

Preliminary Analysis of  
*Virtual Y* After-School Program Participants'  
Patterns of School Attendance and  
Academic Performance

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Final Evaluation Report  
Program Year 1999-2000

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## Table of Contents

<b>Executive Summary</b> .....		04
I. Introduction.....		06
II. Framework for the study.....		08
III. Methods .....		10
IV. Findings .....		15
A. The <i>Virtual Y</i> had a positive effect on participants’ school attendance... 15		
B. The <i>Virtual Y</i> had a positive effect on participants’ academic skills .....		16
C. Six program components contributed consistently to outcomes.....		18
V. Discussion.....		24
VI. References.....		25
VII. Appendix.....		26
A. Table A1. Summary of findings from hierarchical regressions.....		27
B. Parent Questionnaire.....		28
C. Correlation Matrix.....		32

### List of tables

1.	Sample selection procedures.....	11
2.	Frequency of <i>Virtual Y</i> participants’ program attendance .....	11
3.	Comparison of study sample and comparison group students.....	12

4.	Descriptive statistics—program variables .....	13
5.	School attendance—adjusted means comparison controlling for child characteristics .....	16
6.	Reading scale scores—adjusted means comparison controlling for child characteristics .....	16
7.	Math scale scores—adjusted means comparison controlling for child characteristics .....	16
8.	Hierarchical regression predicting third grade school attendance .....	20
9.	Hierarchical regression predicting fourth grade school attendance.....	21
10.	Hierarchical regression predicting fourth grade reading skills.....	22
11.	Hierarchical regression predicting fourth grade reading skills.....	23
12.	Summary of findings from hierarchical regressions.....	27

## Executive Summary

The National Center for Schools and Communities conducted an evaluation over three years of the *Virtual Y*, an after school program sponsored by the YMCA of Greater New York. In the course of the evaluation, 11 reports were completed, three to four in each year.

This the fourth report completed in the third year, a study of academic progress in a sample of children enrolled in the *Virtual Y*. The first report in this series presented needs assessment data. The second report evaluated the *Virtual Y* program against recognized quality standards. The third report examined year-three program impacts on children's classroom behavior.

The *Virtual Y* was initiated by the YMCA of Greater New York to serve public school children in grades two through four. Sixty-six *Virtual Ys* operated in New York City during the 1997-1998 school year (year-one); one hundred *Virtual Ys* operated in New York City during the 1998-1999 school year (year-two); and one hundred *Virtual Ys* operated in New York City in the 1999-2000 school year (year-three).

### **The program served at-risk children**

*Virtual Y* participants and non-participants in program schools were compared to determine if the *Virtual Y* was serving at-risk children within participating sites. Inspection of the data showed that more *Virtual Y* children were receiving free/reduced price lunch, were African-American or were Hispanic, were recent immigrants, or were students with limited English proficiency. *Virtual Y* students showed lesser risk than non-participants in three areas: They were younger, had higher pre-program school attendance, and they had better reading scores than comparison group students.

### **The *Virtual Y* had a positive effect on participants' school performance**

Comparisons were made between the performance of *Virtual Y* students who attended the program for 49 days or more and students in the same schools and grades who did not attend the program. The comparisons adjusted for pre-existing differences in the students' demographic background and prior performance.

*Attendance.* The average school attendance of 3<sup>rd</sup> and 4<sup>th</sup> grade children participating in the *Virtual Y* exceeded the average attendance of children in the comparison group taking into account initial differences in student attendance and demographic background. The differences between the mean performance of second grade *Virtual Y* students and comparison group students were positive but not significant.

*Reading.* Appropriate data were available only for fourth grade students. Means comparisons, taking in to account students' demographic features, prior reading skill, and school attendance, showed that post-program differences in reading skill between children in the two groups were not significant.

*Math.* Appropriate data were again available only for fourth grade students. Means comparisons, taking into account students' demographic features, prior math skill, and school attendance, showed that post-program differences in math skill between children in the two groups were significant. Children participating in the *Virtual Y*, evidenced better performance on citywide math tests than children in the comparison group.

