

## Appendix E

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# Description of Reporting Variables

## A. Region

Each sample school and teacher was classified as belonging to 1 of 4 census regions.

- Midwest: IA, IL, IN, KS, MI, MN, MO, ND, NE, OH, SD, WI
- Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, VT
- South: AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, SC, TN, VA, WV
- West: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OK, OR, TX, UT, WA, WY

## B. Type of Community

Each sample school and teacher was classified as belonging to one of three types of communities.

- Urban: Central city
- Suburban: Area surrounding a central city, but still located within the counties constituting a Metropolitan Statistical Area (MSA)
- Rural: Area outside any MSA

## C. Grade Range

Teachers were classified by grade range according to the information they provided about their teaching schedule. Most of the analyses in this report used the grade ranges K–4, 5–8, and 9–12 with teachers and classes being categorized based on the grade range information provided by the teacher.

## D. Teach Advanced High School Mathematics

High school mathematics teachers who are assigned to teach Algebra II, Algebra III, Pre-Calculus, and/or Calculus were categorized as teaching “advanced” high school mathematics.

## **E. Overview of Composites**

To facilitate the reporting of large amounts of survey data, and because individual questionnaire items are potentially unreliable, HRI used factor analysis to identify survey questions that could be combined into “composites.” Each composite represents an important construct related to mathematics or science education. Composites were calculated for both the science and mathematics versions of the teacher questionnaire and for the program questionnaire completed by each responding school in the sample.

Each composite is calculated by summing the responses to the items associated with that composite and then dividing by the total points possible. In order for the composites to be on a 100-point scale, the lowest response option on each scale was set to 0 and the others were adjusted accordingly; so for instance, an item with a scale ranging from 1 to 4 was re-coded to have a scale of 0 to 3. By doing this, someone who marks the lowest point on every item in a composite receives a composite score of 0 rather than some positive number. It also assures that 50 is the true mid-point. The denominator for each composite is determined by computing the maximum possible sum of responses for a series of items and dividing by 100; e.g., a 9-item composite where each item is on a scale of 0–3 would have a denominator of 0.27.

## F. Definitions of Teacher Composites

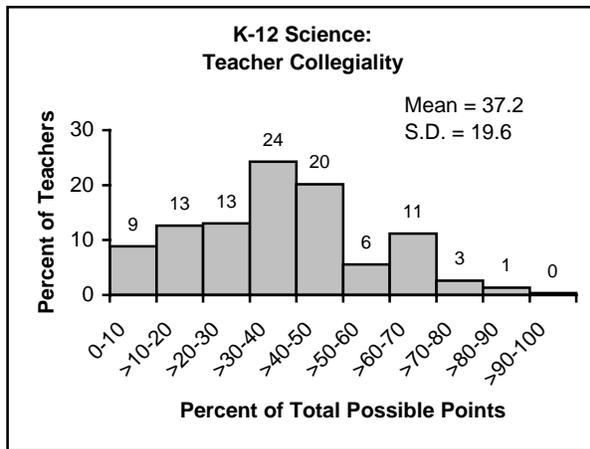
Composite definitions for the science and mathematics teacher questionnaire are presented below along with the item numbers from the respective questionnaires. Composites that are identical for the two subjects are presented in the same table; composites unique to a subject are presented in separate tables.

### Teacher Opinions

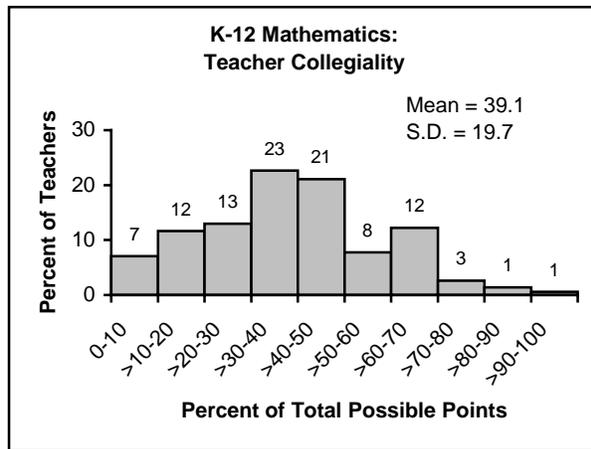
These composites estimate the extent of teacher collegiality within their schools.

**Table E-1**  
**Teacher Collegiality**

	Science	Mathematics
I have time during the regular school week to work with my colleagues on science/mathematics curriculum and teaching.	Q1e	Q1e
My colleagues and I regularly share ideas and materials related to science/mathematics teaching.	Q1f	Q1f
Science/mathematics teachers in this school regularly observe each other teaching classes as part of sharing and improving instructional strategies.	Q1g	Q1g
Most science/mathematics teachers in this school contribute actively to making decisions about the science/mathematics curriculum.	Q1h	Q1h
<b>Number of Items in Composite</b>	<b>4</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.67</b>	<b>0.66</b>



**Figure E-1**



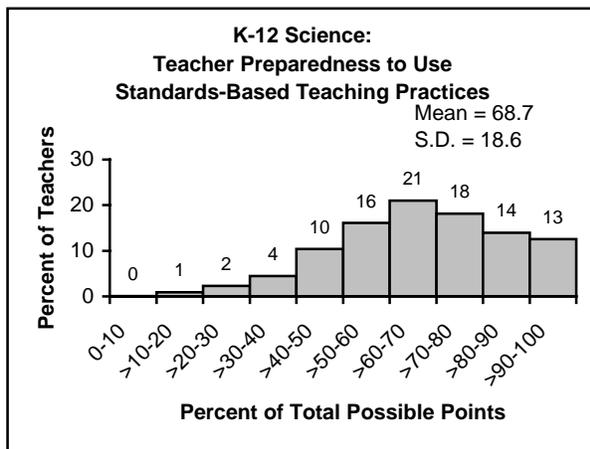
**Figure E-2**

## Teacher Preparation

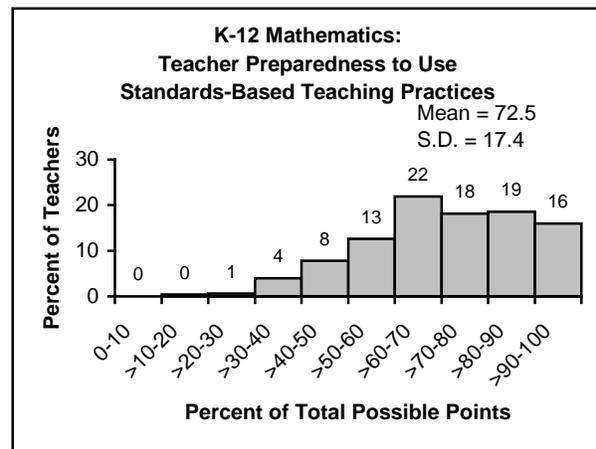
These composites estimate the extent to which teachers feel prepared in both science and mathematics content and pedagogy.

**Table E-2**  
**Teacher Preparedness to Use Standards-Based Teaching Practices**

	Science	Mathematics
Take students' prior understanding into account when planning curriculum and instruction.	Q3a	Q3a
Develop students' conceptual understanding of science/mathematics	Q3b	Q3b
Provide deeper coverage of fewer science/mathematics concepts	Q3c	Q3c
Make connections between science/mathematics and other disciplines	Q3d	Q3d
Lead a class of students using investigative strategies	Q3e	Q3e
Manage a class of students engaged in hands-on/project-based work	Q3f	Q3f
Have students work in cooperative learning groups	Q3g	Q3g
Listen/ask questions as students work in order to gauge their understanding	Q3h	Q3h
Use the textbook as a resource rather than the primary instructional tool	Q3i	Q3i
Teach groups that are heterogeneous in ability	Q3j	Q3j
<b>Number of Items in Composite</b>	<b>10</b>	<b>10</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.88</b>	<b>0.86</b>



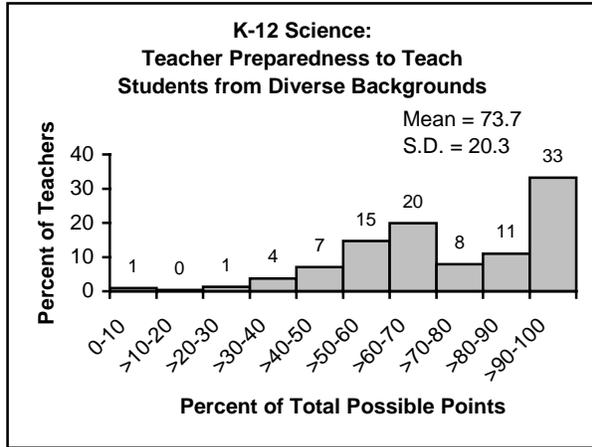
*Figure E-3*



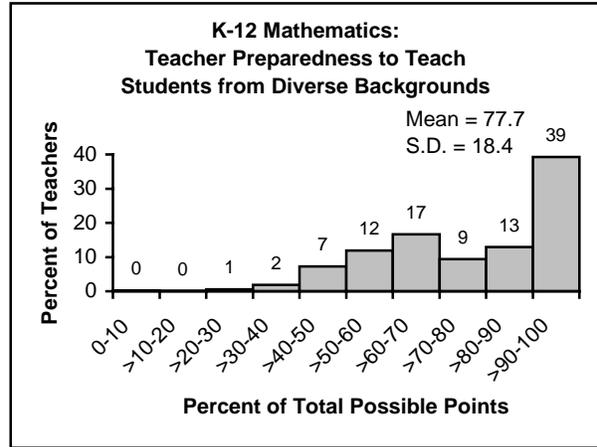
*Figure E-4*

**Table E-3**  
**Teacher Preparedness to Teach Students from Diverse Backgrounds**

	<b>Science</b>	<b>Mathematics</b>
Recognize and respond to student cultural diversity	Q3l	Q3l
Encourage students' interest in science/mathematics	Q3m	Q3m
Encourage participation of females in science/mathematics	Q3n	Q3n
Encourage participation of minorities in science/mathematics	Q3o	Q3o
<b>Number of Items in Composite</b>	<b>4</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.81</b>	<b>0.80</b>



