Classroom, Inc.

Evaluation of the Literacy at Work Program, New York City 2004-2005

Outcome Evaluation

Submitted To

Classroom, Inc.
245 Fifth Avenue 20th Floor
New York, NY 10026

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Metis Associates
...making a meaningful difference

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Metis Associates
90 Broad Street
Suite 1200
New York, NY 10004
P 212.425.8833
F 212.480.2176
www.metisassoc.com

Table of Contents

		Page
EXECUTIVE SUMMARY		i
I.	INTRODUCTION	1
	A. Background on the Literacy at Work Program	1
	B. Research Questions and Methods	2
	C. Scope of the Outcome Evaluation	5
II.	PROGRAM IMPLEMENTATION	8
III.	PERCEPTIONS OF THE PROGRAM	10
IV.	STUDENT OUTCOMES	20
	A. Literacy Skills	22
	B. Math and Problem-Solving Skills	34
	C. Student Engagement and Collaborative Learning	47
	D. Technology	48
	E. Career Awareness and Content Knowledge	50
V.	CONCLUSIONS AND RECOMMENDATIONS	54
APPENDIX A: METHODS AND PROCEDURES		A-1
APPENDIX B: ANALYSES OF ATTITUDINAL SURVEY ITEMS		B-1
APPENDIX C: DATA COLLECTION INSTRUMENTS		C-1

Table of Tables and Figures

Tables Page

Table 1: Matrix of Research Questions, Methods and Respondents. 4
Table 2: Schools, Teachers and Classes Participating in the Evaluation 5
Table 3: Subject Areas of Teachers. 6
Table 4: Characteristics of Students 6
Table 5: Number of Episodes Completed. 8
Table 6: Student Satisfaction with the Program by Simulation. 12
Table 7: Student Satisfaction with the Program by Grade Level 12
Table 8: Perceived Impact of the Program on Literacy Skills by Simulation 16
Table 9: Assessment Instruments. 20
Table 10: Constructs 21
Table 11: Performance Levels in English Language Arts for 5th-Grade Target Students, Spring 2004 to Spring 2005. 23
Table 12: 5th-Grade NYC English Language Arts Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005 24
Table 13: 5th-Grade NYC English Language Arts Mean Scale Scores by Degree of Implementation 24
Table 14: Performance Levels in English Language Arts for 6th-Grade Target Students, Spring 2004 to Spring 2005. 25
Table 15: 6th-Grade NYC English Language Arts Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005 26
Table 16: 6th-Grade NYC English Language Arts Mean Scale Scores by Degree of Implementation 26
Table 17: Performance Levels in English Language Arts for 7th-Grade Target Students, Spring 2004 to Spring 2005. 27
Table 18: 7th-Grade NYC English Language Arts Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005. 28
Table 19: 7th-Grade NYC English Language Arts Mean Scale Scores by Degree of Implementation 28
Table 20: Summary Results: Achievement in English Language Arts. 29
Table 21: Multiple Regression Analysis Dependent Variable: Spring 2005 NYC ELA Scores 30

Table of Tables and Figures (continued)

Tables Page

Table 22: Attitudes Toward Literacy: Differences in Adjusted Mean Scale Scores, by Selected Characteristics. 33

Table 23: Performance Levels in Mathematics for 5th-Grade Target Students, Spring 2004 to Spring 2005. 35

Table 24: 5th-Grade NYC Mathematics Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005. 35

Table 25: 5th-Grade NYC Mathematics Mean Scale Scores by Degree of Implementation 36

Table 26: Performance Levels in Mathematics for 6th-Grade Target Students, Spring 2004 to Spring 2005. 37

Table 27: 6th-Grade NYC Mathematics Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005 37

Table 28: 6th-Grade NYC Mathematics Mean Scale Scores by Degree of Implementation 38

Table 29: Performance Levels in Mathematics for 7th-Grade Target Students, Spring 2004 to Spring 2005 39

Table 30: 7th-Grade NYC Mathematics Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005. 39

Table 31: 7th-Grade NYC Mathematics Mean Scale Scores by Degree of Implementation 40

Table 32: Performance Levels in Mathematics for 8th-Grade Target Students, Spring 2004 to Spring 2005. 41

Table 33: 8th-Grade NYS Mathematics Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005. 41

Table 34: 8th-Grade NYS Mathematics Mean Scale Scores by Degree of Implementation. 42

Table 35: Summary Results: Achievement in Mathematics. 43

Table 36: Multiple Regression Analysis Dependent Variable: Spring 2005 NYC/NYS Mathematics Scores 44

Table 37: Attitudes toward Math and Problem-Solving: Differences in Adjusted Mean Scale Scores, by Selected Characteristics. 46

Table 38: Results from Content-Knowledge Test, by Simulation. 51

Table 39: Results from Content-Knowledge Test, by Selected Student Characteristics. 52

Table 40: Results from Content-Knowledge Test, by Selected Teacher and School Characteristics. 53

Figures

Page

Figure 1: Student Satisfaction with the Program. 10

Figure 2: Student Satisfaction with the Program, by Teacher Previous Experience with Classroom, Inc. Materials. 13

Figure 3: Student Perceptions about the Level of Difficulty. 14

Figure 4: Student Perceptions about the Level of Difficulty, by Gender and Ethnicity. 14

Figure 5: Student Perceptions about the Impact of the Program. 15

Figure 6: Student Perceptions of the Impact of the Program on Literacy Skills, by Teacher Previous Experience with Classroom, Inc. Materials 17

Figure 7: Student Perceptions of the Impact of the Program on Math Skills by Grade Level and Minority Status. 18

Figure 8: Attitudes toward Literacy: Comparison of Fall 2004 and Spring 2005 Mean Scores. 31

Figure 9: Attitudes toward Math and Problem-Solving: Comparison of Fall 2004 and Spring 2005 Mean Scores. 45

Figure 10: Attitudes toward Collaborative Learning. 47

Figure 11: Attitudes toward Computers. 48

Figure 12: Attitudes toward Computers: Adjusted Mean Scores, by Selected Characteristics. 49

EXECUTIVE SUMMARY

The Literacy at Work (LAW) program was developed by Classroom, Inc., an organization which develops educational programs that combine print curricula, technology and professional development, as a comprehensive, standards-based education program that provides students with opportunities to develop, practice and reinforce critical literacy skills. During the 2004-2005 school year, Classroom, Inc. implemented the LAW program in middle and high school classrooms. Classroom, Inc. retained Metis Associates, an independent research and evaluation firm, to evaluate implementation and outcomes of the program in New York City public schools. This report presents findings on the outcomes of students who participated in the program and summarizes key findings from Metis' recent implementation report.[1]

The Literacy at Work (LAW) program addresses literacy, as well as math, through industry-based simulation software accompanied by student workbooks and assessments, teacher guides, planners, lesson plans, professional development and coaching. LAW featured four computer simulations, each with 10-12 episodes, as a key component in a 100-hour curriculum: *What's Up Magazine* (WUM), which introduces students to the world of publishing; *The Green Mountain Paper Company* (GMPC), in which students learn about environmental topics; *The Sports Network* (TSN), about the cable television sports industry; and *West End Law* (WEL), which takes place in a general practice law firm.

Classroom, Inc. provides professional development and on-site instructional and technology support to prepare and support teachers in the use of LAW. In 2004-2005, this included a day-long training for teachers and coaches. An additional half-day training was provided for coaches, a role often undertaken by the school's literacy coach or computer teacher. Throughout the school year, implementation of the Literacy at Work program was also supported by a LAW coach at each school and Classroom, Inc. staff.

The evaluation was guided by the following set of overarching research questions developed by Metis in collaboration with Classroom, Inc.:

1. How do outcomes for students of participating teachers compare with their past histories of performance? With outcomes for students in comparison classes?

2. To what extent is variability in student outcomes attributable to factors such as the LAW package, subject area(s), grade level, pre-test performance level, and various teacher characteristics (e.g., license, tenure, experience)?

3. To what extent are outcomes (academic, literacy, behavioral, career awareness) a function of the intensity (i.e., "dosage") of usage? Can we identify a minimum threshold of program implementation required for enhanced student outcomes?

4. What does implementation "look like" in the classrooms of trained teachers?

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[1] *Evaluation of the Literacy at Work Program, New York City 2004-2005 Implementation Evaluation,* submitted by Metis Associates to Classroom, Inc., August 2005.

5. What are end-users' perceptions/suggestions regarding program implementation (e.g., materials, resources, challenges, suggestions for improvement)?

This report addresses the first three research questions concerning student outcomes and their relationship to student characteristics, teacher characteristics, and program usage. Selected findings from the implementation report, which addressed questions 4 and 5, are also included in this report. To evaluate the program, Metis Associates utilized multiple methods and respondent groups, including surveys of students, teachers and coaches, teacher-completed implementation logs, class observations, interviews with coaches and school administrators, and student demographic and standardized reading and math achievement test data obtained from the NYC DOE.

A total of 20 New York City middle schools and two high schools, agreed to implement the Literacy at Work program during the 2004-2005 school year. Eight of the schools had begun to implement the program in spring 2004 (cohort 1 schools), while the remaining 14 were new to the program (cohort 2 schools). All of the schools were asked to participate in the evaluation; however, as research materials were completed for only 17 of the 20 middle schools[2], results may not be generalizable to the entire group of schools.

Key Findings

In this section we summarize key findings with respect to program implementation, users' satisfaction with the program, perceptions about the impact of the program, and selected student outcomes, including literacy, math and problem-solving, student engagement and collaborative learning, career awareness and content knowledge, and attitudes toward computers.

Program Implementation

- A total of 61 teachers and 84 classes submitted complete research materials. A large majority of the teachers taught English language arts (77%), more than a third taught social studies and just over 30% taught math. Over half of them (57.4%) taught the program alone rather than with another teacher.
- The largest percentage of students responding to the post-program survey (62.6%) used the *What's Up Magazine* simulation, followed by *The Green Mountain Paper Company* (17.3%), *The Sports Network* (13.2%) and *West End Law* (6.9%). A majority of the students were in grades six, seven and eight. The large majority of students (84.3%) were minority students[3] and around 10% were English language learners (11.2%) and special education students (9.2%).

[2] Soon after data collection began, the two high schools were excluded from the research because scheduling changes from the fall to spring semester made it difficult to track the students over the year.
[3] The term "minority" comprises the following groups of students: Black, Hispanic, Asian or Pacific Islander, American Indian or Alaskan Native. However, it should be noted that minority students make up the large majority of the student population in New York City public schools.

- The degree of implementation varied greatly across schools. Almost 90% of classes completed five or more episodes by the end of the school year. The most common challenges for participating teachers, as reported by more than half of the teachers responding to the post-survey, were time constraints and problems with the technology, while slightly less than half reported that self-discipline and reading comprehension had been challenges for participating students. The large majority of coaches responding to the survey mentioned scheduling and facilitating technology access as the two main challenges they had experienced.
- Observations of 10 classes at seven participating schools revealed that the majority of activities were hands-on and student-led and involved group discussion. About three-fourths of the observed activities involved students working in groups. In general, students seemed most engaged and tended to work collaboratively during the computer-based activities. Teachers seemed very comfortable with the materials and content of the lessons, although in a few classes student discipline was a problem, especially during group work.

Satisfaction with the Program

- Overall, students were very satisfied with the program, with 62.3% of them reporting that they had "liked it" or "liked it a lot." In particular, the largest percentage of students said they "liked" or "liked a lot" the simulation (75.7%).
- Teachers also had high levels of satisfaction with the Literacy at Work program, with over two-thirds of them reporting that the program had been "helpful" or "very helpful" in helping them teach literacy. All seven administrators interviewed said the program had helped teachers teach literacy and all but one of them would like to continue using the program next year.

Level of Difficulty

- Similar percentages of surveyed teachers (58%) and students (60%) indicated that the program's level of difficulty was about right. However, over one-third of teachers (35%) indicated that the program was "too difficult" or "far too difficult," while only 7.7% of students said it was "hard" or "too hard."

Perceived Impact of the Program

- The largest percentage of students indicated that the program had helped them "a fair amount" or "a lot" in improving their computer skills (71.3%), followed by working with other students (66.5%), listening skills (56.7%), writing skills (53.3%), reading skills (49.9%), math skills (49.1%) and speaking skills (43.4%).
- In the post-program survey, almost all of the teachers (95.1%) reported that the program had had a "moderate" to "high" impact on students' collaborative learning. Over half of them also reported a "moderate" to "high impact" of the program on students' literacy skills, including reading (76.6%), listening (71.1%), writing (65.0%), and speaking (52.5%).

Student Outcomes

Academic achievement data, based on the New York City and New York State achievement tests in reading and math, were analyzed for students who participated in the Literacy at Work program and, for the purpose of comparison, for a similar group of students who did not participate in the program.[4] In addition, the student survey data included a number of questions regarding student attitudes toward literacy, math, problem-solving, collaborative learning, career awareness and computers.

Literacy

- NYC and NYS ELA test results suggest that almost all groups of participating students for whom reading test scores were analyzed experienced significant gains in reading from spring 2004 to spring 2005, including grade 5 and grade 7 students, as well as grade 6 general education students.
- A significantly higher percentage of grade 6 general education students and grade 5 and 7 special education students than students in the comparison group improved by at least one performance level[5] from spring 2004 to spring 2005. In addition, in spring 2005, grade 5 and grade 7 special education students scored significantly higher than students in the comparison group, after accounting for pretest differences. On the other hand, grade 5 general education students had lower mean scale scores than comparison students.
- An exploratory multivariate regression analysis revealed that students' previous ELA scores and the number of episodes completed before testing were both significant positive predictors of their spring 2005 ELA scores, while special education and minority status were found to be significant negative predictors.
- Student survey results revealed that, overall, students had more positive perceptions about the importance of literacy skills for career options following their LAW experience than they did prior to it. Students' feelings of responsibility toward reading and writing (attitudes about completing school work) remained constant, while students' enjoyment of reading decreased over the same period of time. Note that students' enjoyment of reading could also be related to the time of year, with students reporting lower levels of enjoyment after having gone through the full school year.
- In the post-survey, a majority of teachers reported that they had observed a "moderate" to "high" impact of the program on literacy skills, including reading (76.7%), listening (71.2%), writing (65.0%) and speaking (52.5%). About 80% of teachers had also observed a similar impact on students' interest in reading.

[4] Information was not available regarding the literacy interventions that the students in the comparison groups may have experienced that could have confounded the statistical results. Eighth-grade students were not included in the English language arts achievement analyses because the 2005 NYS English language arts test was administered in January 2005, at which point most eighth-grade students participating in the Literacy at Work program had just begun using the program.

[5] Based on students' scale test scores, the Department of Education categorizes student performance into one of four levels: Level 1 (Not Proficient), Level 2 (Basic), Level 3 (Proficient), and Level 4 (Advanced).

Math and Problem-Solving

- In terms of performance level change, grade 8 students experienced significant gains in their math performance from spring 2004 to spring 2005, while grade 7 students experienced a decline over the same period of time.
- Grade 5 general education target students scored significantly higher than students in the comparison group on the math test, after accounting for pretest differences.
- The level of implementation, as measured by the number of Literacy at Work program episodes completed before testing, seemed to be positively related to improved math performance for some groups of students, including fifth-grade and sixth-grade general education students.
- An exploratory regression analysis revealed that students' previous math scores, teachers' previous experience with Classroom, Inc. materials, the number of episodes completed before testing, ELL status, and teachers' years of experience were all significant positive predictors of their spring 2005 math scores, while special education status and use of the program in a math class were found to be negative predictors.
- Overall, there were no significant differences from fall to spring in students' attitudes toward math and attitudes toward problem-solving. However, a large majority of teachers responding to the post-survey indicated that the program had a "moderate" to "high" impact on students' achievement in areas such as math (64.4%) and problem-solving abilities (86.4%).

Student Engagement

- All of the administrators and coaches interviewed for the evaluation indicated that they had observed a significant positive impact of the program on student motivation. Furthermore, in the post-program survey almost all of the teachers reported that the program had had a "moderate" to "high impact" on students' overall engagement (91.8%).

Collaborative Learning

- Findings from the observations revealed that classes were very dynamic and involved a high degree of collaborative learning, in particular when students were using the computer simulations.
- In the post-program survey, the large majority (95.5%) of teachers reported that the program had a "moderate" to "high impact" on students' collaborative learning, while almost two-thirds of students indicated that the program had helped them "a fair amount" or "a lot" in working with others. However, students' mean scores for a construct measuring attitudes toward collaborative learning did not change significantly from fall to spring.

Attitudes toward Computers

- Students were observed to be most engaged during the computer simulations. Students were divided into groups to work on the computers, providing numerous opportunities for collaborative learning. For most of the computer-based activities, this task distribution was found to be very effective in engaging all students.

- Students' attitudes toward computers remained constant from fall to spring. One of the possible reasons may be that students reported very positive attitudes in the fall, thereby leaving less room for improvement. Grade 5 students were the only sub-group that experienced significant gains from fall to spring.

Career Awareness and Content Knowledge

- There were no significant changes in students' perceptions about the importance of learning about careers from fall to spring. However, an analysis of individual career-related items that were not part of any constructs revealed that students experienced significant gains (as measured by their level of agreement) with regard to wanting "to spend more time learning about careers."
- Overall, students experienced gains from pretest to posttest in their content knowledge of the selected industry. Changes in scores from pretest to posttest were positively correlated to the number of episodes students completed.

Conclusions

Classroom, Inc. continued to pilot the Literacy at Work program during the 2004-2005 school year. Evaluation findings suggest that implementation of the Literacy at Work program varied greatly across schools and classes. Although time constraints, technology problems and scheduling difficulties delayed program implementation in some of the schools, and prevented a number of teachers from completing the curriculum, by the end of the school year the large majority of classes had completed most or all of the episodes. Encouraging school administrators and teachers to start the program earlier in the school year may provide additional time for some of these teachers to fully implement the program.

Overall, teachers, Literacy at Work coaches and school administrators reported being very satisfied with the program, which they believed was very helpful in teaching literacy skills to participating students. Furthermore, they indicated that they had observed a noticeable improvement in student outcomes, including student engagement and collaborative learning, reading, writing and math skills, and career awareness. Students also offered very positive feedback about the program, in particular about using computers and technology, learning about different industries and occupations, working in groups, and improving their literacy and math skills.

Results from the New York City and New York State achievement tests indicate that some groups of students experienced significant gains in reading and math from the prior year. In addition, specific sub-groups of students scored higher than students in the comparison groups. An analysis of survey responses reveals that students' attitudes remained constant from fall to spring in most areas. However, overall positive changes were observed with regard to the importance of literacy skills for career options, while students' enjoyment of reading seemed to decline, which could be the result of a seasonal effect.

A number of sub-groups of participating students, including female students, younger students, English language learners and special education students, students of teachers who had previously used Classroom, Inc. materials, and students of ELA teachers, seemed to have more

positive perceptions about the program and enhanced student outcomes than other sub-groups of students. In addition, in some instances, the degree of program implementation was positively related to better reading and math test performance and gains in the content-knowledge test. Furthermore, regression results revealed that selected student and teacher characteristics, as well as the number of episodes completed before testing, were significant predictors of students' reading and math scores.

To further study the relationship between usage and outcomes, it is recommended that future research look more closely at teachers who have used the program over an extended period of time, and explore implementation with and outcomes of English language learners and special education students.

I. INTRODUCTION

The Literacy at Work (LAW) program was designed by Classroom, Inc. as a comprehensive, standards-based education program that provides students with opportunities to develop, practice and reinforce critical literacy skills. During the 2004-2005 school year, the LAW program continued to be implemented on a pilot basis in middle and high school classrooms. Classroom, Inc., an organization which develops educational programs that combine print curricula, technology and professional development, contracted with Metis Associates, an independent research and evaluation firm, to evaluate implementation and outcomes of the program in New York City public schools. The evaluation was conducted with the cooperation of the New York City Department of Education (NYC DOE) and its regional superintendents.

The evaluation of LAW has examined the academic and related outcomes of students who were exposed to the program and explores the relationship between student outcomes and implementation. This report presents findings on the outcomes of students who participated in the program and summarizes key findings from Metis' recent report on program implementation.[6]

Background on the Literacy at Work Program

The Literacy at Work program addresses literacy, as well as math, through industry-based simulation software accompanied by student workbooks and assessments, teacher guides, planners, lesson plans, professional development and coaching.

Although LAW now features seven computer simulations, four were available to teachers during the period of this study. The computer simulations, each with 10-12 episodes, are a key component of a 100-hour curriculum. For each computer simulation, teachers prepare students for key skills, help students apply these skills, review the skills taught, and extend instruction as needed. The four simulations include *What's Up Magazine* (WUM), which introduces students to the world of publishing; *The Green Mountain Paper Company* (GMPC), in which students learn about environmental topics; *The Sports Network* (TSN), about the cable television sports industry; and *West End Law* (WEL), which takes place in a general practice law firm. In each simulation, students assume the role of an industry manager who applies content knowledge and skills to solve real-world problems. Although there is flexibility in the grade-level assignment of simulations, each simulation is typically recommended for particular grade level(s): grade 6 or 7 for *What's Up Magazine* and *The Green Mountain Paper Company*, grade 8 for *The Sports Network*, and grade 9 for *West End Law*.

In addition to the computer simulation, the Literacy at Work program includes lesson plans, student workbooks and assessments, teacher guides, and teacher planners. The lesson plans, which follow the New York City balanced literacy model, consist of a 45-minute lesson for each episode of each simulation. The student workbook includes activities designed to prepare the students for the simulation, apply the skills learned during the episode, review these skills and extend instruction as needed. The program also provides teachers with assessments for each

[6] *Evaluation of the Literacy at Work Program, New York City 2004-2005 Implementation Evaluation,* submitted by Metis Associates to Classroom, Inc., August 2005.

episode that were developed by Indiana University's Center for Innovation in Assessment. The teacher guide provides answers for all of the activities included in the student workbooks, as well as a guide to introducing the skills of each episode. Finally, the teacher planner provides a detailed suggested sequence of program activities.

Classroom, Inc. provides professional development at the beginning of the school year and on-site instructional and technology support during the year to prepare and support teachers in the use of LAW. In 2004-2005, the initial professional development consisted of a day-long training for participating teachers and coaches that provided hands-on activities on how to navigate through the computer simulation as well as an overview of the program's curriculum and materials. Teachers received all of the program materials at the initial training. Coaches also received a half-day of professional development that focused on their roles and responsibilities.

Throughout the school year, implementation of the Literacy at Work program was supported by a LAW coach and Classroom, Inc. staff, including three part-time Classroom, Inc. consultants who conducted periodic visits to the schools. Teachers and coaches were also provided with a toll-free technology support helpline. The role of the Literacy at Work coach included making classroom visits to assist teachers, providing technology support, helping students collaborate and solve problems successfully, leading professional development workshops at the school, collecting research materials, and acting as the liaison between Classroom, Inc. and participating teachers. In general, the coach position was filled by the school's literacy coach or a computer teacher. During their visits, the consultants provided guidance to the coaches so that they could assist teachers, provided classroom consultations, and addressed any questions or issues from teachers, students and coaches. In a few instances, the consultants also offered on-site professional development for those teachers who could not attend the initial training.

Research Questions and Methods

The evaluation was guided by the following set of overarching research questions developed by Metis in collaboration with Classroom, Inc.:

1. How do outcomes for students of participating teachers compare with their past histories of performance? With outcomes for students in comparison classes?

2. To what extent is variability in student outcomes attributable to factors such as the LAW package, subject area(s), grade level, pre-test performance level, and various teacher characteristics (e.g., license, tenure, experience)?

3. To what extent are outcomes (academic, literacy, behavioral, career awareness) a function of the intensity (i.e., "dosage") of usage? Can we identify a minimum threshold of program implementation required for enhanced student outcomes?

4. What does implementation "look like" in the classrooms of trained teachers?

5. What are end-users' perceptions/suggestions regarding program implementation (e.g., materials, resources, challenges, suggestions for improvement)?

This report addresses the first three research questions concerning student outcomes and their relationship to student characteristics, teacher characteristics, and program usage. Questions 4 and 5 were addressed in the implementation report. The complete set of questions is presented in a matrix (Table 1) that also shows the use of multiple evaluation methods and respondent groups. Table 1 shows that multiple (i.e., two or more) methods are used to address each of the research questions. Furthermore, in several instances, one method addresses several questions.

The methods used to address questions 1, 2 and 3 include pre- and post-implementation surveys completed by students and teachers, teacher-completed implementation logs about implementation of LAW episodes, and student demographic and standardized reading and math achievement test data obtained from the NYC DOE. In addition, data on the number of episodes completed, from teacher surveys and logs, was supplemented with information reported by Classroom, Inc. consultants. In order to assure content validity, Metis Associates developed the data collection instruments with substantial input from Classroom, Inc. staff. Details about the methods and procedures used for the outcome evaluation are included in Appendix A and copies of the instruments can be found in Appendix C.

In addition to the teacher-completed surveys and logs, the primary sources of data for the evaluation of implementation included observations of initial training and an analysis of training participant feedback surveys, an end-of-year survey of LAW coaches, and classroom observations and interviews with coaches, principals, and assistant principals in a selected number of schools and classes.

