Local Systemic Change
Descriptions and Definitions of Questionnaire Composites

To facilitate the reporting of large amounts of survey data, and because individual questionnaire items are potentially unreliable, HRI has combined a number of survey questions into "composites." Each composite represents an important construct related to one of the core evaluation questions[1] (e.g., quality of professional development). The composites derived from the teacher and principal questionnaires are described in the following pages. Composites have remained the same since the 1997-1998 data collection year, and individual items have maintained the same questionnaire number since 1998-1999.

For your convenience, we have included the following table and procedure as a quick reference guide for determining whether there is a statistically significant change in a composite score over time.[2] This procedure assumes that the Valid N's and the variances of the two groups are roughly equal. If this is not the case for your data, you may need to consult an introductory level statistics text for the appropriate procedures.

To use this procedure, you will need the following data from your composite tables:

1. The **smaller** of the two years' Valid N's,
2. The **larger** of the two years' standard deviations, and
3. The **absolute value** of the difference between the composite means (|year 1 – year2|).

Using Table 1, find the row under "N" which contains the value closest to your Valid N (item 1 above). Also locate the column under "Standard Deviation" that is nearest to the standard deviation (item 2 above). Then look at the number in the cell where the "N" row and the "Standard Deviation" column meet. If the difference in means (item 3 above) is greater than this value, that difference is statistically significant at the $p \leq .05$ level.

As an example, let's say a project has the following data for Composite 3:

	Valid N	Mean	Standard Deviation
2000	269	83.50	11.25
2001	257	88.24	12.07

[1] Core evaluation questions may be found under Tab 1 of the Core Evaluation Data Collection Manual (online at http://www.horizon-research.com/LSC).

[2] If the project has questionnaire data from the entire population of targeted teachers rather than from a sample, there is no need to run a significance test. Instead, the project need only consider whether the difference is substantial.

To use the table below, one would identify the following:

1. The **smaller** of the two Valid N's. In this case that would be **257**.
2. The **larger** of the two Standard Deviations. In this case that would be **12.07**.
3. The **absolute value** of the difference between the two means: **88.24 – 83.50 = 4.74**.

Look at the cell in Table 1 defined by the smaller sample size (257 is closest to **250**) and the larger standard deviation (12.07 is closest to **12**) and see a value of **2.1**. Since the difference between the means is larger than this value (**4.74 > 2.1)**, the project has shown a statistically significant increase in Composite 3 from 2000 to 2001.[3]

Table 1
Differences Between Means That Must Be Exceeded
In Order for That Difference To Be Statistically Significant at p ≤ .05

N	Standard Deviation										
	2	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**
100	0.6	1.1	1.7	2.2	2.8	3.4	3.9	4.5	5.1	5.6	6.2
125	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
150	0.5	0.9	1.4	1.8	2.3	2.7	3.2	3.7	4.1	4.6	5.0
175	0.4	0.8	1.3	1.7	2.1	2.5	3.0	3.4	3.8	4.2	4.6
200	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2	3.5	3.9	4.3
225	0.4	0.7	1.1	1.5	1.9	2.2	2.6	3.0	3.3	3.7	4.1
250	0.4	0.7	1.1	1.4	1.8	2.1	2.5	2.8	3.2	3.5	3.9
275	0.3	0.7	1.0	1.3	1.7	2.0	2.4	2.7	3.0	3.4	3.7
300	0.3	0.6	1.0	1.3	1.6	1.9	2.2	2.6	2.9	3.2	3.5
325	0.3	0.6	0.9	1.2	1.5	1.9	2.2	2.5	2.8	3.1	3.4
350	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3

NOTE: This simplified procedure is meant as a quick guide for comparison of two sets of data only. If you choose to compare data from several years, you should select a multiple comparisons test rather than trying to repeat this procedure multiple times.

[3] If the two values are similar in magnitude, we recommend consulting a statistics text to find a procedure for an exact test. The values in the table are approximations, as are the numbers you have used to enter into the table.