The foregoing analyses may have underestimated the impact of after-school programming as students in the "contrast group" were likely to have been involved in alternative after school programs (programs other than the *Virtual Y*). Regression studies were conducted to understand the value the *Virtual Y* added to student performance. These studies showed that the program contributed significantly to improved school attendance, reading skills, and math skills.

### **Six program components contributed consistently to outcomes**

Hierarchical regression studies showed two *Virtual Y* program elements to be factors associated with student outcomes in four areas, reading, math, and attendance, and (based on data from a prior study in this series) classroom behavior:

- Hiring staff with four-year degrees
- Maintaining 10:1 student to staff ratios

An additional four program elements were factors in three of the four areas:

- Hiring staff under 30 years old (not associated with improvements in classroom behavior)
- Maintaining low coordinator turnover rates (not associated with improvements in classroom behavior)
- Ensuring staff were trained in youth development practices and drew on lessons in program manuals (not associated with improvements in reading)
- Hiring Board of Education teachers (not associated with improvements in reading)

## I. Introduction

### Program background

The *YMCA of Greater New York* initiated the *Virtual Y* program in 1997 to help meet the needs of public school children in grades two through four after school from 3:00 PM to 6:00 P.M. The *Virtual Y* committed itself to building the spirit, the mind, and the body of participating children and to enriching their communities, families, and schools. Sixty-six *Virtual Ys* operated in New York City schools during the 1997-1998 school year (year-one), one hundred *Virtual Ys* operated during the 1998-1999 school year (year-two), and one hundred *Virtual Ys* operated during the 1999-2000 school year (year-three).

### Context for the report

Fordham University's National Center for Schools and Communities conducted an evaluation of the YMCA's *Virtual Y* over three years. In each year, the evaluation included three components: needs assessment, implementation analysis, and outcome analysis. Annually the first evaluation report presented needs assessment and demographic data.<sup>1</sup> The second report evaluated the *Virtual Y* program against quality standards. The third report presented data regarding the behavioral patterns of students before and after the program, and the fourth report compared learning and school attendance among program participants and non-participants. The reports are cumulative across years, i.e., each includes relevant data from previous years, when those data are available.

This report compares the academic achievement and school attendance of children enrolled in the *Virtual Y* and non-participants in the third year of the *Virtual Y's* operation. The report does not describe in any detail improvements in children's social-emotional functioning, the implementation of the *Virtual Y* program, or participating students' demographic characteristics. Readers who are interested in learning about the program's positive association with improvements in children's behavior are encouraged to obtain copies of the third report. Those who are interested in a formal description of the *Virtual Y* are encouraged to obtain copies of the second report, an implementation study, and those who are interested in learning more about the children served by the program are encouraged to obtain copies of the first report, a needs assessment.

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<sup>1</sup> A needs assessment was conducted annually (rather than once) to assess program progress in reaching out equitably to children across race, gender, language proficiency, borough, etc.

## **Organization of the report**

This report includes a summary and five chapters followed by an appendix. This introduction is Chapter I. Chapter II is a very concise presentation of the conceptual framework for the analyses that follow. Chapter III presents an overview of methods used, and it describes the instrumentation and sample selection process. Chapter IV contains findings. Chapter V discusses the findings. Secondary statistical analyses are in the Appendix.

## II. Framework for the study

### Program theory

A “program theory” describes the pattern of causes and effects that are hypothesized to shape results. As the YMCA sees it, the *Virtual Y* provides children with external assets (including supportive adults, useful roles, safety, positive expectations for their growth, and creative activities) beyond those they would otherwise experience after school.<sup>2</sup> These assets increase participants' social-emotional capacity to attend and engage in school productively. With increased school attendance and engagement, comes better performance on standardized tests of achievement.

### Central questions and confounding factors

This research is a preliminary exploration of data relating to the impact of the *Virtual Y* on students' school-day attendance and performance on standardized tests. A subsequent study using more sophisticated methods and including data from earlier reports in this series will more fully test the *Virtual Y's* program theory. This study asks only two questions: (1) Do students who participate actively in the *Virtual Y* out-perform non-participants all things being equal? (2) How are aggregate student outcomes affected by program variables?