*Figure E-5*

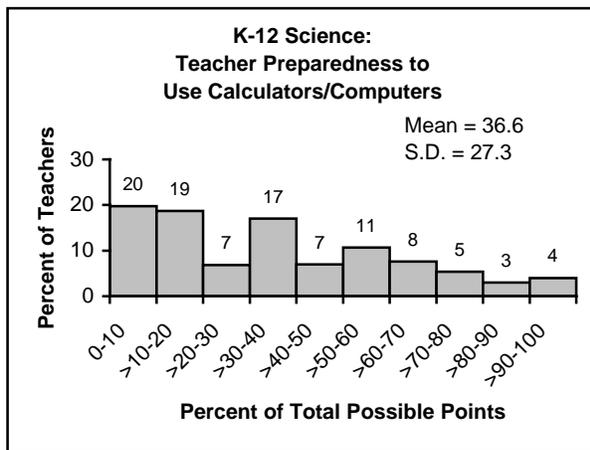


*Figure E-6*

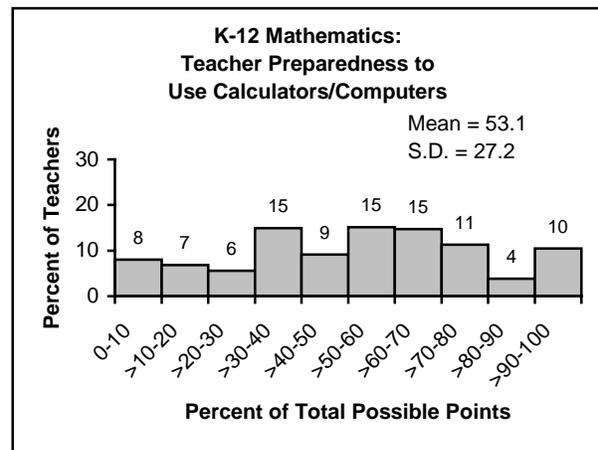
**Table E-4**  
**Teacher Preparedness to Use Calculators/Computers**

	<b>Science</b>	<b>Mathematics</b>
Use calculators/computers for drill and practice	Q3q	Q3q
Use calculators/computers for science/mathematics learning games	Q3r	Q3r
Use calculators/computers to collect and/or analyze data	Q3s	Q3s
Use computers to demonstrate scientific principles*	Q3t	
Use calculators/computers to demonstrate mathematics principles*		Q3t
Use computers for laboratory simulations*	Q3u	
Use computers for simulations and applications*		Q3u
<b>Number of Items in Composite</b>	<b>5</b>	<b>5</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.89</b>	<b>0.89</b>

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



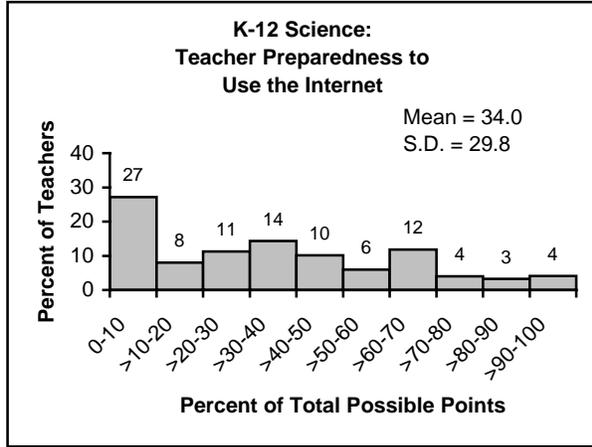
**Figure E-7**



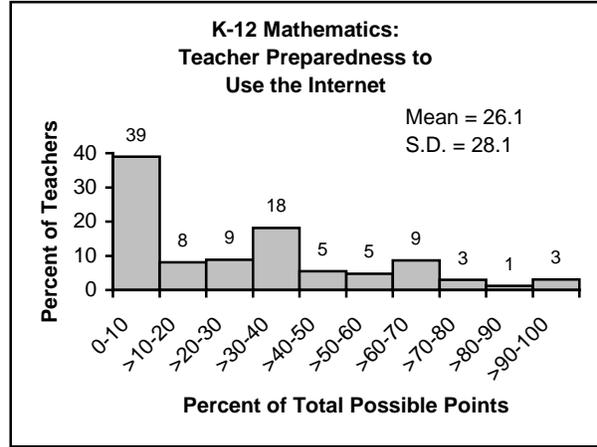
**Figure E-8**

**Table E-5**  
**Teacher Preparedness to Use the Internet**

	<b>Science</b>	<b>Mathematics</b>
Use the Internet in your science/mathematics teaching for general reference	Q3v	Q3v
Use the Internet in your science/mathematics teaching for data acquisition	Q3w	Q3w
Use the Internet in your science/mathematics teaching for collaborative projects with classes/individuals in other schools	Q3x	Q3x
<b>Number of Items in Composite</b>	<b>3</b>	<b>3</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.86</b>	<b>0.90</b>



*Figure E-9*

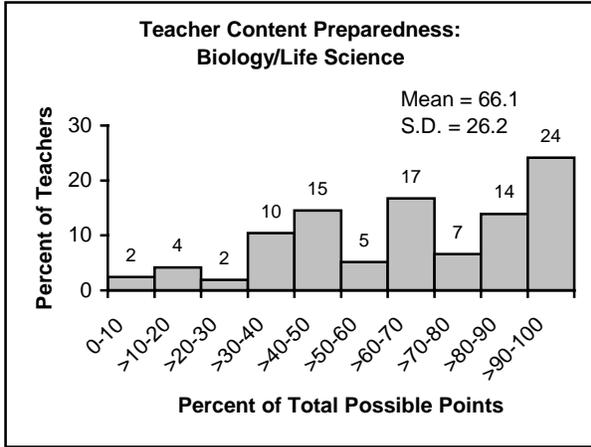


*Figure E-10*

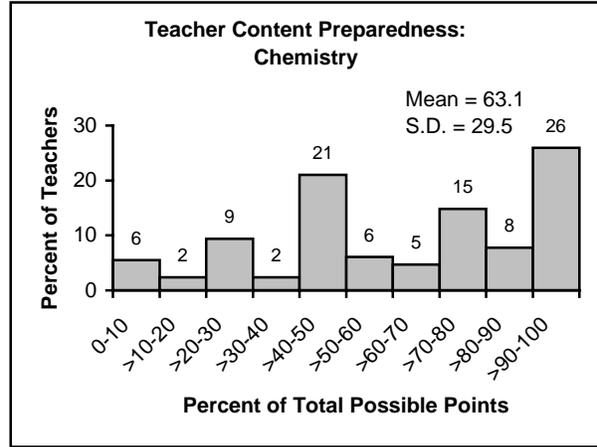
**Table E-6**  
**Teacher Content Preparedness: Science\***

	<b>Biology/ Life Science</b>	<b>Chem- istry</b>	<b>Earth Science</b>	<b>Environ- mental Science</b>	<b>Integrated/ General Science</b>	<b>Physical Science</b>	<b>Physics</b>
Earth's features and physical processes			Q15a1a	Q15a1a	Q15a1a	Q15a1a	
The solar system and the universe			Q15a1b		Q15a1b	Q15a1b	
Climate and weather			Q15a1c	Q15a1c	Q15a1c	Q15a1c	
Structure and function of human systems	Q15a2a				Q15a2a		
Plant biology	Q15a2b				Q15a2b		
Animal behavior	Q15a2c				Q15a2c		
Interactions of living things/ecology	Q15a2d			Q15a2d	Q15a2d		
Genetics and evolution	Q15a2e				Q15a2e		
Structure of matter and chemical bonding		Q15a3a			Q15a3a	Q15a3a	
Properties and states of matter		Q15a3b			Q15a3b	Q15a3b	
Chemical reactions		Q15a3c			Q15a3c	Q15a3c	
Energy and chemical change		Q15a3d			Q15a3d	Q15a3d	
Forces and motion					Q15a4a	Q15a4a	Q15a4a
Energy					Q15a4b	Q15a4b	Q15a4b
Light and sound					Q15a4c	Q15a4c	Q15a4c
Electricity and magnetism					Q15a4d	Q15a4d	Q15a4d
Modern physics (e.g., special relativity)					Q15a4e	Q15a4e	Q15a4e
Pollution, acid rain, global warming				Q15a5a	Q15a5a		
Population, food supply, and production				Q15a5b	Q15a5b		
Formulating hypothesis, drawing conclusions, making generalizations	Q15a6a	Q15a6a	Q15a6a	Q15a6a	Q15a6a	Q15a6a	Q15a6a
Experimental design	Q15a6b	Q15a6b	Q15a6b	Q15a6b	Q15a6b	Q15a6b	Q15a6b
Describing, graphing, and interpreting data	Q15a6c	Q15a6c	Q15a6c	Q15a6c	Q15a6c	Q15a6c	Q15a6c
<b>Number of Items in Composite</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>8</b>	<b>22</b>	<b>15</b>	<b>8</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.87</b>	<b>0.87</b>	<b>0.76</b>	<b>0.79</b>	<b>0.87</b>	<b>0.89</b>	<b>0.88</b>