A. Teacher Questionnaire Composites

Composite	Core Evaluation Question	Definition
T1	**I**	**Quality of LSC Professional Development** Teacher ratings of the extent to which they are: • Involved in planning professional development • Encouraged to develop an individualized plan • Given time to work with other teachers and reflect on what they have learned • Receiving follow-up support
T2	**III**	**Attitudes Toward Teaching** Teacher ratings of importance of various reform-oriented strategies for effective science (mathematics) instruction, including: • Providing concrete experiences before abstract treatment • Developing conceptual understanding • Engaging students in hands-on and inquiry-oriented activities • Applying subject in a variety of contexts • Using computers, hands-on, cooperative groups, other inquiry-oriented activities • Using a variety of assessment strategies • Making connections between science/mathematics and other disciplines
T3	**III**	**Preparedness-Pedagogical Content** Teacher ratings of their preparedness, including: • Providing concrete experiences before abstract treatment • Developing conceptual understanding • Taking students' prior conceptions into account • Introducing applications/making connections with other disciplines • Using hands-on classroom activities • Using cooperative learning groups • Using computers • Having students take responsibility for their own learning
T4	**III**	**Preparedness-Knowledge of Science/Mathematics Content** Teacher ratings of their preparedness to teach: • K–8 science: Human body, ecology, rocks and soil, astronomy, processes of change over time (e.g., evolution), mixtures and solutions, electricity, sound, forces and motion, machines, engineering and design principles (e.g., structures, models) • K–8 mathematics: pre-algebra, algebra, geometry and spatial sense, data collection and analysis, probability, technology in support of mathematics • 6–12 mathematics*: pre-algebra, algebra, patterns and relationships, geometry and spatial sense, functions, data collection and analysis, probability, statistics, topics from discrete mathematics, mathematical structures, calculus, technology in support of mathematics • 6–12 science: for this composite, teacher scores were based on items relevant to the class they described in Question 17 (e.g., Life Science/Biology) and items about scientific methods and inquiry skills (i.e., formulating hypotheses, drawing conclusions, making generalizations, experimental design, describing, graphing, and interpreting data). See T4 of Composite Definitions for a complete list of items.

* Two versions of Composite T4 were created for 6–12 mathematics. One contains items found on the K–8 mathematics questionnaire to enable comparisons between grade level groups; the other includes a broader range of topics more applicable for secondary mathematics.

Composite	Core Evaluation Question	Definition
T5	**III**	**Traditional Teaching Practices** Teacher ratings of the frequency that they: • Assign homework • Have students do textbook/worksheet problems • Review homework/worksheet assignments during class • Use short-answer tests
T6	**III**	**Investigative Culture** The frequency that teachers report doing activities such as the following in their mathematics/science classes: • Arrange seating to facilitate student discussion • Use open-ended questions with multiple right answers • Require students to explain their reasoning • Encourage students to explain concepts to one another • Encourage students to consider alternative explanations/methods • Work in cooperative learning groups
T7a	**IV**	**Investigative Practices** The frequency that teachers report having their students do the following types of activities in their mathematics/science classes: • Engage in hands-on activities • Design and/or implement their own investigation • Work on extended investigations, projects, or participate in field work • Work on models or simulations • Write reflections in a journal or notebook • Work on portfolios
T7b	**IV**	**Use of Calculators/Computers—Mathematics Only** The frequency that teachers report doing the following types of activities in their mathematics classes: • Use calculators or computers for learning or practicing skills • Use calculators or computers to develop conceptual understanding • Use calculators or computers as a tool (e.g., spreadsheets, data analysis)
T8	**IV**	**Collegiality** The extent to which teachers feel that teachers in the school: • Have a shared vision of effective science/mathematics instruction • Regularly share ideas and materials • Provide support for trying out new ideas
T9	**V**	**Principal Support** The extent to which teachers feel that their principal: • Encourages them to select content and instructional strategies that address individual students' learning • Accepts noise that comes with an active classroom • Encourages the implementation of national standards • Encourages innovative instructional practices and connections across disciplines • Provides needed materials and equipment • Encourages observation of exemplary teachers • Acts as a buffer between teachers and external pressures

