.46
1	3	MC	1	347	0.88	0.32	471	0.91	0.38	8923	0.86	0.31	873	0.87	0.33	95	0.88	0.33	39068	0.92	0.32
2	3	MC	1	345	0.63	0.37	466	0.68	0.48	8834	0.55	0.42	865	0.58	0.36	95	0.67	0.34	38787	0.69	0.42
3	3	MC	1	347	0.84	0.50	470	0.85	0.45	8923	0.76	0.44	873	0.81	0.45	95	0.90	0.49	39071	0.88	0.42
4	3	MC	1	346	0.62	0.31	470	0.67	0.32	8904	0.50	0.32	869	0.59	0.37	95	0.66	0.41	39032	0.66	0.31
5	3	MC	1	340	0.74	0.52	470	0.85	0.42	8876	0.64	0.44	866	0.74	0.49	94	0.79	0.41	38967	0.83	0.45
6	3	MC	1	347	0.94	0.37	471	0.92	0.46	8900	0.86	0.41	872	0.91	0.45	95	0.92	0.60	39034	0.97	0.32
7	3	MC	1	346	0.93	0.26	471	0.96	0.32	8893	0.91	0.33	873	0.92	0.28	94	0.95	0.44	39013	0.96	0.24
8	3	MC	1	345	0.78	0.53	471	0.76	0.61	8878	0.57	0.49	872	0.70	0.55	95	0.73	0.56	38985	0.85	0.45
9	3	MC	1	346	0.90	0.40	471	0.92	0.41	8893	0.83	0.45	873	0.87	0.44	95	0.94	0.45	39018	0.94	0.39
10	3	MC	1	345	0.53	0.33	469	0.61	0.51	8854	0.44	0.40	872	0.51	0.44	95	0.63	0.42	38965	0.64	0.48
11	3	MC	1	346	0.80	0.40	471	0.86	0.55	8877	0.77	0.43	870	0.81	0.46	95	0.88	0.28	38968	0.88	0.43
12	3	MC	1	346	0.62	0.40	470	0.66	0.46	8878	0.36	0.27	867	0.52	0.45	94	0.63	0.37	38993	0.64	0.46
13	3	MC	1	346	0.29	0.26	469	0.36	0.33	8883	0.17	0.19	868	0.25	0.30	95	0.28	0.18	38990	0.35	0.31
14	3	MC	1	346	0.58	0.34	470	0.64	0.32	8858	0.49	0.28	868	0.57	0.26	95	0.59	0.31	38961	0.63	0.31
15	3	MC	1	346	0.75	0.33	468	0.82	0.41	8853	0.71	0.35	868	0.76	0.41	95	0.81	0.45	38922	0.83	0.34
16	3	MC	1	346	0.94	0.28	470	0.95	0.28	8891	0.88	0.33	871	0.93	0.31	95	0.93	0.44	39035	0.96	0.24
17	3	MC	1	344	0.92	0.31	470	0.88	0.40	8871	0.75	0.34	869	0.85	0.42	95	0.94	0.39	38991	0.92	0.33
18	3	MC	1	344	0.87	0.49	471	0.91	0.51	8859	0.78	0.50	865	0.86	0.46	94	0.89	0.45	38986	0.92	0.43
19	3	MC	1	345	0.73	0.37	471	0.77	0.49	8860	0.64	0.38	869	0.71	0.43	93	0.80	0.40	38992	0.80	0.41
20	3	MC	1	345	0.62	0.45	470	0.70	0.56	8798	0.49	0.46	862	0.62	0.48	94	0.64	0.55	38807	0.72	0.48
21	3	MC	1	344	0.94	0.23	469	0.97	0.15	8824	0.94	0.31	866	0.95	0.30	95	0.96	0.51	38866	0.98	0.22
22	3	MC	1	342	0.55	0.31	469	0.70	0.43	8736	0.48	0.26	857	0.57	0.34	95	0.62	0.41	38682	0.66	0.41
23	3	MC	1	346	0.54	0.37	471	0.57	0.31	8820	0.41	0.22	868	0.51	0.33	95	0.54	0.35	38998	0.63	0.35
24	3	MC	1	343	0.43	0.22	470	0.37	0.27	8792	0.26	0.09	868	0.36	0.11	95	0.41	0.13	38900	0.45	0.20
25	3	MC	1	346	0.78	0.43	471	0.81	0.55	8822	0.69	0.40	870	0.74	0.47	95	0.86	0.55	38997	0.85	0.38

