

Longitudinal/Cross-Sectional Study of the Impact of *Mathematics in Context* on Student Performance

*External Assessment Anchor Items for Longitudinal Cohorts in 1997-1998, 1998-1999, 1999-2000*  
(Technical Report #48)

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## Introduction

The purposes of the longitudinal/cross-sectional study of the impact of *Mathematics in Context* (MiC; National Center for Research in Mathematical Sciences Education & Freudenthal Institute, 1997–1998) on student performance are (a) to determine the mathematical knowledge, understanding, attitudes, and levels of student performance as a consequence of studying MiC for over three years; and (b) to compare student knowledge, understanding, attitudes, and levels of performance of students using MiC with those using conventional mathematics curricula. The research model for this study is an adaptation of a structural model for monitoring changes in school mathematics (Romberg, 1987). For this study, information is being gathered on 14 variables over a 3-year period for three groups of students (those in Grades 5, 6, and 7 in 1997). The variables have been organized in five categories (prior, independent, intervening, outcome, and consequent). (See Figure 1 for variables and hypothesized relationships.)

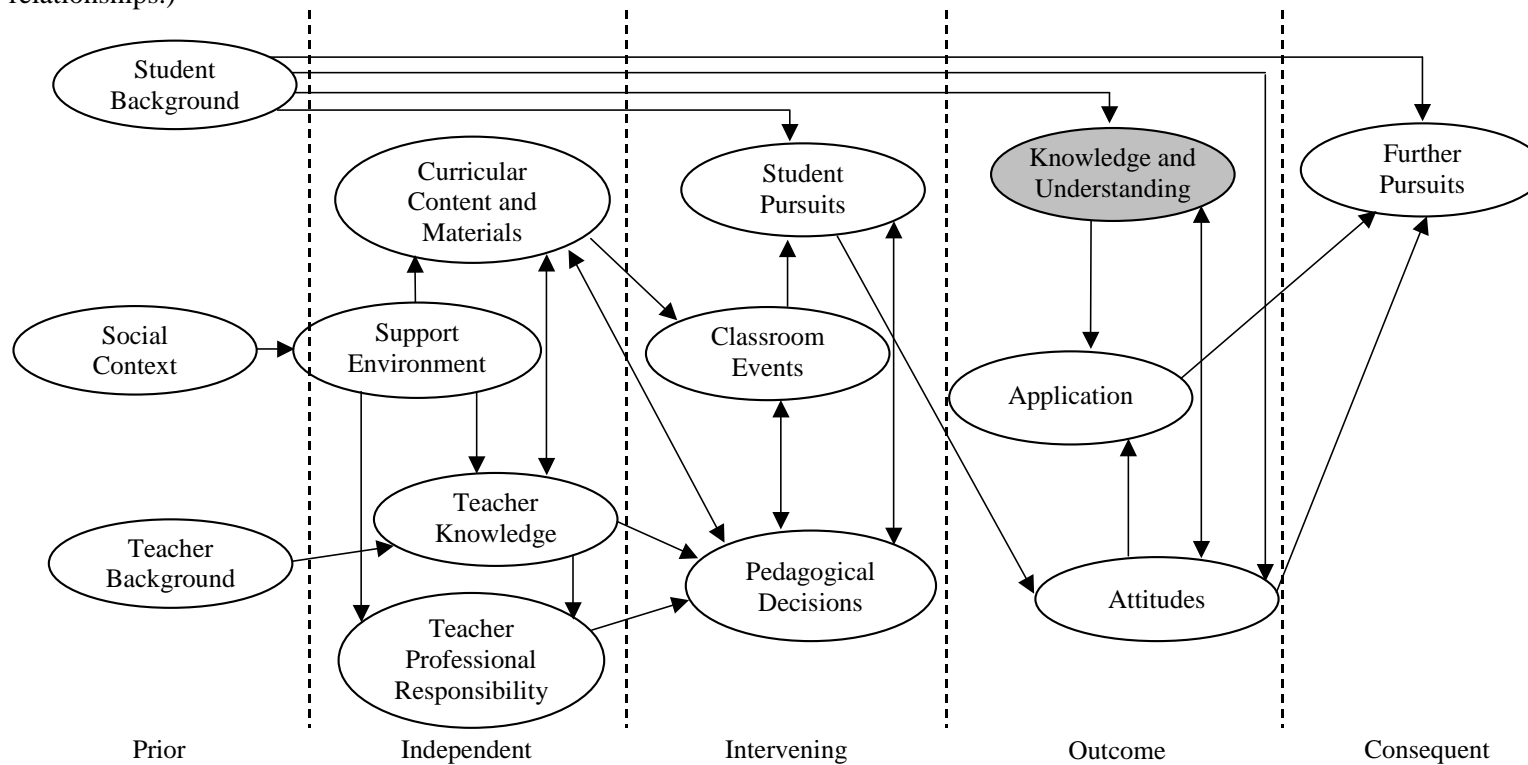


Figure 1. Revised model for the monitoring of school mathematics.

## Overview

The data in this Technical Report contain the general results for the 12 *Mathematics in Context* cohorts shown in Figure 2. The summary data has been derived from each student's anchor item scores on the External Assessment (EA) (see Appendix A).

Cohort	1997-1998	1998-1999	1999-2000
Cohort A	Grade 5	Grade 6	Grade 7
Cohort F	Grade 5	Grade 6	
Cohort H	Grade 5		
Cohort D		Grade 6	Grade 7
Cohort K		Grade 6	
Cohort B	Grade 6	Grade 7	Grade 8
Cohort G	Grade 6	Grade 7	
Cohort I	Grade 6		
Cohort E		Grade 7	Grade 8
Cohort L		Grade 7	
Cohort C	Grade 7	Grade 8	
Cohort J	Grade 7		
Cohort M		Grade 8	

*Figure 2.* Longitudinal Cohorts

Longitudinal studies involve examining the performance of students that have been in the study for two or three years. In fact, three longitudinal studies were planned using data from three cohorts of students. Students in the study for three years starting in 1997-1998 at Grade 5 are labeled Cohort A, Students in the study for three years starting in 1997-1998 at Grade 6 are labeled Cohort B, and students in the study for two years starting in 1997-1998 at Grade 7 are labeled Cohort C. These were the original groups we expected to study, however four additional longitudinal cohorts were added for this analysis. In 1998-1999 a number of new students entered the program, hence Cohorts D and E are students in the study

for two years starting in Grade 6 and 7 respectively. Also, because of dropouts, several students who started in the study in 1997-1998 remained in the study for only two years. Thus Cohort F involves students in the study for two years starting in Grade 5, and Cohort G involves students starting in Grade 6. Finally for comparison purposed groups of students who were in the study for only on year are labeled Cohorts H, I, J, K, L, and M.

***External Assessment Means of All Anchor Items***

*Mathematics in Context Cohorts*

Table 1.1

*External Assessment Content Strand Means for Cohort A Students in Mathematics in Context Classrooms, in 1997-1998, 1998-1999, and 1999-2000*

	Grade 5 1997-1998			Grade 6 1997-1998			Grade 7 1997-1998		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Overall	89	0.33	0.13	89	0.41	0.17	89	0.53	0.19
Male	40	0.34	0.13	40	0.46	0.15	40	0.57	0.18
Female	49	0.32	0.14	49	0.38	0.18	49	0.5	0.20
White	68	0.32	0.13	68	0.43	0.17	68	0.55	0.18
African-American	2	0.27	0.07	2	0.18	0.04	2	0.12	0.06
Hispanic	5	0.23	0.1	5	0.33	0.09	5	0.37	0.14
Other	14	0.42	0.12	14	0.41	0.22	14	0.55	0.20

Table 1.2

*External Assessment Content Strand Means for Cohort B Students in Mathematics in Context Classrooms, in 1997-1998, 1998-1999, and 1999-2000*

	Grade 6 1997-1998			Grade 7 1998-1999			Grade 8 1999-2000		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Overall	54	0.23	0.13	54	0.33	0.14	54	0.37	0.16
Male	21	0.21	0.14	21	0.34	0.16	21	0.37	0.17
Female	33	0.23	0.12	33	0.33	0.12	33	0.37	0.16
White	25	0.24	0.13	25	0.33	0.14	25	0.39	0.19
African-American	12	0.15	0.12	12	0.27	0.11	12	0.32	0.12
Hispanic	7	0.29	0.13	7	0.42	0.17	7	0.37	0.15
Other	10	0.22	0.13	10	0.35	0.10	10	0.38	0.15