Composite	Core Evaluation Question	Definition
T10	**V**	**Effect of Resource Availability** The extent to which teachers feel that: • Time is available for them to plan or prepare lessons • Opportunities are available to work with other teachers • Opportunities for professional development are available • The school places importance on mathematics/science
T11	**V**	**Parent Support*** K–8 science, 6–12 science, K–8 mathematics, and 6–12 mathematics (Version A)—The extent teachers report that students' parents: • Volunteer in their classroom • Donate money or materials for instruction • Attend parent-teacher conferences • Attend school activities • Voice support for an investigative approach to science/mathematics 6–12 mathematics (Version B)—The extent teachers report that students' parents: • Attend parent-teacher conferences • Attend school activities • Voice support for an investigative approach to mathematics
T12	**V**	**Department Chair Support—6–12 Mathematics and 6–12 Science Only** The extent to which teachers feel that their department chair: • Encourages them to select content and instructional strategies that address individual students' learning • Accepts noise that comes with an active classroom • Encourages the implementation of national standards • Encourages innovative instructional practices and connections across disciplines • Provides needed materials and equipment • Encourages observation of exemplary teachers • Encourages making connections across disciplines

* Version A can be used for comparisons to K–8 science, 6–12 science, and K–8 mathematics. It includes items that did not appear in the 6–12 mathematics questionnaire prior to 1999. Therefore, 6–12 mathematics projects need to use Version B in trend comparisons that go back further than 1999.

B. Principal Questionnaire Composites[4]

Composite	Core Evaluation Question	Definition
P1	**V**	**Attitudes Toward Teaching** Principals' ratings of the importance of various reform-oriented strategies for effective science (mathematics) instruction, including: • Making connections with other disciplines • Using computers, hands-on, cooperative, group-work, other inquiry-oriented activities • Using a variety of assessment strategies including portfolios, performance-based assessment, and informal questioning
P2	**V**	**Principal Support** The extent to which principals: • Believe that encouraging students' questions is more important than eliciting correct answers • Accept the noise that comes with active classrooms • Are knowledgeable about current national standards • Feel well prepared to support teachers in implementing national standards
P3	**V**	**Effect of Resource Availability** The extent to which principals believe that various school policies and practices inhibit or encourage effective instruction, including: • Quality of instructional materials • Funds for purchasing equipment and supplies • Time available for teachers to plan and prepare lessons • Opportunities for teachers to work with other teachers • Consistency of reform efforts

The composites are calculated as percentages of total points possible. An individual teacher's composite score is calculated by summing his/her responses on these items and then dividing by the total points possible. For example, if a composite is based on six survey questions asked on a five-point scale of "strongly disagree" to "strongly agree," that composite has 30 total possible points. If a teacher's raw composite score on these six items adds to 24 points, the percentage score is 80 ($24 \div 30 \times 100\%$).

The first composite table for each year and each questionnaire shows the mean, standard deviation, and number of cases included in the calculation of each composite. The second table shows the distribution of scores for each composite. For example, an 11 appearing in the "<40%" column for Composite 8 indicates that 11 percent of teachers in that project received less than 40 percent of the total points possible for that composite.

It is important to note that a higher score on a composite is interpreted as "more of" that composite. For example, a score of 95 on Composite 11 (parent support) indicates a higher level of parent involvement than does a score of 80. Likewise, a score of 90 on Composite 5 indicates a greater level of use of traditional teaching practices than does a score of 70.

[4] As of the 1999-2000 data collection year, there are two versions of the LSC Principal Questionnaire. Only the long version (administered to principals of Baseline Year, Year Two, and Final Year projects) contains *all* items included in the principal composites. Therefore, no principal composites are provided for the short version of the Principal Questionnaire (Year One and Interim Year projects).