As is often the case, aspects of the research process have confounded efforts to make causal statements about the impact of the *Virtual Y*. The *Virtual Y* enrolls students based both on principal referral and on self-referral. Self-referred students are enrolled typically on a first-come, first-served basis. Students are not randomly assigned to the program. The resulting difficulty is that students in the comparison group may differ from program participants in ways we do **not** know (such as parental involvement in school) in addition to ways we do know (such as socioeconomic status) and for which we have controlled statistically.

Further complicating the picture is the certainty that a proportion of comparison group students participated in other after-school programs. We were able to identify only students who participated in the Board of Education's own after-school program called *Project Read*, and we excluded those students from the comparison group. There were many other programs systematically enrolling students after school—some with

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<sup>2</sup> The YMCA's program theory is in line with the Search Institute's developmental assets paradigm.

YMCA of Greater New York: Impact of *Virtual Y* on Children's Academic Performance  
considerable resources such as 21<sup>st</sup> Century Community Learning Centers—that we were not able to identify and for which we could not control.

The forthcoming analyses attempt to manage these challenging research circumstances in two ways. The first is by using the ANOVA procedure to control statistically for known differences between the experimental and contrast groups, i.e. comparing treatment and contrast groups adjusted means. The second approach is to assess the predictive value of *Virtual Y* program elements and attendance on group outcomes. The methods and findings sections of this report describe these processes more fully.

### III. Methods

#### Instrumentation

This report makes use of student attendance data and standardized reading and math test data obtained uniformly from databases of the New York City Board of Education. Test results examined in the analyses include The New York State (English Language Arts/Mathematics) Assessment, administered in grades 4 and 8, and the Board of Education's (CTB-Reading/Math) Citywide Test, administered in grades 3, 5, 6, and 7. Both the city and state reading and mathematics exams derive items from the Terra Nova Test Series published by CTB/McGraw-Hill. This makes it possible seamlessly to compare student performance across grades 3 and 4 and 7 and 8.

Scale scores are employed in all analyses of standardized test data in this report. Scale scores are calculated based on both the difficulty of test items and the numbers of correct responses to test items. Scale scores are equal interval scores, and they enable researchers to compare student performance over time and across grades. Grade-three and grade-four scale scores on the reading exam will be used to illustrate. Grade-three reading scales scores range from 427 to 750; grade-four scale scores range from 459 to 800. The expectation is that students' scores will increase by 22-points as students move from grade to grade.

#### Sample

Study samples were distilled in the steps listed in Table 1. Researchers first identified the subgroup of *Virtual Y* students with valid Board of Education identification numbers, then those with Board of Education attendance data, and parental consent for participation in the study. For the first set of analyses relating contrast group performance to "treated" students' performance, we selected from that group, the 1,978 students who attended the *Virtual Y* for at least 49 days who had not been left back the prior year and who were not in Project Read (the Board of Education's supplemental reading program).

**Table 1. Sample selection procedures**

Selection requirement	Number <i>Virtual Y</i>
ID numbers	5867
Attendance data	5294
Parental consent and ID number	3505
ID number and complete attendance data	3073
Parental consent, ID number and attendance data	3005
Parental consent, ID number, attendance data and not in Project Read	2853
Parental consent, ID number, attendance data, not in Project Read and attending <i>Virtual Y</i> 49 days or longer.	1978

The decision to establish 49 days of attendance as the criterion for program participation was arrived at systematically. On its face, ten weeks appeared to constitute an important level of exposure and 80% of participants had at least that level of exposure as indicated in Table 2 below.