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Social Studies Grade 8 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	MC	1	26493	0.79	0.33	25361	0.79	0.32
2	1	MC	1	26403	0.74	0.34	25307	0.77	0.29
3	1	CR	2	26014	0.43	0.38	25198	0.51	0.40
4	1	CR	2	24638	0.38	0.48	24354	0.40	0.49
5	1	MC	1	26394	0.48	0.27	25321	0.45	0.30
6	1	CR	2	25617	0.76	0.52	24984	0.81	0.50
7	1	MC	1	26492	0.84	0.45	25362	0.86	0.42
8	1	MC	1	26431	0.61	0.34	25312	0.61	0.28
9	1	MC	1	26049	0.62	0.53	25205	0.61	0.52
10	1	CR	2	25171	0.63	0.46	24412	0.64	0.51
11	1	MC	1	26445	0.34	0.24	25339	0.27	0.16
12	1	MC	1	26399	0.78	0.38	25327	0.77	0.35
13	1	MC	1	26245	0.67	0.35	25262	0.63	0.29
14	1	MC	1	26445	0.71	0.48	25363	0.64	0.48
15	1	CR	2	22641	0.51	0.49	22654	0.48	0.49
16	1	CR	2	24120	0.41	0.38	24079	0.44	0.41
17	1	MC	1	26331	0.55	0.46	25269	0.47	0.43
18	1	MC	1	26252	0.42	0.31	25233	0.35	0.26
19	1	MC	1	26390	0.54	0.47	25293	0.54	0.41
20	1	MC	1	26091	0.68	0.47	25096	0.63	0.43
21	1	CR	2	24952	0.33	0.51	24404	0.31	0.52
22	1	CR	2	24935	0.24	0.48	24483	0.20	0.49
1	2	MC	1	26428	0.84	0.52	25321	0.82	0.53
2	2	MC	1	26416	0.72	0.44	25310	0.75	0.40
3	2	MC	1	26386	0.65	0.45	25290	0.64	0.43
4	2	CR	2	22853	0.23	0.44	23113	0.22	0.45
5	2	CR	2	25679	0.68	0.43	25130	0.75	0.41
6	2	CR	3	25107	0.57	0.58	24693	0.60	0.57
7	2	MC	1	26340	0.82	0.39	25268	0.83	0.39
8	2	MC	1	26167	0.74	0.42	25165	0.74	0.38
9	2	MC	1	26327	0.30	0.24	25268	0.25	0.25
10	2	MC	1	26314	0.69	0.42	25272	0.67	0.40
11	2	CR	2	25016	0.60	0.49	24631	0.65	0.49
12	2	CR	2	25731	0.63	0.48	25075	0.66	0.47
13	2	CR	3	25866	0.77	0.42	25127	0.80	0.41
14	2	MC	1	26260	0.82	0.36	25226	0.76	0.38
15	2	MC	1	26215	0.27	0.23	25175	0.25	0.18
16	2	MC	1	26170	0.65	0.38	25114	0.62	0.35