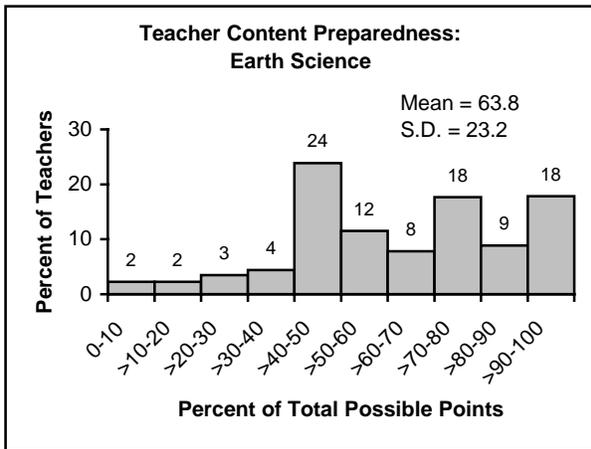
\* Questions comprising these composites were asked of only those teachers in non-self-contained settings.



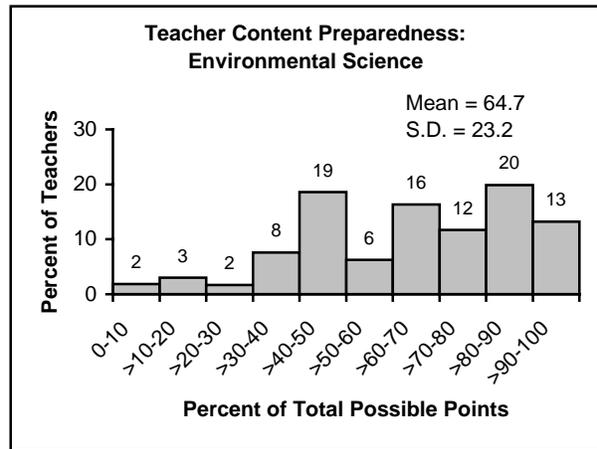
*Figure E-11*



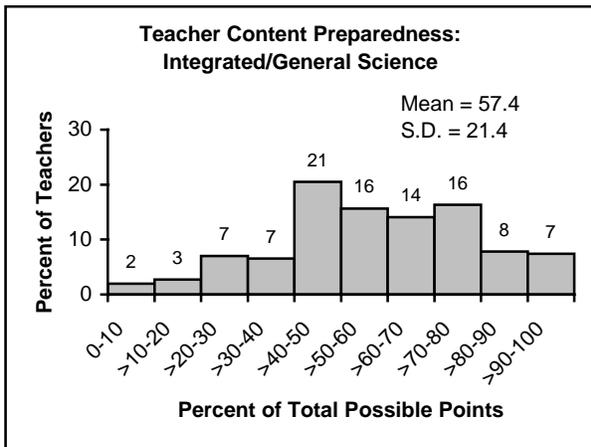
*Figure E-12*



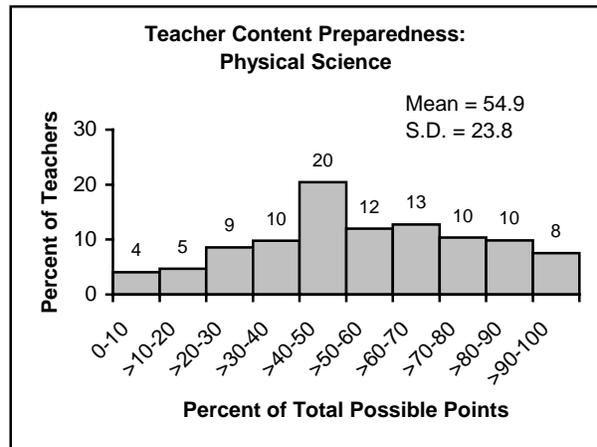
*Figure E-13*



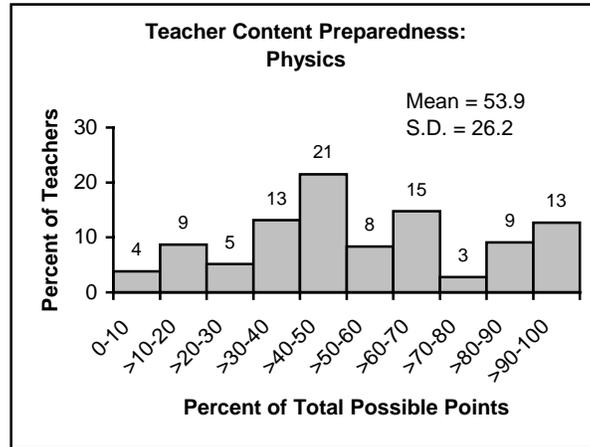
*Figure E-14*



*Figure E-15*



*Figure E-16*

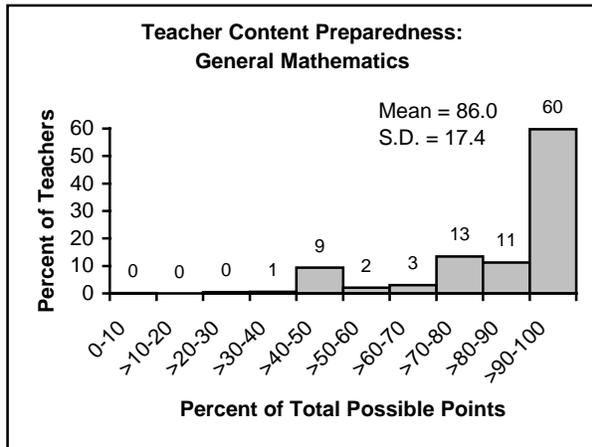


*Figure E-17*

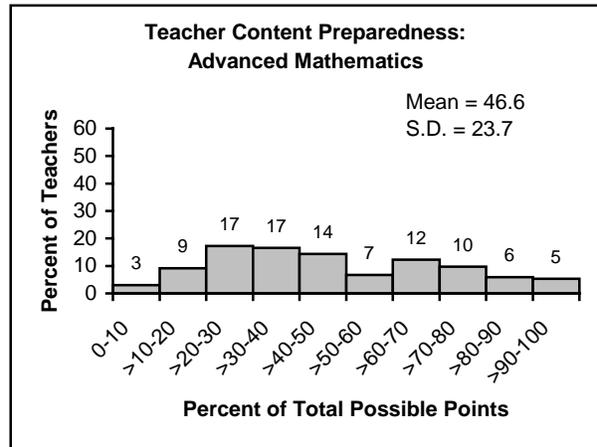
**Table E-7**  
**Teacher Content Preparedness: Mathematics**

	<b>General Mathematics</b>	<b>Advanced Mathematics</b>
Numeration and number theory	Q15aa	
Computation	Q15ab	
Estimation	Q15ac	
Measurement	Q15ad	
Pre-Algebra	Q15ae	
Algebra		Q15af
Patterns and relationships	Q15ag	
Geometry and spatial sense	Q15ah	
Functions (including trigonometric functions) and pre-calculus concepts		Q15ai
Data collection and analysis		Q15aj
Probability		Q15ak
Statistics (e.g., hypothesis tests, curve fitting and regression)		Q15al
Topics from discrete mathematics (e.g., combinatorics, graph theory, recursion)		Q15am
Mathematical structures (e.g., vector spaces, groups, rings, fields)		Q15an
Calculus		Q15ao
Technology (calculators, computers) in support of mathematics		Q15ap
<b>Number of Items in Composite</b>	<b>7</b>	<b>9</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.82</b>	<b>0.85</b>

\* Questions comprising these composites were asked of only those teachers in non-self-contained settings.



**Figure E-18**



**Figure E-19**

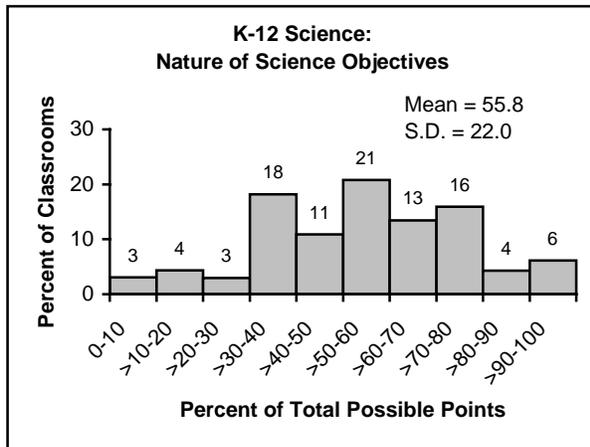
## Instructional Objectives

These composites estimate the amount of emphasis teachers place on various objectives.