Local Systemic Change
Definitions of Questionnaire Composites[5]

A. Definitions of Teacher Composites

Core Evaluation Question I

Composite T1: Quality of LSC Professional Development	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
I am involved in planning my science/mathematics-related professional development.	23a	22a	21a	21a
I am encouraged to develop an individual professional development plan to address my needs and interests related to science/mathematics education.	23b	22b	21b	21b
I am given time to work with other teachers as part of my professional development.	23c	22c	21c	21c
I am given time to reflect on what I've learned and how to apply it to the classroom.	23d	22d	21d	21d
I receive support as I try to implement what I've learned.	23e	22e	21e	21e
Number of Items in Construct	**5**	**5**	**5**	**5**
Maximum Score	**25**	**25**	**25**	**25**

Core Evaluation Question III

Composite T2: Attitudes Towards Teaching	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
Provide concrete experience before abstract concepts.	7ia	7ia	8ia	8ia
Develop students' conceptual understanding of science/mathematics.	7ib	7ib	8ib	8ib
Make connections between science/mathematics and other disciplines.	7id	7ie	8ie	8id
Have students work in cooperative learning groups.	7ie	7if	8if	8ie
Have students participate in appropriate hands-on activities.	7if	7ig	8ig	8if
Engage students in inquiry-oriented activities.	7ig	7ih	8ih	8ig
Use computers.	7ih	7ij	8ik	8ij
Engage students in applications of science/mathematics in a variety of contexts.	7ii	7ik	8il	8ik
Use portfolios.	7ik	7im	8in	8im
Use informal questioning to assess student understanding.	7il	7in	8io	8in
Number of Items in Construct	**10**	**10**	**10**	**10**
Maximum Score	**40**	**40**	**40**	**40**

[5] Composite definitions have remained the same since the 1997-1998 data collection year; individual items have maintained the same questionnaire number since 1998-1999. For information about composites prior to 1997, please see the document entitled "1996-1999 Definitions of Teacher and Principal Composites" (online at http://www.horizon-research.com/LSC/news/composites/1996-1999composites.pdf).

Composite T3: Pedagogical Preparedness	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
Provide concrete experience before abstract concepts.	7pa	7pa	8pa	8pa
Develop students' conceptual understanding of science/mathematics.	7pb	7pb	8pb	8pb
Take students' prior understanding into account when planning curriculum and instruction.	7pc	7pc	8pc	8pc
Make connections between science/mathematics and other disciplines.	7pd	7pe	8pe	8pd
Have students work in cooperative learning groups.	7pe	7pf	8pf	8pe
Have students participate in appropriate hands-on activities.	7pf	7pg	8pg	8pf
Engage students in inquiry-oriented activities.	7pg	7ph	8ph	8pg
Engage students in applications of science/mathematics in a variety of contexts.	7pi	7pk	8pl	8pk
Use performance-based assessment.	7pj	7pl	8pm	8pl
Use portfolios.	7pk	7pm	8pn	8pm
Use informal questioning to assess student understanding.	7pl	7pn	8po	8pn
Lead a class of students using investigative strategies.	11a	12a	14a	12a
Manage a class of students engaged in hands-on/project-based work.	11b	12b	14b	12b
Help students take responsibility for their own learning.	11c	12c	14c	12c
Recognize and respond to student diversity.	11d	12d	14d	12d
Encourage students' interest in science/mathematics.	11e	12e	14e	12e
Use strategies that specifically encourage participation of females and minorities in science/mathematics.	11f	12f	14f	12f
Involve parents in the science/mathematics education of their students.	11g	12g	14g	12g
Number of Items in Construct	**18**	**18**	**18**	**18**
Maximum Score	**72**	**72**	**72**	**72**