Table 1.3  
*External Assessment Content Strand Means for Cohort C Students in Mathematics in Context Classrooms, in 1997-1998 and 1998-1999*

	Grade 7 1997-1998			Grade 8 1998-1999		
	N	Mean	SD	N	Mean	SD
Overall	148	0.35	0.12	148	0.42	0.19
Male	69	0.36	0.13	69	0.41	0.19
Female	79	0.34	0.11	79	0.47	0.18
White	74	0.37	0.13	74	0.48	0.18
African-American	14	0.31	0.12	14	0.30	0.12
Hispanic	23	0.35	0.11	23	0.35	0.17
Other	37	0.33	0.13	37	0.40	0.20

Table 1.4  
*External Assessment Content Strand Means for Cohort D Students in Mathematics in Context Classrooms, in 1998-1999 and 1999-2000*

	Grade 6 1998-1999			Grade 7 1999-2000		
	N	Mean	SD	N	Mean	SD
Overall	128	0.32	0.20	127	0.41	0.21
Male	54	0.31	0.21	53	0.42	0.24
Female	74	0.33	0.19	74	0.41	0.18
White	39	0.39	0.22	39	0.49	0.23
African-American	30	0.21	0.15	30	0.29	0.13
Hispanic	18	0.38	0.18	18	0.48	0.22
Other	41	0.30	0.18	40	0.40	0.19

Table 1.5  
*External Assessment Content Strand Means for Cohort E Students in Mathematics in Context Classrooms, in 1998-1999 and 1999-2000*

	Grade 7 1998-1999			Grade 8 1999-2000		
	N	Mean	SD	N	Mean	SD
Overall	107	0.33	0.15	107	0.40	0.19
Male	45	0.32	0.16	45	0.41	0.20
Female	62	0.33	0.15	62	0.40	0.19
White	15	0.38	0.21	15	0.42	0.20
African-American	38	0.29	0.13	38	0.37	0.19
Hispanic	27	0.32	0.13	27	0.41	0.20
Other	27	0.35	0.17	27	0.44	0.19

Table 1.6  
*External Assessment Content Strand Means for Cohort F Students in Mathematics in Context Classrooms, in 1997-1998 and 1998-1999*

	Grade 5 1997-1998			Grade 6 1998-1999		
	N	Mean	SD	N	Mean	SD
Overall	55	0.29	0.14	55	0.36	0.20
Male	27	0.33	0.15	27	0.35	0.23
Female	28	0.25	0.11	28	0.36	0.17
White	39	0.39	0.21	39	0.39	0.21
African-American	6	0.16	0.07	6	0.16	0.07
Hispanic	3	0.39	0.16	3	0.39	0.16
Other	7	0.33	0.13	7	0.33	0.13

Table 1.7  
*External Assessment Content Strand Means for Cohort G Students in Mathematics in Context Classrooms, in 1997-1998 and 1998-1999*

	Grade 6 1997-1998			Grade 7 1998-1999		
	N	Mean	SD	N	Mean	SD
Overall	111	0.33	0.16	111	0.42	0.18
Male	47	0.31	0.15	47	0.38	0.14
Female	64	0.35	0.16	64	0.45	0.19
White	70	0.38	0.15	70	0.47	0.16
African-American	16	0.21	0.12	16	0.31	0.13
Hispanic	13	0.32	0.18	13	0.40	0.23
Other	12	0.25	0.12	12	0.29	0.12

Table 1.8  
*External Assessment Content Strand Means for Cohort H Students in Mathematics in Context Classrooms, in 1997-1998*

	Grade 5 1997-1998		
	N	Mean	SD
Overall	293	0.28	0.14
Male	158	0.28	0.15
Female	135	0.26	0.12
White	101	0.32	0.16
African-American	42	0.21	0.11
Hispanic	87	0.24	0.10
Other	63	0.29	0.12



Table 1.9  
*External Assessment Content Strand Means for Cohort I Students in Mathematics in Context Classrooms, in 1997-1998*

	Grade 7 1997-1998		
	N	Mean	SD
Overall	246	0.26	0.13
Male	103	0.26	0.12
Female	143	0.27	0.14
White	68	0.32	0.15
African-American	48	0.21	0.12
Hispanic	83	0.24	0.11
Other	47	0.26	0.12

Table 1.10  
*External Assessment Content Strand Means for Cohort J Students in Mathematics in Context Classrooms, in 1997-1998*

	Grade 7 1997-1998		
	N	Mean	SD
Overall	320	0.37	0.17
Male	171	0.39	0.18
Female	149	0.35	0.15
White	115	0.45	0.19
African-American	32	0.32	0.15
Hispanic	99	0.30	0.12
Other	74	0.35	0.15

Table 1.11  
*External Assessment Content Strand Means for Cohort K Students in Mathematics  
 in Context Classrooms, in 1998-1999*

	Grade 6 1998-1999		
	N	Mean	SD
Overall	234	0.25	0.14
Male	102	0.25	0.15
Female	132	0.24	0.13
White	40	0.34	0.15
African-American	95	0.20	0.12
Hispanic	26	0.25	0.13
Other	73	0.25	0.13

Table 1.12  
*External Assessment Content Strand Means for Cohort L Students in Mathematics  
 in Context Classrooms, in 1998-1999*

	Grade 7 1998-1999		
	N	Mean	SD
Overall	244	0.30	0.13
Male	120	0.30	0.13
Female	124	0.30	0.14
White	26	0.36	0.16
African-American	92	0.27	0.11
Hispanic	53	0.30	0.13
Other	73	0.31	0.14

Table 1.13  
*External Assessment Content Strand Means for Cohort M Students in  
 Mathematics in Context Classrooms, in 1998-1999*

	Grade 8 1998-1999		
	N	Mean	SD
Overall	151	0.32	0.15
Male	71	0.33	0.15
Female	80	0.32	0.15
White	48	0.34	0.15
African-American	31	0.29	0.13
Hispanic	32	0.32	0.13
Other	40	0.32	0.18

*Conventional Cohorts*

Table 2.1  
*External Assessment Content Strand Means for Cohort A Students in Conventional Classrooms, in 1997-1998, 1998-1999, and 1999-2000*

	Grade 5 1997-1998			Grade 6 1998-1999			Grade 7 1999-200		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Overall	5	0.32	0.18	5	0.56	0.25	5	0.52	0.27
Male	0			0			0		
Female	5	0.32	0.18	5	0.56	0.25	5	0.52	0.27
White	3	0.24	0.06	3	0.40	0.06	3	0.40	0.19
African-American	0			0			1		
Hispanic	1	0.27		1	0.77		0	0.37	
Other	1	0.63		1	0.85		1	0.92	

Table 2.2  
*External Assessment Content Strand Means for Cohort B Students in Conventional Classrooms, in 1997-1998, 1998-1999, and 1999-2000*

	Grade 6 1997-1998			Grade 7 1998-1999			Grade 8 1999-2000		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Overall	2	0.23	0.09	2	0.46	0.15	2	0.28	0.09
Male	0			0			0		
Female	2	0.23	0.09	2	0.46	0.15	2	0.28	0.09
White	2	0.23	0.09	2	0.46	0.15	2	0.28	0.09
African-American	0			0			0		
Hispanic	0			0			0		
Other	0			0			0		

Table 2.3  
*External Assessment Content Strand Means for Cohort C Students in Conventional Classrooms, in 1997-1998 and 1998-1999*

	Grade 7 1997-1998			Grade 8 1998-1999		
	N	Mean	SD	N	Mean	SD
Overall	34	0.34	0.18	34	0.35	0.17
Male	12	0.32	0.21	12	0.30	0.14
Female	22	0.35	0.16	22	0.37	0.18
White	18	0.39	0.19	18	0.38	0.17
African-American	9	0.30	0.15	9	0.34	0.12
Hispanic	5	0.23	0.12	5	0.23	0.09
Other	2	0.31	0.16	2	0.39	0.41

Table 2.4  
*External Assessment Content Strand Means for Cohort D Students in Conventional Classrooms, in 1998-1999 and 1999-2000*

	Grade 6 1998-1999			Grade 7 1999-2000		
	N	Mean	SD	N	Mean	SD
Overall	8	0.27	0.10	8	0.39	0.15
Male	3	0.30	0.16	3	0.50	0.15
Female	5	0.25	0.06	5	0.33	0.12
White	3	0.19	0.07	3	0.33	0.12
African-American	0			0		
Hispanic	3	0.35	0.12	3	0.45	0.22
Other	2	0.26	0.02	2	0.41	0.11