Table 1: Matrix of Research Questions, Methods, and Respondents

RESEARCH AND EVALUATION QUESTIONS	Implementation and Outcomes							Outcomes	
	Observation of Training	Workshop Feedback Forms	Implementation Logs	Teacher Survey (pre/post)	Coach End-of-Program Survey	Case Studies		Student Survey (pre/post)	Reading/Math Achievement Data
						Interviews with Coaches and School Administrators	Classroom Observations		
1. How do outcomes for students of participating teachers compare with their past histories of performance? With outcomes for students in comparison classes?								X	X
2. To what extent is variability in student outcomes attributable to factors such as the LAW package, subject area(s), grade level, pre-test performance level, various teacher characteristics (e.g., license, tenure, experience)?			X	X				X	X
3. To what extent are outcomes (academic, literacy, behavioral, career awareness) a function of the intensity (i.e., "dosage") of usage? Can we identify a minimum threshold of program implementation required for enhanced student outcomes?			X					X	X
4. What does implementation "look like" in the classroom of trained teachers?			X				X		
5. What are end-users' perceptions/suggestions regarding program implementation (e.g., materials, resources, challenges, suggestions for improvement)?	X	X	X	X	X	X			

Scope of the Outcome Evaluation

A total of 22 New York City public schools, including 20 middle schools and two high schools, agreed to implement the Literacy at Work program during the 2004-2005 school year. Eight of the schools had begun to implement the program in spring 2004 and were considered "cohort 1" schools, while the remaining 14 were new to the program and were considered "cohort 2" schools. All of the schools were asked to participate in the evaluation. Soon after data collection began, however, the two high schools were excluded from the research because scheduling changes from the fall to spring semester made it difficult to track the students over the year. In addition, teachers at three middle schools (all cohort 2) submitted only pre-program surveys. Therefore, the analyses included 17 out of the 20 middle schools. Because data were not available for all schools, we recommend caution in interpreting the results. Table 2 summarizes the distribution of participating schools, teachers and classes by cohort for which teacher surveys, logs, and class rosters were received.

Table 2: Schools, Teachers and Classes Participating in the Evaluation

Cohort	Pre-program materials						Post-program matched materials					
	Schools		Teachers		Classes		Schools		Teachers		Classes	
	N	%	N	%	N	%	N	%	N	%	N	%
1	8	36.4%	51	48.1%	55	37.9%	8	47.1%	36	59.0%	38	45.2%
2	14	63.6%	55	51.9%	90	62.1%	9	52.9%	25	41.0%	46	54.8%
Total	22	100%	106	100%	145	100%	17	100%	61*	100%	84	100%

*Includes one teacher who completed only a post-program teacher survey but submitted both pre- and post-program student surveys..

Within the 22 schools, a total of 106 teachers including 51 teachers in cohort 1 and 55 teachers in cohort 2, submitted pre-program surveys, but both sets of materials were received from only 61 teachers (58%) from 17 of the 22 schools. Communication with Classroom, Inc. consultants indicates that the reasons for the decrease in teacher participation from the beginning to the end of the school year included teachers leaving their schools, teachers dropping out of the program due to time constraints, and scheduling difficulties. However, the consultants' site reports also revealed that a few teachers who did not submit post-program materials had in fact completed some or all of the episodes. Students from these classes are included in the achievement data analyses.

Participating Teachers. The teachers who participated in the evaluation included highly experienced as well as less-experienced individuals (56.7% had more than five years of teaching experience). Sixty percent of the teachers had previous experience with Classroom, Inc. program materials.

A large majority of the teachers taught English language arts (77%).[7] More than a third taught social studies and just over 30% taught math. Smaller percentages of teachers taught science or were computer teachers (Table 3).

[7] Teachers having a Common Branch license were counted in both ELA and Math.

Table 3: Subject Areas of Teachers

Subject area	Percent of teachers* (N=61)
English Language Arts (ELA)	77.0%
Social Studies	34.4%
Math	31.1%
Science	26.2%
Computer	13.1%
ESL	4.9%
Other	3.3%

*Common Branch teachers were counted in both ELA and Math.

Participating Students. The student subjects of the evaluation include 1,673 students who completed the post-program survey, 1,411 who completed both a pre- and post-program survey, and 2,441[8] for whom standardized achievement test data were analyzed. The characteristics of each of these groups of students, and the simulation they used, are presented in Table 4.

Table 4: Characteristics of Students

Characteristic		Post-survey (N=1,672)	Matched pre- and post-survey (N=1,411)	Achievement test analyses (N=2,441)
Gender	Female	47.8%	47.8%	47.2%
	Male	52.2%	52.2%	52.8%
Minority Status	Minority	84.3%	83.9%	81.7%
	Non-minority	15.7%	16.1%	18.3%
Special Population	Special Education	11.2%	10.6%	11.6%
	ELL	9.2%	9.0%	8.8%
Grade Level	Grade 5	10.4%	11.6%	11.1%
	Grade 6	26.1%	26.3%	17.8%
	Grade 7	34.6%	33.5%	40.7%
	Grade 8	28.0%	28.0%	30.4%
	Grade 9	.9%	.6%	--
Simulation	WUM	60.9%	62.6%	51.3%
	GMPC	18.5%	17.3%	20.7%
	TSN	13.9%	13.2%	13.1%
	WEL	6.7%	6.9%	14.8%

It can be seen in Table 4 that the distribution of students by simulation and selected demographic characteristics was very similar for students who completed the post-survey instruments, students who had matched pre- and post-program surveys, and students included in the achievement data analyses, suggesting that the various analyses were conducted on

[8] The analysis of achievement data by degree of implementation includes all 2,441 students, while the other types of achievement analyses include only 1,808 students who completed three or more episodes before the testing period.

similar groups of students. For instance, minority students[9] constituted the large majority of students who completed the post-program survey (84.3%), students who had matched pre- and post-program surveys (83.9%) and students for which achievement data were available (81.7%).

Comparison Group Students. Comparison groups were created for the analysis of standardized achievement test results. Achievement data for students participating in the Literacy at Work program were compared to those of 2,159 similar students from six different schools in the same geographical areas (New York City regions). The selection criteria were based on demographic characteristics, as well as student performance on the spring 2004 NYC and NYS achievement tests in English language arts and mathematics. Specifically, the student populations were compared on the proportion of students in five demographic categories: special education status, gender, English language learner (ELL) status, Asian minority status, and non-Asian minority status, for a total possible demographic similarity score of 5.[10] For grades 5, 6, and 7, the student populations were also compared on the proportion of students scoring at each of the four performance levels on the NYC English language arts and mathematics tests, for a total possible similarity score of 4 in each subject area. For grade 8, the student populations were compared on the proportion of students scoring at each performance level on the NYS mathematics test, for a total possible similarity score of 4.[11] A perfectly matched comparison school would have a total similarity score of 13 for grades 5, 6, and 7 or a score of 9 for grade 8. It is important to note that, while the comparison group was selected based on pre-implementation achievement and demographic characteristics, information was not available about the nature and intensity of supplemental literacy instruction for these students along the evaluation period.

The report continues with a brief summary description of the program based largely on the implementation findings. The next section presents students' perceptions of the program based on an analysis of survey items that asked students about what they liked most and least about the program and the level of difficulty the program presented. This is followed by findings in six areas, including literacy; math and problem-solving skills; collaborative learning and student engagement; career awareness; and attitudes toward computers. These sections include the findings related to students' perceptions of the program's impact, their attitudes, and outcomes in relation to student and teacher characteristics and program exposure. The final chapter of the report provides conclusions and recommendations.

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[9] The term "minority" comprises the following groups of students: Black, Hispanic, Asian or Pacific Islander, American Indian or Alaskan Native. However, it should be noted that minority students make up the large majority of the student population in New York City public schools.

[10] To calculate this similarity score, the total number of categories in which the comparison school matched the target school within 10 percentage points was computed.

[11] Results for the 2005 NYS English language arts were excluded for grade 8 because the test was administered in January 2005, at which point most students participating in the Literacy at Work program had just begun using the program.

II. PROGRAM IMPLEMENTATION[12]

The LAW program in the New York City public schools began implementation for the 2004-2005 school year with training sessions for teachers and coaches in November, although some teachers who were implementing the program for a second year, had been trained previously. Classroom implementation began slowly in most schools because additional teachers were enlisted to teach the program, some teachers changed the simulation they had planned to use, and because of scheduling and hardware and software problems at some schools.

The large majority (80%) of teachers used the program in one class, while the remainder used it in two or more classes. Over half of them (57.4%) taught the program alone rather than with another teacher. Where a second teacher was present, it usually was a computer or inclusion teacher.

The majority of classes used *What's Up Magazine* with sixth- and seventh-grade students, but a few fifth-grade classes also used this simulation. Smaller proportions of classes used *The Green Mountain Paper Company* and *The Sports Network*, mostly in grades seven and eight. *West End Law*, used less than the other simulations, was taught primarily in grade eight.

Observations of 10 classrooms at seven schools found that the "roll-out" of implementation varied widely. By the spring of 2005, most of the observed classes were working on the middle episodes, while a few were in the initial stages or had completed the program. As seen in Table 5, the extent to which the program was implemented, in terms of the numbers of episodes taught, also varied. By the end of the school year, almost 90% of classes had completed five or more episodes. Over half (56%) had completed eight episodes or more; a third (33%) had completed five to seven episodes; and approximately 10% of classes had only completed two to four episodes.

Table 5: Number of Episodes Completed

Number of episodes	Percent of classes (N=84)
2-4	10.7%
5-7	33.3%
8-9	25.0%
10 or more	31.0%

The observations also showed that class size ranged from 19 to 35 students, with an average of 25 students per class. Students were observed using their workbooks and about half of the activities involved the use of the computer simulation software. Often, students from the same class were working on different sections and/or episodes depending on each student's or their group's progress.

[12] For detailed findings on implementation, see the implementation evaluation report, *Evaluation of the Literacy at Work Program, New York City 2004-2005 Implementation Evaluation*, submitted by Metis Associates to Classroom, Inc., August 2005.

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In the observed classes, the majority of activities were hands-on and student-led and involved group discussion. About three-fourths of the observed activities involved students working in groups. In general, students seemed most engaged and tended to work collaboratively during the computer-based activities. Teachers seemed very comfortable with the materials and content of the lessons, although in a few classes student discipline was a problem, especially during group work.

The most common challenges for participating teachers, as reported by more than half of the teachers responding to the post-survey, were time constraints and problems with the technology, while slightly less than half reported that self-discipline and reading comprehension had been challenges for participating students. The large majority of coaches responding to the survey mentioned scheduling and facilitating technology access as the two main challenges they had experienced.

The level of involvement of the school administration in program implementation varied from school to school. In most schools, the administrators' role was limited to selecting classes and providing general support, but in some they supported and followed implementation more closely. A large part of the coaches' job involved providing assistance to individual teachers, maintaining contact with Classroom, Inc. on-site support, overseeing the technology component of the program, and working to resolve technical issues.

Classroom, Inc. consultants provided on-site instructional support to the schools that was viewed very favorably by coaches and administrators. The organization also made a technology support helpline available, but this was not as widely used nor viewed as helpful as the instructional support.

III. PERCEPTIONS OF THE PROGRAM

This section presents the students' perceptions of the program obtained from their responses to the post-implementation survey. It includes how satisfied they were with the program, overall, and with the different program components such as the workbooks, the simulation (time spent on the computer) and the classroom discussions; how easy or difficult they found the program; and the extent to which they thought that the program helped them in academic and other areas. Where there are statistically significant findings by sub-groups, these data are also reported. For example, for some findings there were significant differences between girls and boys, for students in different grade levels, or for students using different simulations or taught by teachers with different characteristics. Student findings are supplemented by relevant data from the teacher survey and from interviews conducted with school administrators and coaches; these findings were detailed in the implementation report.

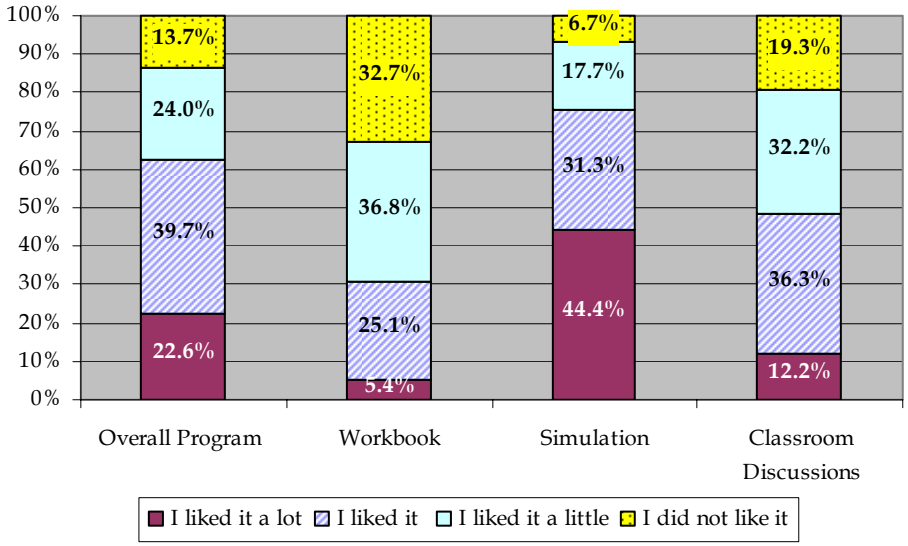
Satisfaction with the Program

Most students liked the program in general and the simulation, in particular. The large majority of students (62.3%) said they "liked" or "liked a lot" the program overall (Figure 1). Students seemed to enjoy the simulation the most, with 75.7% of students saying they "liked it" or "liked it a lot," followed by classroom discussions (48.6%) and the workbooks (30.5%).

Overall, teachers were very satisfied with the program. Over two-thirds of teachers (68%) responding to the post-program survey reported that the program had been "helpful" (52%) or "very helpful" (16%) in helping them teach literacy. According to teacher survey responses, the two most helpful types of program materials were the student workbook and the simulation software. Over 90% of teachers described the software as "extremely helpful" (73%) or "helpful" (19%), and over 95% of teachers also said the student workbook had been "extremely helpful" (69%) or "helpful" (27%).

Figure 1: Student Satisfaction with the Program

"How much did you like the following?"



Open-ended survey responses confirmed these findings: one-fourth (25%) of students wrote that the aspect of the program they liked most was using the computer and the technology, while 10.6% identified the workbooks as what they liked least about the program. Two students' quotes illustrate these sentiments.

> *"When you're on a computer simulation you gain knowledge about how to accomplish things in the future and it gives you clues about how to conquer things in everyday life."*
>
> *"What I liked least was that we had to write in the workbooks because you would be ahead on the computer and behind in the book."*

Many students also liked the career- or work-related aspects of the program the most (19.9%) including "being the boss" or "running a company." One student wrote that "*It felt like I was a real manager. I liked making important decisions for the company.*"

A sizeable percentage of students (27.2%) wrote that they least liked aspects of the program related to skills, largely math, reading, and writing. However, nearly as many (23.6%) liked most the problem-solving, decision-making and literacy and math skills needed for the program.

> *"I liked that I learned about new things and was able to improve my English."*
>
> *"I liked the program because I was able to use reading and math skills for real life situations."*
>
> *"I liked that there was a lot of decision making and trying to figure out which option was best."*

Statistical tests were conducted to find whether there were differences in student satisfaction by simulation (i.e., *What's Up Magazine, The Green Mountain Paper Company, The Sports Network, West End Law*), selected student characteristics (i.e., gender, grade, ethnicity, special education status, ELL status), school cohort, and selected teacher characteristics (i.e., previous experience with Classroom, Inc. materials, years of teaching experience, teacher certification, subject area).

Students using *What's Up Magazine* were more likely to report that they "liked" the overall program and the computer simulation, or "liked it a lot," compared to students who used the other programs. Over two-thirds of students using *What's Up Magazine* (67.4%) reported "liking" or "liking a lot" the overall program, while only half of the students using *The Sports Network* (50.7%) said they had "liked" the program or better (Table 6). Students using the other two simulations ranked in the middle (63.1% for *West End Law* and 54.1% for *The Green Mountain Paper Company*). As for the simulation (time spent on the computer), the largest percentage of students using *What's Up Magazine* (79.6%) said they had "liked" or "liked a lot" this simulation, while students using *The Sports Network* (65.9%) had the lowest percentage. When asked about the workbooks, higher percentages of students using *The Sports Network* (34.5%) and *What's Up Magazine* (32.9%) reported "liking" or "liking them a lot" than students using *West End Law* (25.5%) and *The Green Mountain Paper Company* (21.6%).

> [I liked most] *"that I was able to work on a magazine and I liked that I was able to see how hard it is to actually publish a magazine."*
>
> *"I liked that it made me feel as if I were a real lawyer. I liked the experiences and working on a variety of cases, which were very interesting to read about and work on."*

Table 6: Student Satisfaction with the Program by Simulation

"How much did you like the following?"	Percent (N) of students responding "I liked it" or "I liked it a lot"			
	WUM	**GMPC**	**TSN**	**WEL**
Overall Program*	67.4% (671)	54.1% (166)	50.7% (114)	63.1% (70)
Workbooks*	32.9% (327)	21.6% (66)	34.5% (78)	25.5% (28)
Simulation*	79.6% (791)	70.8% (216)	65.9% (149)	73.6% (81)
Classroom Discussions	47.9% (474)	49.0% (149)	49.3% (112)	51.4% (56)

* Differences by simulation were statistically significant at the α=.05 level.

There also were significant group differences in student satisfaction for female and male students and across grade levels.[13]

- A larger percentage of females than males reported "liking" or "liking a lot" the program (66.2% compared to 58.8%), the workbook (33.6% compared to 27.9%), and the computer simulation (77.8% compared to 74.1%).

- Grade 5 students tended to be more satisfied with the program than the rest of the students, while grade 8 students seemed to be least satisfied (Table 7).

Table 7: Student Satisfaction with the Program by Grade Level

"How much did you like the following?"	Percent (N) of students responding "I liked it" or "I liked it a lot"			
	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**
Overall Program*	80.5% (140)	63.3% (271)	64.2% (362)	51.5% (237)
Workbooks*	44.8% (78)	29.8% (128)	30.1% (168)	26.0% (119)
Simulation*	86.2% (150)	78.9% (337)	76.3% (428)	68.2% (313)
Classroom Discussions*	52.6% (91)	44.0% (187)	52.9% (296)	45.6% (209)

* Differences were statistically significant at the α=.05 level.

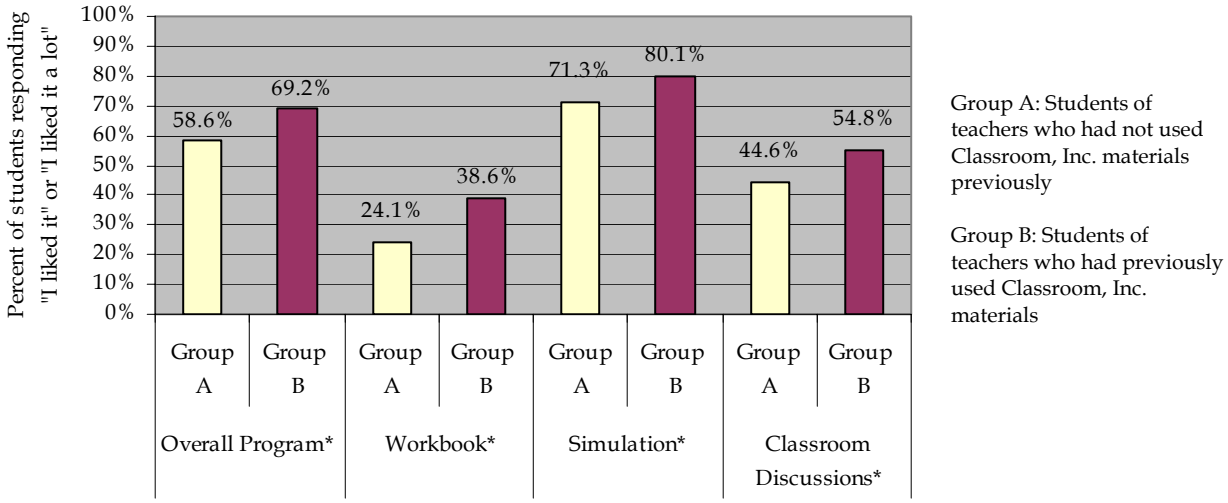
Differences between students from cohort 1 and cohort 2 schools were only significant for student satisfaction with the workbook and classroom discussions, with a higher percentage of students from cohort 1 than cohort 2 reporting higher levels of satisfaction.

Teachers' previous experience with Classroom, Inc. program materials appeared to be related to students' overall satisfaction with the program, as well as with each aspect of the program (Figure 2). For all of these features, students taught by teachers who had previously used Classroom, Inc. program materials reported higher satisfaction levels. One possible explanation may be that teachers who have used Classroom, Inc. materials in the past may have decided to use the LAW program because of their past successful experiences, and are therefore more enthusiastic about it. For example, an analysis of post-survey teacher responses shows that a much higher percentage of teachers who had previously used Classroom, Inc. materials (87.1%)

[13] Grade 9 students were excluded from this analysis because of the small sample size (N=14)

than teachers who had not (42.1%) believe that the program was "helpful" or "extremely helpful" in their teaching of literacy. Another explanation may be that teachers who have used Classroom, Inc. materials in the past may be more comfortable using the LAW materials.

Figure 2: Student Satisfaction with the Program by Teacher Previous Experience with Classroom, Inc. Materials



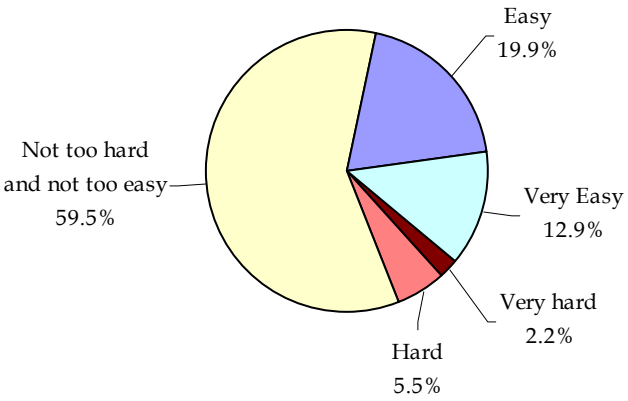
*Group differences were statistically significant at the α=.05 level.

Level of Difficulty

The majority of students (59.5%) reported that the program was the right level of difficulty, while 32.8% thought the program was "easy" or "very easy," and 7.7% of the students said it was "hard" or "very hard" (Figure 3). Students were asked to rate the level of difficulty of the program using a 5-point scale from 1="Very hard" to 5="Very Easy."

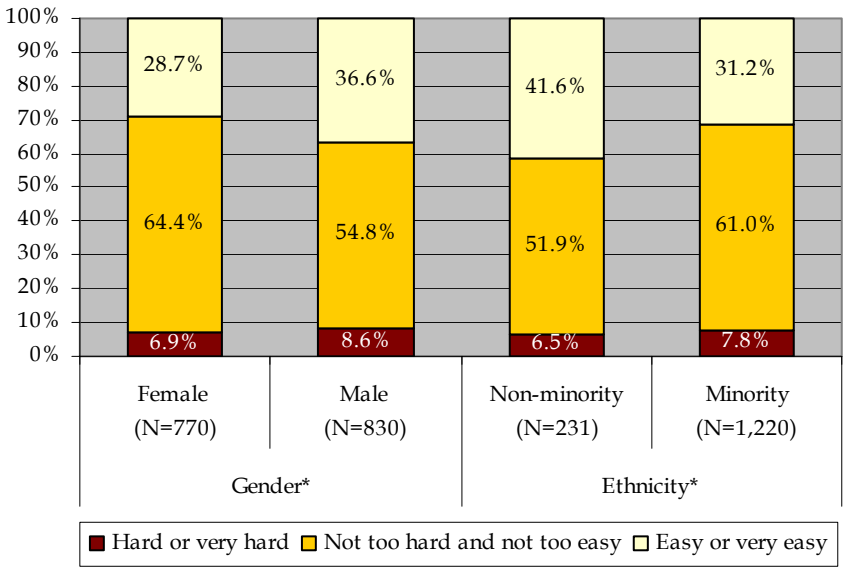
The teacher post-survey also explored teachers' perceptions about the program's overall level of difficulty and amount of work for students. Although, like their students, the majority of the teachers (58%) indicated that the program's level of difficulty was "about right," over one-third of them (35%) said it was "too difficult" (30%) or "far too difficult" (5%). Regarding the amount of work for students, three-quarters of the teachers indicated it was "about the right amount."

Figure 3: Student Perceptions about the Level of Difficulty (N=1,616)



Gender and minority status were the only two of several student and teacher characteristics for which group differences were found to be significant. As seen in Figure 4, a higher percentage of female students (64.4%) than male students (54.8%) indicated that the program was "not too hard and not too easy," whereas a higher percentage of male students thought that the program was "easy" or "very easy" (36.6% of male students compared to 28.7%of female students). There were also differences between non-minority and minority students, with a higher percentage of non-minority students (41.6%) than minority students (31.2%) appearing to find the program "easy" or "very easy."

Figure 4: Student Perceptions about the Level of Difficulty by Gender and Ethnicity



*Group differences were statistically significant at the α=.05 level.