**Table 2. Frequency of *Virtual Y* participants' program attendance in programs reporting complete attendance data**

Total	Attendance at 1st percentile	Attendance at 20 <sup>th</sup> percentile	Attendance at 25 <sup>th</sup> percentile	Attendance at 50 <sup>th</sup> percentile	Attendance at 75 <sup>th</sup> percentile	Attendance at 100 <sup>th</sup> percentile
3073	1 day	49 days	57 days	101 days	119 days	145

Table 3 to follow presents data describing the 1,978 students in the *Virtual Y* sample. Table 3 also describes students who were not in the *Virtual Y* (or *Project Read* or held over) but who were on the same grade levels in the same schools. And Table 3 presents statistics comparing the groups. Chi-square analyses examine associations between membership in the two groups and categorical variables. Paired-samples *t* test procedures examine associations between membership in the two groups and continuous variables.

The analyses show there were significant pre-program differences between the groups. Higher proportions of *Virtual Y* participants were female, were African-American, were Hispanic, received free/reduced price lunch, were immigrants, and were limited in their capacity to speak English. *Virtual Y* participants were younger for their grade (presumably this means they were less likely to have been left back earlier), and their school day attendance was higher than non-participants. *Virtual Y* participants typically had higher reading and math scores than non-participants.

**Table 3. Comparison of *Virtual Y* study sample contrast group students**

Characteristic	Program participants (N=1978)		Non-participants (N=60385)		Significance
	%	N	%	N	
Female	51.0%	888	48.3%	29163	$\chi^2=5.08^*$
African American	34.5%	601	30.6%	18485	$\chi^2=12.25^{***}$
Hispanic	41.4%	721	33.9%	20485	$\chi^2=42.45^{***}$
Free/reduced price lunch entitled	96.4%	1906	52.6%	31743	$\chi^2=1478.47^{***}$
Recent immigrant	6.7%	132	3.6%	2197	$\chi^2=40.08^{***}$
Limited English proficiency	11.7%	232	7.8%	4734	$\chi^2=39.53^{***}$

  

Characteristic	Grade	Mean	S.D.	N	Mean	S.D.	N	Significance
Age	2	8.13	0.37	444	8.81	1.39	10581	$t=-30.81^{***}$
	3	9.13	0.39	424	9.68	1.13	10142	$t=-25.40^{***}$
	4	10.15	0.39	452	10.47	0.82	9066	$t=-15.59^{***}$
	5	11.13	0.37	288	11.35	0.61	9349	$t=-9.716^{***}$
School ADA prior year	2	92.63	6.55	242	87.68	9.51	2518	$t=10.731^{***}$
	3	94.47	5.01	373	92.89	6.49	6878	$t=5.846^{***}$
	4	95.10	4.36	400	93.49	6.16	6519	$t=6.99^{***}$
	5	94.60	4.70	252	93.47	6.44	7364	$t=3.70^{***}$
School ADA 1999-2000	2	94.03	5.47	240	88.73	9.16	2395	$t=13.27^{***}$
	3	95.33	4.60	370	93.81	6.08	6328	$t=6.06^{***}$
	4	95.88	3.97	394	94.13	5.92	6082	$t=8.17^{***}$
	5	95.23	3.96	251	93.91	6.05	6974	$t=5.08^{***}$
Reading Score prior year	2	<i>Not tested</i>						
	3	<i>Not tested in 1998-99</i>						
	4	628.36	29.85	376	623.74	35.76	6315	$t=2.88^{**}$
	5	633.27	28.31	255	629.83	34.34	7110	$t=1.89$
Reading Score 1999-00	2	<i>Not tested</i>						
	3	<i>Not tested in 1998-99</i>						
	4	644.00	37.62	407	640.05	40.75	6315	$t=1.90$
	5	647.89	27.71	274	645.95	32.01	7259	$t=1.14$
Math Score prior year	2	<i>Not tested</i>						
	3	<i>Not tested in 1998-99</i>						
	4	608.66	35.27	394	604.13	40.84	6573	$t=2.45^*$
	5	643.82	37.41	252	635.97	40.18	6915	$t=3.05^{**}$
Math Score 1999-00	2	<i>Not tested</i>						
	3	<i>Not tested in 1998-99</i>						
	4	641.17	32.42	432	635.36	35.90	6531	$t=3.28^{**}$
	5	658.16	43.76	278	649.28	46.58	7427	$t=3.13^{**}$