Table 2.5  
*External Assessment Content Strand Means for Cohort E Students in Conventional Classrooms, in 1998-1999 and 1999-2000*

	Grade 7 1998-1999			Grade 8 1999-2000		
	N	Mean	SD	N	Mean	SD
Overall	24	0.37	0.16	24	0.39	0.18
Male	10	0.39	0.14	10	0.43	0.14
Female	14	0.36	0.18	14	0.36	0.20
White	21	0.37	0.17	21	0.37	0.17
African-American	0			0		
Hispanic	0			0		
Other	3	0.37	0.12	3	0.51	0.19

Table 2.6  
*External Assessment Content Strand Means for Cohort F Students in Conventional Classrooms, in 1997-1998 and 1998-1999*

	Grade 5 1997-1998			Grade 6 1998-1999		
	N	Mean	SD	N	Mean	SD
Overall	9	0.39	0.13	9	0.40	0.17
Male	4	0.46	0.14	4	0.45	0.16
Female	5	0.32	0.10	5	0.36	0.19
White	1	0.58		1	0.53	
African-American	0			0		
Hispanic	4	0.34	0.17	4	0.52	0.10
Other	4	0.39	0.06	4	0.27	0.11

Table 2.7  
*External Assessment Content Strand Means for Cohort G Students in Conventional Classrooms, in 1997-1998 and 1998-1999*

	Grade 6 1997-1998			Grade 7 1998-1999		
	N	Mean	SD	N	Mean	SD
Overall	13	0.34	0.13	13	0.26	0.14
Male	9	0.36	0.13	9	0.25	0.16
Female	4	0.30	0.13	4	0.30	0.09
White	5	0.40	0.14	5	0.34	0.14
African-American	6	0.29	0.12	6	0.17	0.11
Hispanic	0			0		
Other	2	0.35	0.15	2	0.33	0.12

Table 2.8  
*External Assessment Content Strand Means for Cohort H Students in Conventional Classrooms, in 1997-1998*

	Grade 5 1997-1998		
	N	Mean	SD
Overall	67	0.32	0.13
Male	37	0.34	0.14
Female	30	0.29	0.10
White	30	0.36	0.10
African-American	5	0.29	0.14
Hispanic	8	0.23	0.12
Other	24	0.31	0.14

Table 2.9  
*External Assessment Content Strand Means for Cohort I Students in  
 Conventional Classrooms, in 1997-1998*

	Grade 7 1997-1998		
	N	Mean	SD
Overall	101	0.29	0.17
Male	57	0.28	0.16
Female	44	0.30	0.18
White	30	0.33	0.19
African-American	26	0.28	0.19
Hispanic	21	0.22	0.12
Other	24	0.29	0.14

Table 2.10  
*External Assessment Content Strand Means for Cohort J Students in  
 Conventional Classrooms, in 1997-1998*

	Grade 7 1997-1998		
	N	Mean	SD
Overall	55	0.28	0.10
Male	28	0.29	0.11
Female	27	0.28	0.09
White	29	0.30	0.11
African-American	15	0.25	0.09
Hispanic	6	0.27	0.09
Other	5	0.29	0.07



Table 2.11  
*External Assessment Content Strand Means for Cohort K Students in Conventional Classrooms, in 1998-1999*

	Grade 6 1998-1999		
	N	Mean	SD
Overall	39	0.32	0.15
Male	19	0.31	0.15
Female	20	0.32	0.17
White	10	0.40	0.20
African-American	10	0.23	0.09
Hispanic	9	0.40	0.11
Other	10	0.24	0.10

Table 2.12  
*External Assessment Content Strand Means for Cohort L Students in Conventional Classrooms, in 1998-1999*

	Grade 7 1998-1999		
	N	Mean	SD
Overall	38	0.25	0.17
Male	23	0.25	0.20
Female	15	0.25	0.14
White	7	0.26	0.15
African-American	16	0.24	0.16
Hispanic	4	0.17	0.11
Other	11	0.30	0.22

Table 2.13  
*External Assessment Content Strand Means for Cohort M Students in  
 Conventional Classrooms, in 1998-1999*

	Grade 8 1998-1999		
	N	Mean	SD
Overall	41	0.31	0.13
Male	18	0.34	0.12
Female	23	0.29	0.14
White	14	0.37	0.15
African-American	13	0.27	0.14
Hispanic	8	0.29	0.09
Other	6	0.28	0.08

**External Assessment Means of Individual Anchor Items**

*Mathematics in Context Cohorts*

Table 3.1

*Means and p-values for External Assessment Anchor Items in Cohort A in Mathematics in Context Classrooms, in 1997-1998, 1998-*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 5, 1997-1998			Grade 6, 1998-1999			Grade 7, 1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	89	61.8	0.62	89	67.4	0.67	89	77.5	0.78
	Tourists on Bus	58.0	89	55.1	0.55	89	64.0	0.64	89	67.4	0.67
	Tip Calculation	11.2	89	18.0	0.18	89	42.7	0.43	89	4.5	0.26
	Radio Sales	30.6	89	43.8	0.44	89	50.6	0.51	89	57.3	0.57
	Town Populations	37.7	89	0.0*	0.21	89	0.0*	0.16	89	74.2*	0.74
<b>Algebra</b>	$3(x+5)=30$	72.0	89	38.2	0.38	89	51.7	0.52	89	67.4	0.67
	$4m$	58.0	89	24.7	0.25	89	37.1	0.37	89	43.8	0.44
	Points on Line	41.0	89	20.2	0.20	89	28.1	0.28	89	41.6	0.42
	Dropped Ball	34.0	89	27.0	0.27	89	31.5	0.31	89	36.0	0.36
	Similar Triangles (b)	26.0	89	19.1	0.19	89	15.7	0.16	89	27.0	0.27
<b>Geometry</b>	Jose's Tree	60.0	89	38.2	0.38	89	57.3	0.57	89	68.5	0.69
	Perimeter Shapes	32.3	89	31.5*	0.31	89	36.0*	0.36	89	58.4*	0.58
	Draw Rectangle	31.0	89	18.0*	0.21	89	5.6*	0.15	89	24.7*	0.35
	Rectangle Radio (area)	10.0	89	0.0	0.02	89	6.7	0.11	89	13.5	0.22
	Square/Circle Areas	29.2	89	29.2	0.29	89	41.6	0.42	89	40.4	0.40
<b>Statistics</b>	Blue Pen	53.0	89	46.1	0.46	89	58.4	0.58	89	65.2	0.65
	Red/Blue Cube	47.0	89	36.0	0.36	89	57.3	0.57	89	69.7	0.70
	Car Speed/ Stopping Dist.	49.0	89	49.4	0.49	89	61.8	0.62	89	61.8	0.62
	Batteries	35.7	89	22.5	0.22	89	47.2	0.47	89	55.1	0.55
	Metro Rail	25.5	89	4.5*	0.38	89	5.6*	0.38	89	25.8*	0.63

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

*1999, and 1999-2000*

Table 3.2

Means and p-values for External Assessment Anchor Items in Cohort B in Mathematics in Context Classrooms, in 1997-1998, 1998-

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1997-1998			Grade 7, 1998-1999			Grade 8, 1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	54	51.9	0.52	54	74.1	0.74	54	79.6	0.80
	Tourists on Bus	58.0	54	35.2	0.35	54	55.6	0.56	54	57.4	0.57
	Tip Calculation	11.2	54	37.0	0.37	54	44.4	0.44	54	44.4	0.44
	Radio Sales	30.6	54	24.1	0.24	54	31.5	0.31	54	42.6	0.43
	Town Populations	37.7	54	0.0*	0.05	54	0.0*	0.08	54	0.0*	0.14
<b>Algebra</b>	$3(x+5)=30$	72.0	54	33.3	0.33	54	46.3	0.46	54	61.1	0.61
	4m	58.0	54	13.0	0.13	54	11.1	0.11	54	22.2	0.22
	Points on Line	41.0	54	20.4	0.20	54	24.1	0.24	54	33.3	0.33
	Dropped Ball	34.0	54	27.8	0.28	54	31.5	0.31	54	27.8	0.28
	Similar Triangles (b)	26.0	54	5.6	0.06	54	7.4	0.07	54	24.1	0.24
<b>Geometry</b>	Jose's Tree	60.0	54	27.8	0.28	54	59.3	0.59	54	51.9	0.52
	Perimeter Shapes	32.3	54	16.7*	0.17	54	38.9*	0.39	54	27.8*	0.28
	Draw Rectangle	31.0	54	5.6*	0.06	54	5.6*	0.07	54	9.3*	0.12
	Rectangle Radio (area)	10.0	54	0.0	0.01	54	0.0	0.02	54	0.0	0.03
	Square/Circle Areas	29.2	54	16.7	0.17	54	20.4	0.20	54	24.1	0.24
<b>Statistics</b>	Blue Pen	53.0	54	40.7	0.41	54	40.7	0.41	54	57.4	0.57
	Red/Blue Cube	47.0	54	31.5	0.31	54	38.9	0.39	54	35.2	0.35
	Car Speed/ Stopping Dist.	49.0	54	31.5	0.31	54	51.9	0.52	54	55.6	0.56
	Batteries	35.7	54	20.4	0.20	54	37.0	0.37	54	38.9	0.39
	Metro Rail	25.5	54	0.0*	0.15	54	3.7*	0.34	54	1.9*	0.28