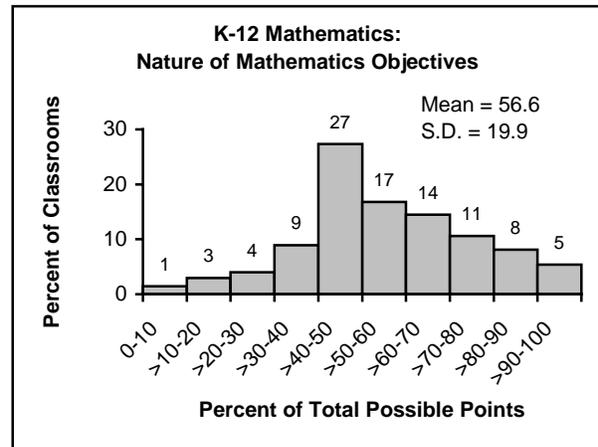
**Table E-8**  
**Nature of Science/Mathematics Objectives**

	Science	Mathematics
Learn to evaluate arguments based on scientific evidence	Q23f	
Understand the logical structure of mathematics		Q23i
Learn about the history and nature of science/mathematics	Q23j	Q23j
Learn how to communicate ideas in science effectively*	Q23g	
Learn how to explain ideas in mathematics effectively*		Q23k
Learn about the applications of science in business and industry*	Q23h	
Learn how to apply mathematics in business and industry*		Q23l
Learn about the relationship between science, technology, and society	Q23i	
<b>Number of Items in Composite</b>	<b>5</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.84</b>	<b>0.73</b>

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



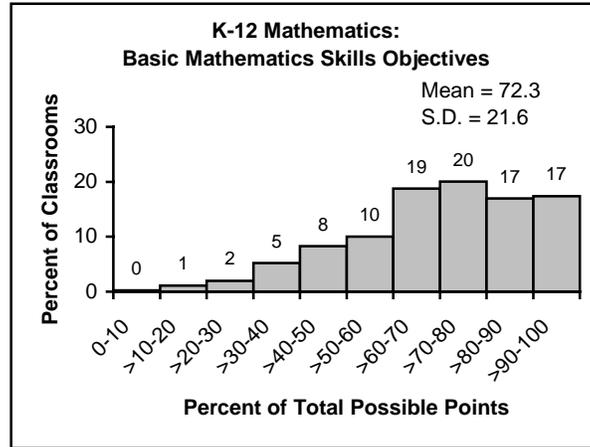
**Figure E-20**



**Figure E-21**

**Table E-9**  
**Basic Mathematics Skills Objectives**

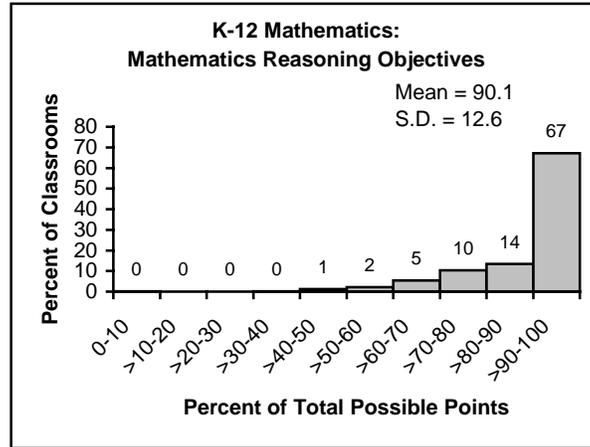
	<b>Mathematics</b>
Develop students' computational skills	Q23d
Learn to perform computations with speed and accuracy	Q23m
Prepare for standardized tests	Q23n
<b>Number of Items in Composite</b>	<b>3</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.69</b>



*Figure E-22*

**Table E-10**  
**Mathematics Reasoning Objectives**

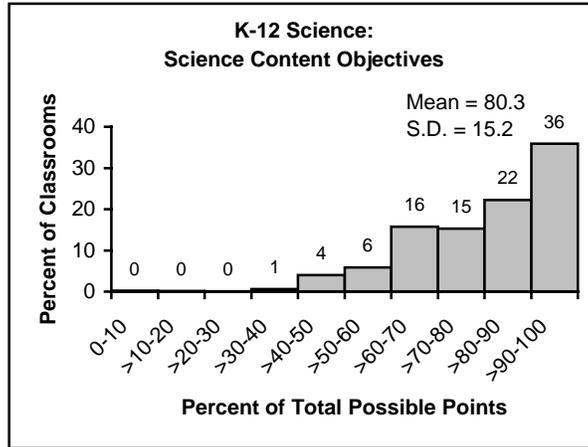
	<b>Mathematics</b>
Learn mathematical concepts	Q23b
Learn how to solve problems	Q23e
Learn to reason mathematically	Q23f
Learn how mathematics ideas connect with one another	Q23g
<b>Number of Items in Composite</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.75</b>



**Figure E-23**

**Table E-11  
Science Content Objectives**

	<b>Science</b>
Learn basic science concepts	Q23b
Learn important terms and facts of science	Q23c
Learn science process/inquiry skills	Q23d
Prepare for further study in science	Q23e
<b>Number of Items in Composite</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.60</b>



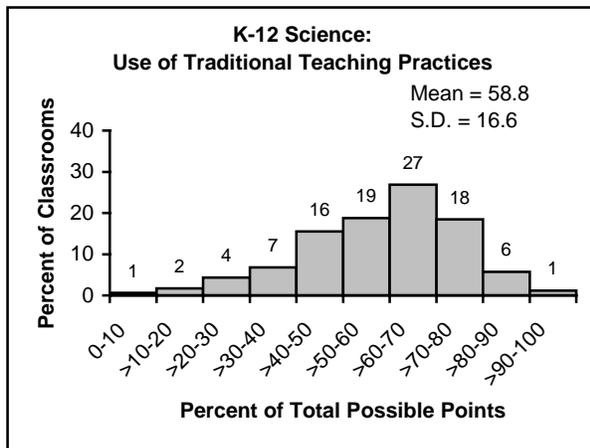
**Figure E-24**

## Teaching Practices

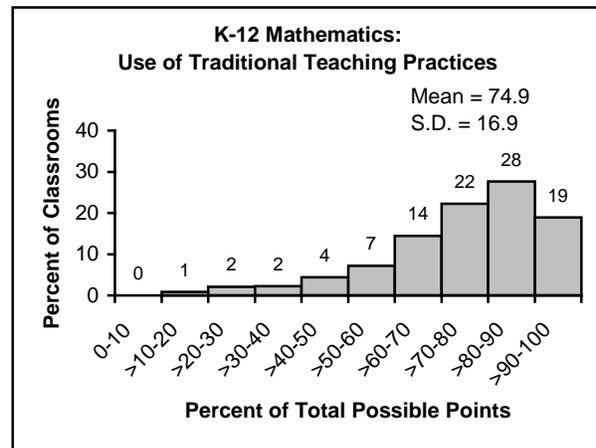
These composites estimate the extent to which teachers use a variety of teaching practices and instructional technologies/facilities.

**Table E-12**  
**Use of Traditional Teaching Practices**

	Science	Mathematics
Introduce content through formal presentations	Q24a	Q24a
Assign science/mathematics homework	Q24i	Q24j
Listen and take notes during presentation by teacher	Q25a	Q25a
Read from a science/mathematics textbook in class	Q25d	Q25c
Practice routine computations/algorithms		Q25f
Review homework/worksheet assignments		Q25g
Answer textbook or worksheet questions	Q25j	Q25k
Review student homework	Q27f	Q27f
Give predominantly short-answer tests (e.g., multiple choice, true/false, fill in the blank)	Q27k	
<b>Number of Items in Composite</b>	<b>7</b>	<b>8</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.78</b>	<b>0.74</b>



**Figure E-25**

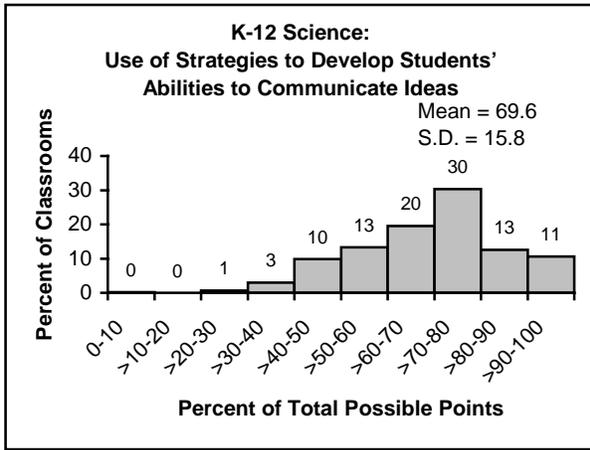


**Figure E-26**

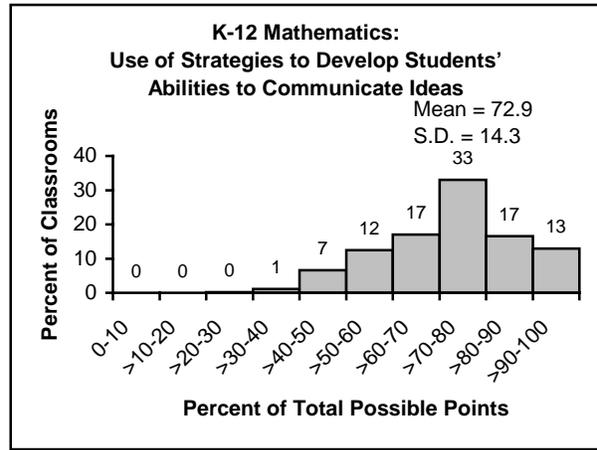
**Table E-13**  
**Use of Strategies to Develop Students' Abilities to Communicate Ideas**