\*\*\* $p \leq .001$ , \*\* $p \leq .01$ , \* $p \leq .05$

These data show treatment and contrast groups were not equivalent, i.e. that there were systematic selection effects. This directed researchers to control for student demographic features in all analyses. Further, the fact, earlier noted, that comparison group students were likely to be enrolled in alternative after school programs directed researchers to supplement the adjusted means comparisons with a series of regression studies predicting outcomes for *Virtual Y* students from student attendance and program variables. The regression analyses drew on the 2,853 students who had attended the *Virtual Y* for one day or more and who were otherwise eligible for the study. Actual analyses were conducted at the grade level and tended to involve fewer than 500 students.

**Program measures**

Twenty program variables were examined in preparation for testing the association between program characteristics and program effectiveness. Program characteristics analyzed included those having to do with parental assessments of program quality, descriptions of staffing patterns, and the specifics of staff behavior. Table 4 lists measures with descriptive statistics. The first 13 variables are continuous, and the mean should be interpreted as an actual number. For example, the mean number of children counselors supervised was 11.32. The next eight variables use ordinal scales in which response options vary from one (low) to four (high), and interpretation is specific to each variable. For example, the data show that on average parents gave programs a B+ rating.

**Table 4**  
**Descriptive statistics—program variables**

<b>Program characteristics</b>	<b>Mean</b>	<b>S.D.</b>	<b>Lowest</b>	<b>Highest</b>	<b>N</b>
<i>Continuous variables</i>					
Number of enhancements to site (library resources, science program, ASPCA program, parent power program, AmeriCorps, expansion program, Chancellor’s District.)	1.39	1.02	0	3	31
% Staff under 30 years of age	64.98	0.30	0	100	42
% Staff who had same job last year	42.49	0.28	0	100	42
Mean number of children counselors typically supervise	11.32	2.14	7.75	15	42
Total foreign languages spoken at site	1.17	0.42	1	3	35
% Staff with 4 year college degree or higher	28.19	0.21	0	67	42
% Staff paraprofessional	10.00	0.17	0	67	40
% Staff BOE teachers	14.60	0.25	0	100	40
% Staff non pedagogical BOE employees	18.96	0.25	0	75	40
% Staff who do not work for BOE	56.67	0.37	0	100	40
Coordinator turnover rate	33.60	0.14	17	67	30
Coordinator absences per month	0.49	0.78	0	4.25	49
Counselor absences per month	1.10	0.84	0	4	49
<i>Ordinal variables (scale 1-4)</i>					
Degree staff use coordinator’s suggestions	2.60	0.52	1.33	3.60	42
Degree staff use counselors’ suggestions	2.39	0.45	1.50	3.40	42
Degree staff use manual	2.30	0.45	1.50	3.60	42
Degree staff rely on ideas/materials from training sessions	2.35	0.50	1.33	3.50	42
Mean perception of workload <sup>3</sup>	2.27	0.27	1.75	2.80	42
Mean perception of ability to do job	3.64	0.35	2.75	4.00	42
Mean parent rating (see Appendix for scale)	3.43	0.19	2.97	3.86	47

<sup>3</sup> High workloads tend to negatively impact socio-emotional goat attainment, but not cognitive attainment.

## Unit of analysis

As noted in Chapter II, this study asks two questions: (1) Do students who participate in the *Virtual Y* out-perform non-participants all things being equal? (2) How are average student outcomes affected by program variables? The unit of analysis appropriate in statistical procedures addressing the first question would appear, on its face, to be the unit- or student-level, but in this analysis students are nested within programs, and the unit-level is not therefore entirely appropriate. The second question raises the same problem, but more apparently, in that the data are cross-level, i.e. the question involves program variables as well as student-level data. The recommended approach in analyzing multi-level data is hierarchical modeling (Bryk & Raudenbush, 1992). At a later point in a subsequent analysis of these data, hierarchical modeling will be employed. This is a preliminary analysis en route to that more demanding as well as conclusive methodology.