Composite T4: Content Preparedness	**K-8 Science**	**K-8 Math**	**6-12 Math***
The human body	10a		
Ecology	10b		
Rocks and soils	10c		
Astronomy	10d		
Processes of change over time (e.g., evolution)	10e		
Mixtures and solutions	10f		
Electricity	10g		
Sound	10h		
Forces and motion	10i		
Machines	10j		
Engineering and design principles (e.g., structures, models)	10k		
Estimation			12a
Measurement			12b
Pre-algebra		10e	12c
Algebra		10f	12d
Patterns and relationships			12e
Geometry and spatial sense		10h	12f
Functions (including trigonometric functions) and pre-calculus concepts			12g
Data collection and analysis		10i	12h
Probability		10j	12i
Statistics (e.g., hypothesis tests, curve fitting and regression)			12j
Topics from discrete mathematics (e.g., combinatorics, graph theory, recursion)			12k
Mathematical structures (e.g., vector spaces; groups, rings, fields)			12l
Calculus			12m
Technology (calculators, computers) in support of mathematics		10k	12n
Number of Items in Construct	**11**	**6**	**14 (6)**
Maximum Score	**44**	**24**	**56 (24)**

* There are two versions of the 6-12 mathematics composite. One contains items found on the K-8 mathematics questionnaire to enable comparison between grade level groups; the other includes a broader range of topics more applicable for secondary mathematics.

Composite T4 – 6-12 Science*: Content Preparedness	**Bio/ Life Sci**	**Earth Sci**	**Env Sci**	**Chem**	**Physics**	**Phys Sci**	**Integ. Sci**	**Tech**
Earth's features and physical processes		13a1	13a1			13a1	13a1	
The solar system and universe		13a2				13a2	13a2	
Climate and weather		13a3	13a3			13a3	13a3	
Structure and function of human systems	13b1						13b1	
Plant biology	13b2						13b2	
Animal behavior	13b3						13b3	
Interactions of living things/ecology	13b4		13b4				13b4	
Genetics and evolution	13b5						13b5	
Structure of matter and chemical bonding				13c1		13c1	13c1	
Properties and states of matter				13c2		13c2	13c2	
Chemical reactions				13c3		13c3	13c3	
Energy and chemical change				13c4		13c4	13c4	
Forces and motion					13d1	13d1	13d1	13d1
Energy					13d2	13d2	13d2	13d2
Light and sound					13d3	13d3	13d3	13d3
Electricity and magnetism					13d4	13d4	13d4	13d4
Modern physics (e.g., special relativity)					13d5	13d5	13d5	
Pollution, acid rain, global warming			13e1				13e1	
Population, food supply and production			13e2				13e2	
Formulating hypotheses, drawing conclusions, making generalizations	13f1	13f1	13f1	13f1	13f1	13f1	13f1	13f1
Experimental design	13f2	13f2	13f2	13f2	13f2	13f2	13f2	13f2
Describing, graphing, and interpreting data	13f3	13f3	13f3	13f3	13f3	13f3	13f3	13f3
Number of Items in Construct	**8**	**6**	**8**	**7**	**8**	**15**	**22**	**7**
Maximum Score	**32**	**24**	**32**	**28**	**32**	**60**	**88**	**28**

* This composite was computed for each teacher based upon the subject of his or her first science class of the day. Because the number of teachers in any specific content area may be low within a project, project results are combined into one content composite.

Composite T5: Traditional Practices	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
Assign science/mathematics homework.	21n	20m	19m	19n
Answer textbook/worksheet questions Practice routine computations/algorithms.	22g	21g	20g	20g
Review homework/worksheet assignments.	22h	21h	20h	20h
Take short-answer tests (e.g., multiple choice, true/false, fill-in-the-blank).	22x	21z	20z	20y
Number of Items in Construct	**4**	**4**	**4**	**4**
Maximum Score	**20**	**20**	**20**	**20**