	<b>Science</b>	<b>Mathematics</b>
Pose open-ended questions	Q24b	Q24b
Engage the whole class in discussions	Q24c	
Require students to supply evidence to support their claims*	Q24d	
Require student to explain their reasoning when giving an answer*		Q24d
Ask students to explain concepts to one another	Q24e	Q24e
Ask students to consider alternative explanations *	Q24f	
Ask students to consider alternative methods for solutions*		Q24f
Ask students to use multiple representations (e.g., numeric, graphic, geometric, etc.)		Q24g
Help students see connections between science/mathematics and other disciplines	Q24h	Q24h
<b>Number of Items in Composite</b>	<b>6</b>	<b>6</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.79</b>	<b>0.77</b>

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



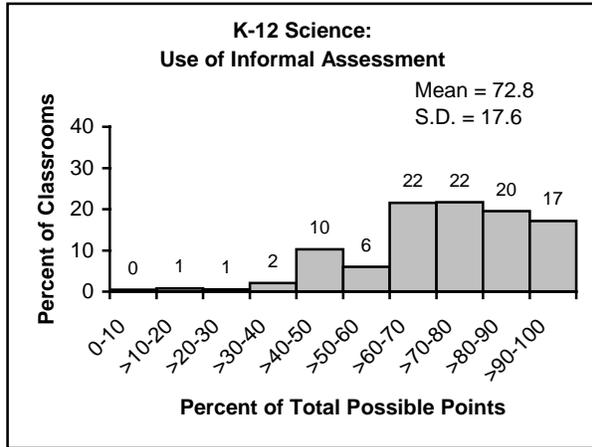
*Figure E-27*



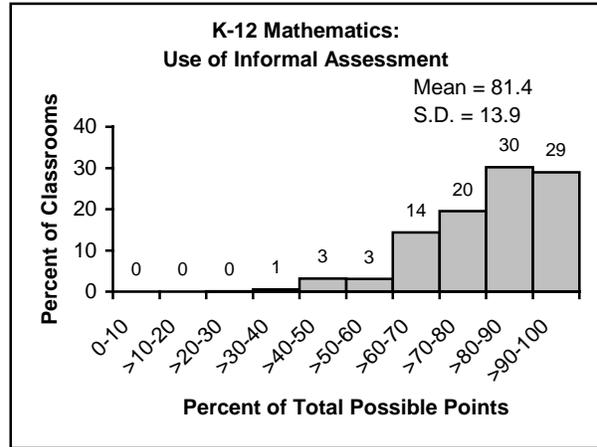
*Figure E-28*

**Table E-14**  
**Use of Informal Assessment**

	<b>Science</b>	<b>Mathematics</b>
Observe students and ask questions as they work individually	Q27b	Q27b
Observe students and ask questions as they work in small groups	Q27c	Q27c
Ask students questions during large group discussions	Q27d	Q27d
Use assessments embedded in class activities to see if students are “getting it”	Q27e	Q27e
<b>Number of Items in Composite</b>	<b>4</b>	<b>4</b>
<b>Reliability (Cronbach’s Coefficient Alpha)</b>	<b>0.79</b>	<b>0.69</b>



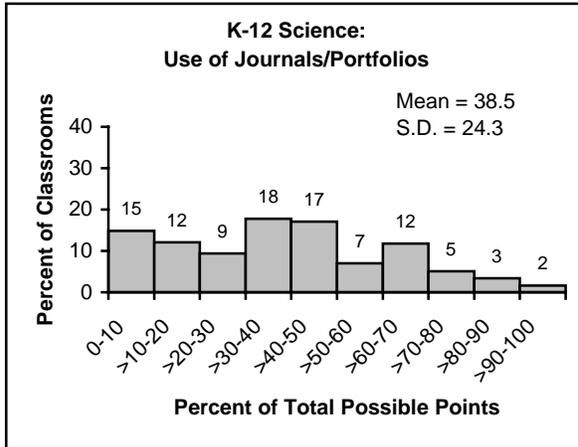
*Figure E-29*



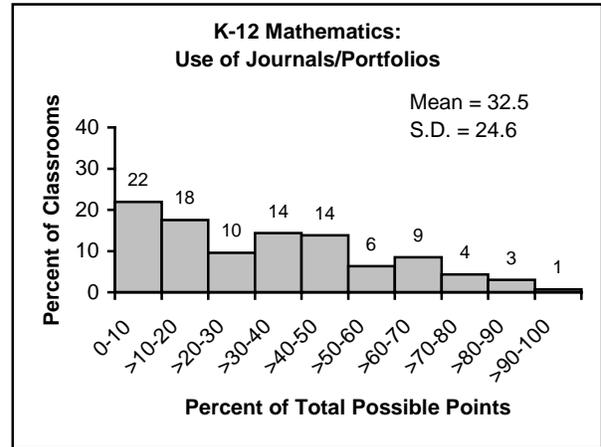
*Figure E-30*

**Table E-15**  
**Use of Journals/Portfolios**

	<b>Science</b>	<b>Mathematics</b>
Read and comment on the reflections students have written, e.g., in their journals	Q24j	Q24k
Write reflections (e.g., in a journal)	Q25l	Q25m
Review student notebooks/journals	Q27g	Q27g
Review student portfolios	Q27h	Q27h
<b>Number of Items in Composite</b>	<b>4</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.82</b>	<b>0.83</b>



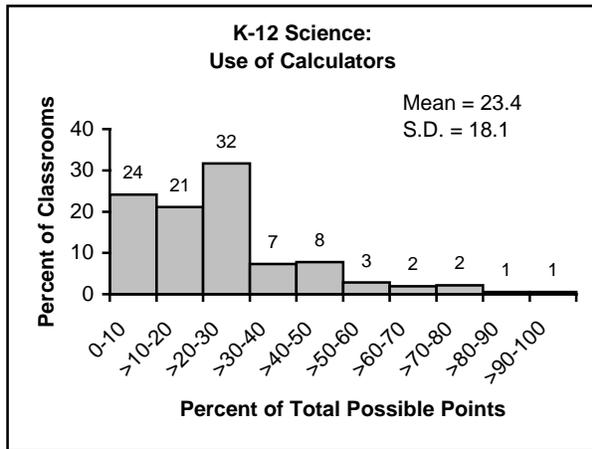
*Figure E-31*



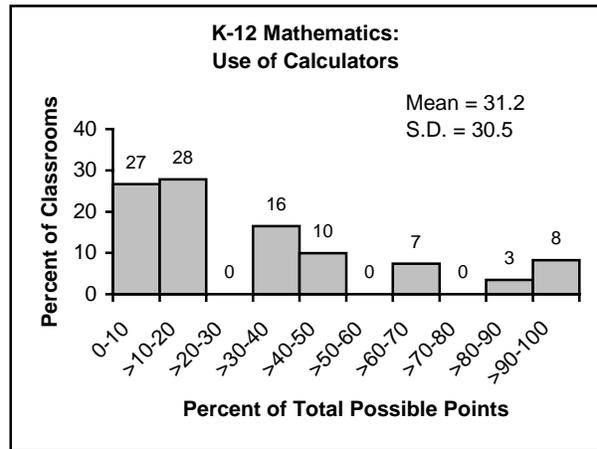
*Figure E-32*

**Table E-16  
Use of Calculators**

	<b>Science</b>	<b>Mathematics</b>
Use mathematics as a tool in problem-solving	Q25q	
Use four-function calculators	Q28e3	Q28e3
Use fraction calculators	Q28f3	Q28f3
Use graphing calculators	Q28g3	
Use scientific calculators	Q28h3	Q28h3
Use calculator/computer lab interfacing devices	Q28k3	
<b>Number of Items in Composite</b>	<b>6</b>	<b>3</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.77</b>	<b>0.71</b>