Two strategies are frequently used in place of hierarchical modeling. One is to assign program characteristics to students; another is to aggregate student characteristics up to the program level. The first and more frequently used approach violates the independence of observations assumption for OLS analyses and produces standard errors that are too small leading to a higher probability of rejecting the null hypothesis. The second approach sacrifices individual variation, which can lead to dramatic over- and under-estimates of observed relationships among variables. Neither option is entirely satisfactory. In this analysis both methods are used in ways most appropriate.

In the ANOVAs conducted in this study, the unit of analysis is the student. The *Virtual Y* student sample includes 1,978 *Virtual Y* students with parental consent, an identification number, and program attendance data, who were not in *Project Read*, and who had attended the *Virtual Y* for 49 days or longer. The comparison group sample includes non participants in the same schools and on the same grade levels who were not in *Project Read*.

In the regression analyses in this study, the unit of analysis is the program level. We weight site-level data by the numbers of *Virtual Y* students in each site-level mean to give greater emphasis to sites whose means were based on a larger proportion of the population. The sample of sites ranges from 48 to 49, and the site means drawn on grade-level data from 2,853 *Virtual Y* students with parental consent, a student identification number, and attendance data, who were not in *Project Read*.

## IV. Findings

The findings are presented in two sections, each addressing a separate research question.

### **Question 1. Do students who participate in the *Virtual Y* out-perform non-participants other factors being equal?**

Questions regarding the *Virtual Y's* impact on attendance and school skills are examined using a technique known as one-way analysis of covariance (ANCOVA). This procedure allows us to evaluate whether the school attendance (also reading and math scores) of students who attended the *Virtual Y* for 49 days or more was the same as the school attendance (also reading and math scores) of those who did not attend the *Virtual Y* adjusting for covariates—known prior differences between the groups such as students' prior performance, ages, and poverty levels.<sup>4</sup>

### **The *Virtual Y* had a positive effect on participants' school attendance**

Table 5 on the following page presents the adjusted means, standard error, and *F* test results for ANCOVAs on student attendance. Means comparisons, adjusted for the covariates, showed that in third and fourth grades the average performance of children participating in the *Virtual Y* exceeded the average performance of children in the comparison group. It's worth noting that the mean of the *Virtual Y* group is greater than two standard errors from the mean of the comparison group suggesting an important as well as statistically significant difference. The differences between the mean performance of second grade *Virtual Y* students and comparison group students were positive but not significant.

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<sup>4</sup> There are several assumptions underlying a One-Way ANCOVA: the dependent variable is normally distributed, group variances are equal, observations are independent, and slopes relating the covariate to the dependent variable are equal. The technique is generally robust to assumption violations. We have already noted the important violation of the independence of observations assumption. It should also be noted that standard errors in these analyses differ by a factor of four, and that this is another reason to consider interpretations to be provisional.

**Table 5. School attendance—adjusted means comparison controlling for child characteristics**

Grade	Virtual Y study sample			Comparison group			F
	Attendance	SE	N	Attendance	SE	N	
2	93.69	.24	357	93.38	.06	5558	1.501
3	94.39	.24	367	93.88	.06	6218	4.516*
4	94.93	.22	393	94.22	.06	5982	10.139**

\*\*p≤.01, \*p≤.05

**The *Virtual Y* had a positive effect on participants’ academic skills**

Pre-program and program-year standardized test data were available to compare the performance of *Virtual Y* students and comparison group students beginning in grade four in both reading and mathematics. The analyses were performed for grade four and grade five students in both subject areas, but differences between group variances were not within tolerance levels for grade five students in either reading or in math. The data are reported, therefore, only for fourth grade students. Table 6 and Table 7 present the adjusted means, standard error, and *F* test results for those ANCOVAs. Means comparisons, adjusted for the covariate, showed that differences between children in the two groups in reading were not significant. Children participating in the *Virtual Y*, however, evidenced better performance on citywide math tests than children in the comparison group. Again the difference is not only significant; it is a large—more than two standard errors.