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Social Studies Grade 8 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
17	2	CR	2	24610	0.34	0.49	24543	0.37	0.49
1	3	MC	1	26325	0.91	0.33	25270	0.91	0.32
2	3	MC	1	26097	0.69	0.45	25101	0.63	0.42
3	3	MC	1	26323	0.86	0.45	25277	0.87	0.43
4	3	MC	1	26282	0.61	0.35	25251	0.65	0.32
5	3	MC	1	26191	0.79	0.47	25233	0.80	0.48
6	3	MC	1	26286	0.95	0.38	25248	0.95	0.37
7	3	MC	1	26269	0.94	0.30	25234	0.96	0.24
8	3	MC	1	26244	0.79	0.53	25215	0.81	0.50
9	3	MC	1	26278	0.91	0.46	25233	0.93	0.39
10	3	MC	1	26213	0.61	0.48	25198	0.59	0.49
11	3	MC	1	26225	0.84	0.47	25215	0.88	0.41
12	3	MC	1	26242	0.62	0.48	25219	0.55	0.46
13	3	MC	1	26242	0.31	0.31	25225	0.33	0.33
14	3	MC	1	26213	0.62	0.34	25193	0.59	0.30
15	3	MC	1	26154	0.80	0.38	25210	0.81	0.33
16	3	MC	1	26278	0.94	0.30	25245	0.94	0.27
17	3	MC	1	26231	0.90	0.41	25222	0.88	0.34
18	3	MC	1	26221	0.88	0.49	25212	0.91	0.45
19	3	MC	1	26233	0.75	0.44	25215	0.79	0.41
20	3	MC	1	26071	0.69	0.52	25116	0.66	0.49
21	3	MC	1	26082	0.96	0.28	25195	0.97	0.23
22	3	MC	1	25914	0.66	0.43	25070	0.58	0.37
23	3	MC	1	26230	0.58	0.35	25182	0.60	0.36
24	3	MC	1	26126	0.39	0.18	25149	0.43	0.26
25	3	MC	1	26227	0.80	0.44	25185	0.85	0.39

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1999 Social Studies Impact Item Statistics—Race/Ethnicity
Grade 11