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

1999, and 1999-2000

Table 3.3

*Means and p-values for External Assessment Anchor Items in Cohort C in Mathematics in Context Classrooms, in 1997-1998 and 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1997-1998			Grade 8, 1998-1999		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	148	73.0	0.73	148	71.6	0.72
	Tourists on Bus	58.0	148	51.4	0.51	148	56.8	0.57
	Tip Calculation	11.2	148	37.2	0.37	148	45.9	0.46
	Radio Sales	30.6	148	38.5	0.39	148	41.9	0.42
	Town Populations	37.7	148	0.0*	0.09	148	0.0*	0.17
<b>Algebra</b>	$3(x+5)=30$	72.0	148	57.4	0.57	148	60.1	0.60
	4m	58.0	148	23.6	0.24	148	33.8	0.34
	Points on Line	41.0	148	18.9	0.19	148	43.2	0.43
	Dropped Ball	34.0	148	34.5	0.34	148	27.0	0.27
	Similar Triangles (b)	26.0	148	11.5	0.11	148	25.0	0.25
<b>Geometry</b>	Jose's Tree	60.0	148	41.9	0.42	148	59.5	0.59
	Perimeter Shapes	32.3	148	31.1*	0.31	148	42.6*	0.43
	Draw Rectangle	31.0	148	33.8*	0.35	148	34.5*	0.39
	Rectangle Radio (area)	10.0	148	2.0	0.04	148	3.4	0.07
	Square/Circle Areas	29.2	148	31.1	0.31	148	33.1	0.33
<b>Statistics</b>	Blue Pen	53.0	148	41.9	0.42	148	47.3	0.47
	Red/Blue Cube	47.0	148	39.2	0.39	148	45.3	0.45
	Car Speed/ Stopping Dist.	49.0	148	55.4	0.55	148	62.2	0.62
	Batteries	35.7	148	30.4	0.30	148	42.6	0.43
	Metro Rail	25.5	148	6.8*	0.36	148	4.7*	0.37

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 3.4  
*Means and p-values for External Assessment Anchor Items in Cohort D in Mathematics in Context Classrooms, in 1998-1999 and 1999-2000*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1998-1999			Grade 7, 1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	128	57.0	0.57	128	74.2	0.74
	Tourists on Bus	58.0	128	48.4	0.48	128	68.8	0.69
	Tip Calculation	11.2	128	33.6	0.34	128	46.9	0.47
	Radio Sales	30.6	128	34.4	0.34	128	42.2	0.42
	Town Populations	37.7	128	0.0*	0.14	128	1.6*	0.15
<b>Algebra</b>	$3(x+5)=30$	72.0	128	43.8	0.44	128	57.0	0.57
	4m	58.0	128	28.9	0.29	128	37.5	0.38
	Points on Line	41.0	128	28.9	0.29	128	33.6	0.34
	Dropped Ball	34.0	128	28.9	0.29	128	21.9	0.22
	Similar Triangles (b)	26.0	128	15.6	0.16	128	22.7	0.23
<b>Geometry</b>	Jose's Tree	60.0	128	46.9	0.47	128	53.9	0.54
	Perimeter Shapes	32.3	128	33.6*	0.34	128	44.5*	0.45
	Draw Rectangle	31.0	128	5.5*	0.08	128	9.4*	0.14
	Rectangle Radio (area)	10.0	128	3.1	0.06	128	8.6	0.13
	Square/Circle Areas	29.2	128	28.9	0.29	128	35.9	0.36
<b>Statistics</b>	Blue Pen	53.0	128	42.2	0.42	128	52.3	0.52
	Red/Blue Cube	47.0	128	39.8	0.40	128	64.8	0.65
	Car Speed/ Stopping Dist.	49.0	128	44.5	0.45	128	52.3	0.52
	Batteries	35.7	128	28.9	0.29	128	42.2	0.42
	Metro Rail	25.5	128	1.6*	0.30	128	11.7*	0.45

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 3.5  
*Means and p-values for External Assessment Anchor Items in Cohort E in Mathematics in Context Classrooms, in 1998-1999 and 1999-2000*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1998-1999			Grade 8, 1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	107	69.2	0.69	107	80.4	0.80
	Tourists on Bus	58.0	107	46.7	0.47	107	56.1	0.56
	Tip Calculation	11.2	107	47.7	0.48	107	57.0	0.57
	Radio Sales	30.6	107	33.6	0.34	107	37.4	0.37
	Town Populations	37.7	107	0.0*	0.09	107	0.0*	0.14
<b>Algebra</b>	$3(x+5)=30$	72.0	107	51.4	0.51	107	61.7	0.62
	4m	58.0	107	31.8	0.32	107	41.1	0.41
	Points on Line	41.0	107	23.4	0.23	107	35.5	0.36
	Dropped Ball	34.0	107	24.3	0.24	107	28.0	0.28
	Similar Triangles (b)	26.0	107	13.1	0.13	107	16.8	0.17
<b>Geometry</b>	Jose's Tree	60.0	107	39.3	0.39	107	53.3	0.53
	Perimeter Shapes	32.3	107	31.8*	0.32	107	47.7*	0.48
	Draw Rectangle	31.0	107	4.7*	0.07	107	16.8*	0.19
	Rectangle Radio (area)	10.0	107	1.9	0.04	107	4.7	0.08
	Square/Circle Areas	29.2	107	26.2	0.26	107	34.6	0.35
<b>Statistics</b>	Blue Pen	53.0	107	43.0	0.43	107	46.7	0.47
	Red/Blue Cube	47.0	107	36.4	0.36	107	42.1	0.42
	Car Speed/ Stopping Dist.	49.0	107	59.8	0.60	107	64.5	0.64
	Batteries	35.7	107	22.4	0.22	107	38.3	0.38
	Metro Rail	25.5	107	3.7*	0.32	107	4.7*	0.32

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 3.6  
*Means and p-values for External Assessment Anchor Items in Cohort F in Mathematics in Context Classrooms, in 1997-1998 and 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 5, 1997-1998			Grade 6, 1998-1999		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	55	60.0	0.60	55	58.2	0.58
	Tourists on Bus	58.0	55	32.7	0.33	55	54.5	0.55
	Tip Calculation	11.2	55	18.2	0.18	55	43.6	0.44
	Radio Sales	30.6	55	49.1	0.49	55	41.8	0.42
	Town Populations	37.7	55	0.0*	0.17	55	1.8	0.20
<b>Algebra</b>	$3(x+5)=30$	72.0	55	34.5	0.35	55	43.6	0.44
	4m	58.0	55	21.8	0.22	55	25.5	0.25
	Points on Line	41.0	55	30.9	0.31	55	25.5	0.25
	Dropped Ball	34.0	55	18.2	0.18	55	27.3	0.27
	Similar Triangles (b)	26.0	55	12.7	0.13	55	20.0	0.20
<b>Geometry</b>	Jose's Tree	60.0	55	30.9	0.31	55	50.9	0.51
	Perimeter Shapes	32.3	55	29.1*	0.29	55	27.3*	0.27
	Draw Rectangle	31.0	55	9.1*	0.15	55	5.5*	0.11
	Rectangle Radio (area)	10.0	55	0.0	0.03	55	9.1	0.11
	Square/Circle Areas	29.2	55	23.6	0.24	55	36.4	0.36
<b>Statistics</b>	Blue Pen	53.0	55	41.8	0.42	55	54.5	0.55
	Red/Blue Cube	47.0	55	40.0	0.40	55	41.8	0.42
	Car Speed/ Stopping Dist.	49.0	55	49.1	0.49	55	67.3	0.67
	Batteries	35.7	55	30.9	0.31	55	30.9	0.31
	Metro Rail	25.5	55	5.5*	0.37	55	7.3*	0.35

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.