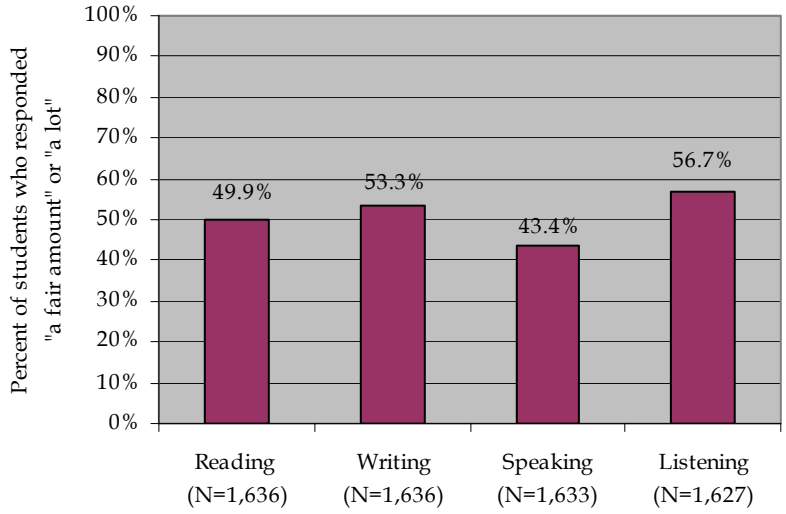
Perceived Impact of the Program

The post-program survey explored students' perceptions of the extent to which the program has helped them improve academically, in reading, writing, speaking, listening, and math, as well as in working with other students and with computers.

A majority of teachers reported that they had observed a "moderate" to "high" impact of the program on literacy skills, including reading (76.7%), listening (71.2%), writing (65.0%) and speaking (52.5%), and student achievement in subject areas (64.4%). About 80% of teachers had observed a similar impact on students' interest in reading.

Literacy Skills. More than half of students said that the program helped them improve "a fair amount" or "a lot" in listening (56.7%) and writing (53.3%), as shown in Figure 5. About half of students felt this way about reading (49.9%), while the smallest proportion saw the same degree of improvement in speaking (43.3%).

Figure 5: Student Perceptions about the Impact of the Program
"How much has the program helped you improve in the following areas?"



During interviews with principals and assistant principals in a sample of the schools, all seven administrators said that the program had been "helpful" or "extremely helpful" in helping teachers teach literacy.

Female students ranked higher than male students in terms of the perceived impact of the program on reading, writing and listening[14]. There were also significant differences by grade level, simulation, students' special education and ELL status, as well as by teachers' previous experience with program materials.

- A larger percentage of female students than male students reported that the program had helped them "a fair amount" or "a lot" in improving their reading (54.4% compared to 45.9%), writing (58.3% compared to 48.7%), and listening (60.2% compared to 53.4%).

[14] Group differences were statistically significant at the α=.05 level.

- Eighth-grade students reported a less positive impact of the program on their literacy skills than the rest of the students.[15]

- A larger percentage of students using *What's Up Magazine* and *West End Law* reported that the program had helped them "a fair amount" or "a lot" in improving their literacy skills than students using *The Green Mountain Company* or *The Sports Network* (Table 8).

Table 8: Perceived Impact of the Program on Literacy Skills by Simulation

"How much has the program helped you improve in the following areas?"	**Percent (N) of students responding "a fair amount" or "a lot"**			
	WUM	**GMPC**	**TSN**	**WEL**
Reading*	54.2% (540)	40.0% (122)	41.4% (94)	55.6% (60)
Writing*	60.4% (600)	41.3% (126)	39.5% (90)	51.4% (56)
Speaking*	48.0% (476)	34.1% (104)	35.2% (80)	45.0% (49)
Listening*	60.1% (594)	49.5% (151)	49.3% (111)	60.6% (66)

*Differences by simulation were statistically significant at the α=.05 level.

For two special populations, special education students and ELL students, there were statistically significant differences in their perceptions of the program's impact only on speaking skills, compared to students without these special statuses.

- A higher percentage of special education students (53.4%) than general education students (42.2%) indicated that the program had helped them improve their speaking skills "a fair amount" or "a lot."

- A larger percentage of ELL students (52.9%) than English Proficient (EP) students (42.5%) reported that the program had helped them improve their speaking skills to the same degree.

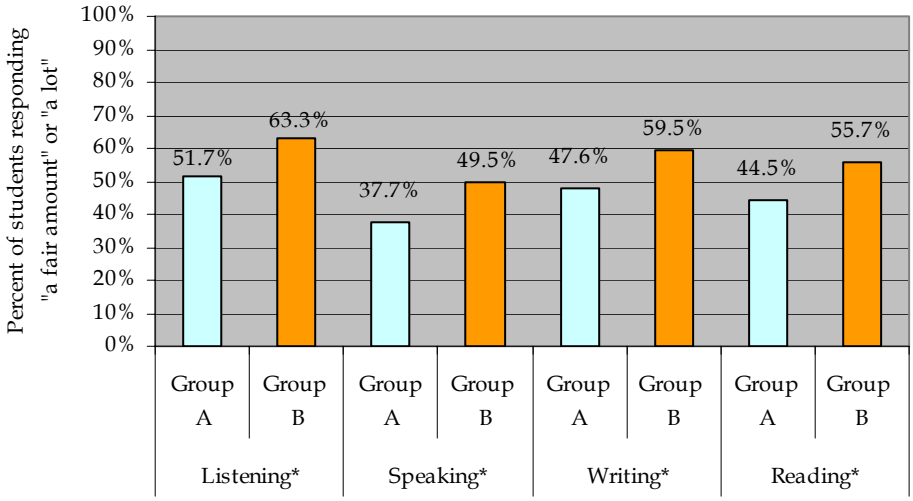
Teachers' previous experience with Classroom, Inc. materials seemed to be related to students' perceptions about the impact of the program on their literacy skills. A larger percentage of students taught by teachers who have had previous experience with Classroom, Inc. program materials indicated that the program had helped them "a fair amount" or "a lot" in improving reading, writing, speaking and listening (Figure 6). Finally, when analyzed by subject area, students of ELA teachers seemed to have more positive views than the rest of students in terms of program helpfulness in improving in reading, writing, speaking and listening.

Consistent with the student findings, a significantly higher percentage of teachers who had previously used Classroom, Inc. materials than those who had not reported that they had observed a "moderate" to "high" impact of the program on student achievement in reading (87.1% compared to 60%), listening (83.9% compared to 47.4%) and subject areas (77.4% compared to 42.1%).

[15] Grade 9 students were excluded from this analysis because of the small sample size (N=14).

Figure 6: Student Perceptions of the Impact of the Program on Literacy Skills, by Teacher Previous Experience with Classroom, Inc. Materials

"How much has the program helped you improve in the following areas?"



Group A: Students of teachers who had not used Classroom, Inc. materials previously

Group B: Students of teachers who had previously used Classroom, Inc. materials

*Group differences were statistically significant at the α=.05 level.

Math Skills. Almost half of the students (49.7%) indicated that the program had helped them "a fair amount" or "a lot" in improving their math skills, 25.8% said "a little" and 25.1% said the program had not helped.

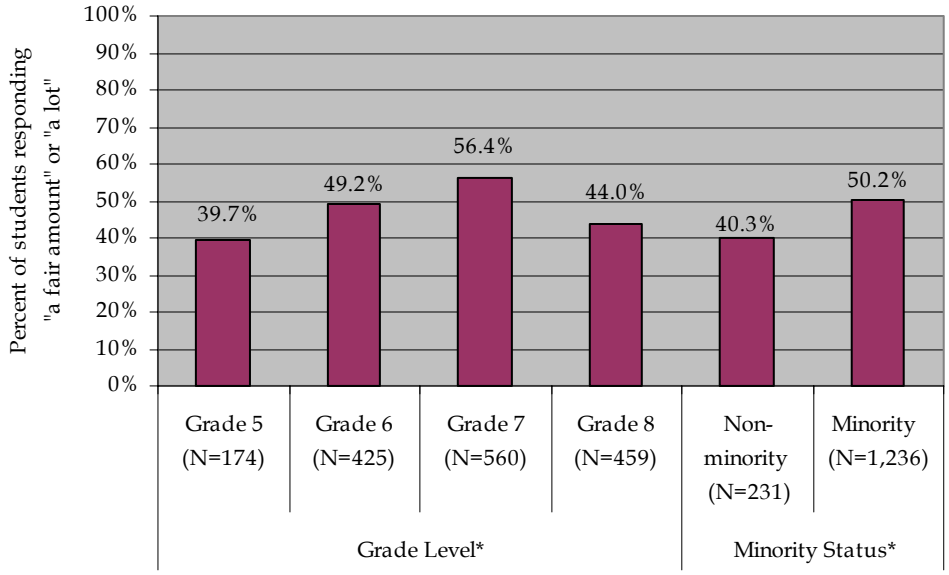
Grade level and minority status were the two student characteristics for which group differences were found to be statistically significant.

- Survey results suggest that seventh-grade students believe that the program had a stronger impact on their math skills than fifth-grade students, while sixth- and eighth-grade students ranked in the middle of these two groups.

- A higher percentage of minority students (50.2%) than non-minority students (40.3%) indicated that the program had helped them "a fair amount" or "a lot" in improving their math skills (Figure 7).

Figure 7: Student Perceptions of the Impact of the Program on Math Skills by Grade Level and Minority Status

"How much has the program helped you improve in math?"



*Group differences were statistically significant at the at the α=.05 level

There also were some significant differences in the perception of improvement in math skills by simulation and by subject area.

- Over half of the students using *The Sports Network* (56.7%) and *The Green Mountain Paper Company* (53%) reported that the program had helped "a fair amount" or "a lot" in improving their math skills, while 47.6% of students using *What's Up Magazine* and 36.7% of students using *West End Law* said the same.[16]
- Interestingly, a smaller percentage of students of math teachers (41.4%) than students with non-math teachers (51.8%) reported that the program had helped them "a fair amount" or "a lot," whereas a higher percentage of students of technology teachers than students using the program with non-technology teachers reported the same extent of impact.

Working with Others. About two-thirds of the students (66.5%) believe that the program has helped them improve their working with other students "a fair amount" or "a lot."

Group differences across grades were found to be statistically significant with younger students more likely to report that the program helped to promote their collaborative learning. Teacher characteristics also contributed to some significant differences.

> *"What I liked most about the program was that we discussed everything in a group. This made our ideas grow."*
>
> *"I liked that we were able to work in groups and learn new ways to work in groups. This teaches me how to share my ideas in groups."*
>
> *-- Students*

[16] Group differences by simulation were found to be statistically significant at the α=.05 level.

- For example, 72.3% of fifth-grade students indicated that, with regard to working with other students, the program had helped "a fair amount" or "a lot," compared to 70.4% of sixth-grade students, 69.2% of seventh-grade students and 56.8% of eighth-grade students.

> During the site visits to a sample of the schools, all seven *Literacy at Work* coaches who were interviewed reported having observed a noticeable increase in student engagement and collaborative learning. As one coach noted, "*[I have seen]…students working collaboratively, kids talking to each other, kids making decisions. When I go into the lab, I see students in pairs or trios working together and all of them are intervening and making positive contributions.*"
>
> In the teacher post-survey, almost all of the teachers (95.1%) reported that they had observed a "moderate" to "high" impact of the program on student collaborative learning.

Working with Computers. Among all the areas in which students were asked about program impact, the largest percentage of students (71.3%) indicated that the program had helped them "a fair amount" to "a lot" in improving their facility with computers. Group differences were found by grade level, ELL status, simulation, school cohort and subject area.

- Students in the eighth grade ranked lower than students from the other grade levels. For example, 59.6% of eighth graders rated the program as helping them "a fair amount" or "a lot" compared to over 70% of fifth-, sixth-, and seventh-grade students.

- Special education students and ELL students also seemed to think that the program was more helpful than did their peers. A significantly higher percentage of ELL students (80.0%) than EP students (69.6%) reported that the program had helped them "a fair amount" or "a lot".

- Survey results also suggest that *What's Up Magazine* users considered the program to be more helpful in improving their computer skills than students using the other three simulations.

- A larger percentage of students from cohort 2 schools (74.5%) than students from cohort 1 schools (67.1%) indicated that the program had helped "a fair amount" or "a lot."

- As for subject area, students taught by ELA teachers seemed more positive about the impact of the program in helping them work with computers than students taught by teachers of other subjects, while, in comparison, math students using the program tended to report that the program was not as helpful in improving their computer skills.

IV. STUDENT OUTCOMES

This section presents longitudinal student academic achievement and attitudinal outcomes in five content areas: literacy, math and problem-solving skills, collaborative learning, career awareness, and attitudes toward computers. Academic achievement results, based on the New York City and New York State achievement tests in reading and math, are presented for students who participated in the Literacy at Work program and, for the purpose of comparison, a similar group of students who did not participate in the program.[17] It should be noted that no information was available to the evaluator regarding the nature or intensity of any literacy interventions that the students in the comparison groups may have experienced that could have confounded the statistical results presented in this section. Attitudinal and other outcomes were obtained from surveys of program participants.

For the achievement analyses, a comparison group was selected from the same geographical boundaries as those of the participants and was based on demographics and test performance in reading and math from the previous year. Table 9 lists the standardized instruments that were used in this evaluation to measure student academic progress in English language arts (ELA) and math. Note that eighth-grade ELA test results were not analyzed because these students were tested in January 2005, which was too early in program implementation to be a fair assessment of outcomes.

Table 9: Assessment Instruments

Skill Area	Assessment Instrument	Type of Instrument	Test Date*	Students Tested
English Language Arts	NYC ELA Test	Criterion-referenced	April 2005	5th-, 6th-, and 7th-grade students
Mathematics	NYC Mathematics Test	Criterion-referenced	April 2005	5th-, 6th-, and 7th-grade students
	NYS Mathematics Test	Criterion-referenced	May 2005	8th-grade students

* Where available, spring 2005 test scores are compared to spring 2004 test scores.

To further examine students' achievement outcomes that may be associated with program participation, with the exception of analyses related to implementation level, the achievement findings exclude classes of program participants who completed fewer than three episodes before the testing period. Target students' academic achievement was compared to their past histories of performance. In particular, changes in students' performance from spring 2004 to spring 2005 on the NYC and NYS ELA and mathematics tests were analyzed and are presented in this section. In addition, an exploratory multiple regression analysis was conducted to explore the relationship between students' reading and math performance and selected student, teacher and program characteristics, including gender, ELL and special education status, minority status, students' baseline ELA or math score, teachers' years of experience in

[17] See appendix A for a detailed explanation of how the comparison group was selected.

education, teachers' previous experience with Classroom, Inc. materials, class subject area, and the number of episodes completed before the testing period.[18]

The student pre-program survey (fall 2004) and post-program survey (spring 2005) asked a number of questions regarding student attitudes. Data from surveys were subjected to an exploratory factor analysis to reduce the number of interpretable survey variables/items. Eight constructs were identified from the analysis, each of which is comprised of three or more survey items that statistically "hang together" to form interpretable and measurable themes (Table 10).[19]

Table 10: Constructs

Construct	Survey items in the construct (N)
Feelings of responsibility toward reading and writing	4
Enjoyment of reading	5
Importance of literacy skills for career options	3
Attitudes toward math	4
Attitudes toward problem-solving	4
Attitudes toward collaborative learning	4
Importance of learning about careers	6
Attitudes toward computers	5

Scoring of each construct was calculated by averaging student responses to the different survey items. Students were asked to rate each survey item from 1 to 4 (where the higher score indicates a more positive attitude); therefore, composite scores also vary from 1 to 4. Paired-samples *t*-tests for the overall student population, as well as by selected student and teacher characteristics, were then conducted to measure changes in attitudes from fall to spring. In addition, Metis conducted analyses of covariance (ANCOVAs) on the spring attitudes, controlling for pretest levels, to test for differences between students of teachers who had previously used Classroom, Inc. materials and students of teachers with no previous experience, as well as by grade level, subject area and degree of implementation.

[18] To avoid problems of multicollinearity, teacher certification type (i.e., professional or other) was excluded from the analyses because it was found to be strongly related to years of experience. The simulation was also excluded as a variable because it was strongly correlated with class subject area.

[19] A list of the individual survey items that comprise each construct and the factor loadings (both from the pre-program survey and the post-program survey) are presented in Table B-1 in Appendix B.

A. Literacy Skills

> *"The program fits very nicely, because it stresses the importance of teaching literacy in all content areas, and that is one of the school's objectives."*
>
> *-- Literacy at Work coach*
>
> *"The program fits right in. ... This program is an excellent supplement to the school's balanced literacy program. The Literacy at Work program is balanced literacy itself. Students have to read, they have to speak, and they have to think critically. The program also addresses all the state and city standards."*
>
> *-- Principal*

This section presents findings from an analysis of students' performance on the NYC and NYS English language arts (ELA) assessments, as well as results from the pre- and post-surveys regarding changes in students' attitudes toward literacy skills. It should be noted that eighth-grade students were excluded from the achievement analyses because, at the time the test was administered, most eighth-grade students had just begun using the program.

Achievement Outcomes

Overall, findings revealed that most students participating in the program experienced significant gains in their reading performance from spring 2004 to spring 2005, including grade 5 and grade 7 general education and special education students, as well as grade 6 general education students. In addition, the degree of program implementation seemed to be positively related to students' reading performance for some subgroups of students, including grade 5 special education students and grade 7 general education students. Finally, some groups of target students seemed to experience larger gains than students in the comparison group. Table 20 at the end of this section presents a summary of the achievement results in English language arts. Next, achievement findings are presented by grade level.

<u>Grade 5</u>

- Signed-ranks tests were conducted to test for differences in the distribution of fifth-grade students by performance level[20] from spring 2004 to spring 2005 (Table 11). Results suggest that target students experienced significant gains from one year to the next. For instance, the distributions for both general education and special education target students were statistically different from one year to the next, with a higher number of positive ranks (students who moved up at least one level from 2004 to 2005) than negative ranks (students who moved down one or more levels).

[20] Based on students' scale test scores, the Department of Education categorizes student performance into one of four levels: Level 1 (Not Proficient), Level 2 (Basic), Level 3 (Proficient), and Level 4 (Advanced). The scale scores' cutoffs for each performance level vary by grade level.

- In addition, differences between target and comparison students were also examined with regard to the percentage of students improving by at least one performance level. Results indicate that over one-third of general education target students (35.8%), compared to 41.3% of comparison students, improved by at least one level from spring 2004 to spring 2005; however, these differences were not statistically significant. On the other hand, the percentage of special education students improving by at least one level was significantly higher for the target group (50.0%) than the comparison group (28.6%)[21].

- An analysis of covariance (ANCOVA) of grade 5 student ELA achievement shows that in spring 2005 general education students from the comparison group obtained significantly higher reading mean scale scores than general education target students, after accounting for pretest levels. There were no statistically significant differences between special education target students and comparison students (Table 12).

- Differences in spring 2005 ELA mean scale scores were also analyzed by degree of program implementation. Three levels of implementation were identified: low (from 0 to 2 episodes), medium (from 3 to 5 episodes) and high (6 or more episodes). For general education students, there were no significant differences in mean scale scores across the three implementation groups, after controlling for pretest scores. However, special education students who completed three or more episodes had significantly higher mean scores than students who completed two episodes or less, even after accounting for pretest differences. Table 13 presents these results.

Table 11
Performance Levels in English Language Arts
for 5th-Grade Target Students, Spring 2004 to Spring 2005

Group status	Test Date	Total N	Performance Levels				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Not Proficient	% Basic	% Proficient	% Advanced	
General Education	Spring 2004	162	3.1%	23.5%	52.5%	21.0%	-5.821 (.000)*
	Spring 2005	162	1.2%	12.3%	50.6%	35.8%	
Special Education	Spring 2004	10	0%	100%	0%	0%	-2.236 (.025)*
	Spring 2005	10	0%	50%	50.0%	0%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

[21] Differences were significant at the .05 level.

Table 12
5th-Grade NYC English Language Arts Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005

Group Status	N	Spring 2004 Mean Scale Score(SD)	Spring 2005 Mean Scale Score (SD)	Spring 2005 Adjusted Mean Scale Score (SE)
General Education Students				
-- Target	162	665.40 (33.76)	689.36 (32.97)	688.56 (1.83) [ab]
-- Comparison	126	663.13 (30.53)	695.20 (37.87)	696.23 (2.08) [ab]
Special Education Students				
-- Target	10	619.70 (9.92)	660.80 (16.99)	667.33 (5.13) [cd]
-- Comparison	14	638.07 (18.88)	658.14 (17.59)	653.48 (4.23) [cd]

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=664.41.
[b] Between-subjects effects were statistically significant: F=7.662, P=.006, partial η^2=.026, Cohen's *d*=.33.
[c] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=630.42.
[d] Between-subjects effects were not statistically significant: F=3.784, P=.065, partial η^2=.153, Cohen's *d*=.85.

Table 13
5th-Grade NYC English Language Arts Mean Scale Scores by Degree of Implementation

Group (I)	N	Spring 2005 Adjusted Mean Reading Scale Score (SE)[a]	Group (J)	Mean Difference (I-J)*	Post Hoc Significance[c]
General Education Students					
Low	66	679.19 (2.88) [a]	Medium High	-4.66 -6.36	
Medium	120	683.85 (2.06) [a]	Low High	4.66 -1.70	
High	42	685.55 (3.71) [a]	Low Medium	6.36 1.70	
Special Education Students					
Low	9	600.78 (8.16) [b]	Medium	-60.91*	Low< Medium
Medium	10	661.70 (7.64) [b]	Low	60.91*	Medium>Low
High	-	-	-	-	-

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=658.81.
[b] . Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=604.63
[c] Only significant differences are reported in this column.
*An asterisk in this column indicates a statistically significant mean difference at the .05 level using the Bonferroni adjustment for multiple comparisons.

Grade 6

- An analysis of performance levels suggests that grade 6 general education target students experienced significant gains from one year to the next. In particular, the spring 2004 distribution of sixth-grade students by performance level significantly differed from the spring 2005 distribution, with a higher number of positive ranks (students who moved up by at least one performance level) than negative ranks. There were no statistically significant differences in the distribution of special education students by performance level from spring 2004 to spring 2005 (Table 14).

- Differences between students in the target and comparison groups were also examined. Results show that a significantly higher percentage of general education target students (28.0%) than comparison students (20.9%) improved by at least one level from spring 2004 to spring 2005. There were no differences in the percentage of special education target students (20.5%) and comparison students (20.2%) improving by at least one level.

- There were no significant differences in spring 2005 reading mean scale scores between general education target students and comparison students after accounting for pretest differences. The same was true for special education students (Table 15).

- Differences in mean scale scores by degree of implementation were not found to be statistically significant for general education or special education students participating in the Literacy at Work program (Table 16).

Table 14
Performance Levels in English Language Arts
for 6th-Grade Target Students, Spring 2004 to Spring 2005

Group status	Test Date	Total N	Performance Levels				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Not Proficient	% Basic	% Proficient	% Advanced	
General Education	Spring 2004	257	7.0%	35.8%	50.6%	6.6%	-1.960 (.050)
	Spring 2005	257	3.9%	42.0%	38.9%	15.2%	
Special Education	Spring 2004	44	36.4%	38.6%	25.0%	0%	-.243 (.808)
	Spring 2005	44	38.6%	34.1%	25.0%	2.3%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

Table 15
6th-Grade NYC English Language Arts Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005

Group Status	N	Spring 2004 Mean Scale Score(SD)	Spring 2005 Mean Scale Score (SD)	Spring 2005 Adjusted Mean Scale Score (SE)
General Education Students				
-- Target	257	659.92 (30.52)	682.35 (34.30)	683.74 (1.43) [ab]
-- Comparison	578	662.58 (33.06)	683.16 (33.00)	682.55 (.95) [ab]
Special Education Students				
-- Target	44	629.00 (34.23)	645.32 (39.72)	640.47 (3.69) [cd]
-- Comparison	84	620.14 (35.15)	641.31 (36.88)	643.85 (2.67) [cd]

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=661.76.
[b] Between-subjects effects were not statistically significant: F=.481 , P=.488, partial η^2=.001, Cohen's *d*=.06.
[c] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=623.19.
[d] Between-subjects effects were not statistically significant: F=.548, P=.461, partial η^2=.004, Cohen's *d*=.13.

Table 16
6th-Grade NYC English Language Arts Mean Scale Scores by Degree of Implementation

Group (I)	N	Spring 2005 Adjusted Mean Reading Scale Score (SE)[a]	Group (J)	Mean Difference (I-J)*	Post Hoc Significance[c]
General Education Students					
Low	89	681.03 (2.48) [a]	Medium	-1.83	
			High	-5.36	
Medium	157	682.86 (1.87) [a]	Low	1.83	
			High	-3.53	
High	100	686.38 (2.33) [a]	Low	5.36	
			Medium	3.53	
Special Education Students					
Low	20	627.96 (5.92) [b]	Medium	-7.24	
			High	-23.10	
Medium	38	635.20 (4.17) [b]	Low	7.24	
			High	-15.87	
High	6	651.06 (10.38) [b]	Low	23.10	
			Medium	15.87	

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=662.30.
[b] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=620.27.
[c] Only significant differences are reported in this column.
*An asterisk in this column indicates a statistically significant mean difference at the .05 level using the Bonferroni adjustment for multiple comparisons.

Grade 7

- Results suggest that seventh-grade target students significantly improved in reading from spring 2004 to spring 2005. The distribution of students by performance level changed from one year to the next, with a higher number of students with positive ranks (improving by at least one level) than negative ranks (moving down one or more performance levels). As seen in Table 17, the percentage of general education students scoring at the "Proficient" or "Advanced" level increased from 42.5% in spring 2004 to 56.8% in spring 2005. The percentage of special education students scoring at these levels also increased from 6.2% to 19.7%.

- Differences in the percentage of general education students improving by at least one level were not found to be significant between the target and comparison group (37.6% and 36.5%, respectively). On the other hand, a significantly higher percentage of special education target students (34.6%) than comparison students (20.8%) improved by at least one level from one year to the next.

- No significant differences were found in spring 2005 reading mean scale scores between seventh-grade general education students in the target group and students in the comparison group. However, results revealed that special education students using the Literacy at Work program had significantly higher mean scale scores than students in the comparison group, after accounting for pretest differences (Table 18).