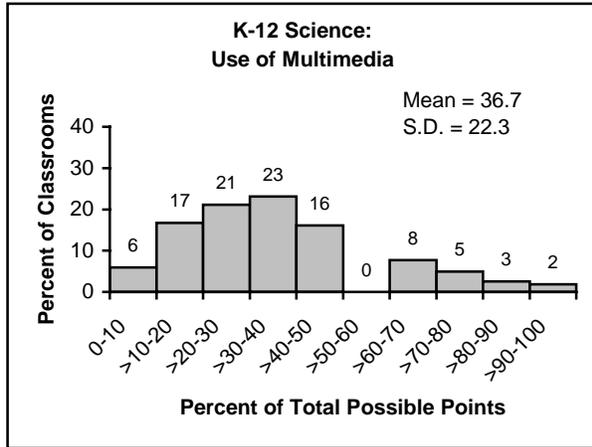
*Figure E-33*



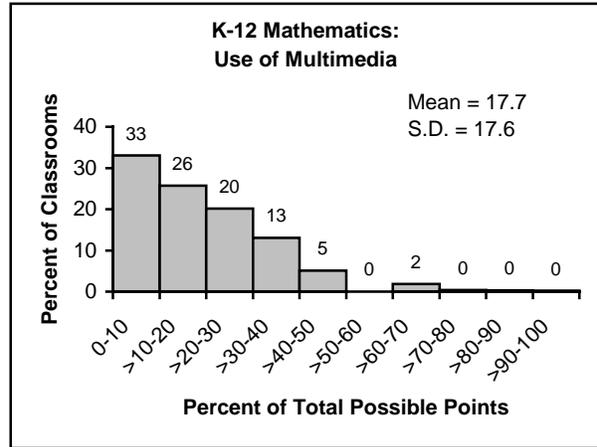
*Figure E-34*

**Table E-17  
Use of Multimedia**

	<b>Science</b>	<b>Mathematics</b>
Use videotape player	Q28b3	Q28b3
Use videodisc player	Q28c3	Q28c3
Use CD-ROM player	Q28d3	Q28d3
Use computers with Internet connection	Q28j3	Q28k3
<b>Number of Items in Composite</b>	<b>4</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.59</b>	<b>0.64</b>



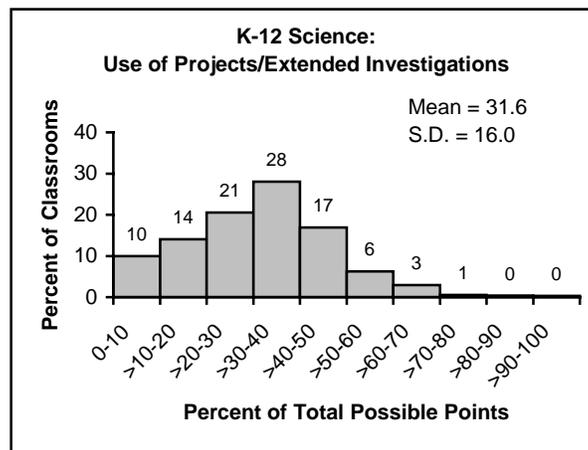
*Figure E-35*



*Figure E-36*

**Table E-18**  
**Use of Projects/Extended Investigations**

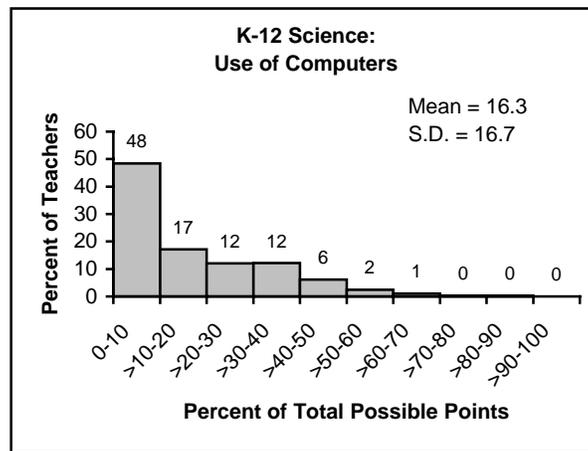
	<b>Science</b>
Design or implement their own investigation	Q25h
Participate in field work	Q25i
Prepare written science reports	Q25m
Make formal presentations to the rest of the class	Q25n
Work on extended science investigations or projects (a week or more in duration)	Q25o
Have students do long-term science projects	Q27i
Have students present their work to the class	Q27j
Grade student work on open-ended and/or laboratory tasks using defined criteria (e.g., a scoring rubric)	Q27m
Have students assess each other (peer evaluation)	Q27n
<b>Number of Items in Composite</b>	<b>9</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.85</b>



**Figure E-37**

**Table E-19**  
**Use of Computers**

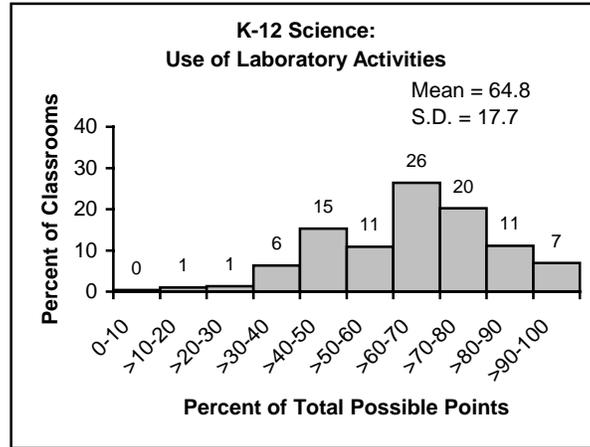
	<b>Science</b>
Use computers as a tool (e.g., spreadsheets, data analysis)	Q25p
Do drill and practice	Q26a
Demonstrate scientific principles	Q26b
Play science learning games	Q26c
Do laboratory simulations	Q26d
Collect data using sensors or probes	Q26e
Retrieve or exchange data	Q26f
Solve problems using simulations	Q26g
Take a test or quiz	Q26h
<b>Number of Items in Composite</b>	<b>9</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.91</b>



**Figure E-38**

**Table E-20**  
**Use of Laboratory Activities**

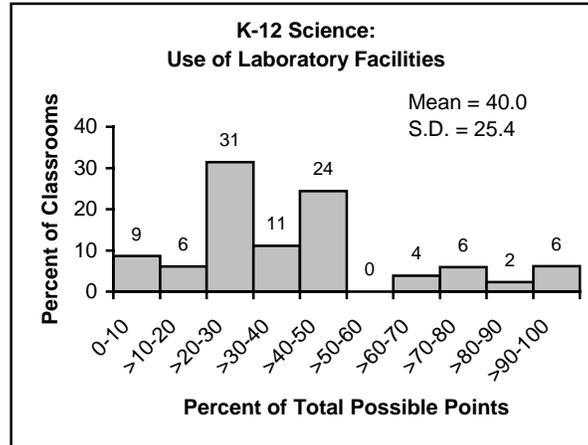
	<b>Science</b>
Work in groups	Q25c
Do hands-on/laboratory science activities or investigations	Q25f
Follow specific instructions in an activity or investigation	Q25g
Record, represent, and/or analyze data	Q25k
<b>Number of Items in Composite</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.80</b>



**Figure E-39**

**Table E-21**  
**Use of Laboratory Facilities**

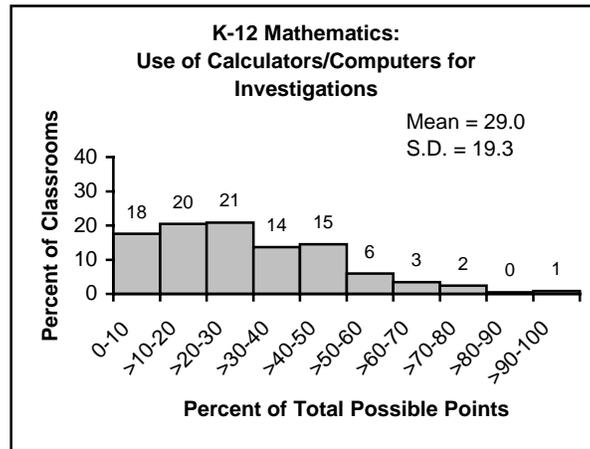
	<b>Science</b>
Use running water in labs/classrooms	Q28l3
Use electric outlets in labs/classrooms	Q28m3
Use gas for burners in labs/classrooms	Q28n3
Use hoods or air hoses in labs/classrooms	Q28o3
<b>Number of Items in Composite</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.80</b>



**Figure E-40**

**Table E-22**  
**Use of Calculators/Computers for Investigations**

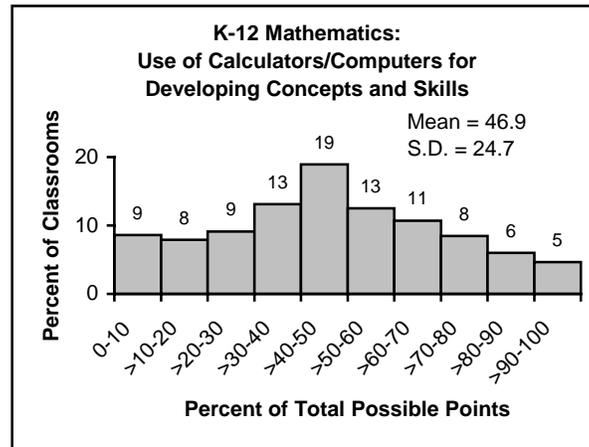
	<b>Mathematics</b>
Record, represent, and/or analyze data	Q25l
Use calculators or computers as a tool (e.g., spreadsheets, data analysis)	Q25r
Do simulations	Q26d
Collect data using sensors or probes	Q26e
Retrieve or exchange data	Q26f
Solve problems using simulations	Q26g
<b>Number of Items in Composite</b>	<b>6</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.85</b>