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
1	1	MC	1	236	0.27	0.21	513	0.32	0.37	5274	0.22	0.18	588	0.27	0.24	117	0.28	0.21	30448	0.32	0.31
2	1	MC	1	235	0.82	0.26	511	0.78	0.36	5239	0.78	0.27	584	0.84	0.21	117	0.93	0.24	30283	0.86	0.22
3	1	MC	1	236	0.92	0.42	512	0.94	0.33	5276	0.90	0.28	588	0.91	0.28	117	0.97	0.22	30441	0.96	0.24
4	1	MC	1	236	0.38	0.33	513	0.47	0.45	5277	0.33	0.24	589	0.41	0.34	117	0.41	0.34	30434	0.47	0.38
5	1	MC	1	236	0.77	0.40	513	0.75	0.49	5264	0.65	0.31	588	0.74	0.36	117	0.84	0.27	30427	0.78	0.32
6	1	MC	1	235	0.67	0.33	512	0.60	0.37	5267	0.55	0.30	588	0.65	0.32	116	0.72	0.28	30422	0.71	0.32
7	1	MC	1	231	0.81	0.44	508	0.80	0.58	5180	0.66	0.44	578	0.78	0.52	116	0.91	0.16	30112	0.89	0.39
8	1	MC	1	236	0.53	0.15	512	0.52	0.28	5227	0.47	0.12	585	0.46	0.17	116	0.53	0.07	30400	0.57	0.19
9	1	CR	2	192	0.20	0.41	440	0.18	0.47	3750	0.07	0.36	473	0.18	0.50	96	0.23	0.60	25913	0.24	0.43
10	1	MC	1	236	0.83	0.43	511	0.76	0.45	5195	0.63	0.36	584	0.77	0.49	117	0.88	0.26	30333	0.82	0.41
11	1	CR	2	223	0.39	0.51	478	0.43	0.53	4659	0.29	0.42	534	0.38	0.53	105	0.41	0.48	28583	0.42	0.49
12	1	CR	2	232	0.49	0.53	496	0.52	0.48	4764	0.38	0.35	568	0.47	0.44	111	0.53	0.34	29364	0.52	0.40
13	1	CR	2	225	0.60	0.53	479	0.65	0.64	4429	0.46	0.53	541	0.59	0.56	103	0.72	0.42	28679	0.64	0.53
14	1	MC	1	236	0.52	0.33	510	0.54	0.51	5230	0.34	0.26	588	0.45	0.34	117	0.45	0.18	30370	0.54	0.34
15	1	MC	1	235	0.57	0.30	508	0.61	0.34	5203	0.48	0.24	587	0.54	0.31	116	0.63	0.21	30355	0.59	0.33
16	1	MC	1	236	0.31	0.20	510	0.47	0.20	5215	0.33	0.04	588	0.35	0.21	115	0.41	0.26	30345	0.35	0.19
17	1	MC	1	234	0.66	0.30	511	0.69	0.45	5228	0.45	0.39	586	0.58	0.45	115	0.76	0.39	30366	0.74	0.38
18	1	MC	1	235	0.39	0.31	512	0.46	0.33	5226	0.22	0.26	587	0.34	0.37	114	0.44	0.34	30382	0.38	0.37
19	1	MC	1	234	0.56	0.36	512	0.71	0.27	5224	0.58	0.32	586	0.68	0.37	115	0.70	0.30	30360	0.70	0.34
20	1	MC	1	235	0.63	0.28	512	0.62	0.53	5228	0.36	0.28	585	0.54	0.40	117	0.68	0.31	30371	0.66	0.39
21	1	MC	1	234	0.68	0.44	512	0.60	0.63	5177	0.43	0.40	578	0.61	0.44	115	0.72	0.52	30108	0.72	0.43
22	1	MC	1	235	0.36	0.40	506	0.42	0.29	5166	0.29	0.21	583	0.35	0.25	117	0.33	0.12	30257	0.39	0.29
23	1	MC	1	235	0.66	0.47	504	0.70	0.58	5163	0.57	0.40	583	0.64	0.45	117	0.72	0.45	30271	0.71	0.48
24	1	CR	2	206	0.13	0.32	466	0.24	0.41	4176	0.12	0.35	511	0.17	0.37	103	0.19	0.43	27892	0.19	0.40
1	2	MC	1	232	0.88	0.45	512	0.91	0.32	5186	0.89	0.35	585	0.92	0.35	114	0.94	0.22	30260	0.95	0.29
2	2	MC	1	232	0.88	0.39	512	0.90	0.46	5191	0.78	0.40	586	0.89	0.36	116	0.94	0.31	30280	0.92	0.37
3	2	CR	2	226	0.58	0.52	492	0.69	0.66	4782	0.47	0.56	566	0.58	0.63	112	0.67	0.49	29545	0.66	0.55
4	2	MC	1	232	0.72	0.19	512	0.72	0.16	5191	0.63	0.15	586	0.67	0.12	116	0.60	0.22	30286	0.71	0.21
5	2	MC	1	226	0.39	0.36	504	0.40	0.49	5046	0.20	0.32	567	0.32	0.41	115	0.46	0.51	29581	0.40	0.46