- Finally, differences in ELA mean scale scores were found by degree of implementation, with general education students who had completed six or more episodes before the testing period scoring significantly higher than students who had completed two or less episodes, after controlling for pretest scores. As for special education students, differences across groups were not found to be statistically significant.

Table 17
Performance Levels in English Language Arts
for 7th-Grade Target Students, Spring 2004 to Spring 2005

Group status	Test Date	Total N	Performance Levels				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Not Proficient	% Basic	% Proficient	% Advanced	
General Education	Spring 2004	572	16.1%	41.4%	34.6%	7.9%	-9.800 (.000)*
	Spring 2005	572	10.7%	32.5%	38.3%	18.5%	
Special Education	Spring 2004	81	60.5%	33.3%	6.2%	0%	-4.434 (.000)*
	Spring 2005	81	42.0%	38.3%	18.5%	1.2%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

Table 18
7th-Grade NYC English Language Arts Mean Scale Scores for Target and Comparison Students, Spring 2004 to Spring 2005

Group Status	N	Spring 2004 Mean Scale Score(SD)	Spring 2005 Mean Scale Score (SD)	Spring 2005 Adjusted Mean Scale Score (SE)
General Education Students				
-- Target	572	666.50 (34.41)	690.83 (35.49)	690.92 (1.00)[ab]
-- Comparison	438	666.78 (34.97)	693.43 (36.45)	693.31 (1.14)[ab]
Special Education Students				
-- Target	81	622.22 (33.48)	651.19 (37.58)	650.81 (2.86)[cd]
-- Comparison	101	621.45 (34.86)	641.86 (40.48)	641.86 (2.56)[cd]

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=666.62.
[b] Between-subjects effects were not statistically significant: F=2.492 , P=.115, partial η^2=.002, Cohen's *d*=.09.
[c] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=621.79.
[d] Between-subjects effects were statistically significant: F=5.442, P=.021, partial η^2=.030, Cohen's *d*=.35.

Table 19
7th-Grade NYC English Language Arts Mean Scale Scores by Degree of Implementation

Group (I)	N	Spring 2005 Adjusted Mean Reading Scale Score (SE)	Group (J)	Mean Difference (I-J)*	Post Hoc Significance [c]
General Education Students					
Low	200	684.44 (1.65) [a]	Medium	-3.54	
			High	-5.46*	Low<High
Medium	307	687.98 (1.32) [a]	Low	3.54	
			High	-1.92	
High	265	689.91 (1.43) [a]	Low	5.46*	High>Low
			Medium	1.92	
Special Education Students					
Low	24	653.61 (5.24) [b]	Medium	1.68	
			High	-2.66	
Medium	62	651.93 (3.28) [b]	Low	-1.68	
			High	-4.34	
High	19	656.27 (5.93) [b]	Low	2.66	
			Medium	4.34	

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=663.97.
[b] Covariates appearing in the model were evaluated at the following values: Spring 2004 Reading Scale Score=624.41.
[c] Only significant differences are reported in this column.
*An asterisk in this column indicates a statistically significant mean difference at the .05 level using the Bonferroni adjustment for multiple comparisons.

Table 20 presents a summary of the achievement results in English language arts by grade level for the four different types of statistical analyses.

Table 20
Summary Results
Achievement in English Language Arts

Analysis	Objective	Students	Grade Level		
			Grade 5	Grade 6	Grade 7
			Significance (Direction) [a] [b]	Significance (Direction) [a, b]	Significance (Direction) [a, b]
Wilcoxon Ranks Test	Performance level change from spring 2004 to spring 2005	General Education	* (+)	* (+)	* (+)
		Special Education	* (+)		* (+)
Chi-Square	Differences between target and comparison group in the percent of students improving by at least one performance level	General Education		* (+)	
		Special Education	* (+)		* (+)
ANCOVA by group status	Differences between target and comparison group in spring 2005 adjusted mean scale scores	General Education	* (-)		
		Special Education	* (+)		* (+)
ANCOVA by degree of implementation	Differences in spring 2005 adjusted mean scale scores by degree of implementation	General Education			* (+)
		Special Education	* (+)		

[a] An asterisk in this column denotes significant results.
[b] A "+" means that the results were significant in a positive direction (e.g., gains from pre to post, better results for target than comparison students, better results for higher levels of implementation). A "-" means that the results were significant in the negative direction.

Multivariate Regression Analysis

To further explore the relationship between students' reading performance and various student, teacher and program characteristics, Metis also conducted a multiple regression analysis with the students' spring 2005 NYC ELA scale scores as a dependent variable. The independent variables incorporated into both models were: gender, ELL and special education status, minority status, students' baseline ELA or math score, teachers' years of experience in education, teachers' previous experience with Classroom, Inc. materials, class subject area, and the number of episodes completed before the testing period. Table 21 below presents these results.

Table 21: Multiple Regression Analysis
Dependent Variable: Spring 2005 NYC ELA Scale Score (N=1,241)

Factors	Standardized Coefficient Beta[22]	t-value (sig.)*
Student Characteristics		
-- Gender	-.031	-1.796 (.073)
-- ELL Status	-.003	-.165 (.869)
-- Special Education Status	-.078	-4.168 (.000)*
-- Minority Status	-.100	-5.536 (.000)*
-- Spring 2004 Reading Scale Score	.706	35.125 (.000)*
Teacher Characteristics		
-- Years of teaching	.011	.536 (.592)
-- Previous experience with Classroom, Inc. materials	-.016	-.846 (.398)
-- Class subject area: ELA	-.039	-1.882 (.060)
-- Class subject area: Math	-.016	-.889 (.374)
Degree of Implementation		
-- Episodes completed	.078	4.264 (.000)*

*Denotes statistical significance at the .05 level.

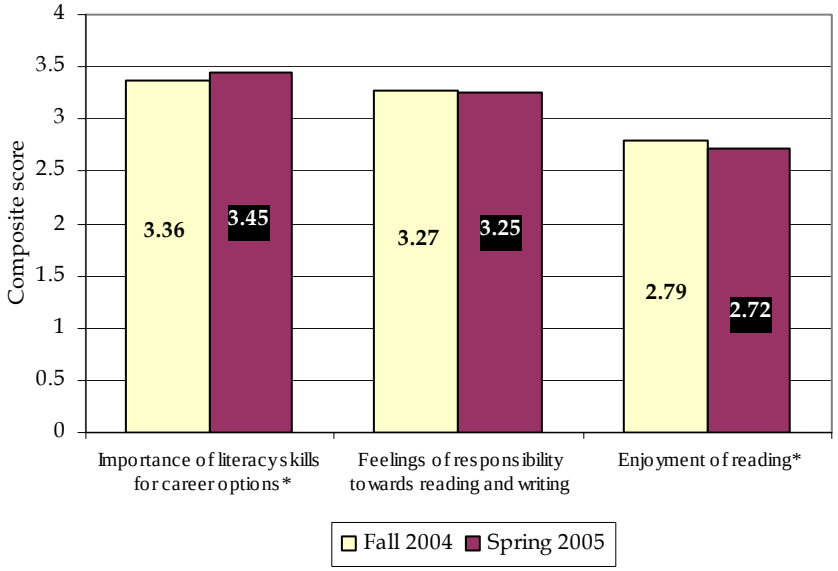
As seen in Table 21, the most important positive predictor (i.e., the variable with the largest beta coefficient) was students' reading scores for the previous year. Minority status and special education status were also found to be significant predictors, but in the negative direction (i.e., belonging to these groups was associated with lower reading scores). The next most important positive predictor was the number of episodes completed before testing, suggesting that a higher level of program implementation was associated with better reading performance. This model was able to explain 64.7% of the variance of students' scale scores in reading.

Attitudes toward Literacy

Three constructs measured student attitudes toward literacy: importance of literacy skills for career options, feelings of responsibility toward reading and writing (e.g., completing reading or writing assignments on time), and enjoyment of reading. Figure 8 presents the students' composite mean scores in fall 2004 and spring 2005 for these constructs.

[22] The beta coefficients are the standardized regression coefficients, and they represent the amount of standard deviation units the dependent variable changes when the independent variable changes one standard deviation and all other independent variables are held constant.

Figure 8: Attitudes toward Literacy
Comparison of Fall 2004 and Spring 2005 Mean Scores



* Differences in the mean scores from fall to spring were statistically significant at the .05 level.

As seen in Figure 8, students experienced significant gains from fall to spring in their views of the importance of literacy skills for career options. There were no statistically significant differences from fall to spring in the students' feelings of responsibility toward reading and writing. On the other hand, students' enjoyment of reading seemed to decline over the same period of time. Note that students' enjoyment of reading could also be related to the time of year, with students reporting lower levels of enjoyment after having gone through the full school year.

When looking at changes in attitudes by selected student and teacher characteristics, results suggest that some subgroups did better than others.[23] Differences in the posttest after controlling for pretest levels were also analyzed by grade level, selected teacher characteristics and degree of program implementation. These results are presented next.

<u>Importance of literacy skills for career options</u>

- When looking at changes in attitudes by selected student and teacher characteristics, results suggest that most of the subgroups experienced significant gains from fall to spring. However, for some groups of students, particular subgroups (e.g., specific grades) experienced larger gains, including students in grades 6 (from a mean score of 3.36 in the fall to 3.48 in the spring) and 8 (from 3.36 to 3.43), English Proficient students (from 3.78 to 3.46), general education students (from 3.38 to 3.47), students of teachers who have been teaching for two to five years (from 3.33 to 3.49) and for six to 10 years (from 3.36 to 3.42), and students of ELA teachers (from 3.37 to 3.49).

[23] Highlights of findings are presented here. See Table B-2 in Appendix B for detailed data for subgroups of students.

- In addition, an analysis of differences in spring attitudes after controlling for the fall levels shows that students of ELA teachers had more positive views on the importance of literacy skills for career options than their peers. Table 22 below displays these results.

Feelings of responsibility toward reading and writing

- In terms of feelings of responsibility toward reading and writing, three subgroups of students experienced a decline from pre to post, including students of teachers with over 10 years of experience (from a mean score of 3.30 in the fall to 3.25 in the spring), students of non-ELA teachers (from 3.20 to 3.16), and students of math teachers (from 3.34 to 3.24). Student attitudes for all other subgroups remained constant.

- Results revealed that, in the spring, students from grade 5 had higher adjusted mean scores than students from grade 8, after controlling for pretest levels. Differences were also found by selected teacher characteristics. In particular, students of teachers who had previously used Classroom, Inc. materials had a higher adjusted mean score than students of teachers with no previous experience. Finally, students of ELA teachers also had more positive feelings of responsibility toward reading and writing than their peers. Table 22 below displays these results.

Students' enjoyment of reading

- Overall, students experienced a statistically significant decline in their enjoyment of reading from fall to spring; however, this decline was statistically significant for some but not all subgroups. The attitudes of students using *The Sports Network* and *West End Law* remained constant from pre to post, with a mean score at both times of about 2.7 and 2.6, respectively. Other subgroups for which attitudes did not change included students in grades 7 and 8, non-minority students, ELL students, special education students, students of teachers who had previously used Classroom, Inc. materials, and students of teachers with 2 to 5 years of experience.

- Results also indicate that, after controlling for pretest scores, students of teachers who had previously used Classroom, Inc. materials and students of ELA teachers reported higher levels of enjoyment of reading compared to their peers. Table 22 displays these results.

Metis also conducted signed ranks tests on the individual items that did not load into any of the constructs to test for changes in attitudes from fall to spring.[24] Results revealed that students had improved their attitudes (as measured by their level of agreement) in terms of knowing that they would do well in reading that year and being able to read difficult material if the project is interesting. For the item "I know I will do well in reading this year," 21.1% of students moved up at least one level in a Likert scale[25] from the fall to the spring, 15.7% of students moved down one level or more, and the remaining 63.1% of students stayed the same. For the item "If a

[24] See Table B-5 in Appendix B for detailed results.
[25] From "Strongly Disagree" to "Strongly Agree."

project is interesting, I can read difficult material," 28.4% of students improved by at least one level (as measured by their level of agreement) compared to 18.2% of students who declined. On the other hand, students experienced a decline in attitudes for the item "If the teacher discusses something interesting, I might read more about it." The fall distribution of responses was significantly different from the spring distribution, with a higher percent of students who moved down by at least one level (27.4%) than students who improved by one level or more (22.8%).

Table 22
Attitudes toward Literacy
Differences in Adjusted Mean Scale Scores, by Selected Characteristics

Teacher Characteristics by Construct	N	Fall 2004 Mean Score (SD)	Spring 2005 Mean Score (SD)	Spring 2005 Adjusted Mean Score (SE) [a]
Importance of literacy skills for career options				
Subject Area				
-- Students of ELA teachers	778	3.368 (.633)	3.487 (.560)	3.485 (.019)*
-- Students of non-ELA teachers	555	3.353 (.571)	3.406 (.574)	3.409 (.023)*
Feelings of responsibility toward reading and writing				
Grade Level				
-- Grade 5	160	3.488 (.494)	3.447 (.481)	3.354 (.037)*[b]
-- Grade 6	352	3.328 (.481)	3.302 (.505)	3.279 (.025)* [b]
-- Grade 7	455	3.236 (.518)	3.223 (.539)	3.240 (.022)* [b]
-- Grade 8	375	3.184 (.487)	3.166 (.520)	3.206 (.024)* [b]
Experience with Classroom, Inc. materials				
-- Previous experience	514	3.322 (.513)	3.322 (.496)	3.295 (.021)*
-- No experience	654	3.214 (.510)	3.196 (.541)	3.217 (.018)*
Subject Area				
-- Students of ELA teachers	763	3.333 (.497)	3.325 (.481)	3.301 (.017)*
-- Students of non-ELA teachers	549	3.204 (.501)	3.157 (.550)	3.190 (.020)*
Enjoyment of reading				
Experience with Classroom, Inc. materials				
-- Previous experience	500	2.806 (.606)	2.774 (.593)	2.750 (.022)*
-- No experience	637	2.736 (.602)	2.659 (.620)	2.677 (.019)*
Subject Area				
-- Students of ELA teachers	739	2.851 (.580)	2.789 (.586)	2.757 (.018)*
-- Students of non-ELA teachers	537	2.723 (.602)	2.642 (.618)	2.686 (.021)*

[a] An asterisk in this column denotes a statistically significant between-subjects effect at the .05 level.
[b] Post-hoc comparison using Bonferroni adjustment indicate that grade 5 adjusted mean score > grade 8 adjusted mean score.

B. Math and Problem-Solving Skills

In addition to examining literacy-related outcomes, because some Classroom, Inc. simulations address mathematics and because the organization includes math curricula in most of its programs, Classroom, Inc. asked Metis to examine mathematics-related outcomes. This section presents findings from an analysis of the NYC and NYS Mathematics assessments, as well as results from the pre- and post-surveys regarding changes in students' attitudes toward math and problem-solving.

Achievement Data

Results indicate that grade 8 students experienced significant gains in their math performance from spring 2004 to spring 2005, while math scores for grade 7 students declined over the same period of time. Findings also revealed that grade 5 general education target students scored higher than students in the comparison group. In addition, the degree of implementation seemed to be positively related to students' math performance for some groups of students, including grade 5 and grade 6 general education students. Table 35 at the end of this section presents a summary of the achievement results in mathematics.

Achievement findings are presented by grade level.

Grade 5

- An analysis of performance levels revealed that the distribution of target students by performance level did not change significantly from spring 2004 to spring 2005 for both general education and special education students (Table 23).

- Results indicate that, after accounting for pretest differences, fifth-grade general education students participating in the program scored significantly higher on the NYC math test than students in the comparison group (Table 24). There were no differences between special education target students and comparison students.

- In terms of degree of implementation, results indicate that general education students completing six or more episodes and students completing three to five episodes before testing scored significantly higher on the spring 2005 NYC mathematics test than students completing two or less episodes (Table 25).

Table 23
Performance Levels in Mathematics
for 5th-Grade Target Students, Spring 2004 to Spring 2005

Group status	Test Date	Total N	Performance Levels				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Not Proficient	% Basic	% Proficient	% Advanced	
General Education	Spring 2004	168	4.8%	17.3%	47.6%	30.4%	-.777 (.437)
	Spring 2005	168	4.2%	24.4%	31.0%	40.5%	
Special Education	Spring 2004	10	10.0%	60.0%	20.0%	10.0%	-.000 (1.000)
	Spring 2005	10	10.0%	70.0%	0%	20.0%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

Table 24
5th-Grade NYC Mathematics Mean Scale Scores
for Target and Comparison Students, Spring 2004 to Spring 2005

Group Status	N	Spring 2004 Mean Scale Score(SD)	Spring 2005 Mean Scale Score (SD)	Spring 2005 Adjusted Mean Scale Score (SE)
General Education Students				
-- Target	168	662.12 (35.96)	684.69 (37.62)	684.55 (1.91) [ab]
-- Comparison	127	661.76 (28.78)	676.98 (38.92)	677.16 (2.20) [ab]
Special Education Students				
-- Target	10	630.90 (28.44)	653.30 (32.35)	656.58 (7.64) [cd]
-- Comparison	16	637.75 (21.83)	651.38 (28.96)	649.32 (6.03) [cd]

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=661.96.
[b] Between-subjects effects were statistically significant: F=6.454, P=.012, partial η^2=.022, Cohen's *d*=.30.
[c] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=635.12.
[d] Between-subjects effects were not statistically significant: F=.551, P=.465, partial η^2=.023, Cohen's *d*=.31.

Table 25
5th-Grade NYC Mathematics Mean Scale Scores
by Degree of Implementation

Group (I)	N	Spring 2005 Adjusted Mean Reading Scale Score (SE)	Group (J)	Mean Difference (I-J)*	Post Hoc Significance [c]
General Education Students					
Low	73	664.80 (3.52)[a]	Medium High	-12.04* -18.52*	Low<Medium Low<High
Medium	125	676.84 (2.60)[a]	Low High	12.04* -6.482	Medium>Low
High	43	683.32 (4.80)[a]	Low Medium	-18.52* 6.48	High>Low
Special Education Students					
Low	9	595.81 (17.93)[b]	Medium	-48.85	
Medium	10	644.67 (16.80)[b]	Low	48.85	
High	0	--	--	--	

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=654.58.
[b] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=614.58.
[c] Only significant differences are reported in this column.
*An asterisk in this column indicates a statistically significant mean difference at the .05 level using the Bonferroni adjustment for multiple comparisons.

Grade 6

- There were no statistically significant differences between the spring 2004 and spring 2005 distribution of sixth-grade students by performance level, with a similar percentage of target students improving by at least one level or declining by at least one level (Table 26).

- After controlling for pretest scores, there were no differences in math mean scale scores between general education target students and comparison students. The same was true for special education students. Table 27 presents these results.

- For general education students, results suggest that students who completed more episodes scored significantly higher than those who completed fewer episodes, after accounting for pretest differences. In particular, students in the high implementation group had higher adjusted mean scale scores than students in the medium and low implementation group. There were no significant differences in math scores among students from the low and medium implementation groups. There were no differences by degree of implementation among special education students. Table 28 presents these results.

Table 26
Performance Levels in Mathematics
for 6th-Grade Target Students, Spring 2004 to Spring 2005

Group status	Test Date	Total N	Performance Levels				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Not Proficient	% Basic	% Proficient	% Advanced	
General Education	Spring 2004	261	12.6%	41.4%	29.5%	16.5%	- 1.649 (.099)
	Spring 2005	261	13.4%	35.6%	31.4%	19.5%	
Special Education	Spring 2004	44	45.5%	38.6%	13.6%	2.3%	- 1.698 (.090)
	Spring 2005	44	56.8%	31.8%	9.1%	2.3%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

Table 27
6th-Grade NYC Mathematics Mean Scale Scores
for Target and Comparison Students, Spring 2004 to Spring 2005

Group Status	N	Spring 2004 Mean Scale Score(SD)	Spring 2005 Mean Scale Score (SD)	Spring 2005 Adjusted Mean Scale Score (SE)
General Education Students				
-- Target	261	660.70 (31.70)	680.49 (39.69)	684.26 (1.54) [ab]
-- Comparison	616	666.76 (38.06)	687.71 (40.97)	686.11 (1.00) [ab]
Special Education Students				
-- Target	44	629.23 (33.58)	639.75 (45.54)	629.64 (5.11) [cd]
-- Comparison	84	611.95 (46.54)	624.96 (52.93)	630.26 (3.68)[cd]

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=664.96.
[b] Between-subjects effects were not statistically significant: F=1.017, P=.314, partial η^2=.001, Cohen's *d*=.06.
[c] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=617.89.
[d] Between-subjects effects were not statistically significant: F=.009, P=.923, partial η^2=.000, Cohen's *d*=.00.

Table 28
6th-Grade NYC Mathematics Mean Scale Scores
by Degree of Implementation

Group (I)	N	Spring 2005 Adjusted Mean Reading Scale Score (SE)	Group (J)	Mean Difference (I-J)*	Post Hoc Significance [c]
General Education Students					
Low	92	673.85 (2.41)[a]	Medium	-4.63	
			High	-12.61*	Low<High
Medium	161	678.48 (1.83)[a]	Low	4.63	
			High	-7.98*	Medium<High
High	100	686.47 (2.32)[a]	Low	12.61*	High>Low
			Medium	7.98*	High>Medium
Special Education Students					
Low	19	629.97 (9.21)[b]	Medium	2.89	
			High	-14.09	
Medium	38	627.08 (6.09)[b]	Low	-2.89	
			High	-16.98	
High	6	644.06 (15.09)[b]	Low	14.09	
			Medium	16.98	

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=661.80.
[b] . Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=616.22.
[c] Only significant differences are reported in this column.
*An asterisk in this column indicates a statistically significant mean difference at the .05 level using the Bonferroni adjustment for multiple comparisons.

Grade 7

- An analysis of performance levels suggests that seventh-grade students' math performance declined from spring 2004 to spring 2005. As seen in Table 29, the distribution of general education students by performance level in spring 2004 significantly differed from the spring 2005 distribution, with a higher number of negative ranks (students moving down by at least one level) than positive ranks (students improving one level or more). The same was true for special education students.

- Consistent with the previous findings, results indicate that, after accounting for pretest differences, seventh-grade students participating in the program had very similar math scale scores as students in the comparison group for both general education and special education students. Table 30 presents these findings.

- The effect of implementation was not found to be significant for general education or special education students. For instance, although general education students completing six or more episodes had higher mean scale scores (694.82) than students completing three to five episodes (683.44) or students completing two or less episodes (672.83), these differences were not significant after controlling for pretest scores. Table 31 presents these findings.

Table 29
Performance Levels in Mathematics
for 7th-Grade Target Students, Spring 2004 to Spring 2005

Group status	Test Date	Total N	Performance Levels				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Not Proficient	% Basic	% Proficient	% Advanced	
General Education	Spring 2004	604	16.4%	37.6%	28.3%	17.7%	-2.860 (.004)*
	Spring 2005	604	22.2%	30.8%	32.0%	15.1%	
Special Education	Spring 2004	81	43.2%	50.6%	6.2%	0%	-2.353 (.019)*
	Spring 2005	81	58.0%	35.8%	6.2%	0%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

Table 30
7th-Grade NYC Mathematics Mean Scale Scores
for Target and Comparison Students, Spring 2004 to Spring 2005

Group Status	N	Spring 2004 Mean Scale Score(SD)	Spring 2005 Mean Scale Score (SD)	Spring 2005 Adjusted Mean Scale Score (SE)
General Education Students				
-- Target	604	675.78 (35.91)	688.55 (42.66)	691.37 (1.00) [ab]
-- Comparison	459	683.04 (34.92)	694.31 (36.76)	690.60 (1.15) [ab]
Special Education Students				
-- Target	81	643.38 (26.62)	650.43 (40.04)	643.47 (4.77) [cd]
-- Comparison	102	627.43 (54.45)	633.24 (64.17)	638.77 (4.24) [cd]

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=678.91.
[b] Between-subjects effects were not statistically significant: F=.256, P=.613, partial η^2=.000, Cohen's *d*=.00.
[c] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=634.49.
[d] Between-subjects effects were not statistically significant: F=.534, P=.466, partial η^2=.003, Cohen's *d*=.11.

Table 31
7th-Grade NYC Mathematics Mean Scale Scores
by Degree of Implementation

Group (I)	N	Spring 2005 Adjusted Mean Reading Scale Score (SE)	Group (J)	Mean Difference (I-J)*	Post Hoc Significance [c]
General Education Students					
Low	213	680.82 (1.83)[a]	Medium	-4.17	
			High	-5.81	
Medium	333	684.99 (1.45)[a]	Low	4.17	
			High	-1.65	
High	271	686.64 (1.63)[a]	Low	5.81	
			Medium	1.65	
Special Education Students					
Low	24	654.76 (6.09)[b]	Medium	6.72	
			High	-7.58	
Medium	62	648.04 (3.82)[b]	Low	-6.73	
			High	-14.30	
High	19	662.34 (6.92)[b]	Low	7.58	
			Medium	14.30	

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=672.67.
[b] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=644.70.
[c] Only significant differences are reported in this column.
*An asterisk in this column indicates a statistically significant mean difference at the .05 level using the Bonferroni adjustment for multiple comparisons.

Grade 8

- Results suggest that eighth-grade general education and special education target students' math performance improved from spring 2004 to spring 2005. In particular, the distributions for both general education and special education target students were statistically different from one year to the next, with a higher number of positive ranks (students who moved up at least one level from 2004 to 2005) than negative ranks (students who moved down one or more levels). Table 32 presents these findings.