Table 3.7

*Means and p-values for External Assessment Anchor Items in Cohort G in Mathematics in Context Classrooms, in 1997-1998 and 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1997-1998			Grade 7, 1998-1999		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	111	58.6	0.59	111	79.3	0.79
	Tourists on Bus	58.0	111	53.2	0.53	111	60.4	0.60
	Tip Calculation	11.2	111	27.0	0.27	111	54.1	0.54
	Radio Sales	30.6	111	50.5	0.50	111	45.0	0.45
	Town Populations	37.7	111	0.0*	0.12	111	0.0*	0.14
<b>Algebra</b>	$3(x+5)=30$	72.0	111	39.6	0.40	111	68.5	0.68
	4m	58.0	111	18.0	0.18	111	29.7	0.30
	Points on Line	41.0	111	26.1	0.26	111	34.2	0.34
	Dropped Ball	34.0	111	27.9	0.28	111	20.7	0.21
	Similar Triangles (b)	26.0	111	16.2	0.16	111	18.0	0.18
<b>Geometry</b>	Jose's Tree	60.0	111	48.6	0.49	111	60.4	0.60
	Perimeter Shapes	32.3	111	28.8*	0.29	111	36.9*	0.37
	Draw Rectangle	31.0	111	2.7*	0.08	111	9.0*	0.12
	Rectangle Radio (area)	10.0	111	1.8	0.06	111	8.1	0.14
	Square/Circle Areas	29.2	111	36.9	0.37	111	33.3	0.33
<b>Statistics</b>	Blue Pen	53.0	111	52.3	0.52	111	52.3	0.52
	Red/Blue Cube	47.0	111	38.7	0.39	111	59.5	0.59
	Car Speed/ Stopping Dist.	49.0	111	44.1	0.44	111	61.3	0.61
	Batteries	35.7	111	37.8	0.38	111	46.8	0.47
	Metro Rail	25.5	111	9.0*	0.32	111	15.3*	0.48

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 3.8  
*Means and p-values for External Assessment Anchor Items in Cohort H in Mathematics in Context Classrooms, in 1997-1998*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 5, 1997-1998		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	293	55.3	0.55
	Tourists on Bus	58.0	293	38.2	0.38
	Tip Calculation	11.2	293	23.2	0.23
	Radio Sales	30.6	293	37.5	0.38
	Town Populations	37.7	293	0.3	0.12
<b>Algebra</b>	$3(x+5)=30$	72.0	293	31.1	0.31
	4m	58.0	293	30.4	0.30
	Points on Line	41.0	293	27.6	0.28
	Dropped Ball	34.0	293	33.1	0.33
	Similar Triangles (b)	26.0	293	10.6	0.11
<b>Geometry</b>	Jose's Tree	60.0	293	35.5	0.35
	Perimeter Shapes	32.3	293	28.3	0.28
	Draw Rectangle	31.0	293	14.3	0.17
	Rectangle Radio (area)	10.0	293	1.0	0.02
	Square/Circle Areas	29.2	293	23.2	0.23
<b>Statistics</b>	Blue Pen	53.0	293	33.8	0.34
	Red/Blue Cube	47.0	293	34.1	0.34
	Car Speed/ Stopping Dist.	49.0	293	27.3	0.27
	Batteries	35.7	293	26.3	0.26
	Metro Rail	25.5	293	3.4	0.25

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 3.9  
*Means and p-values for External Assessment Anchor Items in Cohort I in Mathematics in Context Classrooms, in 1997-1998*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1997-1998		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	246	55.3	0.55
	Tourists on Bus	58.0	246	38.6	0.39
	Tip Calculation	11.2	246	31.3	0.31
	Radio Sales	30.6	246	29.7	0.30
	Town Populations	37.7	246	0.0	0.08
<b>Algebra</b>	$3(x+5)=30$	72.0	246	30.5	0.30
	4m	58.0	246	13.8	0.14
	Points on Line	41.0	246	23.2	0.23
	Dropped Ball	34.0	246	35.0	0.35
	Similar Triangles (b)	26.0	246	10.2	0.10
<b>Geometry</b>	Jose's Tree	60.0	246	40.7	0.41
	Perimeter Shapes	32.3	246	24.0	0.24
	Draw Rectangle	31.0	246	3.3	0.05
	Rectangle Radio (area)	10.0	246	0.4	0.02
	Square/Circle Areas	29.2	246	26.8	0.27
<b>Statistics</b>	Blue Pen	53.0	246	38.2	0.38
	Red/Blue Cube	47.0	246	41.1	0.41
	Car Speed/ Stopping Dist.	49.0	246	32.9	0.33
	Batteries	35.7	246	22.0	0.22
	Metro Rail	25.5	246	1.6	0.19

Table 3.10  
*Means and p-values for External Assessment Anchor Items in Cohort J in Mathematics in Context Classrooms, in 1997-1998*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1997-1998		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	320	67.8	0.68
	Tourists on Bus	58.0	320	47.8	0.48
	Tip Calculation	11.2	320	41.3	0.41
	Radio Sales	30.6	320	36.3	0.36
	Town Populations	37.7	320	0.8	0.08
<b>Algebra</b>	$3(x+5)=30$	72.0	320	47.8	0.48
	4m	58.0	320	29.7	0.30
	Points on Line	41.0	320	24.7	0.25
	Dropped Ball	34.0	320	36.6	0.37
	Similar Triangles (b)	26.0	320	15.0	0.15
<b>Geometry</b>	Jose's Tree	60.0	320	44.4	0.44
	Perimeter Shapes	32.3	320	33.4	0.33
	Draw Rectangle	31.0	320	47.2	0.50
	Rectangle Radio (area)	10.0	320	5.0	0.07
	Square/Circle Areas	29.2	320	28.4	0.28
<b>Statistics</b>	Blue Pen	53.0	320	45.0	0.45
	Red/Blue Cube	47.0	320	58.8	0.59
	Car Speed/ Stopping Dist.	49.0	320	42.8	0.43
	Batteries	35.7	320	40.0	0.40
	Metro Rail	25.5	320	9.1	0.33

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 3.11  
*Means and p-values for External Assessment Anchor Items in Cohort K in Mathematics in Context Classrooms, in 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1998-1999		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	234	50.0	0.50
	Tourists on Bus	58.0	234	38.0	0.38
	Tip Calculation	11.2	234	27.8	0.28
	Radio Sales	30.6	234	29.5	0.29
	Town Populations	37.7	234	0.0	0.07
<b>Algebra</b>	$3(x+5)=30$	72.0	234	38.0	0.38
	$4m$	58.0	234	19.7	0.20
	Points on Line	41.0	234	17.9	0.18
	Dropped Ball	34.0	234	22.2	0.22
	Similar Triangles (b)	26.0	234	8.1	0.08
<b>Geometry</b>	Jose's Tree	60.0	234	35.0	0.35
	Perimeter Shapes	32.3	234	23.9	0.24
	Draw Rectangle	31.0	234	1.3	0.03
	Rectangle Radio (area)	10.0	234	0.9	0.03
	Square/Circle Areas	29.2	234	23.9	0.24
<b>Statistics</b>	Blue Pen	53.0	234	35.0	0.35
	Red/Blue Cube	47.0	234	33.3	0.33
	Car Speed/ Stopping Dist.	49.0	234	31.2	0.31
	Batteries	35.7	234	23.5	0.24
	Metro Rail	25.5	234	1.3	0.20