**Figure E-41**

**Table E-23**  
**Use of Calculators/Computers for Developing Concepts and Skills**

	<b>Mathematics</b>
Use calculators or computers for learning or practicing skills	Q25p
Use calculators or computers to develop conceptual understanding	Q25q
Do drill and practice	Q26a
Demonstrate mathematics principles	Q26b
Take a test or quiz	Q26h
Use graphing calculators	Q28g3
<b>Number of Items in Composite</b>	<b>6</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.86</b>



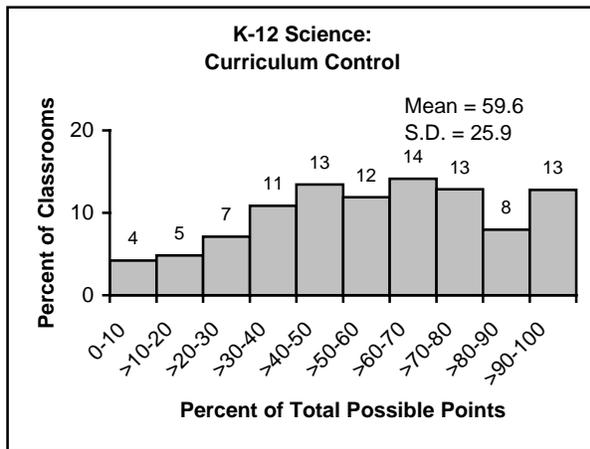
*Figure E-42*

### Instructional Control

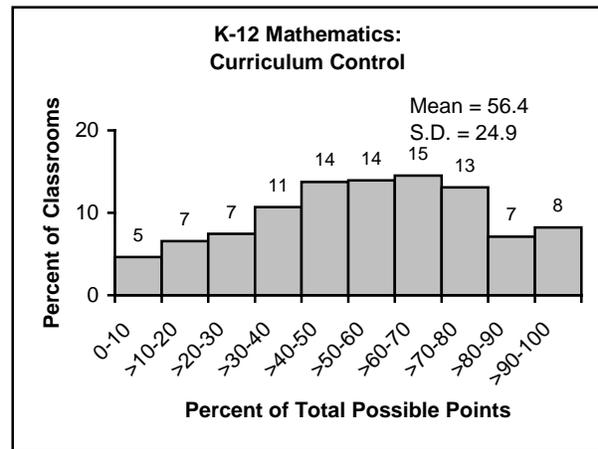
These composites estimate the level of control teachers perceive having over curriculum and pedagogy decisions for their classrooms.

**Table E-24**  
**Curriculum Control**

	Science	Mathematics
Determining course goals and objectives	Q31a	Q31a
Selecting textbooks/instructional programs	Q31b	Q31b
Selecting other instructional materials	Q31c	Q31c
Selecting content, topics, and skills to be taught	Q31d	Q31d
Selecting the sequence in which topics are covered	Q31e	Q31e
<b>Number of Items in Composite</b>	<b>5</b>	<b>5</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.82</b>	<b>0.82</b>



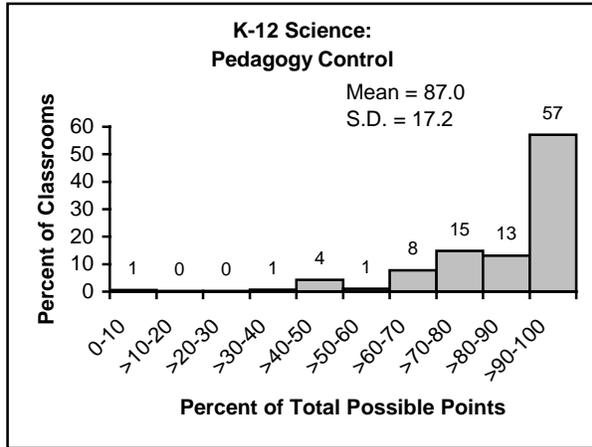
**Figure E-43**



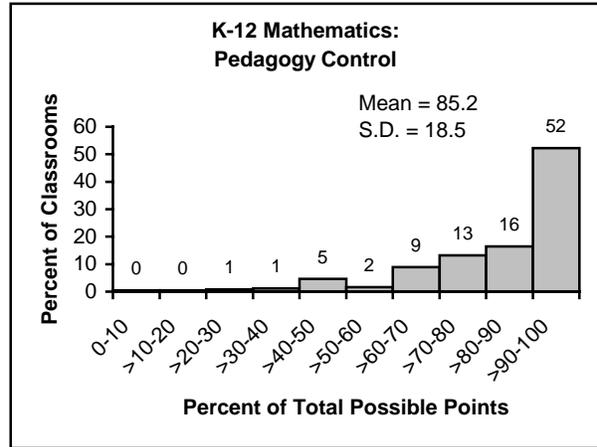
**Figure E-44**

**Table E-25**  
**Pedagogy Control**

	<b>Science</b>	<b>Mathematics</b>
Selecting the pace for covering topics	Q31g	Q31g
Determining the amount of homework to be assigned	Q31h	Q31h
Choosing criteria for grading students	Q31i	Q31i
Choosing tests for classroom assessment	Q31j	Q31j
<b>Number of Items in Composite</b>	<b>4</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.84</b>	<b>0.80</b>



*Figure E-45*



*Figure E-46*

## G. Definitions of Program Composites

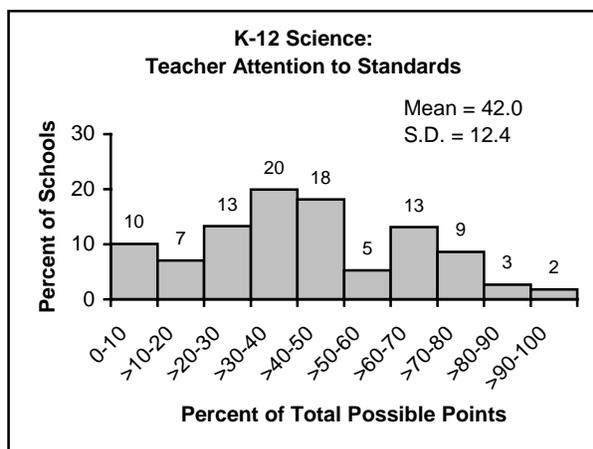
Composite definitions for the science and mathematics program questionnaire are presented below along with the item numbers from the respective questionnaires. Composites that are identical for the two subjects are presented in the same table; composites unique to a subject are presented in separate tables.

### National Standards for Science and Mathematics Education

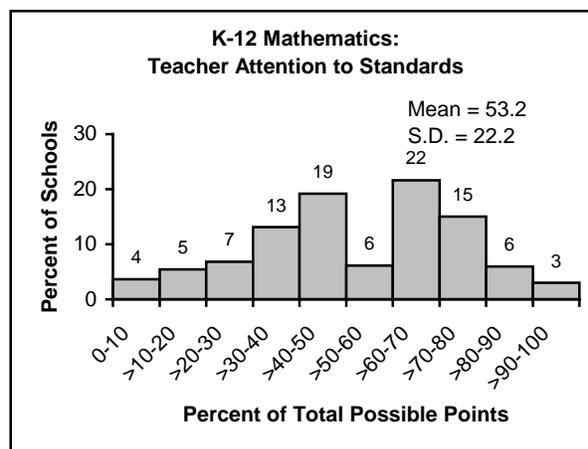
These composites estimate the level of attention to national standards given by teachers and other stakeholders. Science Standards refer to the NRC's *National Science Education Standards* (1996). Mathematics Standards refer to the National Council of Teachers of Mathematics (NCTM) *Standards* (1989,1991).

**Table E-26**  
**Teacher Attention to Standards**

	Science	Mathematics
I am prepared to explain the <i>Standards</i> to my colleagues	Q3a	Q3a
The <i>Standards</i> have been thoroughly discussed by teachers in this school	Q3b	Q3b
There is a school-wide effort to make changes inspired by the <i>Standards</i>	Q3c	Q3c
Teachers in this school have implemented the <i>Standards</i> in their teaching	Q3d	Q3d
<b>Number of Items in Composite</b>	<b>4</b>	<b>4</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.85</b>	<b>0.81</b>