Composite T6: Investigative Culture	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
Arrange seating to facilitate student discussion.	21e	20c	19c	19e
Use open-ended questions.	21f	20d	19d	19f
Require students to supply evidence to support their claims.* Require students to explain their reasoning when giving an answer*	21g	20e	19e	19g
Encourage students to explain concepts to one another.* Encourage students to communicate mathematically*	21h	20f	19f	19h
Encourage students to consider alternative explanations.* Encourage students to explore alternative methods for solutions.*	21i	20g	19g	19i
Participate in discussions with the teacher to further science/mathematical understanding.	22b	21b	20b	20b
Work in cooperative learning groups.	22c	21c	20c	20c
Share ideas or solve problems with each other in small groups.	22j	21k	20k	20j
Number of Items in Construct	**8**	**8**	**8**	**8**
Maximum Score	**40**	**40**	**40**	**40**

* The mathematics and science versions of this question are considered equivalent, worded appropriately for that discipline.

Composite T7(a): Investigative Practices	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
Make formal presentations to the class.	22d	21d	20d	20d
Engage in hands-on science/mathematical activities.	22k	21l	20l	20k
Design or implement their own investigation.	22m	21o	20o	20m
Work on models or simulations.	22o	21p	20p	20o
Work on extended science/mathematics investigations or projects (a week or more in duration).	22p	21q	20q	20p
Participate in field work.	22q	21r	20r	20q
Write reflections in a notebook or journal.	22s	21u	20u	20s
Work on portfolios.	22w	21y	20y	20x
Number of Items in Construct	**8**	**8**	**8**	**8**
Maximum Score	**40**	**40**	**40**	**40**

Composite T7(b): Use of Calculators/Computers	**K-8 Math**	**6-12 Math**
Use calculators or computers for learning or practicing skills.	21v	20v
Use calculators or computers to develop conceptual understanding.	21w	20w
Use calculators or computers as a tool (e.g., spreadsheets, data analysis).	21x	20x
Number of Items in Construct	**3**	**3**
Maximum Score	**15**	**15**

Composite T8: Collegiality	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
I feel supported by colleagues to try out new ideas in teaching science/mathematics.	6b	6b	7b	7b
Teachers in this school have a shared vision of effective science/mathematics instruction.	6c	6c	7c	7c
Teachers in this school regularly share ideas and materials related to science/mathematics.	6d	6d	7d	7d
Number of Items in Construct	**3**	**3**	**3**	**3**
Maximum Score	**15**	**15**	**15**	**15**

Composite T9: Principal Support	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
My principal encourages me to select science/mathematics content and instructional strategies that address individual students' learning.	8a	8a	9a	9a
My principal accepts the noise that comes with an active classroom.	8b	8b	9b	9b
My principal encourages the implementation of current national standards in science/mathematics education.	8c	8c	9c	9c
My principal encourages innovative instructional practices.	8d	8d	9d	9d
My principal enhances the science/mathematics program by providing me with needed materials and equipment.	8e	8e	9e	9e
My principal provides time for teachers to meet and share ideas with one another.	8f	8f	9f	9f
My principal encourages me to observe exemplary science/mathematics teachers.	8g	8g	9g	9g
My principal encourages teachers to make connections across disciplines.	8h	8h	9h	9h
My principal acts as a buffer between teachers and external pressures (e.g., parents).	8i	8i	9i	9i
Number of Items in Construct	**9**	**9**	**9**	**9**
Maximum Score	**45**	**45**	**45**	**45**

Composite T10: Effect of Resource Availability	**K-8 Science**	**K-8 Math**	**6-12 Math**	**6-12 Science**
Time available for teachers to plan and prepare lessons.	12g	13h	15j	14j
Time available for teachers to work with other teachers.	12h	13i	15k	14k
Time available for teacher professional development.	12i	13j	15l	14l
Importance that the school places on science/mathematics.	12j	13k	15m	14m
Number of Items in Construct	**4**	**4**	**4**	**4**
Maximum Score	**20**	**20**	**20**	**20**