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Social Studies Grade 11 Impact Item Statistics—Race/Ethnicity
1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
6	2	MC	1	232	0.42	0.32	512	0.54	0.34	5171	0.40	0.14	586	0.44	0.19	116	0.47	0.27	30242	0.44	0.29
7	2	CR	2	210	0.44	0.44	467	0.53	0.43	4249	0.38	0.45	507	0.45	0.48	99	0.47	0.33	27897	0.51	0.41
8	2	MC	1	231	0.90	0.43	510	0.85	0.44	5171	0.82	0.32	583	0.84	0.41	115	0.93	0.33	30224	0.89	0.32
9	2	MC	1	230	0.66	0.36	510	0.65	0.56	5132	0.49	0.41	583	0.63	0.49	114	0.75	0.41	30168	0.71	0.44
10	2	CR	2	223	0.43	0.23	497	0.52	0.28	4877	0.44	0.27	562	0.46	0.31	111	0.47	0.39	29363	0.47	0.26
11	2	MC	1	232	0.59	0.43	511	0.61	0.40	5147	0.50	0.22	583	0.56	0.36	115	0.63	0.32	30227	0.60	0.33
12	2	MC	1	231	0.37	0.22	512	0.45	0.28	5160	0.32	0.17	585	0.36	0.27	116	0.41	0.29	30233	0.38	0.25
13	2	MC	1	231	0.72	0.49	511	0.66	0.63	5149	0.53	0.46	583	0.62	0.55	115	0.77	0.41	30226	0.76	0.44
14	2	CR	2	219	0.81	0.53	477	0.77	0.61	4483	0.65	0.58	539	0.79	0.56	111	0.85	0.41	28980	0.82	0.47
15	2	CR	2	217	0.53	0.54	495	0.60	0.51	4741	0.43	0.56	553	0.51	0.55	109	0.60	0.59	28859	0.55	0.55
16	2	MC	1	230	0.77	0.46	509	0.86	0.33	5129	0.70	0.33	584	0.78	0.33	116	0.81	0.42	30196	0.80	0.39
17	2	MC	1	230	0.65	0.51	512	0.71	0.52	5125	0.57	0.47	584	0.67	0.50	115	0.74	0.46	30203	0.70	0.48
18	2	MC	1	226	0.34	0.42	508	0.32	0.18	5068	0.16	0.13	571	0.30	0.19	112	0.34	0.48	29955	0.31	0.19
19	2	MC	1	231	0.67	0.54	510	0.66	0.42	5098	0.52	0.44	580	0.59	0.49	115	0.68	0.51	30137	0.70	0.47
20	2	CR	2	218	0.59	0.42	488	0.65	0.53	4698	0.56	0.38	544	0.62	0.37	111	0.60	0.40	28899	0.65	0.39
21	2	CR	2	213	0.20	0.40	463	0.24	0.43	4221	0.11	0.38	524	0.18	0.47	107	0.23	0.44	28244	0.20	0.41
22	2	MC	1	230	0.41	0.32	508	0.49	0.44	4999	0.33	0.13	575	0.41	0.26	115	0.43	0.24	30089	0.44	0.26
23	2	CR	2	186	0.38	0.50	440	0.56	0.44	3507	0.38	0.46	460	0.42	0.36	96	0.44	0.60	25652	0.47	0.44
24	2	MC	1	231	0.72	0.40	509	0.67	0.44	5064	0.61	0.38	573	0.69	0.45	113	0.66	0.53	30145	0.74	0.41
25	2	CR	0																		
1	3	MC	1	228	0.75	0.41	503	0.74	0.49	4997	0.62	0.34	573	0.73	0.42	113	0.84	0.37	29841	0.79	0.41
2	3	MC	1	229	0.70	0.58	503	0.72	0.63	4992	0.57	0.47	570	0.70	0.51	113	0.80	0.49	29807	0.79	0.51
3	3	MC	1	230	0.82	0.40	508	0.80	0.52	5101	0.72	0.36	576	0.79	0.47	115	0.84	0.35	30013	0.87	0.34
4	3	MC	1	230	0.50	0.14	508	0.57	0.17	5112	0.50	0.05	577	0.52	0.26	114	0.56	0.31	30044	0.56	0.20
5	3	MC	1	230	0.77	0.39	509	0.78	0.29	5099	0.77	0.29	577	0.78	0.29	114	0.81	0.32	29993	0.83	0.26
6	3	MC	1	230	0.77	0.46	509	0.83	0.39	5099	0.72	0.37	576	0.77	0.43	115	0.83	0.54	30027	0.80	0.42
7	3	MC	1	229	0.53	0.23	507	0.51	0.22	5036	0.70	0.38	568	0.52	0.25	115	0.54	0.14	29783	0.50	0.15
8	3	MC	1	230	0.48	0.54	510	0.54	0.39	5090	0.41	0.36	576	0.46	0.40	115	0.50	0.31	30026	0.54	0.38
9	3	MC	1	229	0.56	0.36	509	0.56	0.44	5071	0.41	0.32	576	0.52	0.39	113	0.56	0.36	29974	0.57	0.36
10	3	MC	1	230	0.88	0.48	509	0.85	0.54	5088	0.86	0.39	575	0.86	0.44	115	0.94	0.41	30010	0.94	0.35