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 3.12  
*Means and p-values for External Assessment Anchor Items in Cohort L in  
 Mathematics in Context Classrooms, in 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1998-1999		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	244	59.8	0.60
	Tourists on Bus	58.0	244	43.9	0.44
	Tip Calculation	11.2	244	50.4	0.50
	Radio Sales	30.6	244	31.6	0.32
	Town Populations	37.7	244	0.4	0.07
<b>Algebra</b>	$3(x+5)=30$	72.0	244	47.1	0.47
	4m	58.0	244	17.6	0.18
	Points on Line	41.0	244	25.4	0.25
	Dropped Ball	34.0	244	29.1	0.29
	Similar Triangles (b)	26.0	244	7.4	0.07
<b>Geometry</b>	Jose's Tree	60.0	244	40.2	0.40
	Perimeter Shapes	32.3	244	27.9	0.28
	Draw Rectangle	31.0	244	2.0	0.03
	Rectangle Radio (area)	10.0	244	2.0	0.04
	Square/Circle Areas	29.2	244	24.2	0.24
<b>Statistics</b>	Blue Pen	53.0	244	37.3	0.37
	Red/Blue Cube	47.0	244	56.6	0.57
	Car Speed/ Stopping Dist.	49.0	244	32.8	0.33
	Batteries	35.7	244	23.4	0.23
	Metro Rail	25.5	244	1.2	0.28

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 3.13  
*Means and p-values for External Assessment Anchor Items in Cohort M in Mathematics in Context Classrooms, in 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 8, 1998-1999		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	151	65.6	0.66
	Tourists on Bus	58.0	151	45.7	0.46
	Tip Calculation	11.2	151	29.8	0.30
	Radio Sales	30.6	151	37.7	0.38
	Town Populations	37.7	151	0.0	0.10
<b>Algebra</b>	$3(x+5)=30$	72.0	151	45.7	0.46
	4m	58.0	151	25.2	0.25
	Points on Line	41.0	151	24.2	0.25
	Dropped Ball	34.0	151	23.2	0.23
	Similar Triangles (b)	26.0	151	10.6	0.11
<b>Geometry</b>	Jose's Tree	60.0	151	45.7	0.46
	Perimeter Shapes	32.3	151	27.8	0.28
	Draw Rectangle	31.0	151	55.6	0.57
	Rectangle Radio (area)	10.0	151	1.3	0.04
	Square/Circle Areas	29.2	151	19.2	0.19
<b>Statistics</b>	Blue Pen	53.0	151	36.4	0.36
	Red/Blue Cube	47.0	151	34.4	0.34
	Car Speed/ Stopping Dist.	49.0	151	37.1	0.37
	Batteries	35.7	151	51.0	0.51
	Metro Rail	25.5	151	0.7	0.15

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Conventional Cohorts

Table 4.1

Means and p-values for External Assessment Anchor Items in Cohort A in Conventional Classrooms, in 1997-1998, 1998-1999, and 1999-2000

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 5, 1997-1998			Grade 6, 1998-1999			Grade 7,1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	5	100.0	1.00	5	80.0	0.80	4	75.0	0.75
	Tourists on Bus	58.0	5	40.0	0.40	5	40.0	0.40	4	50.0	0.50
	Tip Calculation	11.2	5	0.0*	0.20	5	60.0	0.60	4	75.0	0.75
	Radio Sales	30.6	5	20.0	0.20	5	40.0	0.40	3	33.3	0.33
	Town Populations	37.7	5	40.0	0.40	5	20.0*	0.30	4	0.0*	0.13
<b>Algebra</b>	$3(x+5)=30$	72.0	5	20.0	0.20	5	80.0	0.80	4	50.0	0.50
	4m	58.0	5	60.0	0.60	5	80.0	0.80	4	75.0	0.75
	Points on Line	41.0	5	20.0	0.20	5	40.0	0.40	4	50.0	0.50
	Dropped Ball	34.0	5	0.0	0.00	5	60.0	0.60	4	50.0	0.50
	Similar Triangles (b)	26.0	5	20.0	0.20	5	80.0	0.80	4	50.0	0.50
<b>Geometry</b>	Jose's Tree	60.0	5	40.0	0.40	5	40.0	0.40	4	75.0	0.75
	Perimeter Shapes	32.3	5	20.0*	0.20	5	0.0	0.00	4	25.0	0.25
	Draw Rectangle	31.0	5	20.0*	0.30	5	20.0	0.20	4	25.0	0.25
	Rectangle Radio (area)	10.0	5	0.0	0.00	5	40.0	0.40	4	25.0*	0.38
	Square/Circle Areas	29.2	5	20.0	0.20	5	80.0	0.80	4	25.0	0.25
<b>Statistics</b>	Blue Pen	53.0	5	60.0	0.60	5	80.0	0.80	4	75.0	0.75
	Red/Blue Cube	47.0	5	40.0	0.20	5	100.0	1.00	4	25.0	0.25
	Car Speed/ Stopping Dist.	49.0	5	40.0	0.40	5	60.0	0.60	4	75.0	0.75
	Batteries	35.7	5	40.0	0.40	5	60.0	0.60	4	75.0	0.75
	Metro Rail	25.5	5	0.0*	0.33	5	20.0*	0.53	4	25.0*	0.66

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.



Table 4.2

Means and p-values for External Assessment Anchor Items in Cohort B in Conventional Classrooms, in 1997-1998, 1998-1999, and 1999-2000

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1997-1998			Grade 7, 1998-1999			Grade 8, 1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	2	0.5	0.50	2	1.0	1.00	2	1.0	1.00
	Tourists on Bus	58.0	2	0.0	0.00	2	0.5	0.50	2	0.5	0.50
	Tip Calculation	11.2	2	1.0	1.00	2	1.0	1.00	2	0.5	0.50
	Radio Sales	30.6	2	0.0	0.00	2	0.5	0.50	2	0.5	0.50
	Town Populations	37.7	2	0.0	0.00	2	0.0	0.25	2	0.0	0.00
<b>Algebra</b>	$3(x+5)=30$	72.0	2	1.0	1.00	2	1.0	1.00	2	0.0	0.00
	4m	58.0	2	0.0	0.00	2	0.0	0.00	2	0.0	0.00
	Points on Line	41.0	2	0.0	0.00	2	0.0	0.00	2	0.0	0.00
	Dropped Ball	34.0	2	0.5	0.50	2	0.0	0.00	2	0.5	0.50
	Similar Triangles (b)	26.0	2	0.0	0.00	2	0.5	0.50	2	0.0	0.00
<b>Geometry</b>	Jose's Tree	60.0	2	0.0	0.00	2	1.0	1.00	2	0.5	0.50
	Perimeter Shapes	32.3	2	0.5	0.50	2	1.0	1.00	2	0.0	0.00
	Draw Rectangle	31.0	2	0.0	0.00	2	0.0	0.00	2	0.0	0.00
	Rectangle Radio (area)	10.0	2	0.0	0.00	2	0.0	0.00	2	0.0	0.00
	Square/Circle Areas	29.2	2	0.0	0.00	2	0.5	0.50	2	0.0	0.00
<b>Statistics</b>	Blue Pen	53.0	2	0.0	0.00	2	0.0	0.00	2	0.0	0.00
	Red/Blue Cube	47.0	2	0.0	0.00	2	0.5	0.50	2	0.5	0.50
	Car Speed/ Stopping Dist.	49.0	2	1.0	1.00	2	0.5	0.50	2	1.0	1.00
	Batteries	35.7	2	0.0	0.00	2	0.5	0.50	2	0.5	0.50
	Metro Rail	25.5	2	0.0	0.17	2	0.0	0.50	2	0.0	0.17

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 4.3

*Means and p-values for External Assessment Anchor Items in Cohort C in Conventional Classrooms, in 1997-1998 and 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1997-1998			Grade 8, 1998-1999		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	34	0.5	0.53	34	0.7	0.68
	Tourists on Bus	58.0	34	0.4	0.35	34	0.5	0.50
	Tip Calculation	11.2	34	0.5	0.53	34	0.4	0.35
	Radio Sales	30.6	34	0.3	0.32	34	0.3	0.32
	Town Populations	37.7	34	0.0	0.04	34	0.0	0.03
<b>Algebra</b>	$3(x+5)=30$	72.0	34	0.6	0.59	34	0.5	0.47
	4m	58.0	34	0.3	0.32	34	0.4	0.35
	Points on Line	41.0	34	0.2	0.21	34	0.2	0.18
	Dropped Ball	34.0	34	0.3	0.32	34	0.3	0.29
	Similar Triangles (b)	26.0	34	0.1	0.12	34	0.1	0.15
<b>Geometry</b>	Jose's Tree	60.0	34	0.3	0.29	34	0.5	0.50
	Perimeter Shapes	32.3	34	0.1	0.12	34	0.4	0.35
	Draw Rectangle	31.0	34	0.5	0.53	34	0.6	0.62
	Rectangle Radio (area)	10.0	34	0.0	0.04	34	0.0	0.03
	Square/Circle Areas	29.2	34	0.3	0.29	34	0.2	0.24
<b>Statistics</b>	Blue Pen	53.0	34	0.6	0.59	34	0.3	0.32
	Red/Blue Cube	47.0	34	0.4	0.44	34	0.3	0.32
	Car Speed/ Stopping Dist.	49.0	34	0.4	0.41	34	0.6	0.59
	Batteries	35.7	34	0.3	0.29	34	0.5	0.47
	Metro Rail	25.5	34	0.1	0.43	34	0.0	0.18