**Table 6  
Reading scale scores--adjusted means comparison controlling for child characteristics**

Grade	Study participation group			Comparison group			F
	Scale score	SE	N	Scale score	SE	N	
4	643.50	1.36	366	643.24	.35	5648	.36

**Table 7  
Math scale scores--adjusted means comparison controlling for child characteristics**

Grade	Study participation group			Comparison group			F
	Scale score	SE	N	Scale score	SE	N	
4	640.30	1.11	392	637.31	.29	5905	6.764*

\*p≤.01

**Question 2. How are average student outcomes affected by program variables?**

Another way of stating the above research question is “How well do various characteristics of *Virtual Y* programs predict student outcomes, controlling for students' aggregate demographic characteristics and their aggregate school-day attendance in 1998-1999?” This question indicates a concern with program features that work and a concern with how well those features work.

Multiple regression analysis is a statistical technique that is can be used to answer such a question. It enables one to analyze the relationship between a single dependent variable (criterion) like “average post-program reading scores among *Virtual Y* students” and several independent (predictor) variables like program quality, program size, etc. The objective is to develop an equation that predicts the criterion from a weighted combination of the independent variables. The weights denote the variables relative contribution to the prediction and are therefore helpful in answering questions about factors that produce effects.

In this analysis, hierarchical regression analyses were performed to investigate which components of the *Virtual Y* program contributed to improvements in students' fourth grade reading and math skills and third and fourth grade attendance. All predictor and criterion variables were aggregated to the program-level. The gender variable was, for example, defined as the percent of *Virtual Y* students at the site who were female.

Children's characteristics (e.g. gender, ethnicity, language proficiency, prior school attendance, etc.) were entered as the first equation in the hierarchical regression. Program variables (e.g. quality ratings, staff age, student to staff ratio, etc.) were added as a block to children's characteristics in the second equation. Students mean days of program attendance were added as a block in the third equation. In these analyses, data were weighted according to the number of children contributing to the site mean attendance, mean reading scale scores, or mean math scale scores, as appropriate.

The selection of child and program predictor variables for use in the various regression models developed was informed by examination of correlations among 41 such variables. Predictor variables were selected from this larger list for analysis when they were correlated significantly with the criterion variable, but not highly correlated with another predictor variable. Exploratory regression studies were done to test for multicollinearity using tolerance statistics (tolerance for variable  $A=1-R^2$  of the regression of variable A on all other variables). The distributions of residuals were examined to test for departures from regression assumptions of linearity, normality, constant variance, and independence.

Table 8 through Table 11 to follow present output from the regression studies. Note that in hierarchical or ordered multiple regression the validity of the first set of predictors (in this case, student characteristics) is examined and then the incremental

validity of the second set of predictors (in this case, program features) is examined followed by an examination of the incremental validity of the third set of predictors (in this case, mean days of program attendance). The final model shows the validity of each predictor controlling for all others.

A statistic of importance in interpreting output from regression analysis is  $R^2$ . Squaring the multiple correlation coefficient yields the percentage of variance in the dependent variable that is explained by knowledge of the combined effects of the independent variables. The higher the  $R^2$ , the better the job done by the independent variables of explaining the dependent variable.  $R^2$  typically overestimates the population  $R^2$ , and it needs to be adjusted downward. The adjusted  $R^2$  makes this correction.

Another statistic of importance in interpreting output from regression analysis is the standardized regression coefficient (Beta). The standardized regression coefficient makes it possible to compare the relative effects of predictor variables. The largest standardized regression coefficient has, for example, the largest impact on the criterion. The non standardized regression coefficient (B) is annotated when the predictor variable is significant. The non standardized regression coefficient (B) is the weight assigned to the predictor variable that best estimates that variable's relationship to the criterion.