Social Studies Grade 11 Impact Item Statistics—Race/Ethnicity

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1999 (Cont'd)

				American Indian Students			Asian Students			Black Students			Hispanic Students			Pacific Islander Students			White Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}	N	p-value	R_{it}
11	3	MC	1	230	0.77	0.34	508	0.67	0.41	5086	0.68	0.28	574	0.73	0.37	114	0.76	0.26	29999	0.77	0.29
12	3	MC	1	229	0.79	0.41	509	0.76	0.46	5080	0.73	0.37	575	0.75	0.45	115	0.78	0.48	29990	0.83	0.38
13	3	MC	1	230	0.56	0.24	509	0.64	0.17	5083	0.53	0.20	575	0.56	0.14	115	0.61	0.26	30008	0.59	0.24
14	3	MC	1	228	0.80	0.42	509	0.83	0.36	5081	0.76	0.37	574	0.81	0.42	114	0.90	0.45	30008	0.84	0.36
15	3	MC	1	230	0.70	0.41	508	0.70	0.53	5074	0.50	0.37	576	0.62	0.59	115	0.68	0.45	30002	0.72	0.44
16	3	MC	1	230	0.50	0.35	509	0.52	0.35	5073	0.32	0.28	575	0.41	0.44	114	0.53	0.32	30011	0.48	0.41
17	3	MC	1	229	0.50	0.48	508	0.53	0.55	5063	0.31	0.34	572	0.51	0.44	114	0.58	0.45	29989	0.54	0.50
18	3	MC	1	229	0.84	0.30	509	0.79	0.40	5080	0.80	0.24	575	0.87	0.26	115	0.91	0.23	30014	0.89	0.21
19	3	MC	1	229	0.81	0.16	510	0.84	0.24	5076	0.71	0.24	575	0.79	0.23	115	0.84	0.30	29998	0.82	0.23
20	3	MC	1	230	0.67	0.46	508	0.67	0.42	5083	0.50	0.30	576	0.63	0.41	115	0.66	0.43	29990	0.67	0.37
21	3	MC	1	227	0.59	0.47	505	0.65	0.40	5056	0.49	0.33	573	0.59	0.42	114	0.57	0.58	29955	0.64	0.40
22	3	MC	1	230	0.77	0.50	508	0.76	0.56	5077	0.63	0.51	574	0.71	0.57	115	0.84	0.56	30016	0.80	0.50
23	3	MC	1	230	0.40	0.32	507	0.37	0.39	5074	0.22	0.15	575	0.33	0.36	115	0.36	0.27	30009	0.42	0.34
24	3	MC	1	230	0.46	0.35	505	0.57	0.33	5066	0.36	0.21	574	0.50	0.28	115	0.48	0.16	29984	0.49	0.30
25	3	MC	1	229	0.83	0.46	505	0.85	0.46	5019	0.73	0.41	569	0.82	0.45	114	0.87	0.38	29772	0.87	0.42

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Social Studies Grade 11 Impact Item Statistics—Gender
1999