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 4.4

*Means and p-values for External Assessment Anchor Items in Cohort D in Conventional Classrooms, in 1998-1999 and 1999-2000*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1998-1999			Grade 7, 1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	8	0.6	0.63	8	0.9	0.88
	Tourists on Bus	58.0	8	0.1	0.13	8	0.3	0.25
	Tip Calculation	11.2	8	0.1	0.13	8	0.6	0.63
	Radio Sales	30.6	8	0.1	0.13	8	0.4	0.38
	Town Populations	37.7	8	0.0	0.13	8	0.0	0.06
<b>Algebra</b>	$3(x+5)=30$	72.0	8	0.6	0.63	8	0.4	0.38
	4m	58.0	8	0.5	0.50	8	0.5	0.50
	Points on Line	41.0	8	0.3	0.25	8	0.4	0.38
	Dropped Ball	34.0	8	0.1	0.13	8	0.3	0.25
	Similar Triangles (b)	26.0	8	0.1	0.13	8	0.1	0.13
<b>Geometry</b>	Jose's Tree	60.0	8	0.3	0.25	8	0.6	0.63
	Perimeter Shapes	32.3	8	0.3	0.25	8	0.5	0.50
	Draw Rectangle	31.0	8	0.0	0.06	8	0.0	0.00
	Rectangle Radio (area)	10.0	8	0.0	0.00	8	0.0	0.00
	Square/Circle Areas	29.2	8	0.1	0.13	8	0.4	0.38
<b>Statistics</b>	Blue Pen	53.0	8	0.3	0.25	8	0.8	0.75
	Red/Blue Cube	47.0	8	0.6	0.63	8	0.4	0.38
	Car Speed/ Stopping Dist.	49.0	8	0.3	0.25	8	0.8	0.75
	Batteries	35.7	8	0.6	0.63	8	0.3	0.25
	Metro Rail	25.5	8	0.1	0.17	8	0.0	0.45

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 4.5

*Means and p-values for External Assessment Anchor Items in Cohort E in Conventional Classrooms, in 1998-1999 and 1999-2000*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1998-1999			Grade 8, 1999-2000		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	24	0.6	0.63	24	0.7	0.71
	Tourists on Bus	58.0	24	0.6	0.58	24	0.5	0.54
	Tip Calculation	11.2	24	0.3	0.33	24	0.4	0.38
	Radio Sales	30.6	24	0.4	0.42	24	0.5	0.54
	Town Populations	37.7	24	0.0	0.08	24	0.0	0.06
<b>Algebra</b>	$3(x+5)=30$	72.0	24	0.6	0.63	24	0.6	0.58
	4m	58.0	24	0.5	0.46	24	0.5	0.46
	Points on Line	41.0	24	0.3	0.25	24	0.1	0.08
	Dropped Ball	34.0	24	0.2	0.21	24	0.1	0.13
	Similar Triangles (b)	26.0	24	0.3	0.25	24	0.1	0.13
<b>Geometry</b>	Jose's Tree	60.0	24	0.3	0.33	24	0.6	0.63
	Perimeter Shapes	32.3	24	0.3	0.33	24	0.5	0.50
	Draw Rectangle	31.0	24	0.0	0.00	24	0.2	0.17
	Rectangle Radio (area)	10.0	24	0.1	0.08	24	0.0	0.06
	Square/Circle Areas	29.2	24	0.5	0.46	24	0.4	0.42
<b>Statistics</b>	Blue Pen	53.0	24	0.5	0.54	24	0.5	0.50
	Red/Blue Cube	47.0	24	0.4	0.42	24	0.7	0.67
	Car Speed/ Stopping Dist.	49.0	24	0.7	0.71	24	0.6	0.58
	Batteries	35.7	24	0.4	0.38	24	0.4	0.42
	Metro Rail	25.5	24	0.1	0.37	24	0.0	0.19

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 4.6

*Means and p-values for External Assessment Anchor Items in Cohort F in Conventional Classrooms, in 1997-1998 and 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 5, 1997-1998			Grade 6, 1998-1999		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	9	88.9	0.89	9	66.7	0.67
	Tourists on Bus	58.0	9	66.7	0.67	9	44.4	0.44
	Tip Calculation	11.2	9	0.0*	0.17	9	22.2	0.22
	Radio Sales	30.6	9	11.1	0.11	9	33.3	0.33
	Town Populations	37.7	9	33.3	0.33	9	0.0*	0.11
<b>Algebra</b>	$3(x+5)=30$	72.0	9	33.3	0.33	9	55.6	0.56
	4m	58.0	9	44.4	0.44	9	66.7	0.67
	Points on Line	41.0	9	22.2	0.22	9	11.1	0.11
	Dropped Ball	34.0	9	44.4	0.44	9	22.2	0.22
	Similar Triangles (b)	26.0	9	22.2	0.22	9	33.3	0.33
<b>Geometry</b>	Jose's Tree	60.0	9	44.4	0.44	9	33.3	0.33
	Perimeter Shapes	32.3	9	55.6	0.56	9	33.3	0.33
	Draw Rectangle	31.0	9	22.2	0.28	9	22.2	0.22
	Rectangle Radio (area)	10.0	9	0.0*	0.06	9	0.0*	0.06
	Square/Circle Areas	29.2	9	22.2	0.22	9	22.2	0.22
<b>Statistics</b>	Blue Pen	53.0	9	55.6	0.56	9	77.8	0.78
	Red/Blue Cube	47.0	9	55.6	0.56	9	66.7	0.67
	Car Speed/ Stopping Dist.	49.0	9	66.7	0.67	9	77.8	0.78
	Batteries	35.7	9	22.2	0.22	9	55.6	0.56
	Metro Rail	25.5	9	11.1	0.33	9	0.0*	0.37

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 4.7

*Means and p-values for External Assessment Anchor Items in Cohort G in Conventional Classrooms, in 1997-1998 and 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1997-1998			Grade 7, 1998-1999		
			(N)	p-value	Mean	(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	13	46.2	0.46	13	53.8	0.54
	Tourists on Bus	58.0	13	23.1	0.23	13	30.8	0.31
	Tip Calculation	11.2	13	53.8	0.54	13	30.8	0.31
	Radio Sales	30.6	13	38.5	0.38	13	30.8	0.31
	Town Populations	37.7	13	0.0*	0.04	13	0.0	0.00
<b>Algebra</b>	$3(x+5)=30$	72.0	13	76.9	0.77	13	46.2	0.46
	4m	58.0	13	69.2	0.69	13	15.4	0.15
	Points on Line	41.0	13	69.2	0.69	13	23.1	0.23
	Dropped Ball	34.0	13	23.1	0.23	13	38.5	0.38
	Similar Triangles (b)	26.0	13	46.2	0.46	13	15.4	0.15
<b>Geometry</b>	Jose's Tree	60.0	13	7.7	0.08	13	23.1	0.23
	Perimeter Shapes	32.3	13	23.1	0.23	13	15.4	0.15
	Draw Rectangle	31.0	13	15.4*	0.23	13	0.0	0.00
	Rectangle Radio (area)	10.0	13	0.0	0.00	13	0.0	0.00
	Square/Circle Areas	29.2	13	30.8	0.31	13	23.1	0.23
<b>Statistics</b>	Blue Pen	53.0	13	23.1	0.23	13	61.5	0.62
	Red/Blue Cube	47.0	13	0.0	0.00	13	23.1	0.23
	Car Speed/ Stopping Dist.	49.0	13	76.9	0.77	13	46.2	0.46
	Batteries	35.7	13	15.4	0.15	13	30.8	0.31
	Metro Rail	25.5	13	0.0*	0.38	13	0.0*	0.20

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct answers.