Composite T11: Parent Support	**K-8 Science**	**K-8 Math**	**6-12 Math***	**6-12 Science**
Volunteer to assist with class activities.	13a	14a	16a	15a
Donate money or materials for classroom instruction.	13b	14b	16b	15b
Attend parent-teacher conferences.	13c	14c	16c	15c
Attend school activities such as PTA meetings and Family Science/Mathematics nights.	13d	14d	16d	15d
Voice support for the use of an investigative approach to science/mathematics instruction.	13e	14e	16e	15e
Number of Items in Construct	**5**	**5**	**5**	**5**
Maximum Score	**25**	**25**	**25**	**25**

* There are two versions of the 6-12 mathematics composite. Version A can be used for comparison to K-8 science, 6-12 science, and K-8 mathematics. It includes items that did not appear in the 6-12 mathematics questionnaire prior to the 1998-1999 data collection year. Therefore, 6-12 mathematics projects need to use Version B in trend comparisons that go back further than 1998-1999.

Composite T12: Departmental Chair Support	**6-12 Math**	**6-12 Science**
My department chair encourages me to select science/mathematics content and instructional strategies that address individual students' learning.	11a	11a
My department chair accepts the noise that comes with an active classroom.	11b	11b
My department chair encourages the implementation of current national standards in science/mathematics education.	11c	11c
My department chair encourages innovative instructional practices.	11d	11d
My department chair enhances the science/mathematics program by providing me with needed materials and equipment.	11e	11e
My department chair provides time for teachers to meet and share ideas with one another.	11f	11f
My department chair encourages me to observe exemplary science/mathematics teachers.	11g	11g
My department chair encourages teachers to make connections across disciplines.	11h	11h
Number of Items in Construct	**8**	**8**
Maximum Score	**40**	**40**

B. Definitions of Principal Composites[6]

Core Evaluation Question V

Composite P1: **Attitudes Toward Teaching**	**Science**	**Mathematics**
Make connections to other disciplines.	5sd	5md
Have students work in cooperative learning groups.	5se	5me
Have students participate in appropriate hands-on activities.	5sf	5mf
Engage students in inquiry-oriented activities.	5sg	5mg
Use calculators.	5sh	5mh
Use computers.	5si	5mi
Engage students in applications of subject matter in a variety of contexts.	5sj	5mj
Use performance-based assessment.	5sk	5mk
Use portfolios.	5sl	5ml
Use informal questioning to assess student understanding.	5sm	5mm
Number of Items in Composite	**10**	**10**
Maximum Score	**40**	**40**

Composite P2: **Principal Support**	**Science**	**Mathematics**
I am knowledgeable about the current national standards in this content area.	1sb	1mb
I feel well prepared to support teachers in the implementation of current national standards.	1sc	1mc
I am willing to accept the noise that comes with an active classroom.	1sd	1md
Encouraging student questions is more important than eliciting correct answers.	1se	1me
Number of Items in Composite	**4**	**4**
Maximum Score	**20**	**20**

[6] As of the 1999-2000 data collection year, there are two versions of the LSC Principal Questionnaire. Only the long version (administered to principals of Baseline Year, Year Two, and Final Year projects) contains *all* items included in the principal composites. Therefore, no principal composites are provided for the short version of the Principal Questionnaire (Year One and Interim Year projects).

Composite P3: **Effect of Resource Availability**	**Science**	**Mathematics**
Quality of available instructional materials.	7g	6g
Access to calculators for science/mathematics instruction	*	6h
Access to computers for science/mathematics instruction.	7i	6i
Funds for purchasing equipment and supplies for science/mathematics.	7j	6j
System of managing instructional resources at the district or school level.	7k	6k
Time available for teachers to plan and prepare lessons.	7l	6l
Time available for teachers to work with other teachers.	7m	6m
Time available for teacher professional development.	7n	6n
Importance that the school places on science/mathematics.	7o	6o
Consistency of science/mathematics reform efforts with other school/district reforms.	7p	6p
Public attitudes toward reform.	7q	6q
Number of Items in Composite	**10**	**11**
Maximum Score	**50**	**55**

* The science version of this composite is based upon only 10 items, because this item did not appear on the principal questionnaire in regards to science instruction before 1998-1999.