- Results suggest that there were no differences in math scale scores between eighth-grade students participating in the program and students in the comparison groups, after accounting for pretest differences (Table 33).

- Finally, the effect of program implementation was not found to be statistically significant. Table 34 shows these results.

Table 32
Performance Levels in Mathematics
for 8th-Grade Target Students, Spring 2004 to Spring 2005

Group status	Test Date	Total N	Performance Levels				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Not Proficient	% Basic	% Proficient	% Advanced	
General Education	Spring 2004	458	34.1%	39.3%	19.2%	7.4%	-8.180 (.000)*
	Spring 2005	458	13.3%	52.6%	29.0%	5.0%	
Special Education	Spring 2004	76	72.4%	26.3%	1.3%	.0%	-4.315 (.000)*
	Spring 2005	76	47.4%	47.4%	5.3%	.0%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

Table 33
8th-Grade NYS Mathematics Mean Scale Scores
for Target and Comparison Students, Spring 2004 to Spring 2005

Group Status	N	Spring 2004 Mean Scale Score(SD)	Spring 2005 Mean Scale Score (SD)	Spring 2005 Adjusted Mean Scale Score (SE)
General Education Students				
-- Target	458	674.88 (39.55)	707.26 (28.81)	709.15 (.76)
-- Comparison	501	680.75 (36.04)	709.83 (28.08)	708.10 (.73)
Special Education Students				
-- Target	76	636.70 (42.81)	678.28 (29.00)	674.99 (2.70)
-- Comparison	71	621.37 (57.08)	674.68 (35.32)	678.19 (2.79)

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=677.95.
[b] Between-subjects effects were not statistically significant: F=1.000, P=.318, partial η^2 =.001, Cohen's *d*=.06.
[c] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=629.29.
[d] Between-subjects effects were not statistically significant: F=.671, P=.414, partial η^2=.005, Cohen's *d*=.14.

Table 34
8th-Grade NYS Mathematics Mean Scale Scores by Degree of Implementation

Group (I)	N	Spring 2005 Adjusted Mean Reading Scale Score (SE)	Group (J)	Mean Difference (I-J)*	Post Hoc Significance [c]
General Education Students					
Low	142	709.20 (1.47)[a]	Medium High	3.60 .14	
Medium	241	705.60 (1.13)[a]	Low High	-3.60 -3.47	
High	217	709.07 (1.19)[a]	Low Medium	-.135 3.47	
Special Education Students					
Low	10	669.71 (8.76)[b]	Medium High	-9.98 -7.45	
Medium	43	679.69 (4.23)[b]	Low High	9.98 2.53	
High	33	677.16 (4.85)[b]	Low Medium	7.45 -2.53	

[a] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=674.85.
[b] Covariates appearing in the model were evaluated at the following values: Spring 2004 Math Scale Score=637.44.
[c] Only significant differences are reported in this column.
*An asterisk in this column indicates a statistically significant mean difference at the .05 level using the Bonferroni adjustment for multiple comparisons.

Table 35 presents a summary of the achievement results in mathematics by grade level for the four different types of statistical analyses.

Table 35
Summary Results
Achievement in Mathematics

Analysis	Objective	Students	Grade Level			
			Grade 5	Grade 6	Grade 7	Grade 8
			Significance (Direction)[a] [b]	Significance (Direction)[a] [b]	Significance (Direction)[a] [b]	Significance (Direction)[a] [b]
Wilcoxon Ranks Test	Performance level change from spring 2004 to spring 2005	General Education			* (-)	* (+)
		Special Education			* (-)	* (+)
ANCOVA by group status	Differences between target and comparison group in spring 2005 adjusted mean scale scores	General Education	* (+)			
		Special Education				
ANCOVA by degree of implementation	Differences in spring 2005 adjusted mean scale scores by degree of implementation	General Education	* (+)	* (+)		
		Special Education				

[a] An asterisk in this column denotes significant results.
[b] A "+" means that the results were significant in a positive direction (e.g., gains from pre to post, better results for target than comparison students, better results for higher levels of implementation). A "-" means that the results were significant in the negative direction.

Multivariate Regression Analysis

Metis also conducted a regression analysis in order to further explore the relationship between students' math performance and a number of student, teacher and program characteristics. Results indicate that the model was able to explain 60.9% of the variance in students' math scores. Table 36 shows the results of the multivariate regression analysis, using the spring 2005 NYC/NYS Mathematics test scores as the dependent variable.

Table 36: Multiple Regression Analysis
Dependent Variable: Spring 2005 NYC/NYS Mathematics Scale Scores (N=1,969)

Factors	Standardized Coefficient Beta[26]	t-value (sig.)*
Student Characteristics		
-- Gender	-.024	-1.673 (.094)
-- ELL Status	.054	3.563 (.000)*
-- Special Education Status	-.057	-3.757 (.000)*
-- Minority Status	-.024	-1.642 (.101)
-- Spring 2004 Math Scale Score	.732	44.815 (.000)*
Teacher Characteristics		
-- Years of teaching	.043	2.658 (.008)*
-- Previous experience with Classroom, Inc. materials	.066	4.298 (.000)*
-- Class subject area: ELA	-.030	-1.732 (.083)
-- Class subject area: Math	-.033	-2.196 (.028)*
Degree of Implementation		
-- Episodes completed	.063	4.172 (.000)*

*Denotes statistical significance at the .05 level.

As seen in Table 36, students' previous math scale scores were found to be, by far, the most important positive predictor of posttest performance. The next most important positive predictors were teachers' previous experience with Classroom, Inc. materials and the number of episodes completed before testing. This last result suggests that, as previously shown with reading, a higher level of program implementation was associated with higher math scores. Other significant positive predictors of math achievement included ELL status and teachers' years of experience, while special education status and use of the program in a math class were found to be significant predictors in the negative direction (i.e., belonging to these groups was associated with lower math scores).

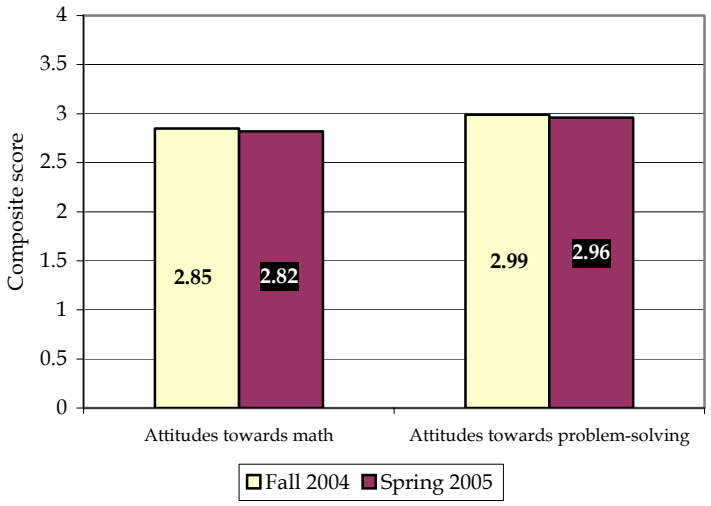
[26] The beta coefficients are the standardized regression coefficients, and they represent the amount of standard deviation units the dependent variable changes when the independent variable changes one standard deviation and all other independent variables are held constant.

Attitudes toward Math and Problem-Solving

The student pre-program and post-program surveys included several items regarding students' attitudes toward math and problem-solving skills. Most of these items were combined to form two constructs, one measuring student attitudes toward math and another that measured attitudes toward problem-solving.[27] Results revealed that there were no significant differences from fall to spring regarding students' overall attitudes toward math and problem-solving. Figure 9 presents the students' composite mean scores in fall 2004 and spring 2005 for these two constructs.

A large majority of teachers believe that the program has had a "moderate" to "high" impact on students' achievement in subject areas (64.4%) and problem-solving abilities (86.4%).

Figure 9: Attitudes toward Math and Problem-Solving
Comparison of Fall 2004 and Spring 2005 Mean Scores



Changes in attitudes toward math from fall to spring were also analyzed by selected student and teacher characteristics. When looking at these characteristics, results show that a few subgroups experienced a particular decline from fall 2004 to spring 2005, including students of teachers who have been teaching for over 10 years (whose mean score declined from 2.91 in the fall to 2.85 in the spring), students of non-math teachers (declined from 2.85 to 2.82), and students who had completed nine or more episodes (from 2.95 to 2.89).

Metis also conducted an analysis of covariance (ANCOVA) to test for differences in spring attitudes by grade, simulation, teachers' previous experience with Classroom, Inc. materials, subject area and degree of implementation. Table 37 at the end of this section presents these results. Findings revealed that grade 6 students had more positive attitudes toward math than grade 8 students, after controlling for pretest attitudes (spring 2005 adjusted mean scores = 2.87 and 2.78, respectively). In terms of attitudes toward problem-solving, students of ELA teachers had higher adjusted mean scores in the spring (2.99) than their peers (2.92). Finally, students

[27] See Table B-1 in Appendix B for a list of individual survey items for each construct.

who had completed five episodes or less and students who had completed nine episodes or more also had more positive attitudes in the spring than students who had completed six to eight episodes, after accounting for fall levels. Spring 2005 adjusted mean scores for these three groups of students were 3.03 (2-5 episodes), 3.01 (9 or more episodes), and 2.88 (6-8 episodes).

In addition, signed-ranks tests were conducted on the individual survey items that did not fit into any of the constructs. Results revealed that students improved their attitudes toward some aspects of problem-solving, in particular applying what they have learned before when thinking of new things. For this survey item, the distribution of responses in the spring was significantly different than the fall distribution, with a higher percentage of students moving up at least one level in the Likert scale than moving down by one level or more from fall to spring (32.2% compared to 26.5%).

Table 37
Attitudes toward Math and Problem-Solving
Differences in Adjusted Mean Scale Scores, by Selected Characteristics

Selected Characteristics by Construct	N	Fall 2004 Mean Score (SD)	Spring 2005 Mean Score (SD)	Spring 2005 Adjusted Mean Score (SE) [a]	Post Hoc Comparisons[b]
Attitudes toward Math					
Grade level					
-- Grade 5	162	2.938 (.636)	2.909 (.633)	2.863 (.040)*	Grade 6 > Grade 8
-- Grade 6	356	2.922 (.563)	2.912 (.564)	2.875 (.027)*	
-- Grade 7	457	2.858 (.596)	2.819 (.640)	2.819 (.024)*	
-- Grade 8	377	2.764 (.562)	2.719 (.604)	2.773 (.026)*	
Attitudes toward Problem-Solving					
Subject Area					
-- Students of ELA teachers	769	3.013 (.626)	3.007 (.601)	2.994 (.020)*	Not applicable
-- Students of non-ELA teachers	541	2.940 (.601)	2.905 (.647)	2.924 (.024)*	
Degree of implementation					
-- Low (2 to 5 episodes)	269	2.996 (.676)	3.032 (.671)	3.027 (.034)*	Low>Medium
-- Medium (6 to 8 episodes)	563	2.948 (.601)	2.869 (.603)	2.885 (.024)*	
-- High (9 or more episodes)	517	3.021 (.605)	3.023 (.608)	3.008 (.025)*	High> Medium

[a] An asterisk in this column denotes a statistically significant between-subjects effect at the .05 level.
[b] Only significant differences are reported in this column.

C. Student Engagement and Collaborative Learning

"I have seen more engagement among the students and more accountable talk when they work in small groups. They really like the program because they feel it is not the typical lesson or worksheets. The fact that they get to work with the computer makes all the difference in the world."

-- Assistant Principal

"This was a great program. The students stayed enthusiastic about the program the whole time it was taught and loved using the computers to learn literacy."

-- Teacher

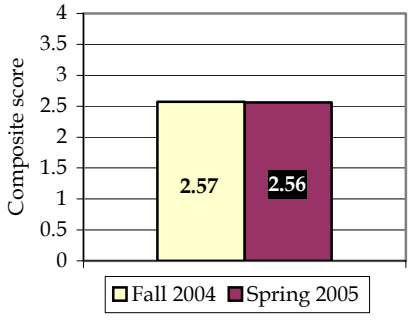
"This program allows students to use their time in a more meaningful manner. Students are very engaged because of its project-based nature."

-- Principal

In the interviews with schools administrators and Literacy at Work coaches at eight implementing schools, all principals or assistant principals and coaches indicated that they had observed a significant impact of the program on student motivation. Furthermore, in the post-program survey almost all of the teachers (91.8%) reported that the program had had a "moderate" to "high impact" on students' overall engagement. Consistent with these perceptions, findings from the observations revealed that the large majority of students (about 75% or more) were engaged in most of the observed activities (14 out of 19). The Literacy at Work program also offers students several opportunities to work with each other. Findings from the observations also revealed that classes were very dynamic and involved a high degree of collaborative learning, in particular when students were using the computer simulations. The large majority of observed activities were hands-on (68%) and student-led (74%) and involved group discussions (84%). In almost three-quarters (74%) of the observed activities, students were working in groups, with an average of three students per group.[28]

Four survey items were combined to form a construct on student attitudes toward collaborative learning: sharing ideas in small groups, sharing ideas in large groups, listening to others' points of view, and making thoughtful contributions to group discussions. Results revealed that students' attitudes did not vary significantly from fall to spring (Figure 10). However, in the post-survey, students' perceptions about the impact of the program on collaborative learning were very positive. In particular, two-thirds (66.5%) of the students reported that the program had helped them "a fair amount" or "a lot" in working with others.

Figure 10: Attitudes toward Collaborative Learning



[28] For detailed findings on the classroom observations, see the implementation evaluation report, *Evaluation of the Literacy at Work Program, New York City 2004-2005 Implementation Evaluation*, submitted by Metis Associates to Classroom, Inc., August 2005.

D. Technology

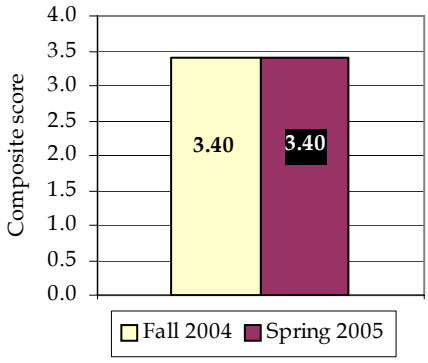
Technology is a central aspect of the Literacy at Work program. Through the computer simulations, students are introduced to information about an industry as well as to the different careers within the industry and are able to learn, review and practice literacy and math skills. The technology helps to promote active learning while providing students with the opportunity to also become more comfortable with using a computer.

> *"The New York City educational system is serving for the most part low-income students. For these students, learning about technology and computers is essential if they want to get a good job. Nowadays, knowing how to write and read is not enough. This program embeds technology standards with other standards."*
>
> *-- Principal*
>
> *"The technology component of the program is great. It's the kind of diversified instruction that the students need and enjoy."*
>
> *-- Literacy at Work coach*

Findings from the observations suggest that students were most engaged during the computer simulations. Most of the computer-based activities took place in the schools' computer labs, which contained enough computers to accommodate all of the students. However, in two of the schools, students were working on a few computers installed in their homeroom classrooms. Students were divided into groups to work on the computers, therefore providing numerous opportunities for collaborative learning. In most cases, each student was responsible for a different task, including using the keyboard, using the mouse, reading aloud the instructions and texts, and writing down the answers in the "Apply" page. For most of the computer-based activities, this task distribution was found to be very effective in engaging all students. Other than encountering a few technical problems (e.g., signing in, saving group work), students seemed very comfortable navigating through the software. One of the teachers explained that "from the very beginning students have been one step ahead of me."[29]

As mentioned previously, when asked about satisfaction with different aspects of the program, the largest percentage of students (75.7%) said that they had "liked" or "liked a lot" working with the computer simulation. Students also indicated that the program had a considerable impact in helping them improve their computer skills. However, students' attitudes toward computers, as measured by their level of agreement with five computer-related survey items, remained constant from fall to spring (Figure 11). One of the possible reasons may be that students reported very positive attitudes in the fall (the highest mean scores for all eight constructs), therefore leaving less

Figure 11: Attitudes toward Computers

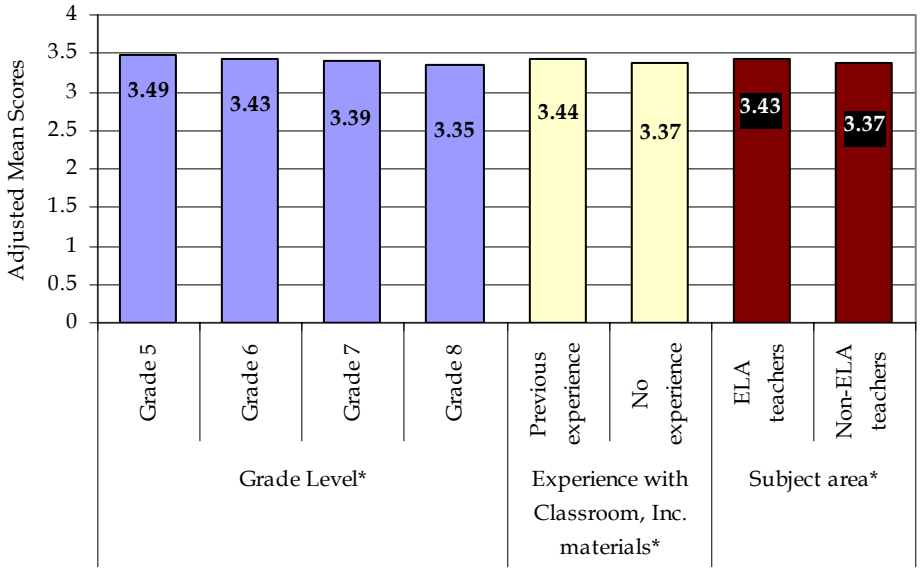


[29] For detailed findings on technology use, see the implementation evaluation report, *Evaluation of the Literacy at Work Program, New York City 2004-2005 Implementation Evaluation*, submitted by Metis Associates to Classroom, Inc., August 2005.

room for improvement. Grade 5 students were the only sub-group that experienced significant gains from fall to spring.

Differences in attitudes were analyzed by grade level, simulation, selected teacher characteristics, and degree of implementation. After controlling for pretest levels, results indicate that, in the spring, grade 5 students had a higher mean score (3.49) than grade 8 students (3.35), as shown in Figure 12. Significant differences were also found by teacher characteristics, with students of teachers who had previously used Classroom, Inc. materials and students of ELA teachers having more positive attitudes toward computers than their peers (3.43 vs. 3.37).

Figure 12
Attitudes toward Computers
Adjusted Mean Scores, by Selected Characteristics



* Between-groups effect was significant at the .05 level. Post-hoc comparisons by grade level indicate that grade 5 adjusted mean score > grade 8 adjusted mean score.

An analysis of computer-related individual items that did not load in this construct suggests that in the spring students were more open to using computers than in the fall. The fall distribution of responses for the survey item "I like to use computers as little as possible" was significantly different than the spring distribution, with 25.9% of students moving down by at least one level in the Likert scale compared to 19.9% of students moving up one or more levels. Note that in this case "moving up" is considered a positive change, as students moved toward disagreeing with the statement "I like to use computers as little as possible."

E. Career Awareness and Content Knowledge

One of the goals of the LAW program is to increase students' awareness about different careers and increase their knowledge about the specific industries portrayed in the simulations. By exposing students to the different jobs within one of four industries and asking them to assume a variety of roles as they proceed through the program, it is expected that students' career awareness and content knowledge will increase over the course of their participation. The simulation, workbook activities, and class discussions all provide opportunities for students to become more familiar with and knowledgeable about careers in general and in specific industries. To assess outcomes in these areas, students were asked a series of multiple-choice questions related to each industry in both the pre- and post-surveys[30].

> *"This program has generated a general awareness among students about the world of work. Students have a job and must fulfill certain responsibilities. They love to be in control of the decision-making process."*
>
> *-- Literacy at Work coach*
>
> *"I also see kids that get excited about working on something that has meaning to them, and seeing that what they learn in school has real world applications."*
>
> *-- Principal*

Career Awareness

> Over 80% of teachers responding to the post-survey indicated that the program has had a "moderate" to "high" impact on students' general career awareness (81.6%) and knowledge of the industry (91.7%).

Career-related survey items were combined to form two constructs: importance of literacy skills for different types of careers and importance of learning about careers, including finding out the information needed to make a decision about careers, how much people earn, the education and job skills needed, and what is important to them in an occupation. As shown previously, students had more positive perceptions about the importance of literacy skills to enter different types of careers in the spring than in the fall. There were no significant changes in students' perceptions about the importance of learning about careers from fall to spring. However, an analysis of individual career-related items that were not part of any constructs revealed that students experienced significant gains (as measured by their level of agreement) with regard to wanting "to spend more time learning about careers." For instance, from fall to spring 27.9% of students moved up by at least one level (in terms of agreement), while a smaller percentage (23.7%) declined over the same period of time. These results suggest that the program had a noticeable impact on students' awareness about the important role that literacy skills play in having career options, as well as their desire to learn more about the different choices.

Content Knowledge

Before they began the program and again at the end, students answered a series of multiple choice response questions related to the simulation in which they participated. The questions

[30] Appendix C includes a copy of these surveys.

were taken directly from "Short Answer Tests" developed for Classroom, Inc. by the Center for Innovation in Assessment at Indiana University. These tests were included as part of the LAW program's comprehensive assessment kits for use by teachers.

The surveys included one question per episode for a total of 10 questions for students who used *What's Up Magazine* and 12 questions for students using the other three simulations.[31]

- Overall, students experienced gains from pretest to posttest in their content knowledge of the selected industry. Changes in scores from pretest to posttest were positively correlated to the number of episodes completed.[32]

Students using three of the simulations—*What's Up Magazine, The Green Mountain Paper Company, and West End Law*—showed significant and educationally meaningful gains from pretest to posttest, while students who used *The Sports Network* did not (Table 38). A possible explanation for this finding may be that students using *The Sports Network* completed on average 6.3 episodes, which was significantly lower than students using *What's Up Magazine* (7.4), *The Green Mountain Paper Company* (8.7) and *West End Law* (9.5).

Although students made gains from pre- to posttest, it should be noted that for two of the four simulations (*What's Up Magazine* and *The Green Mountain Paper Company*), students correctly answered just over half of the items on the post-survey.

Table 38: Results from Content-Knowledge Test, by Simulation

	Total N	Pretest score	Posttest score	Gain	Effect size[1]	Group differences in gains[2]
Simulation						
-- WUM	863	44.450	54.832	10.382*	.45	WUM>TSN
-- GMPC	238	45.378	56.338	10.959*	.54	GMPC>TSN
-- TSN	171	43.713	41.813	-1.901	.07	TSN<WUM, GMPC, WEL
-- WEL	98	57.058	72.024	14.966*	.57	WEL>TSN

*Change from pretest to posttest was significant at the .05 level.

[1] The effect size measures the magnitude of the difference from pretest scores and posttest scores. Effect sizes larger than .33 are considered educationally meaningful.

[2] Between-group differences in gains by simulation were analyzed using Bonferroni adjustment for multiple comparisons.

The analysis of content-knowledge gains also was examined for sub-groups of students, including by grade level and demographic characteristics as well as by teacher characteristics and school cohort. It is interesting to note that special education and ELL students experienced significantly larger gains than general education and EP students, respectively (Table 39). There were no significant group differences in gains by grade level.

The analysis by teacher characteristics and school cohort reveals that students taught by teachers who have had a previous experience with Classroom, Inc. program materials showed

[31] A final score that ranged from 0 to 100 was calculated for the pretest and the posttest.

[32] Spearman's rho coefficient was significant at the .05 level.

significantly larger gains, as a group, than students of teachers who had no such experience (Table 40). Students of ELA teachers also did significantly better on the content-knowledge test, as a group, than students taught by teachers of other subjects.

Table 39: Results from Content-Knowledge Test, by Selected Student Characteristics

	Total N	Pretest score	Posttest score	Gain	Effect Size[1]	Group differences in gains
Grade						
-- Grade 5	163	46.564	58.098	11.534*	.56	
-- Grade 6	366	43.994	53.852	9.859*	.43	No group
-- Grade 7	460	44.167	52.855	8.688*	.38	differences
-- Grade 8	373	47.726	56.081	8.356*	.34	
Gender						
-- Female	659	45.842	56.500	10.658*	.48	Female>Male
-- Male	711	45.030	53.029	7.998*	.34	
Minority Status						
-- Non-minority	217	49.731	55.223	5.492*	.24	Non-minority >
-- Minority	1,120	44.650	54.826	10.176*	.44	Minority
Special Education Status						
-- General Education	1,197	46.353	55.223	8.869*	.40	Special Education>
-- Special Education	141	38.109	52.270	14.161*	.53	General Education
ELL Status						
-- EP Students	1,217	46.690	55.950	9.260*	.40	ELL>EP
-- ELL Students	121	33.361	44.463	11.102*	.47	

*Change from pretest to posttest was significant at the .05 level.

[1] The effect size measures the magnitude of the difference from pretest scores and posttest scores. Effect sizes larger than .33 are considered educationally meaningful.