Table 4.8  
*Means and p-values for External Assessment Anchor Items in Cohort H in  
 Conventional Classrooms, in 1997-1998*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 5, 1997-1998		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	67	59.7	0.60
	Tourists on Bus	58.0	67	41.8	0.42
	Tip Calculation	11.2	67	0.0*	0.19
	Radio Sales	30.6	67	32.8	0.33
	Town Populations	37.7	67	31.3	0.31
<b>Algebra</b>	$3(x+5)=30$	72.0	67	31.3	0.31
	4m	58.0	67	25.4	0.25
	Points on Line	41.0	67	19.4	0.19
	Dropped Ball	34.0	67	29.9	0.30
	Similar Triangles (b)	26.0	67	20.9	0.21
<b>Geometry</b>	Jose's Tree	60.0	67	47.8	0.48
	Perimeter Shapes	32.3	67	28.4	0.28
	Draw Rectangle	31.0	67	14.9	0.16
	Rectangle Radio (area)	10.0	67	0.0	0.00
	Square/Circle Areas	29.2	67	26.9	0.27
<b>Statistics</b>	Blue Pen	53.0	67	46.3	0.46
	Red/Blue Cube	47.0	67	44.8	0.45
	Car Speed/ Stopping Dist.	49.0	67	56.7	0.57
	Batteries	35.7	67	26.9	0.27
	Metro Rail	25.5	67	7.5*	0.38

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 4.9  
*Means and p-values for External Assessment Anchor Items in Cohort I in  
 Conventional Classrooms, in 1997-1998*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1997-1998		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	101	51.5	0.51
	Tourists on Bus	58.0	101	32.7	0.33
	Tip Calculation	11.2	101	41.6	0.42
	Radio Sales	30.6	101	21.8	0.22
	Town Populations	37.7	101	0.0*	0.04
<b>Algebra</b>	$3(x+5)=30$	72.0	101	42.6	0.43
	$4m$	58.0	101	37.6	0.38
	Points on Line	41.0	101	36.6	0.37
	Dropped Ball	34.0	101	34.7	0.35
	Similar Triangles (b)	26.0	101	30.7	0.31
<b>Geometry</b>	Jose's Tree	60.0	101	34.7	0.35
	Perimeter Shapes	32.3	101	25.7	0.26
	Draw Rectangle	31.0	101	11.9*	0.14
	Rectangle Radio (area)	10.0	101	1.0	0.01
	Square/Circle Areas	29.2	101	24.8	0.25
<b>Statistics</b>	Blue Pen	53.0	101	36.6	0.37
	Red/Blue Cube	47.0	101	24.8	0.25
	Car Speed/ Stopping Dist.	49.0	101	42.6	0.43
	Batteries	35.7	101	19.8	0.20
	Metro Rail	25.5	101	2.0*	0.15

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct



Table 4.10  
*Means and p-values for External Assessment Anchor Items in Cohort J in  
 Conventional Classrooms, in 1997-1998*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1997-1998		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	55	67.3	0.67
	Tourists on Bus	58.0	55	25.5	0.25
	Tip Calculation	11.2	55	25.5	0.25
	Radio Sales	30.6	55	25.5	0.25
	Town Populations	37.7	55	0.0*	0.04
<b>Algebra</b>	$3(x+5)=30$	72.0	55	54.5	0.55
	4m	58.0	55	20.0	0.20
	Points on Line	41.0	55	14.5	0.15
	Dropped Ball	34.0	55	16.4	0.16
	Similar Triangles (b)	26.0	55	9.1	0.09
<b>Geometry</b>	Jose's Tree	60.0	55	38.2	0.38
	Perimeter Shapes	32.3	55	18.2	0.18
	Draw Rectangle	31.0	55	47.3	0.48
	Rectangle Radio (area)	10.0	55	0.0*	0.01
	Square/Circle Areas	29.2	55	23.6	0.24
<b>Statistics</b>	Blue Pen	53.0	55	41.8	0.42
	Red/Blue Cube	47.0	55	27.3	0.27
	Car Speed/ Stopping Dist.	49.0	55	54.5	0.55
	Batteries	35.7	55	23.6	0.24
	Metro Rail	25.5	55	5.5*	0.28

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 4.11  
*Means and p-values for External Assessment Anchor Items in Cohort K in Conventional Classrooms, in 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 6, 1998-1999		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	39	66.7	0.67
	Tourists on Bus	58.0	39	41.0	0.41
	Tip Calculation	11.2	39	43.6	0.44
	Radio Sales	30.6	39	43.6	0.44
	Town Populations	37.7	39	2.6*	0.12
<b>Algebra</b>	$3(x+5)=30$	72.0	39	59.0	0.59
	4m	58.0	39	35.9	0.36
	Points on Line	41.0	39	30.8	0.31
	Dropped Ball	34.0	39	17.9	0.18
	Similar Triangles (b)	26.0	39	10.3	0.10
<b>Geometry</b>	Jose's Tree	60.0	39	41.0	0.41
	Perimeter Shapes	32.3	39	35.9	0.36
	Draw Rectangle	31.0	39	5.1*	0.08
	Rectangle Radio (area)	10.0	39	2.6	0.03
	Square/Circle Areas	29.2	39	15.4	0.15
<b>Statistics</b>	Blue Pen	53.0	39	43.6	0.44
	Red/Blue Cube	47.0	39	41.0	0.41
	Car Speed/ Stopping Dist.	49.0	39	30.8	0.31
	Batteries	35.7	39	25.6	0.26
	Metro Rail	25.5	39	2.6*	0.29

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 4.12  
*Means and p-values for External Assessment Anchor Items in Cohort L in  
 Conventional Classrooms, in 1998-1999*

Content Strand	Item Name	International/ National Grade 8 p-value	Grade 7, 1998-1999		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	38	55.3	0.55
	Tourists on Bus	58.0	38	44.7	0.45
	Tip Calculation	11.2	38	28.9	0.29
	Radio Sales	30.6	38	23.7	0.24
	Town Populations	37.7	38	0.0	0.00
<b>Algebra</b>	$3(x+5)=30$	72.0	38	34.2	0.34
	4m	58.0	38	15.8	0.16
	Points on Line	41.0	38	21.1	0.21
	Dropped Ball	34.0	38	31.6	0.32
	Similar Triangles (b)	26.0	38	10.5	0.11
<b>Geometry</b>	Jose's Tree	60.0	38	34.2	0.34
	Perimeter Shapes	32.3	38	26.3	0.26
	Draw Rectangle	31.0	38	2.6	0.03
	Rectangle Radio (area)	10.0	38	0.0*	0.01
	Square/Circle Areas	29.2	38	21.1	0.21
<b>Statistics</b>	Blue Pen	53.0	38	34.2	0.34
	Red/Blue Cube	47.0	38	13.2	0.13
	Car Speed/ Stopping Dist.	49.0	38	57.9	0.58
	Batteries	35.7	38	23.7	0.24
	Metro Rail	25.5	38	0.0*	0.19

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct

Table 4.13  
*Means and p-values for External Assessment Anchor Items in Cohort M in  
 Conventional Classrooms, in 1998-1999*

Content Strand	Item Name	International/ National Grade 8	Grade 8, 1998-1999		
			(N)	p-value	Mean
<b>Number</b>	Jill's Trip	58.7	41	24.4	0.24
	Tourists on Bus	58.0	41	36.6	0.37
	Tip Calculation	11.2	41	41.5	0.41
	Radio Sales	30.6	41	39.0	0.39
	Town Populations	37.7	41	0.0*	0.07
<b>Algebra</b>	$3(x+5)=30$	72.0	41	43.9	0.44
	4m	58.0	41	61.0	0.61
	Points on Line	41.0	41	63.4	0.63
	Dropped Ball	34.0	41	22.0	0.22
	Similar Triangles (b)	26.0	41	26.8	0.27
<b>Geometry</b>	Jose's Tree	60.0	41	58.5	0.59
	Perimeter Shapes	32.3	41	34.1	0.34
	Draw Rectangle	31.0	41	0.0*	0.01
	Rectangle Radio (area)	10.0	41	0.0*	0.01
	Square/Circle Areas	29.2	41	14.6	0.15
<b>Statistics</b>	Blue Pen	53.0	41	22.0	0.22
	Red/Blue Cube	47.0	41	61.0	0.61
	Car Speed/ Stopping Dist.	49.0	41	31.7	0.32
	Batteries	35.7	41	26.8	0.26829
	Metro Rail	25.5	41	2.4	0.02

\* In scoring these items, partial credit was given for partially correct answers. The p-value represents percent of completely correct answers, the mean factors in the partially correct