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
1	1	MC	1	19358	0.35	0.30	19699	0.26	0.30
2	1	MC	1	19224	0.87	0.23	19616	0.83	0.25
3	1	MC	1	19354	0.94	0.28	19696	0.95	0.25
4	1	MC	1	19351	0.54	0.38	19698	0.37	0.36
5	1	MC	1	19334	0.77	0.37	19694	0.74	0.31
6	1	MC	1	19334	0.71	0.34	19688	0.67	0.34
7	1	MC	1	19039	0.86	0.43	19556	0.85	0.44
8	1	MC	1	19308	0.58	0.21	19650	0.53	0.18
9	1	CR	2	15665	0.24	0.44	16695	0.19	0.45
10	1	MC	1	19252	0.79	0.45	19598	0.80	0.41
11	1	CR	2	17492	0.40	0.52	18815	0.41	0.47
12	1	CR	2	18403	0.51	0.42	18934	0.49	0.40
13	1	CR	2	17751	0.65	0.54	18441	0.59	0.55
14	1	MC	1	19276	0.53	0.36	19651	0.50	0.35
15	1	MC	1	19257	0.59	0.33	19619	0.57	0.32
16	1	MC	1	19249	0.36	0.19	19631	0.34	0.14
17	1	MC	1	19273	0.74	0.40	19643	0.65	0.44
18	1	MC	1	19272	0.39	0.37	19657	0.33	0.37
19	1	MC	1	19255	0.68	0.37	19648	0.68	0.32
20	1	MC	1	19277	0.67	0.42	19647	0.56	0.40
21	1	MC	1	19054	0.69	0.46	19530	0.65	0.46
22	1	MC	1	19170	0.37	0.34	19554	0.38	0.25
23	1	MC	1	19178	0.67	0.49	19555	0.71	0.46
24	1	CR	2	16727	0.16	0.39	18301	0.20	0.42
1	2	MC	1	19180	0.92	0.34	19563	0.95	0.28
2	2	MC	1	19213	0.91	0.40	19566	0.88	0.40
3	2	CR	2	18465	0.64	0.57	19053	0.63	0.58
4	2	MC	1	19219	0.71	0.22	19567	0.68	0.20
5	2	MC	1	18655	0.40	0.47	19192	0.35	0.45
6	2	MC	1	19186	0.47	0.31	19527	0.41	0.23
7	2	CR	2	16757	0.46	0.44	18361	0.52	0.44
8	2	MC	1	19169	0.88	0.36	19520	0.88	0.30
9	2	MC	1	19117	0.69	0.47	19472	0.67	0.46
10	2	CR	2	18251	0.43	0.26	19173	0.51	0.27
11	2	MC	1	19164	0.63	0.35	19501	0.55	0.29
12	2	MC	1	19175	0.40	0.28	19516	0.35	0.20
13	2	MC	1	19158	0.73	0.49	19510	0.72	0.46
14	2	CR	2	17977	0.79	0.52	18582	0.81	0.51

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Social Studies Grade 11 Impact Item Statistics—Gender
1999 (Cont'd)