Table 40: Results from Content-Knowledge Test, by Selected Teacher and School Characteristics

	Total N students	Pretest score	Posttest score	Gain	Effect size[1]	Group differences in gains
Teacher experience with Classroom, Inc. materials						
-- Previous experience	532	46.955	57.754	10.799*	.44	Previous experience > no previous experience
-- No previous experience	652	44.553	51.260	6.708*	.31	
Years of experience						
-- 2 to 5 years	435	41.946	52.571	10.625*	.45	No group differences
-- 6 to 10 years	439	47.475	55.008	7.532*	.33	
-- Over 10 years	442	46.444	56.719	10.275*	.46	
ELA						
-- With ELA teachers	788	43.454	55.317	11.863*	.50	ELA>non-ELA
-- With non-ELA teachers	544	48.061	54.203	6.143*	.29	
Math						
-- With math teachers	303	46.012	56.485	10.473*	.42	No group differences
-- With non-math teachers	1,029	45.136	54.385	9.248*	.42	
Technology/Computers						
-- With technology teacher	436	45.069	54.300	9.232*	.41	No group differences
-- With non-technology teacher	896	45.465	55.136	9.671*	.42	
School Cohort						
-- Cohort 1	591	45.615	54.664	9.050*	.39	No group differences
-- Cohort 2	779	45.274	54.724	9.450*	.42	

*Change from pretest to posttest was significant at the .05 level.

[1] The effect size measures the magnitude of the difference from pretest scores and posttest scores. Effect sizes larger than .33 are considered educationally meaningful.

V. CONCLUSIONS AND RECOMMENDATIONS

Classroom, Inc. continued to pilot the Literacy at Work program during the 2004-2005 school year. Evaluation findings suggest that implementation (e.g., start up, number of episodes completed) of the Literacy at Work program varied greatly across schools and classes. Although time constraints, technology problems and scheduling difficulties delayed program implementation in some of the schools and prevented a number of teachers from completing the curriculum, by the end of the school year the large majority of classes had completed most or all of the episodes. Encouraging school administrators and teachers to start the program earlier in the school year may provide additional time for some of these teachers to fully implement the program.

Overall, teachers, Literacy at Work coaches and school administrators reported being very satisfied with the program, which they believed was very helpful in teaching literacy skills to participating students. The most useful materials were the student workbook and the computer simulation. Furthermore, most school administrators, coaches and teachers indicated that they had observed a noticeable improvement in student outcomes, including student engagement and collaborative learning, reading, writing and math skills, and career awareness. Most of the observed classes were very dynamic and involved some degree of collaborative learning, in particular when students were working on the computer-based activities. In this sense, teachers thought that the program could further increase student motivation toward learning by providing additional activities that build on the computer simulation and involve a higher degree of collaborative learning and creativity.

Classroom, Inc.'s on-site instructional support also played a key role during program implementation, especially in supporting coaches and helping them to guide teachers through the program. Broadening the consultants' role, for example by conducting additional on-site professional development sessions to enhance teachers' use of the program and developing a more direct system to strengthen the relationship between consultants and teachers, would be highly beneficial, in particular for those schools in which the coaches do not have sufficient time to guide the teachers adequately.

Students also offered very positive feedback about the program. Some of the aspects of the program that students liked the most included: using computers; career- and work-related aspects such as running a company and learning about different occupations; and specific skills learned through the program such as problem-solving, decision-making, literacy and math. In addition, most students reported that the program had helped them improve in certain areas, including collaborative learning, working with computers, literacy skills and math skills.

Data from the spring 2004 and spring 2005 NYC and NYS reading and mathematics achievement tests were analyzed to explore how outcomes for participating students compared with their past histories of performance and with outcomes for students in comparison classes. Results indicate that some groups of students experienced significant gains in reading and math test performance from one year to the next. In addition, certain sub-groups of students also scored higher than students in the comparison groups. An analysis of pre- and post-program survey responses reveals that students' attitudes remained constant from fall to spring in most areas. However, overall positive changes were observed with regards to the importance of

literacy skills for career options, while student attitudes toward enjoyment of reading seemed to decline, which could be the result of a seasonal effect.

This evaluation also explored the relationship between outcomes and selected student and teacher characteristics. As noted throughout the report, there were a number of factors that seemed to be related to more positive perceptions about the program, as well as enhanced student outcomes. For example, ELL and special education students were more likely to report a stronger impact of the program on their speaking skills, as well as their computer skills, than their peers. In addition, grade 5 and grade 7 special education students significantly improved in their reading performance from spring 2004 to spring 2005, and they did better than the students in the comparison group. In terms of the content knowledge test, these two groups of students also showed significantly higher gains than general education and EP students. These findings suggest that some components of this program, including working with groups, its project-based nature and visual learning, make this program a good tool to teach literacy and other skills to students with special needs. As one teacher explained, "The program has also taught students, in particular special ed students, about the importance of reading, understanding and following directions, which are skills that will be crucial for the upcoming tests."

Students of ELA teachers and students of teachers who had previously used Classroom, Inc. materials had consistently higher satisfaction with the program and its components and reported stronger levels of program impact on various skills than their peers. These groups of students also had more positive attitudes toward literacy, problem-solving and computers, and experienced significantly higher gains in the content knowledge tests from fall to spring than the rest of students. In terms of subject area, the reason for these positive outcomes may be related to the fact that the program has a strong literacy-based component, maybe more so than for other subject areas, making it more effective when it is used in an ELA setting. Findings also suggest that as teachers become more familiar with Classroom, Inc. materials and decide to use them again, they become more engaged in and knowledgeable about the program. For example, a significantly higher percentage of teachers who had previously used Classroom, Inc. materials reported that the program had been very helpful in helping them teach literacy. High expectations and enthusiasm for the program, as well as deeper experience using the simulations, may lead to better implementation and thus more positive student outcomes. Results from an exploratory regression analysis also identified teachers' previous experience with Classroom, Inc. as a positive predictor of students' math performance.

Finally, differences in attitudes and test performance were also analyzed by degree of implementation in order to determine whether outcomes are a function of the intensity of usage. Findings reveal that gains in the content knowledge test were positively correlated to the degree of implementation, as measured by the number of episodes completed. Furthermore, for certain grades and groups of students, higher levels of implementation were related to better reading and math performance. In addition, regression analyses revealed that the number of episodes completed before testing was a significant predictor of students' reading and math scale scores. To further study the relationship between usage and outcomes, it is recommended that future research look more closely at teachers who have used the program over an extended period of time, and explore implementation with and outcomes of English language learners and special education students.

APPENDIX A: METHODS AND PROCEDURES

Prior to beginning the evaluation, the evaluators met with Classroom, Inc. staff to learn about the history and development of Classroom, Inc. and the Literacy at Work program, and reviewed past surveys and protocols developed by Classroom, Inc., and program documentation and materials.

A. Training Observation and Feedback

The evaluation began with observation of the initial training designed by Classroom, Inc. to introduce the program to teachers and coaches and train them in its implementation. The training was conducted by Classroom, Inc. staff on November 2, 2004, at PC Learn (71 West 23rd Street, New York, NY). An observation protocol was developed to assess the content and the quality of the training. Two Metis researchers attended the workshops and observed both the morning and afternoon sessions, which were attended by approximately 110 educators from 20 schools. In addition, Metis analyzed 91 feedback forms, developed by Classroom, Inc., that were collected at the end of the training and provided to Metis.

At the training, teachers and coaches were informed that they would receive an honorarium of $200 from Classroom, Inc. if they completed the required research materials described below.

B. Surveys and Implementation Logs

To evaluate implementation, Metis developed surveys for students, teachers and coaches, and teacher implementation logs. The surveys included content appropriate for and specific to the respondent group and parallel content so that the different perspectives of each group would be obtained. Copies of the instruments are included in Appendix C.

The surveys and implementation logs were distributed and collected through the Literacy at Work coaches at each school. An Excel database was created in November 2005 to track the collection of all research instruments.

Student Survey. A student survey (pre and post) was developed to assess changes over time of student attitudes toward literacy, math, collaborative learning, career awareness and computers, as well as students' content knowledge about each particular industry. There were four versions of the survey, one for each simulation. The first section was the same in all versions and assessed student attitudes toward literacy, math, collaborative learning, and computers, and career awareness. Some of the items measuring student attitudes toward literacy were adapted from the Motivation for Reading Questionnaire (MRQ)[33], some of the items on career awareness were adapted from the Middle School Self-Efficacy Scale[34] and the computer-related items were adapted from a questionnaire on teachers' views of technology

[33] Wigfield and Guthrie. 1997. *Relations of Children's Motivation for Reading to the Amount and Breadth of Their Reading.* Journal of Educational Psychology, 89, 420-432.
[34] Fouad and Smith. 1997. *Reliability and validity evidence for the middle school self-efficacy scale*. Measurement & Evaluation in Counseling and Development, 30, 17-32.

and teaching.[35] The second section was particular to each simulation and consisted of 20 multiple-choice questions assessing the students' content knowledge about the following: the paper industry for *The Green Paper Mountain Company*, the media industry for *The Sports Network*, the publishing industry for *What's Up Magazine*, and the legal system for *West End Law*. These questions were taken directly from the "Short Answer Tests" developed for Classroom, Inc. by the Center for Innovation in Assessment at Indiana University. These tests were included as part of the LAW program's comprehensive assessment kits for use by teachers. Finally, the post-program survey also included an additional section of student perceptions about the program and its different components, the level of difficulty, and the impact of the program on various skills, including literacy, math, problem-solving, working with others and working with computers.

Table A-1 presents the response rates, by school cohort, of students who submitted pre-program surveys, post-program surveys, and matched pre- and post-program surveys.

Table A-1: Student Response Rates, by School Cohort

School Cohort	N (%)		
	Pre-program Surveys	Post-program Surveys	Matched Surveys
Cohort 1	1,403 (48.5%)	719 (43.0%)	606 (42.9%)
Cohort 2	1,492 (51.5%)	954 (57.0%)	805 (57.1%)
Total	2,895 (100%)	1,673 (100%)	1,411 (100%)

Teacher Survey. The teacher surveys were developed to assess teachers' perceptions about the program, including goals and expectations, use and helpfulness of program materials, challenges faced during program implementation, and expected and observed impacts of the program on student and teacher outcomes. The surveys were administered prior to and after program implementation.

The pre-program survey was administered in November 2004 at the beginning of program implementation. The post-program survey was distributed in April 2005 and was to be collected by June 1, 2005. However, at the beginning of June, very few teacher (and student) surveys had been received. Further follow-up was conducted by telephone, email and fax to schools, and additional surveys were mailed or faxed as needed.

Table A-2 presents the response rates, by participating region, for the pre-program and post-program teacher surveys.

[35] Posted on the Texas Center Educational Technology (TCET) website and adapted from: Christensen. 1997. *Teachers Views of Technology and Teaching*. Doctoral dissertation, University of North Texas.

Table A-2: Distribution of Schools and Teacher Pre-program and Post-program Surveys, by Region

Region	Schools		Teacher pre-program surveys		Schools		Teacher post-program surveys	
	N	%	N	%	N	%	N	%
1	7	31.8%	30	28.3%	4	23.5%	7	11.5%
2	2	9.1%	5	4.7%	1	5.9%	4	6.6%
3	1	4.5%	4	3.8%	1	5.9%	3	4.9%
4	-	-	-	-	-	-	-	-
5	3	13.6%	16	15.1%	1	5.9%	15	24.6%
6	1	4.5%	4	3.8%	-	-	-	-
7	5	22.7%	35	33%	5	29.4%	21	34.4%
8	1	4.5%	4	3.8%	1	5.9%	3	4.9%
9	1	4.5%	3	2.8%	1	5.9%	3	4.9%
10	1	4.5%	5	4.7%	1	5.9%	5	8.2%
Total	22	100%	106	100%	17	100%	61	100%

As might be expected, by the time of the survey administration in the spring, some of the teachers included in the sample were no longer teaching at their school or had decided not to use the program for a variety of reasons, including time constraints and scheduling difficulties.

Coach Survey. The coach survey assessed the coaches' perceptions about their role, expectations about the program, helpfulness of different program components in helping them guide the teachers, challenges to implementation, and suggestions for overall program improvement.

The survey was distributed to 20 schools in April 2005 with a deadline of May 16, 2005.[36] Follow-ups were conducted at the end of May and throughout June, via email, telephone and faxes. The bulk of the surveys were collected toward the end of June, and the last survey was received mid-July. A total of 13 coaches responded to the survey (65% response rate).

Teacher Implementation Logs. In consultation with Classroom, Inc. staff, Metis developed logs for each teacher to complete to obtain information about the level of program implementation in each participating classroom. Teachers were asked to complete one log per simulation episode. In the logs, teachers were asked to report on a number of program implementation aspects, including dates and length of time using the program; completion (or not) of each section of the episode; use and level of helpfulness of program materials; ratings of the content, amount of work and student engagement; and other issues related to that episode.

[36] The coach survey was not sent to the high schools as they were excluded from the research earlier on. In January 2005, it became clear that it would be very difficult for participating teachers to track the high school students who had used the program in the fall, as most of them were in other classes during the spring semester.

Implementation logs were distributed to all participating teachers at the beginning of program implementation, in approximately November 2005. Follow-ups were conducted throughout the school year and additional copies were mailed or faxed as needed. The initial deadline for the collection of implementation logs was extended to accommodate the later schedule of implementation that occurred in most schools. Logs were collected for 66 of the 84 classes participating in the research. Teachers submitted complete or almost complete[37] logs for over three-quarters of the classes (78.6%).

C. Classroom Observations and Interviews

In collaboration with Classroom, Inc. staff, Metis selected 10 schools for observations and interviews. Given the variety of models of program implementation and to be consistent with the grade-level focus of the evaluation, Metis limited the classroom observations to teachers who were using *What's Up Magazine* in grades 5, 6, and 7. Geographic distribution (by region), inclusion of schools from cohort 1 and 2,[38] and use of a collaborative team teaching model were also considered. This sampling frame enabled the researchers to study a cross-section of schools and classes across the two study cohorts and three participating grade levels.

During the period from March to June 2005, Metis obtained data on program implementation through interviews with principals, assistant principals and coaches and classroom observations. Interview guides were developed for the interviews with school administrators and coaches. An observation protocol was developed to assess program implementation, including usage of program materials (e.g., student workbook, computer software), class atmosphere, teacher attitudes, student engagement and collaborative learning.

Interviews with school administrators also were conducted at seven schools; at one school the principal and assistant principal were unavailable during the site visit. Furthermore, because of difficulties reaching coaches, teachers' schedules, and test preparation activities in the schools, classroom observations also were conducted at seven schools. By the time a site visit was scheduled at the eighth school, participating classes had already completed the program. Thus, a total of 10 classroom observations, including one fifth-grade class, three sixth-grade classes and six seventh-grade classes, were conducted. Table A-3 summarizes basic information for the schools that were visited.

[37] One or two episodes missing.

[38] Cohort 1 schools are those schools that used the program during the previous year. Cohort 2 schools have never used the Literacy at Work program before.

Table A-3: Summary of Site Visits

School	Cohort		Number of classes observed, by grade level		
	1	2	Grade 5	Grade 6	Grade 7
1		√			1
2	√			1*	
3		√		1	
4		√		1	
5	√		1		
6	√				3
7	√				2
8**		√			
Totals	4	4	1	3	6

* Collaborative team teaching.
**Interviews only.

D. Achievement Data

Academic achievement data, based on the New York City and New York State achievement tests in reading and math, were analyzed for students who participated in the Literacy at Work program and, for the purpose of comparison, a similar group of students who did not participate in the program. Table A-4 lists the standardized instruments that were used in this evaluation to measure student academic progress in English language arts (ELA) and math. Note that eighth-grade ELA test results were not included because these students were tested in January 2005, which was too early in program implementation to be a fair assessment of outcomes. Therefore, the ELA analyses included 1,236 fifth-, sixth-, and seventh-grade target students for which test data were available, while the math analyses included 1,808 target students grades 5 through 8.

Table A-4: Assessment Instruments

Skill Area	Assessment Instrument	Type of Instrument	Test Date*	Students Tested
English Language Arts	NYC ELA Test	Criterion-referenced	April 2005	5th-, 6th-, and 7th-grade students
Mathematics	NYC Mathematics Test	Criterion-referenced	April 2005	5th-, 6th-, and 7th-grade students
	NYS Mathematics Test	Criterion-referenced	May 2005	8th-grade students

* Where available, spring 2005 test scores are compared to spring 2004 test scores.

Comparison groups were created for the analysis of standardized achievement test results. Achievement data for students participating in the Literacy at Work program were compared to those of similar students at schools in the same geographical areas. The selection criteria were based on demographic characteristics, as well as student performance on the spring 2004 NYC and NYS achievement tests in English language arts and mathematics. Specifically, the student

populations were compared on the proportion of students in five demographic categories: special education status, gender, English language learner (ELL) status, Asian minority status, and non-Asian minority status, for a total possible demographic similarity score of 5.[39] For grades 5, 6, and 7, the student populations were also compared on the proportion of students scoring at each of the four performance levels on the NYC English language arts and mathematics tests, for a total possible similarity score of 4 in each subject area. For grade 8, the student populations were compared on the proportion of students scoring at each performance level on the NYS mathematics test, for a total possible similarity score of 4. A perfectly matched comparison school would have a total similarity score of 13 for grades 5, 6, and 7 or a score of 9 for grade 8.

It is important to note that, while the comparison groups were selected based on pre-program implementation achievement and demographic characteristics, no information was available about the nature and intensity of supplemental literacy instruction for these students along the evaluation period. To more precisely examine student achievement outcomes that may be associated with program participation, with the exception of analyses related to implementation level, the achievement analyses exclude classes of program participants that completed less than three Literacy at Work program episodes before the testing period. Tables A-5 through A-8 present the demographic characteristics and spring 2004 achievement results for students participating in the program and comparison students.

Table A-5: Characteristics of 5th-Grade Target and Comparison Students Included in the Achievement ELA and Mathematics Test Analyses

Student Characteristics		Target Students (N=182)	Comparison Students (N=157)
Gender	Female	46.2%	47.8%
	Male	53.8%	52.2%
Minority Status	Minority non-Asian	44.0%	55.4%
	Minority Asian	8.2%	7.0%
	Non-minority	47.8%	37.6%
Special Population	Special Education	5.5%	10.2%
	ELL	2.2%	3.2%
Pretest Performance in ELA	Not Proficient (Level 1)	2.9%	.7%
	Basic (Level 2)	28.2%	30%
	Proficient (Level 3)	48.9%	55.7%
	Advanced (Level 4)	20.1%	13.6%
Pretest Performance in Mathematics	Not Proficient (Level 1)	5.0%	3.5%
	Basic (Level 2)	19.6%	19.4%
	Proficient (Level 3)	45.8%	50.0%
	Advanced (Level 4)	29.6%	27.1%

[39] To calculate this similarity score, the total number of categories in which the comparison school matched the target school within 10 percentage points was computed.

Table A-6: Characteristics of 6th-Grade Target and Comparison Students Included in the Achievement ELA and Mathematics Test Analyses

Student Characteristics		Target Students (N=319)	Comparison Students (N=766)
Gender	Female	45.1%	47.5%
	Male	54.9%	52.5%
Minority Status	Minority non-Asian	68.3%	72.1%
	Minority Asian	21.3%	22.1%
	Non-minority	10.3%	5.7%
Special Population	Special Education	13.8%	12.8%
	ELL	5.3%	11.9%
Pretest Performance in ELA	Not Proficient (Level 1)	11.3%	12.5%
	Basic (Level 2)	36.2%	34.4%
	Proficient (Level 3)	46.8%	43.9%
	Advanced (Level 4)	5.6%	9.2%
Pretest Performance in Mathematics	Not Proficient (Level 1)	17.4%	19.3%
	Basic (Level 2)	41.0%	33.0%
	Proficient (Level 3)	27.2%	30.5%
	Advanced (Level 4)	14.4%	17.2%

Table A-7: Characteristics of 7th-Grade Target and Comparison Students Included in the Achievement ELA and Mathematics Test Analyses

Student Characteristics		Target Students (N=735)	Comparison Students (N=615)
Gender	Female	46.9%	46.2%
	Male	53.1%	53.8%
Minority Status	Minority non-Asian	61.8%	55.3%
	Minority Asian	15.8%	19.8%
	Non-minority	22.4%	24.9%
Special Population	Special Education	11.7%	17.4%
	ELL	9.3%	6.2%
Pretest Performance in ELA	Not Proficient (Level 1)	21.8%	22.2%
	Basic (Level 2)	40.4%	44.5%
	Proficient (Level 3)	31.0%	26.4%
	Advanced (Level 4)	6.8%	7.0%
Pretest Performance in Mathematics	Not Proficient (Level 1)	19.8%	16.5%
	Basic (Level 2)	38.9%	38.0%
	Proficient (Level 3)	25.6%	28.6%
	Advanced (Level 4)	15.6%	16.9%

Table A-8: Characteristics of 8th-Grade Target and Comparison Students Included in the Achievement Mathematics Test Analyses

Student Characteristics		Target Students (N=572)	Comparison Students (N=621)
Gender	Female	47.7%	50.1%
	Male	52.3%	49.9%
Minority Status	Minority non-Asian	76.2%	70.6%
	Minority Asian	10.1%	5.8%
	Non-minority	13.5%	23.7%
Special Population	Special Education	13.6%	14.2%
	ELL	5.1%	10.0%
Pretest Performance in Mathematics	Not Proficient (Level 1)	39.8%	37.0%
	Basic (Level 2)	37.6%	33.0%
	Proficient (Level 3)	16.4%	20.4%
	Advanced (Level 4)	6.3%	9.6%

APPENDIX B: ANALYSES OF ATTITUDINAL SURVEY ITEMS

Table B-1
Results from Exploratory Factor Analysis

Survey Items by Construct	Factor Loading (Fall)	Factor Loading (Spring)
Importance of literacy skills for career options		
-- If I learn how to ***read*** well, then I will be able to enter many different types of careers.	.765	.799
-- If I learn how to ***write*** well, then I will be able to enter many different types of careers.	.786	.819
-- If I learn how to ***speak*** well, then I will be able to enter many different types of careers.	.724	.734
Feelings of responsibility toward reading and writing		
-- Finishing every reading assignment is important to me.	.580	.610
-- I always try to finish my reading on time.	.539	.641
-- I try to finish my writing assignments on time.	.636	.698
-- Learning how to write well is important to me.	.565	.528
Enjoyment of reading		
-- I talk to my friends about what I am reading.	.631	.565
-- I like to tell my family about what I am reading.	.691	.606
-- I like to read about new things.	.502	.497
-- I only read because I have to.	-.608	-.512
-- How often do you read for fun (outside of school)?	.613	.614
Attitudes toward math		
-- I enjoy working on a difficult problem.	.584	.603
-- I enjoy working on math-related problems.	.768	.802
-- If I learn math well, then I will be able to enter lots of different types of careers.	.467	.536
-- I feel comfortable using math skills in real life situations.	.675	.718
Attitudes toward problem-solving		
-- When I don't understand a problem, I keep working until I find an answer.	.567	.623
-- I think about many ways to solve a difficult problem.	.555	.595
-- If I fail, I try to find out why.	.566	.621
-- I justify my own point of view.	.580	.413
Attitudes toward collaborative learning		
-- I share my ideas in small groups.	.710	.744
-- I share my ideas in large groups.	.696	.734
-- I listen to others' points of view	.571	.495
-- I make thoughtful contributions to group discussions.	.478	.536
Importance of learning about careers		
-- How important is it for you to learn about how much people earn in different occupations?	.588	.546
-- How important is it for you to learn about the education needed for various careers?	.622	.719
-- How important is it for you to learn about the job skills needed for various careers?	.654	.696
-- How important is it for you to find out about what's most important to you in an occupation?	.613	.617
-- How important is it for you to find out the information needed to make a decision about careers?	.642	.658
-- How important is it for you to talk to family and friends about their careers?	.464	.460
Attitudes toward computers		
I enjoy doing things on a computer.	.649	.803
I feel comfortable working with a computer.	.627	.785
I believe that it is very important for me to learn how to use a computer.	.598	.649
I would work harder if I could use computers more often.	.649	.478
I know that computers give me opportunities to learn many new things.	.666	.615