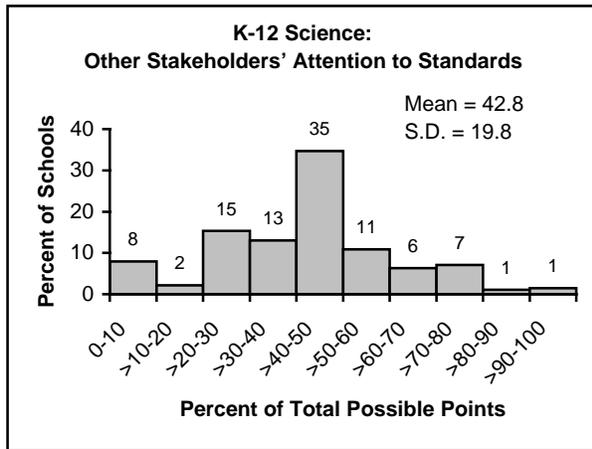
**Figure E-47**



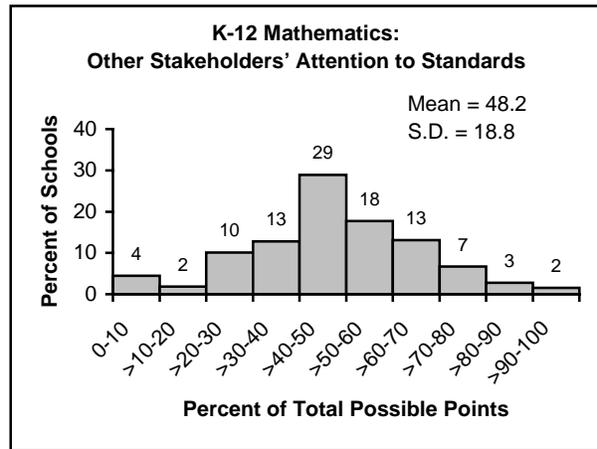
**Figure E-48**

**Table E-27**  
**Other Stakeholders' Attention to Standards**

	<b>Science</b>	<b>Mathematics</b>
The principal of this school is well-informed about the <i>Standards</i>	Q3e	Q3e
Parents of students in this school are well-informed about the <i>Standards</i>	Q3f	Q3f
The Superintendent of this district is well-informed about the <i>Standards</i>	Q3g	Q3g
The School Board is well-informed about the <i>Standards</i>	Q3h	Q3h
Our district is organizing staff development based on the <i>Standards</i>	Q3i	Q3i
Our district has changed how it evaluates teachers based on the <i>Standards</i>	Q3j	Q3j
<b>Number of Items in Composite</b>	<b>6</b>	<b>6</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.90</b>	<b>0.87</b>



**Figure E-49**



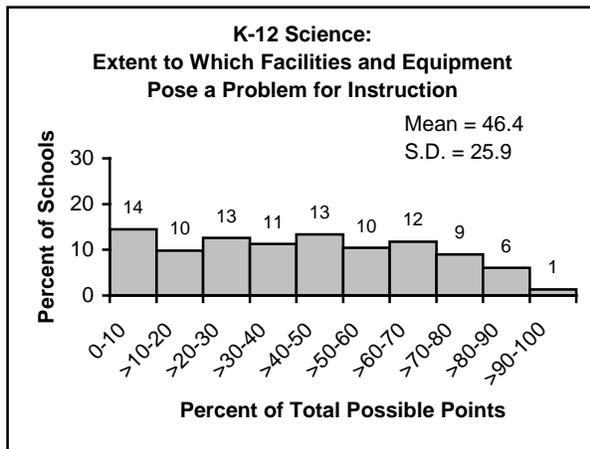
**Figure E-50**

### Factors Affecting Instruction

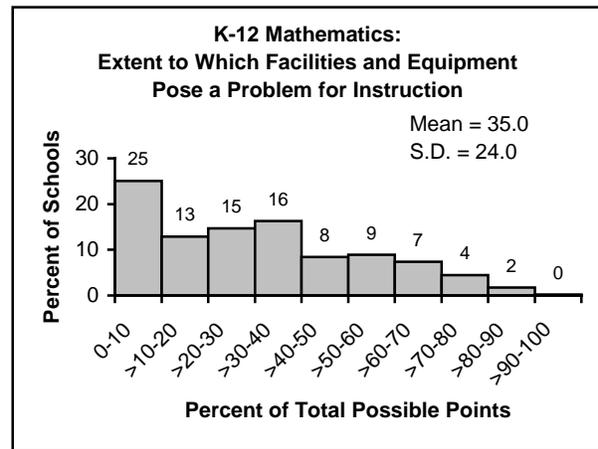
These composites estimate the extent to which various factors negatively impact science/mathematics instruction in schools.

**Table E-28**  
**Extent to Which Facilities and Equipment Pose a Problem for Instruction**

	Science	Mathematics
Facilities	Q9a	Q9a
Funds for purchasing equipment and supplies	Q9b	Q9b
Materials for individualizing instruction	Q9c	Q9c
Access to computers	Q9d	Q9d
Appropriate computer software	Q9e	Q9e
<b>Number of Items in Composite</b>	<b>5</b>	<b>5</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.73</b>	<b>0.75</b>



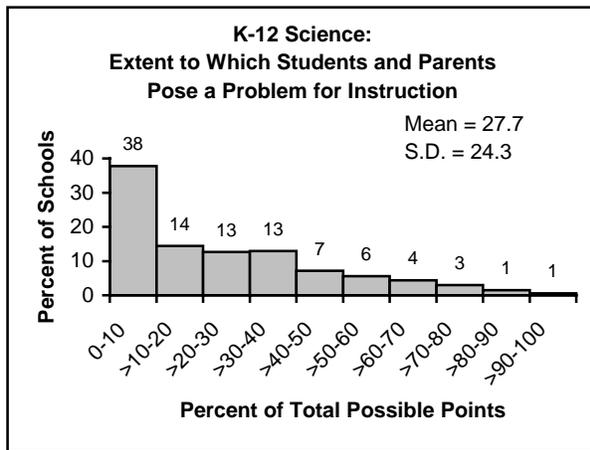
*Figure E-51*



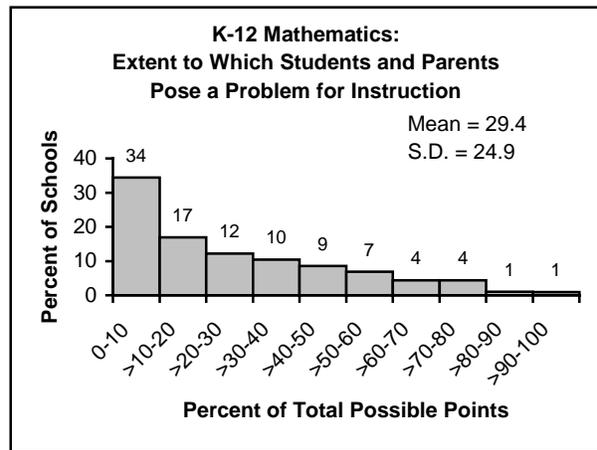
*Figure E-52*

**Table E-29**  
**Extent to Which Students and Parents Pose a Problem for Instruction**

	<b>Science</b>	<b>Mathematics</b>
Student interest in science/mathematics	Q9f	Q9f
Student reading abilities	Q9g	Q9g
Student absences	Q9h	Q9h
Maintaining discipline	Q9p	Q9p
Parental support for education	Q9q	Q9q
<b>Number of Items in Composite</b>	<b>5</b>	<b>5</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.80</b>	<b>0.82</b>



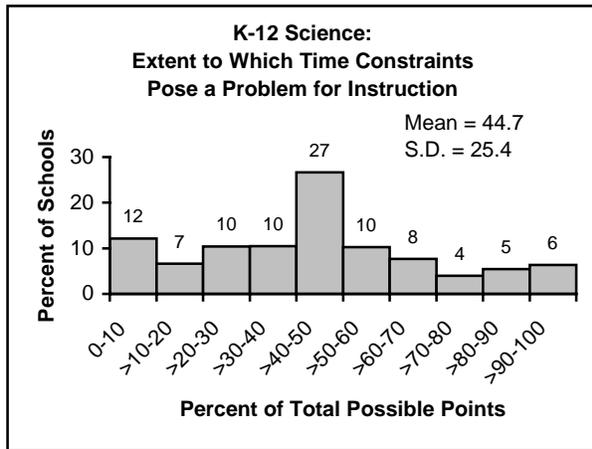
*Figure E-53*



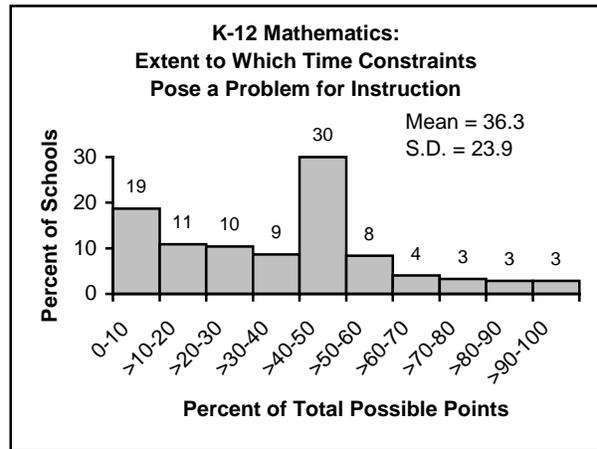
*Figure E-54*

**Table E-30**  
**Extent to Which Time Constraints Pose a Problem for Instruction**

	<b>Science</b>	<b>Mathematics</b>
Time to teach science/mathematics	Q9k	Q9k
Opportunities for teachers to share ideas	Q9l	Q9l
In-service education opportunities	Q9m	Q9m
Time available for teachers to plan and prepare lessons	Q10f	Q10f
Time available for teachers to work with other teachers during the school year	Q10g	Q10g
Time available for teacher professional development	Q10h	Q10h
<b>Number of Items in Composite</b>	<b>6</b>	<b>6</b>
<b>Reliability (Cronbach's Coefficient Alpha)</b>	<b>0.81</b>	<b>0.83</b>



*Figure E-55*



*Figure E-56*