				Male Students			Female Students		
Item No.	Sess	Type	Pts	N	p-value	R_{it}	N	p-value	R_{it}
15	2	CR	2	17753	0.51	0.57	18974	0.56	0.55
16	2	MC	1	19124	0.76	0.43	19491	0.81	0.34
17	2	MC	1	19115	0.68	0.52	19502	0.68	0.45
18	2	MC	1	18921	0.32	0.21	19358	0.27	0.20
19	2	MC	1	19062	0.64	0.50	19451	0.70	0.45
20	2	CR	2	17751	0.61	0.42	18953	0.66	0.38
21	2	CR	2	17320	0.20	0.44	18122	0.17	0.40
22	2	MC	1	19000	0.48	0.29	19342	0.37	0.22
23	2	CR	2	15328	0.43	0.47	16494	0.48	0.45
24	2	MC	1	19043	0.74	0.43	19424	0.70	0.40
25	2	CR	1	119	0.01	0.19	67	0.02	0.07
1	3	MC	1	18824	0.79	0.43	19257	0.74	0.42
2	3	MC	1	18797	0.78	0.52	19235	0.74	0.53
3	3	MC	1	19009	0.85	0.38	19371	0.84	0.37
4	3	MC	1	19032	0.56	0.21	19393	0.54	0.16
5	3	MC	1	18992	0.80	0.33	19373	0.84	0.22
6	3	MC	1	19018	0.79	0.45	19377	0.79	0.38
7	3	MC	1	18818	0.53	0.15	19237	0.53	0.11
8	3	MC	1	19018	0.50	0.40	19370	0.54	0.38
9	3	MC	1	18948	0.57	0.38	19358	0.53	0.36
10	3	MC	1	19000	0.91	0.40	19368	0.94	0.34
11	3	MC	1	18983	0.77	0.33	19367	0.74	0.27
12	3	MC	1	18972	0.80	0.43	19365	0.83	0.35
13	3	MC	1	18999	0.57	0.27	19355	0.59	0.20
14	3	MC	1	18992	0.82	0.41	19360	0.84	0.32
15	3	MC	1	18975	0.71	0.48	19364	0.67	0.44
16	3	MC	1	18978	0.48	0.42	19368	0.44	0.38
17	3	MC	1	18961	0.55	0.50	19351	0.47	0.49
18	3	MC	1	18989	0.91	0.27	19370	0.84	0.21
19	3	MC	1	18970	0.80	0.26	19368	0.82	0.24
20	3	MC	1	18980	0.66	0.38	19361	0.64	0.37
21	3	MC	1	18934	0.62	0.42	19328	0.62	0.38
22	3	MC	1	18990	0.74	0.55	19367	0.81	0.49
23	3	MC	1	18985	0.44	0.36	19360	0.34	0.32
24	3	MC	1	18958	0.50	0.33	19352	0.44	0.26
25	3	MC	1	18791	0.83	0.48	19237	0.87	0.39

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Administration

Please see the separately published MAP *Test Guide to Interpretation*

Scoring

Reliability of Constructed Response Scoring

One indicator of reliability of scoring is the percent of perfect agreement between two readings for each constructed-response question. The median across all constructed-response questions for each MAP operational test in each grade for 1998 is provided below.

Median percent of perfect agreement 1998 and 1999

MAP Subject Area	Grade	1998	1999
Math	4	91.0	95.6
	8	87.3	89.0
	10	83.8	84.4
CommArts	3	71.6	82.9
	7	70.2	71.4
	11	67.4	75.0
Science	3	89.6	88.8
	7	82.1	82.0
	10	84.0	81.8
Social Studies	4		78. 8
	8		78.0
	11		75.2

Constructed Response Scoring reliabilities are based on the score-rescore correlations for constructed response questions only. These correlations were found by determining the raw scores over the constructed-response questions for each of the two readings given during the 1999 inter-rater reliability study. As predicted the score-rescore reliabilities for Communication Arts and Social Studies are lower than for Mathematics and Science. These reliabilities could be used to establish a confidence interval for scale scores for each of the tests within which no change would be reported under rescoring.

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Constructed Response Score-Rescore Reliability 1999

MAP Subject Area	Grade	1999
Math	4	0.980
	8	0.977
	10	0.980
CommArts	3	0.944
	7	0.904
	11	0.926
Science	3	0.968
	7	0.950
	10	0.944
Social Studies	4	0.913
	8	0.933
	11	0.930

Consequential Benefits

The collection of evidence of the consequential benefits of MAP has been undertaken by the Center for Learning, Evaluation, and Assessment Research: Department of Educational and Counseling Psychology, College of Education, University of Missouri—Columbia. Reports of their Consequential Validity Study may be obtained by inquiring to the Missouri Department of Elementary and Secondary Education.

External Variable

Published separately is CTB's Technical Report: *Linking the Grade 8 Missouri Mathematics Assessment to TIMSS,* submitted to the Missouri Department of Elementary and Secondary Education, March 26, 1998. This publication provides content matches between the two tests, descriptions of samples, and linking tables. Linking tables also exist for MAP and *TerraNova*, CTB/McGraw-Hill's nationally standardized tests in reading/language arts, mathematics, science, and social studies.

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