Table B-2
Student Attitudes Toward Literacy

	Importance of literacy skills for career options			Feelings of responsibility of reading and writing			Enjoyment of reading		
	Pre	Post	Change*	Pre	Post	Change*	Pre	Post	Change*
Student Characteristics									
Gender									
-- Male	3.300	3.404	(0.104)*	3.208	3.183	(-0.025)	2.667	2.590	(-0.076)*
-- Female	3.436	3.493	(0.057)*	3.341	3.325	(-0.016)	2.926	2.857	(-0.069)*
Grade level									
-- Grade 5	3.404	3.518	(0.114)	3.488	3.447	(-0.041)	3.030	2.930	(-0.099)*
-- Grade 6	3.364	3.482	(0.118)*	3.328	3.302	(-0.026)	2.915	2.753	(-0.162)*
-- Grade 7	3.358	3.410	(0.052)	3.236	3.223	(-0.013)	2.742	2.714	(-0.029)
-- Grade 8	3.361	3.430	(0.069)*	3.184	3.166	(-0.018)	2.645	2.611	(-0.034)
Minority status									
-- Non-minority	3.257	3.395	(0.138)*	3.297	3.304	(0.007)	2.823	2.767	(-0.057)
-- Minority	3.386	3.462	(0.077)*	3.268	3.240	(-0.028)	2.786	2.707	(-0.079)*
ELL status									
-- EP students	3.376	3.463	(0.088)*	3.280	3.247	(-0.033)*	2.793	2.715	(-0.078)*
-- ELL students	3.241	3.328	(0.086)	3.184	3.278	(0.094)	2.765	2.730	(-0.035)
Special Ed status									
-- General ed	3.377	3.468	(0.092)*	3.281	3.263	(-0.018)	2.806	2.734	(-0.073)*
-- Special ed	3.255	3.310	(0.054)	3.187	3.135	(-0.052)	2.661	2.572	(-0.090)
Simulation									
-- WUM	3.358	3.443	(0.085)*	3.303	3.289	(-0.014)	2.831	2.755	(-0.076)*
-- GMPC	3.374	3.444	(0.070)	3.222	3.169	(-0.052)	2.745	2.623	(-0.122)*
-- TSN	3.341	3.474	(0.133)*	3.212	3.210	(-0.001)	2.729	2.740	(0.011)
-- WEL	3.450	3.440	(-0.010)	3.228	3.199	(-0.030)	2.671	2.591	(-0.080)
Teacher Characteristics									
School Cohort									
-- Cohort 1	3.396	3.487	(0.091)*	3.316	3.295	(-0.021)	2.809	2.741	(-0.068)*
-- Cohort 2	3.342	3.416	(0.075)*	3.239	3.219	(-0.020)	2.778	2.701	(-0.076)*
Experience with Classroom, Inc. materials									
-- Yes	3.383	3.492	(0.110)*	3.322	3.322	(0.000)	2.806	2.774	(-0.032)
-- No	3.346	3.421	(0.075)*	3.214	3.196	(-0.018)	2.736	2.659	(-0.077)*
Years of experience									
-- [2 to 5]	3.328	3.491	(0.163)*	3.258	3.290	(0.032)	2.761	2.752	(-0.009)
-- [6 to 10]	3.356	3.419	(0.063)*	3.268	3.218	(-0.050)	2.750	2.665	(-0.085)*
-- [over 10]	3.395	3.446	(0.051)	3.298	3.249	(-0.049)*	2.868	2.754	(-0.114)*
Subject area									
-- ELA	3.368	3.487	(0.119)*	3.333	3.325	(-0.008)	2.851	2.789	(-0.062)*
-- Non-ELA	3.353	3.406	(0.053)	3.204	3.157	(-0.048)*	2.723	2.642	(-0.082)*
-- Math	3.317	3.437	(0.121)*	3.338	3.243	(-0.094)*	2.850	2.732	(-0.118)*
-- Non-math	3.375	3.458	(0.083)*	3.262	3.258	(-0.004)	2.782	2.726	(-0.056)*

	Importance of literacy skills for career options			Feelings of responsibility of reading and writing			Enjoyment of reading		
	Pre	Post	Change*	Pre	Post	Change*	Pre	Post	Change*
Degree of Implementation									
-- [1 to 5 episodes]	3.355	3.454	(0.099)*	3.246	3.255	(0.008)	2.771	2.712	(-0.059)
-- [6 to 8 episodes]	3.346	3.432	(0.086)*	3.198	3.202	(0.004)	2.701	2.655	(-0.046)
-- [9 episodes +]	3.390	3.458	(0.068)*	3.365	3.303	(-0.062)*	2.899	2.790	(-0.109)*

* Changes were statistically significant at the .05 level

Table B-3
Student Attitudes Toward Math, Problem-Solving and Collaborative Learning

	Math			Problem-Solving			Collaborative Learning		
	Pre	Post	Change*	Pre	Post	Change*	Pre	Post	Change*
Student Characteristics									
Gender									
-- Male	2.916	2.882	(-0.034)	2.951	2.936	(-0.015)	2.483	2.503	(0.020)
-- Female	2.787	2.762	(-0.025)	3.023	2.987	(-0.036)	2.670	2.621	(-0.049)
Grade level									
-- Grade 5	2.938	2.909	(-0.029)	3.030	3.017	(-0.013)	2.817	2.789	(-0.028)
-- Grade 6	2.922	2.912	(-0.011)	3.098	3.053	(-0.045)	2.665	2.633	(-0.032)
-- Grade 7	2.858	2.819	(-0.039)	2.958	2.957	(-0.001)	2.529	2.497	(-0.032)
-- Grade 8	2.764	2.719	(-0.045)	2.909	2.866	(-0.043)	2.448	2.471	(0.023)
Minority status									
-- Non-minority	2.814	2.805	(-0.009)	2.988	2.983	(-0.006)	2.597	2.659	(0.061)
-- Minority	2.859	2.828	(-0.032)	2.989	2.957	(-0.032)	2.572	2.540	(-0.032)
ELL status									
-- EP students	2.846	2.820	(-0.026)	2.979	2.958	(-0.021)	2.580	2.570	(-0.010)
-- ELL students	2.900	2.868	(-0.032)	3.077	3.000	(-0.077)	2.536	2.449	(-0.088)
Special Ed status									
-- General ed	2.855	2.827	(-0.028)	2.996	2.977	(-0.020)	2.591	2.561	(-0.031)
-- Special ed	2.817	2.803	(-0.014)	2.910	2.826	(-0.084)	2.445	2.548	(0.103)
Simulation									
-- WUM	2.871	2.834	(-0.038)	2.994	2.985	(-0.009)	2.608	2.590	(-0.018)
-- GMPC	2.794	2.754	(-0.040)	3.013	2.974	(-0.039)	2.521	2.547	(0.026)
-- TSN	2.865	2.872	(0.007)	2.955	2.883	(-0.072)	2.493	2.490	(-0.003)
-- WEL	2.826	2.826	(0.000)	2.909	2.859	(-0.049)	2.530	2.442	(-0.088)
Teacher Characteristics									
School Cohort									
-- Cohort 1	2.911	2.867	(-0.044)	3.005	2.955	(-0.050)	2.624	2.603	(-0.021)
-- Cohort 2	2.811	2.793	(-0.019)	2.972	2.965	(-0.007)	2.534	2.527	(-0.006)
Experience with Classroom, Inc. materials									
-- Yes	2.894	2.872	(-0.022)	2.992	2.976	(-0.016)	2.632	2.612	(-0.021)
-- No	2.795	2.763	(-0.032)	2.968	2.955	(-0.013)	2.536	2.519	(-0.017)

	Math			Problem-Solving			Collaborative Learning		
	Pre	Post	Change*	Pre	Post	Change*	Pre	Post	Change*
Years of experience									
-- [2 to 5]	2.830	2.856	(0.026)	2.968	2.982	(0.014)	2.559	2.597	(0.039)
-- [6 to 10]	2.832	2.787	(-0.045)	2.970	2.938	(-0.031)	2.546	2.521	(-0.026)
-- [over 10]	2.912	2.854	(-0.058)*	3.000	2.967	(-0.033)	2.622	2.594	(-0.028)
Subject area									
-- ELA	2.916	2.882	(-0.035)	3.013	3.007	(-0.006)	2.649	2.627	(-0.022)
-- Non-ELA	2.780	2.760	(-0.020)	2.940	2.905	(-0.035)	2.478	2.489	(0.012)
-- Math	2.888	2.886	(-0.002)	2.953	2.948	(-0.005)	2.595	2.580	(-0.014)
-- Non-math	2.852	2.816	(-0.036)*	2.991	2.970	(-0.022)	2.572	2.566	(-0.006)
Degree of Implementation									
-- [1 to 5 episodes]	2.817	2.782	(-0.034)	2.996	3.032	(0.035)	2.560	2.545	(-0.014)
-- [6 to 8 episodes]	2.786	2.787	(0.001)	2.948	2.869	(-0.079)*	2.475	2.490	(0.015)
-- [9 episodes +]	2.945	2.885	(-0.060)*	3.021	3.023	(0.002)	2.686	2.643	(-0.042)

* Changes were statistically significant at the .05 level

Table B-4
Student Attitudes Toward Career Awareness and Computers

	Career Awareness			Computers		
	Pre	Post	Change*	Pre	Post	Change*
Student Characteristics						
Gender						
-- Male	3.203	3.189	(-0.014)	3.422	3.384	(-0.038)
-- Female	3.218	3.206	(-0.012)	3.385	3.422	(0.037)
Grade level						
-- Grade 5	3.181	3.181	(0.000)	3.339	3.467	(0.128)*
-- Grade 6	3.239	3.194	(-0.046)	3.438	3.442	(0.004)
-- Grade 7	3.176	3.200	(0.024)	3.420	3.397	(-0.023)
-- Grade 8	3.241	3.206	(-0.035)	3.385	3.343	(-0.042)
Minority status						
-- Non-minority	3.183	3.155	(-0.028)	3.393	3.366	(-0.027)
-- Minority	3.214	3.208	(-0.007)	3.408	3.409	(0.000)
ELL status						
-- EP students	3.214	3.199	(-0.015)	3.416	3.405	(-0.011)
-- ELL students	3.159	3.202	(0.043)	3.300	3.374	(0.074)
Special Ed status						
-- General ed	3.217	3.217	(0.000)	3.409	3.410	(0.001)
-- Special ed	3.144	3.047	(-0.096)	3.374	3.334	(-0.040)
Simulation						
-- WUM	3.205	3.164	(-0.040)	3.404	3.413	(0.010)
-- GMPC	3.191	3.241	(0.050)	3.407	3.359	(-0.047)
-- TSN	3.237	3.228	(-0.009)	3.376	3.369	(-0.007)
-- WEL	3.257	3.318	(0.061)	3.456	3.477	(0.022)

	Career Awareness			Computers		
	Pre	**Post**	**Change***	**Pre**	**Post**	**Change***
Teacher Characteristics						
School Cohort						
-- Cohort 1	3.218	3.207	(-0.012)	3.414	3.435	(0.020)
-- Cohort 2	3.204	3.190	(-0.015)	3.397	3.378	(-0.019)
Experience with Classroom, Inc. materials						
-- Yes	3.218	3.219	(0.001)	3.425	3.446	(0.021)
-- No	3.204	3.191	(-0.013)	3.418	3.370	(-0.048)*
Years of experience						
-- [2 to 5]	3.216	3.220	(0.005)	3.385	3.429	(0.044)
-- [6 to 10]	3.182	3.164	(-0.018)	3.433	3.409	(-0.024)
-- [over 10]	3.231	3.207	(-0.025)	3.394	3.365	(-0.029)
Subject area						
-- ELA	3.234	3.205	(-0.029)	3.417	3.430	(0.013)
-- Non-ELA	3.183	3.186	(0.003)	3.391	3.361	(-0.031)
-- Math	3.189	3.149	(-0.040)	3.384	3.382	(-0.002)
-- Non-math	3.220	3.211	(-0.008)	3.413	3.406	(-0.006)
Degree of implementation						
-- [1 to 5 episodes]	3.190	3.192	(0.001)	3.439	3.409	(-0.030)
-- [6 to 8 episodes]	3.206	3.175	(-0.031)	3.407	3.393	(-0.013)
-- [9 episodes +]	3.226	3.223	(-0.003)	3.384	3.409	(0.025)

* Changes were statistically significant at the .05 level

Table B-5
Individual Survey Items: Fall 2004 and Spring 2005

Survey Item by Area	Test Date	Total N	Student Responses				Wilcoxon Signed-Rank Test [a] Z-statistic (sig.)
			% Strongly Disagree	% Disagree	% Agree	% Strongly Agree	
I know that I will do well in reading this year.	Fall 2004	1,405	0.9%	5.8%	66.5%	26.8%	-3.164 (.002)*
	Spring 2005	1,405	1.2%	5.5%	60.6%	32.7%	
If the project is interesting, I can read difficult material	Fall 2004	1,379	4.1%	23.9%	57.4%	14.6%	-5.612 (.000)*
	Spring 2005	1,379	2.2%	18.6%	60.0%	19.1%	
If the teacher discusses something interesting, I might read more about it.	Fall 2004	1,392	2.2%	13.9%	55.2%	28.7%	-2.079 (.038)*
	Spring 2005	1,392	2.5%	15.7%	55.5%	26.2%	
It is very important to me to be a good reader.	Fall 2004	1,388	1.9%	6.8%	42.1%	49.2%	-.930 (.352)
	Spring 2005	1,388	1.5%	7.4%	43.7%	47.4%	
I do as little schoolwork as possible in reading.	Fall 2004	1,376	38.2%	38.0%	19.1%	4.7%	-.018 (.985)
	Spring 2005	1,376	35.8%	42.7%	17.3%	4.3%	
I enjoy writing.	Fall 2004	1,397	8.0%	18.8%	40.7%	32.5%	-1.427 (.154)
	Spring 2005	1,397	8.2%	16.4%	41.8%	33.6%	
How often do you write for fun (outside of school)?	Fall 2004	1,376	22.7%	18.7%	31.4%	27.3%	-1.189 (.234)
	Spring 2005	1,376	23.3%	20.9%	29.0%	26.8%	
When I think of a new thing, I apply what I have learned before.	Fall 2004	1,390	7.6%	34.2%	35.8%	22.4%	-2.914 (.004)*
	Spring 2005	1,390	6.9%	29.4%	38.8%	24.8%	
I respect the ideas of others.	Fall 2004	1,386	2.9%	20.9%	27.1%	49.1%	-1.804 (.071)
	Spring 2005	1,386	2.6%	23.2%	28.1%	46.0%	
The more I learn about careers, the better career decisions I will make.	Fall 2004	1,390	2.2%	4.7%	41.2%	51.9%	-1.005 (.315)
	Spring 2005	1,390	2.3%	5.1%	38.1%	54.5%	
I'd like to spend more time learning about careers.	Fall 2004	1,385	4.1%	23.2%	51.8%	20.9%	-2.268 (.023)*
	Spring 2005	1,385	3.6%	22.0%	50.5%	23.8%	
I intend to get all the education I need for my career choice.	Fall 2004	1,382	1.4%	3.7%	34.9%	60.1%	-1.197 (.231)
	Spring 2005	1,382	1.1%	4.0%	33.0%	61.9%	
Working with a computer makes me nervous.	Fall 2004	1,375	64.9%	25.1%	6.3%	3.7%	-1.709 (.087)
	Spring 2005	1,375	68.5%	21.5%	7.0%	3.1%	
I like to use computers as little as possible.	Fall 2004	1,384	53.5%	26.1%	12.2%	8.2%	-3.176 (.001)*
	Spring 2005	1,384	57.6%	25.2%	11.0%	6.2%	

[a] An asterisk in this column denotes a statistically significant difference at the .05 level.

APPENDIX C: DATA COLLECTION INSTRUMENTS

Student Pre-Program Survey (Fall 2004)
Student Post-Program Survey (Spring 2005)
Teacher Pre-Program Survey (Fall 2004)
Teacher Post-Program Survey (Spring 2005)
Coach Survey (Spring 2005)
Teacher Implementation Log (*What's Up Magazine*, Episode 1)
Classroom Observation Protocol
School administrator interview protocol
Literacy coach interview protocol

Metis Associates
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Classroom, Inc.

Literacy at Work
Student Survey – Fall 2004

Please answer the following questions honestly – your opinions are very important to us. If you do not understand something, you can ask your teacher for help. Please remember that your responses will not be shared with anyone and will not affect your grades in any way. When you have finished the survey, please return it to your teacher.

1. First name: _____ Last name: _____
2. Name of your school: _____
3. Your grade: ❑ 5th ❑ 6th ❑ 7th ❑ 8th ❑ 9th
4. Gender: ❑ Female ❑ Male

5. Please tell us how much you agree or disagree with the following statements (place a √ in the appropriate box).	Strongly Disagree	Disagree	Agree	Strongly Agree
k. I know that I will do well in reading this year.				
l. If the project is interesting, I can read difficult material.				
m. I like to read about new things.				
n. If the teacher discusses something interesting, I might read more about it.				
o. It is very important to me to be a good reader.				
p. I talk to my friends about what I am reading.				
q. I like to tell my family about what I am reading.				
r. I do as little schoolwork as possible in reading.				
s. I only read because I have to.				
t. Finishing every reading assignment is important to me.				
u. I always try to finish my reading on time.				
v. I enjoy writing.				
w. I try to finish my writing assignments on time.				
x. Learning how to write well is important to me.				

1. Please check the response that most closely tells us about your reading and writing (place a √ in the appropriate box).	Every day	Several times a week	Once a week	Less than once a week
a. How often do you read for fun (outside of school)?				
b. How often do you write for fun (outside of school)?				

1. Please tell us how often the following statements are true (place a √ in the appropriate box).	Never true	Sometimes true	Often true	Always true
g. I enjoy working on a difficult problem.				
h. When I don't understand a problem, I keep working until I find an answer.				
i. I think about many ways to solve a difficult problem.				
j. If I fail, I try to find out why.				
k. When I think of a new thing, I apply what I have learned before.				
l. I share my ideas in small groups.				
m. I share my ideas in large groups.				
n. I listen to others' points of view				
o. I respect the ideas of others.				
p. I make thoughtful contributions to group discussions.				
q. I justify my own point of view.				

2. Please tell us how much you agree or disagree with the following statements (place a √ in the appropriate box).	Strongly Disagree	Disagree	Agree	Strongly Agree
a. The more I learn about careers, the better career decisions I will make.				
b. I'd like to spend more time learning about careers.				
c. I intend to get all the education I need for my career choice.				
d. If I learn how to ***read*** well, then I will be able to enter many different types of careers.				
e. If I learn how to ***write*** well, then I will be able to enter many different types of careers.				
f. If I learn how to ***speak*** well, then I will be able to enter many different types of careers.				

3. How important is it for you to…	Very Important	Important	Somewhat Important	Not Important
a. Learn about how much people earn in different occupations?				
b. Learn about the education needed for various careers?				
c. Learn about the job skills needed for various careers?				
d. Find out about what's most important to you in an occupation?				
e. Find out the information needed to make a decision about careers?				
f. Talk to family and friends about their careers?				

4. Please tell us how much you agree or disagree with the following statements (place a √ in the appropriate box).	Strongly Disagree	Disagree	Agree	Strongly Agree
a. I enjoy working on math-related problems.				
b. If I learn math well, then I will be able to enter lots of different types of careers.				
c. I feel comfortable using math skills in real life situations.				
d. I enjoy doing things on a computer.				
e. I feel comfortable working with a computer.				
f. I believe that it is very important for me to learn how to use a computer.				
g. Working with a computer makes me nervous.				
h. I would work harder if I could use computers more often.				
i. I know that computers give me opportunities to learn many new things.				
j. I like to use computers as little as possible.				

The next few questions are about the paper manufacturing industry. We would like to get an idea of what you know about this business before you learn about it during the *Literacy at Work* program. Please read the following questions carefully and circle the correct answer.

1. A company's mission statement tells about its _____.

   A. goals and beliefs
   B. expenses and profits
   C. equipment
   D. organization

2. Trees that have grown large enough to be harvested are known as _____.

   A. habitat
   B. refined pulp
   C. mature growth
   D. seedlings

3. If you have to make a decision that will have some bad results in order to get the good results that you want, you have made _____.

   A. a mistake
   B. a recycled product
   C. a tradeoff
   D. an exhibit

4. When you decide where to cut down trees, the least important thing to consider is the _____.

   A. effect on the environment
   B. impact on the community
   C. cost of recycled paper
   D. harvest size

5. What is the group of people called who control a business?

   A. Human Resources Directors
   B. Executive Directors
   C. Board of Directors
   D. Best Management Directors

6. A grade of paper refers to _____.

   A. the production schedule used to make the paper
   B. how well the customer likes the paper
   C. the quality of the paper
   D. whether the paper is delivered on time

7. An emission is something that _____.

   A. admits that the company has made an error
   B. is set loose into the air
   C. makes chlorine useful in the paper making process
   D. someone has to do to fix a problem

8. Special payments or services given to people who work for a company are called employee _____.

   A. benefits
   B. sacrifices
   C. reimbursements
   D. residues

9. One effective way for a company to explain its position on something to the community is to _____.

   A. do an experiment
   B. send out a press release
   C. start a rumor
   D. write a weekly report for employees

10. What happens when ash is added to soil?

    A. It lowers the acidity level of the soil.
    B. It raises the acidity level of the soil.
    C. It has no effect on the acidity level of the soil.
    D. It causes the acidity level to remain steady.

11. When an employee is fired by a company, it is often called a _____.

    A. concussion
    B. suspension
    C. warning
    D. termination

12. How does a company use its retained cash?
    A. To pay for research.
    B. To give bonuses to employees.
    C. To pay for emergency expenses.
    D. To pay dividends to shareholders.

Thank you for your help!
Please return this survey to your teacher.

Metis Associates ...making a meaningful difference

Classroom, Inc.

Literacy at Work: The Green Mountain Paper Company
Student Survey – Spring 2005

Please answer the following questions honestly – your opinions are very important to us. If you do not understand something, you can ask your teacher for help. Please remember that your responses will not be shared with anyone and will not affect your grades in any way. When you have finished the survey, please return it to your teacher.

1. First name: _____ Last name: _____
2. Name of your school: _____
3. Name of your teacher: _____
4. Your grade: ❑ 5th ❑ 6th ❑ 7th ❑ 8th ❑ 9th

5. Please tell us how much you agree or disagree with the following statements (place a √ in the appropriate box).	Strongly disagree	Disagree	Agree	Strongly agree
a. I know that I will do well in reading this year.				
b. If the project is interesting, I can read difficult material.				
c. I like to read about new things.				
d. If the teacher discusses something interesting, I might read more about it.				
e. It is very important to me to be a good reader.				
f. I talk to my friends about what I am reading.				
g. I like to tell my family about what I am reading.				
h. I do as little schoolwork as possible in reading.				
i. I only read because I have to.				
j. Finishing every reading assignment is important to me.				
k. I always try to finish my reading on time.				
l. I enjoy writing.				
m. I try to finish my writing assignments on time.				
n. Learning how to write well is important to me.				

6. Please check the response that most closely tells us about your reading and writing (place a √ in the appropriate box).	Every day	Several times a week	Once a week	Less than once a week
a. How often do you read for fun (outside of school)?				
b. How often do you write for fun (outside of school)?				

7. Please tell us how often the following statements are true (place a √ in the appropriate box).	Never true	Sometimes true	Often true	Always true
a. I enjoy working on a difficult problem.				
b. When I don't understand a problem, I keep working until I find an answer.				
c. I think about many ways to solve a difficult problem.				
d. If I fail, I try to find out why.				
e. When I think of a new thing, I apply what I have learned before.				
f. I share my ideas in small groups.				
g. I share my ideas in large groups.				
h. I listen to others' points of view				
i. I respect the ideas of others.				
j. I make thoughtful contributions to group discussions.				
k. I justify my own point of view.				

8. Please tell us how much you agree or disagree with the following statements (place a √ in the appropriate box).	Strongly disagree	Disagree	Agree	Strongly agree
a. The more I learn about careers, the better career decisions I will make.				
b. I'd like to spend more time learning about careers.				
c. I intend to get all the education I need for my career choice.				
d. If I learn how to ***read*** well, then I will be able to enter many different types of careers.				
e. If I learn how to ***write*** well, then I will be able to enter many different types of careers.				
f. If I learn how to ***speak*** well, then I will be able to enter many different types of careers.				

9. How important is it for you to…	Very important	Important	Somewhat important	Not important
a. Learn about how much people earn in different occupations?				
b. Learn about the education needed for various careers?				
c. Learn about the job skills needed for various careers?				
d. Find out about what's most important to you in an occupation?				
e. Find out the information needed to make a decision about careers?				
f. Talk to family and friends about their careers?				

10. Please tell us how much you agree or disagree with the following statements (place a √ in the appropriate box).	Strongly disagree	Disagree	Agree	Strongly agree
a. I enjoy working on math-related problems.				
b. If I learn math well, then I will be able to enter lots of different types of careers.				
c. I feel comfortable using math skills in real life situations.				
d. I enjoy doing things on a computer.				
e. I feel comfortable working with a computer.				
f. I believe that it is very important for me to learn how to use a computer.				
g. Working with a computer makes me nervous.				
h. I would work harder if I could use computers more often.				
i. I know that computers give me opportunities to learn many new things.				
j. I like to use computers as little as possible.				

About the *Literacy at Work* program

11. How much did you like doing this program? (Check one).

____ I did not like it ____ I liked it a little ____ I liked it ____ I liked it a lot

12. What did you like most about the program?

_____

_____

_____

13. What did you like least about the program?

_____

_____

_____

14. How hard did you find the program? (Check one).

____ Very hard ____ Hard ____ Not too hard and not too easy ____ Easy ____ Very Easy

15. To what extent did you like the following parts of the program? [Place a √ in the appropriate column.]	I did not like it	I liked it a little	I liked it	I liked it a lot
a. Workbook				
b. Simulation (time spent in computer)				
c. Classroom discussions				

16. How much has the program helped you improve your… [Place a √ in the appropriate column.]	Not at all	A little	A fair amount	A lot
a. Reading				
b. Writing				
c. Speaking				
d. Listening				
e. Math				
f. Working with other students				
g. Working with computers				

17. How many episodes from the Green Mountain Paper Company have you used this school year?

_____ episodes.

The next few questions are about the paper manufacturing industry. We would like to get an idea of what you learned during the *Literacy at Work* program. Please read the following questions carefully and circle the correct answer.

18. A company's mission statement tells about its _____.

A. goals and beliefs
B. expenses and profits
C. equipment
D. organization

19. Trees that have grown large enough to be harvested are known as _____.

A. habitat
B. refined pulp
C. mature growth
D. seedlings

20. If you have to make a decision that will have some bad results in order to get the good results that you want, you have made _____.

A. a mistake
B. a recycled product
C. a tradeoff
D. an exhibit

21. When you decide where to cut down trees, the least important thing to consider is the _____.

A. effect on the environment
B. impact on the community
C. cost of recycled paper
D. harvest size

22. What is the group of people called who control a business?

A. Human Resources Directors
B. Executive Directors
C. Board of Directors
D. Best Management Directors

23. A grade of paper refers to _____.

A. the production schedule used to make the paper
B. how well the customer likes the paper
C. the quality of the paper
D. whether the paper is delivered on time

24. An emission is something that _____.

    A. admits that the company has made an error
    B. is set loose into the air
    C. makes chlorine useful in the paper making process
    D. someone has to do to fix a problem

25. Special payments or services given to people who work for a company are called employee _____.

    A. benefits
    B. sacrifices
    C. reimbursements
    D. residues

26. One effective way for a company to explain its position on something to the community is to _____.

    A. do an experiment
    B. send out a press release
    C. start a rumor
    D. write a weekly report for employees

27. What happens when ash is added to soil?

    A. It lowers the acidity level of the soil.
    B. It raises the acidity level of the soil.
    C. It has no effect on the acidity level of the soil.
    D. It causes the acidity level to remain steady.

28. When an employee is fired by a company, it is often called a _____.

    A. concussion
    B. suspension
    C. warning
    D. termination

29. How does a company use its retained cash?
    A. To pay for research.
    B. To give bonuses to employees.
    C. To pay for emergency expenses.
    D. To pay dividends to shareholders.

Thank you for your help! Please return this survey to your teacher.

Metis Associates
...making a meaningful difference

Classroom, Inc.

LITERACY AT WORK: FALL 2004

TEACHER PRE-PROGRAM SURVEY

Thank you for taking time to complete this survey. The purpose of this survey is to tell us more about your goals and expectations regarding Literacy at Work. Your responses will remain strictly confidential. Please seal your completed survey in the attached envelope and give it to the literacy coach for your school. If you have any questions, please contact Julia Alemany at (212) 425-8833.

Last Name: _____	First Name:_____
School: _____	Region:_____
Subject Area: _____	Grade:_____

1. Including this year, how many years have you been a teacher? _____ years

2. Including this year, how many years have you been a teacher *at your present school*? _____ years

3. What type of certification do you have? [Please check one.]

   ( ) Initial (Provisional) ( ) Professional (Permanent) ( ) Transitional ( ) Other (please specify): _____

4. Which of the following classroom teaching certificate titles do you have? [Please check <u>all</u> that apply]

   ( ) English Language Arts ( ) Mathematics ( ) Social Studies ( ) Common Branch Subjects

   ( ) Generalist in Middle Childhood Education ( ) Other(s):_____

5. Why did you decide to participate in the *Literacy at Work* program for the 2004-2005 school year?

   _____

   _____

   _____

6. In how many classes are you using the *Literacy at Work* program? _____ classes

7. To what extent do you expect *Literacy at Work* to have an impact for each of the following student outcomes? [Please place a √ in the appropriate box.]

Expected impact of *Literacy at Work* on student outcomes	High Impact	Moderate Impact	Low Impact	No Impact
a. Student achievement in reading				
b. Student achievement in writing				
c. Student achievement in speaking				
d. Student achievement in listening				
e. Student achievement in subject areas (i.e., social studies, math)				

- OVER, PLEASE -

Expected impact of *Literacy at Work* on student outcomes (Continued)	High Impact	Moderate Impact	Low Impact	No Impact
f. Student engagement				
g. Problem solving abilities				
h. Collaborative learning (i.e., working with others)				
i. Knowledge of business/industry used in the simulation				
j. General career awareness				
k. Other (please specify):_____				

8. To what extent do you agree or disagree with the following statements? [Please place a √ in the appropriate box.]

Attitudes towards technology	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
a. Computers are valuable tools that can be used to improve the quality of education.					
b. Computers can facilitate the teaching of reading.					
c. I believe that I am a better teacher with technology.					
d. I feel comfortable using a computer.					

9. At this point, how would you describe your instructional practice – in terms of these stages of technology adoption? [Please check one.]

   a. ____ Stage 1: Entry (Students, not teachers, learn to use technology.)
   b. ____ Stage 2: Adoption (Teachers use technology to support traditional instruction.)
   c. ____ Stage 3: Adaptation (Teachers use technology to enrich curriculum.)
   d. ____ Stage 4: Appropriation (Teachers integrate technology, using it for its unique capabilities.)
   e. ____ Stage 5: Invention (Teachers discover new uses for technology.)

[For Non Language Arts Teachers]

10. Have you ever taught literacy strategies before? ___ Yes ___ No

    10a. If YES, in which setting or class? _____

    _____

11. How important is it for you to teach literacy within your content area? [Please check one.]

    ( ) Very important ( ) Important ( ) Somewhat important ( ) Not important

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Additional Comments:

LITERACY AT WORK: SPRING 2005

TEACHER POST-PROGRAM SURVEY

Thank you for taking time to complete this survey. The purpose of this survey is to tell us more about the use and impact of the Literacy at Work program. Your responses will remain strictly confidential. **Please seal your completed survey in the attached envelope and give it to the Literacy at Work coach for your school by June 1, 2005**. If you have any questions, please contact Julia Alemany at (212) 425-8833.

Last Name: _____	First Name:_____
School: _____	Region:_____
Subject Area: _____	Grade:_____

1. Were your expectations about this program fulfilled? Please explain.

_____

_____

_____

2. For each class in which you used this program, indicate the number of episodes you used and the official class code (e.g., 615, 745, 801, etc.).

Class code	Number of episodes	Class code	Number of episodes	Class code	Number of episodes
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

3. Check which of the following describes the way you are teaching this program. [Please check all that apply.]

   a. ____ I teach this program alone
   b. ____ I teach this program in an inclusion class with another teacher
   c. ____ I teach this program with a computer teacher
   d. ____ I teach this program with a teacher from another subject area
   e. ____ Other (Please specify:_____)

4. To what extent do you think *Literacy at Work* has had an impact on each of the following student outcomes? [Please place a √ in the appropriate box.]

Observed impact of *Literacy at Work* on student outcomes	High Impact	Moderate Impact	Low Impact	No Impact
a. Student achievement in reading				
b. Student achievement in writing				
c. Student speaking skills				

Observed impact of *Literacy at Work* on student outcomes	High Impact	Moderate Impact	Low Impact	No Impact
d. Student listening skills				
e. Subject area achievement (i.e., social studies, math)				
f. Student overall engagement				
g. Student interest/enthusiasm in reading				
h. Problem solving abilities				
i. Collaborative learning (i.e., working with others)				
j. Knowledge of business/industry used in the simulation				
k. General career awareness				
l. Other (please specify):_____				

5. Overall, how helpful was the program in helping you teach literacy? [Please check one.]

___ Not at all helpful ___ Slightly helpful ___ Helpful ___ Extremely helpful

6. Please use the scales below to tell us about your <u>overall</u> impression of your students' experiences with the program. [Please place a √ in the appropriate column.]

a. Content	_____ Far too difficult	_____ Too difficult	_____ About right level of difficulty	_____ Too easy	_____ Far too easy
b. Amount of work	_____ Far too much work	_____ Too much work	_____ About right amount of work	_____ Not enough work	_____ Nowhere near enough work
c. Engagement	_____ Turned them off completely	_____ Did not engage them	_____ Somewhat engaging	_____ Engaging	_____ Extremely engaging

	7. To what extent did you use the following program materials? (Place a √ in the appropriate column.)			8. (If USED) How helpful were the following program materials in helping you teach literacy? (Place a √ in the appropriate column.)			
	Did not use	Used for some of the episodes	Used for most or all of the episodes	Not at all helpful	Slightly helpful	Helpful	Extremely helpful
a. Teacher Planner	_____	_____	_____	_____	_____	_____	_____
b. Lesson Plans	_____	_____	_____	_____	_____	_____	_____
c. Student Workbook	_____	_____	_____	_____	_____	_____	_____
d. Simulation (Software)	_____	_____	_____	_____	_____	_____	_____
e. Assessments	_____	_____	_____	_____	_____	_____	_____

9. How helpful were the following aspects of the program? [Please place a √ in the appropriate column.]

	Not at all helpful	Slightly helpful	Helpful	Extremely helpful
a. Initial training	_____	_____	_____	_____
b. Support from your coach	_____	_____	_____	_____
c. Site support from Classroom, Inc.	_____	_____	_____	_____
d. Tech support from Classroom, Inc.	_____	_____	_____	_____

10. What challenges did you face in using this program? [Please check all that apply.]

    a. ____ Teaching literacy within my content area
    b. ____ Classroom management
    c. ____ Completing the entire curriculum
    d. ____ Dealing with technological problems
    e. ____ Assessing student progress
    f. ____ Collaborating with teachers from other disciplines
    g. ____ Completing research requirements
    h. ____ Other. Please specify: _____

11. What challenges did your students face in using the program? [Please check all that apply.]

    a. ____ Reading and comprehending the material
    b. ____ Focusing on tasks, self-discipline
    c. ____ Using the computer/technology
    d. ____ Working cooperatively in small groups
    e. ____ Other. Please specify: _____

12. Would you teach the Literacy at Work program again? ___ No ___ Yes

    If no, please explain:_____

    _____

    _____

13. Would you recommend this program to teachers seeking a literacy development program for their classes?

    ___ No ___ Yes

14. How can Classroom, Inc. improve the program to be more useful to you and your students?

    _____

    _____

    _____

15. To what extent do you agree or disagree with the following statements? [Please place a √ in the appropriate box.]

Attitudes towards technology	Strongly disagree	Disagree	Undecided	Agree	Strongly Agree
a. Computers are valuable tools that can be used to improve the quality of education.					
b. Computers can facilitate the teaching of reading.					
c. I believe that I am a better teacher with technology.					
d. I feel comfortable using a computer.					

16. At this point, how would you describe your instructional practice – in terms of these stages of technology adoption? [Please check one.]

a. _____ Stage 1: Entry (Students, not teachers, learn to use technology.)
b. _____ Stage 2: Adoption (Teachers use technology to support traditional instruction.)
c. _____ Stage 3: Adaptation (Teachers use technology to enrich curriculum.)
d. _____ Stage 4: Appropriation (Teachers integrate technology, using it for its unique capabilities.)
e. _____ Stage 5: Invention (Teachers discover new uses for technology.)

Additional Comments:

Thank you for completing this survey!

Metis Associates
...making a meaningful difference

Classroom, Inc.

LITERACY AT WORK: SPRING 2005

COACH SURVEY

Thank you for taking time to complete this survey. The purpose of this survey is to tell us more about the use and impact of the *Literacy at Work* program in your school. Your responses will remain strictly confidential. **Please complete this survey and send it to Metis Associates (90 Broad Street, Suite 1200, New York, NY 10004) by June 1, 2005**. If you have any questions, please contact Julia Alemany at (212) 425-8833.

Last Name: _____	First Name:_____
School: _____	Region:_____

1. How well does the program fit with your school's other literacy initiatives and programs?

_____

_____

_____

2. To what extent did Classroom, Inc.'s description of the role of coach in Literacy at Work implementation correspond to the work you actually did this year? (See attached description)

___ Not at all ___ Not particularly ___ Somewhat ___ Exactly

2a. Please explain:_____

_____

_____

3. How helpful were the following components in helping you guide teachers through this program? [Please place a √ in the appropriate column.]

	Not at all helpful	Slightly helpful	Helpful	Extremely helpful
a. Initial training	_____	_____	_____	_____
b. Coach's Guide	_____	_____	_____	_____
c. Site support from Classroom, Inc.	_____	_____	_____	_____
d. Tech support from Classroom, Inc.	_____	_____	_____	_____

4. What other preparation would you have needed to assist teachers more effectively?

_____

_____

5. Overall, how helpful was the program in helping teachers teach literacy? [Please check one.]

___ Not at all helpful ___ Slightly helpful ___ Helpful ___ Extremely helpful

OVER, PLEASE!

6. Which of the following, if any, were challenges for teachers using this program? [Please check all that apply.]

   a. _____ Teaching literacy within their content area
   b. _____ Classroom management
   c. _____ Completing the entire curriculum
   d. _____ Dealing with technological problems
   e. _____ Assessing student progress
   f. _____ Collaborating with teachers from other disciplines
   g. _____ Completing research requirements
   h. _____ Other. Please specify: _____

7. Which of the following, if any, were challenges for you as you guided teachers through the program? [Please check all that apply.]

   a. _____ Scheduling and planning for teachers' work with the Classroom, Inc. program
   b. _____ Leading workshops
   c. _____ Facilitating technology access for teachers
   d. _____ Supporting teachers in their work with the curriculum
   e. _____ Scheduling class visits
   f. _____ Completing research requirements
   g. _____ Other. Please specify: _____

8. Which of the following *Literacy at Work* workshops did you lead for teachers? [Please check all that apply.]

   a. _____ Workshop #3: Active Reading
   b. _____ Workshop #4: Writing
   c. _____ Workshop #5: Evaluation
   d. _____ None

9. Would you be interested in coaching this program again next year? ___ No ___ Yes

   9a. Why or why not?_____

   _____

   _____

10. Would you recommend this program to literacy coaches or administrators seeking a supplemental literacy development program for their schools? ___ No ___ Yes

    10a. Why or why not?_____

    _____

    _____

11. How could Classroom, Inc. improve the program to be more useful to you and the teachers and students who participate?

    _____

    _____

    _____

Thank you for completing the survey!

Metis Associates ...making a meaningful difference

Classroom, Inc.

Teacher Implementation Log

WHAT'S UP MAGAZINE

Last Name: _____	First Name: _____
School: _____	Region:_____ Grade:_____
Subject Area: _____	DOE Official Class Number: _____

EPISODE 1: Welcome To What's Up

[IF YOU SKIPPED THE ENTIRE EPISODE, PLEASE CHECK HERE: _____]

Please complete the table below as you go through the episode:

Date(s): Total Length of Time: _____ minutes	**PREPARE**	
	1. Did you review the appropriate pages in the *Teacher's Guide*?	__ Yes __ No
	2. Did you teach the Literacy *Lesson Plan*?	__ Yes __ No
	3. How many of the specified "Prepare" *workbook pages* did the average student complete?	____ pages
	3b. Did you give students the *Prior Knowledge Survey*?	__ Yes __ No
Date(s): Total Length of Time: _____ minutes	**APPLY**	
	4. Did you review the appropriate pages in the *Teacher's Guide*?	__ Yes __ No
	5. For about how long did the students work on the *simulation*?	____ minutes
	6. Did students complete the "Apply" *workbook page*?	__ Yes __ No
Date(s): Total Length of Time: _____ minutes	**REVIEW**	
	7. Did you review the appropriate pages in the *Teacher's Guide*?	__ Yes __ No
	8. Did you facilitate a classroom discussion about the episode?	__ Yes __ No
	9. Did students complete the "Review" *workbook page*?	__ Yes __ No
	10. Did students take the *Short Answer Test*?	__ Yes __ No
Date(s): Total Length of Time: _____ minutes	**EXTEND**	
	11. How many of the specified "Extend" *workbook pages* did the average student complete?	____ pages

12. To what extent were the materials listed below helpful when teaching this episode?
[Please place a √ in the appropriate column.]

	Not at all helpful	Slightly helpful	Helpful	Extremely helpful	Did not use
a. Teacher Planner	_____	_____	_____	_____	_____
b. Lesson Plans	_____	_____	_____	_____	_____
c. Student Workbook	_____	_____	_____	_____	_____
d. Simulation Episode	_____	_____	_____	_____	_____
e. Assessments	_____	_____	_____	_____	_____

13. Please use the scales provided below to tell us about your students' work during this episode.
[Please place a √ in the appropriate column.]

a. Content	_____ Far too difficult	_____ Too difficult	_____ About right level of difficulty	_____ Too easy	_____ Far too easy
b. Amount of work	_____ Far too much work	_____ Too much work	_____ About right amount of work	_____ Not enough work	_____ Nowhere near enough work
c. Engagement	_____ Turned them off completely	_____ Did not engage them	_____ Somewhat engaging	_____ Engaging	_____ Extremely engaging

14. Were there any specific problems or errors with the materials you used in this episode? __ Yes __ No

a. If YES, please describe:_____

_____

15. Did you receive assistance from the literacy coach for this episode? __ Yes __ No

a. If YES, please describe the interaction:_____

_____

16. How helpful was this episode in helping you teach literacy? [Please check one.]

___ Not at all helpful ___ Slightly helpful ___ Helpful ___ Extremely helpful

17. Additional comments/Suggestions for improvement: _____

_____

_____

Episode 1: Welcome to What's Up

Literacy at Work
Classroom Observation Protocol

Observer:_____	Date of observation:_____	
School Site:_____	Start Time:_____	End Time:_____
Teacher:_____	Class code:_____	Grade Level:_____
Subject Observed:_____	Class size:_____	Episode #:_____

Brief description of the lesson.	
Brief description of the room/location, including the technology available (# of computers and peripherals).	

ACTIVITY #1

About the activity
1. Time spent with this activity:_____
2. Number of students involved in the activity:_____
3. Provide a brief narrative account of the content and skills focus of the activity:
4. To what extent was there any explicit link to literacy?

5. Activity structure (check all that apply):

7a. ❑ Presentation ❑ Hands-on ❑ Discussion ❑ Other:_____

7b. ❑ Teacher-led ❑ Student-led ❑ Independent student work

6. Student grouping (check all that apply):

❑ Whole class ❑ Students work individually ❑ Students work in groups of ____

7. Section of the lesson:

❑ Prepare ❑ Apply ❑ Review ❑ Extend

8. Materials used for this activity (check all that apply):

❑ Lesson Plan ❑ Software ❑ Student workbook

❑ Manipulatives ❑ Handouts ❑ Other:_____

Teacher's behavior

9. How comfortable was the teacher with the materials/content of this activity? (Check one)

❑ Not Comfortable ❑ Somewhat Comfortable ❑ Comfortable ❑ Very Comfortable

Please describe how the teacher is using the materials and whether it appears that there has been a clear plan for the period.

10. To what extent did the teacher encourage student participation? (Circle one)

Not at all		To some extent		To a large extent
1	2	3	4	5

Evidence:

11. How did the teacher meet the needs of students who require additional support?

12. In what ways, if any, did the teacher address any issues raised by the students?

Students' behavior

13. Please rate and describe the students' level of involvement in the activity: (Circle one)

	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students
❑ Students participated in the activity Evidence:					
❑ Students showed interest in the activity Evidence:	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students
❑ Students followed along with the pacing of the activity Evidence:	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students
❑ Students collaborated with peers to solve problems or meet project goals Evidence:	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students

14. Did students seem to make a connection between the activity/content and real-life situations? Explain. ❑ Yes ❑ No

If using software…	
15. Was the room organized to accommodate students working with technology? Explain.	❑ Yes ❑ No
16. How were tasks assigned among students within the same group (e.g. keyboard, reading, selecting an answer, etc.)? To what extent was the task distribution effective in engaging all students?	
17. Did students seem comfortable navigating through the software? Explain.	❑ Yes ❑ No
18. Were there any technical problems? If yes, how were they addressed?	❑ Yes ❑ No

ACTIVITY #2

About the activity		
19. Was this activity…	❑ Simultaneous with the previous activity	❑ Following the previous activity
20. Time spent with this activity:_____		
21. Number of students involved in the activity:_____		
22. Provide a brief narrative account of the content and skills focus of the activity:		

23. To what extent was there any explicit link to literacy?

24. Activity structure (check all that apply):

7a. ❑ Presentation ❑ Hands-on ❑ Discussion ❑ Other:_____

7b. ❑ Teacher-led ❑ Student-led ❑ Independent student work

25. Student grouping (check all that apply):

❑ Whole class ❑ Students work individually ❑ Students work in groups of ____

26. Section of the lesson:

❑ Prepare ❑ Apply ❑ Review ❑ Extend

27. Materials used for this activity (check all that apply):

❑ Lesson Plan ❑ Software ❑ Student workbook

❑ Manipulatives ❑ Handouts ❑ Other:_____

Teacher's behavior

28. How comfortable was the teacher with the materials/content of this activity? (Check one)

❑ Not Comfortable ❑ Somewhat Comfortable ❑ Comfortable ❑ Very Comfortable

Evidence:

29. To what extent did the teacher encourage student participation? (Circle one)

Not at all		To some extent		To a large extent
1	2	3	4	5

Evidence:

30. How did the teacher meet the needs of students who require additional support?

31. In what ways, if any, did the teacher address any issues raised by the students?

Students' behavior

32. Please rate and describe the students' level of involvement in the activity: (Circle one)

	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students
❑ Students participated in the activity Evidence:					
❑ Students showed interest in the activity Evidence:	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students
❑ Students followed along with the pacing of the activity Evidence:	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students
❑ Students collaborated with peers to solve problems or meet project goals Evidence:	None or very few of the students	About 25% of the students	About half of the students	About 75% of the students	Almost all or all of the students

33. Did students seem to make a connection between the activity/content and real-life situations? Explain. ❑ Yes ❑ No

If using software…

34. Was the room organized to accommodate students working with technology? Explain. ❑ Yes ❑ No

35. How were tasks assigned among students within the same group (e.g. keyboard, reading, selecting an answer, etc.)? To what extent was the task distribution effective in engaging all students?

36. Did students seem comfortable navigating through the software? Explain. ❑ Yes ❑ No

37. Were there any technical problems? If yes, how were they addressed? ❑ Yes ❑ No

[ADD PAGES FOR ADDITIONAL ACTIVITIES]

At the end of the classroom observation, thank the teacher for his/her time and ask:

38. Was this a typical lesson for the program? Why or why not?

Literacy at Work
School administrator interview protocol

Thank you for agreeing to participate in this interview. As you know, Metis Associates was retained by Classroom, Inc. to evaluate the Literacy at Work program. As part of the evaluation, we are interviewing some school principals (or assistant principals) from participating schools to learn about use of the program, as well as its successes and challenges. Before we start, I would like to ask your permission to record this interview. Your responses will remain strictly confidential. We will not use any names in our reports, and the tapes will not be made available to anyone outside of Metis. Do you have any questions before I begin?

Name:_____	Position:_____
School:_____ Region:_____	Date:_____ Start Time:_____ End Time:_____

1. Why did you decide to implement the *Literacy at Work* program in your school? Why did you decide to implement it in the selected grades and classes or teachers?

2. Overall, how helpful was the program in helping teachers teach literacy? Would you say it was…

   ___ Not at all helpful ___ Slightly helpful ___ Helpful ___ Extremely helpful

3. How well does LAW fit with your school's other literacy initiatives and programs? Please explain.

4. What role have you had in the planning and implementation of LAW? (Probe: teacher selection, placement of the LAW program within the school's overall curriculum, facilitating scheduling, technology arrangements).

5. What impact, if any, has the program had on student outcomes? (Probe: short term and long term; student attitudes towards literacy; student engagement and collaborative learning; student academic achievement; student performance in reading, writing, speaking, and listening).

6. What changes have you seen in teachers, for example in their use of technology, teaching literacy skills in other content areas, or collaborating with other teachers? Please explain.

7. What other impacts or changes have you observed? Please explain.

8. What are some of the challenges your teachers and/or students have faced when using the program? How have these challenges been addressed?

9. How well has the technology component of the *Literacy at Work* program worked in your school? Were there sufficient technological resources and staff to deal with any technological issues that arose?

10. To what extent was Classroom Inc.'s training for teachers and coaches effective? Was it sufficient to enable the teachers to begin to implement the program?

11. To what extent was the site support from Classroom, Inc. staff helpful to teachers and coaches?

12. To what extent was Classroom, Inc.'s tech support helpful to teachers and coaches?

13. How do you view the involvement of your school's Literacy at Work coach in the program's implementation? Has it been effective? Would you change anything to make it more effective?

14. In what other ways have you supported teachers' implementation of LAW?

15. Can you think of any additional support that could facilitate the program's implementation?

16. Would you like to continue to use LAW next year? Would you recommend this program to principals at other schools? Please explain.

17. In what ways, if any, could the program be improved?

Literacy at Work
Literacy coach interview protocol

Thank you for agreeing to participate in this interview. As you know, Metis Associates was retained by Classroom Inc. to evaluate the Literacy at Work (LAW) program. As part of the evaluation, we are interviewing coaches from participating schools to learn about use of the program, as well as its successes and challenges. Before we start, I would like to ask your permission to record this interview. Your responses will remain strictly confidential. We will not use any names in our reports, and the tapes will not be made available to anyone outside of Metis. Do you have any questions before I begin?

Name:_____	School:_____	Region:_____
Date:_____	Start Time:_____	End Time:_____

1. What were your expectations about the *Literacy at Work* program? To what extent were they fulfilled?

2. What was your role as coach of the *Literacy at Work* program in your school? (Probe: trainings, one-on-one assistance, teacher selection)

3. In what ways has the school administration supported teachers' implementation of the *Literacy at Work* program?

4. What impact, if any, has the program had on student outcomes (Probe: short term and long term; student attitudes towards literacy; student engagement and collaborative learning; student academic achievement; student performance in reading, writing, speaking, and listening)

5. Do you have any interesting success stories? If yes, please describe.

6. What changes have you seen in teachers, for example in their use of technology, teaching literacy skills in other content areas, or collaborating with other teachers? Please explain.

7. What are some of the challenges that you, teachers or students have faced when using the program? How have these challenges been addressed?

8. How well has the technology component of the *Literacy at Work* program worked in your school? Were there sufficient technological resources and staff to deal with any technological issues that arose?

9. To what extent was Classroom Inc.'s training for teachers effective in preparing them to use the program with students? Was it sufficient to enable the teachers to begin to implement the program?

10. To what extent was Classroom Inc.'s training for coaches effective in preparing you to guide teachers through the program?

11. To what extent was the site support from Classroom, Inc. staff helpful to teachers? And to coaches?

12. To what extent was Classroom, Inc.'s tech support helpful to teachers? And to coaches?

13. Can you think of any additional support that could facilitate the program's implementation?

14. Would you recommend this program to other teachers from your school or other schools? Why or why not?

15. In what ways, if any, could the program be improved?