### **Six components of the *Virtual Y* contributed consistently to outcomes**

Four multiple regression studies were conducted to predict four outcomes: 3<sup>rd</sup> and 4<sup>th</sup> grade *Virtual Y* students' attendance and 4<sup>th</sup> grade *Virtual Y* students' reading and math scores on standardized tests after the program. The predictor variables in all four analyses include students' demographic characteristics, their prior school attendance, and, in the analyses of academic skills, their prior performance on that skill. The results of these analyses indicate that demographic features and prior performance account for a significant amount of performance variability. Most consistently and clearly, students who are stronger performers in the beginning of the program tend to be stronger performers in the end.

A second analysis was conducted to evaluate whether program features predicted outcomes over and above students' prior performance and demographic features. Two measures accounted for a significant proportion of the performance variance in attendance, reading, and math after controlling for the effects of prior performance and background.<sup>5</sup> The results suggest that students who have the same prior academic history and demographic characteristics would do better in school if they attended *Virtual Ys* that emphasized the following practices:

- Hiring staff with four-year degrees

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<sup>5</sup> The following program elements were associated with improved outcomes in not only reading, math, and attendance, but also (based on data from a prior study in this series) students' classroom behavior.

- Maintaining 10:1 student-to-staff ratios

An additional four program elements were factors in three of the four targeted areas (attendance, reading, math, behavior).

- Hiring staff under 30 years old
- Maintaining low coordinator turnover rates
- Ensuring staff were trained in youth development practices and drew on lessons in program manuals
- Hiring Board of Education teachers

Other factors associated with greater success included the following: higher parent ratings; increasing numbers of male staff; more staff who speak foreign languages; low counselor absentee rates; counselors' use of coordinator's and other counselors' suggestions when preparing lessons; lower workloads; staff members' greater confidence in their ability to do the job; hiring Board of Education paraprofessionals; hiring non-Board of Education employees, and program enhancements (i.e. supplemental programming).

Table 8, on the next page, shows that *Virtual Y* program quality accounted for 5% of the variance in third grade participants' attendance. Table 9 shows that program quality accounted for 20% of the variance in participants' fourth grade attendance. Table 10, on the next to last page of this Chapter, shows that program quality accounted for 11% of the variance in fourth grade participants' reading skills. Table 11, on the last page of this Chapter, shows that program quality accounted for 13% of the variance in fourth grade participants' math skills.

A third analysis was conducted to evaluate whether student attendance predicted outcomes over and above program quality measures and students' prior performance and demographic features. The number of days students attended the *Virtual Y* accounted for a significant proportion of the performance variance in attendance, reading, and math after controlling for the effects of program quality, prior performance, and background.<sup>6</sup> The results suggest that, controlling for program quality, students who have the same prior academic history and demographic characteristics would do better in school if they frequently attended the *Virtual Y*.

Table A1 in the Appendix summarizes findings from Table 8 through Table 11 in this report and Table 9A through Table 9G in a previous report in this series. The earlier report examined the impact of the *Virtual Y* on children's classroom behavior (Foley & Eddins, 2001).

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<sup>6</sup> The following program elements were associated with improved outcomes in not only reading, math, and attendance, but also (based on data from a prior study in this series) students' classroom behavior.

**Table 8**  
**Hierarchical regression predicting third grade school attendance of *Virtual Y* participants**

	Model 1			Model 2			Model 3		
	(Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta
<b>Child characteristics</b>	.823***								
School attendance rate 98-99		.807*** (.029)	.84		.804*** (.026)	.84		.753*** (.025)	.79
% African American		-1.412*** (.197)	-.22		-1.216*** (.187)	-.19		-1.383*** (.178)	-.22
% Children female		3.809*** (.355)	.29		3.290*** (.354)	.25		2.794*** (.341)	.21
Age		2.618*** (.365)	.20		2.051*** (.341)	.16		1.584*** (.328)	.12
% Free/reduced price lunch		14.391*** (3.492)	.10		14.470*** (3.304)	.10		14.132*** (3.111)	.10
% Hispanic		-.951*** (.251)	-.13		-.250 (.244)			-.333 (.230)	
% Recent immigrant		4.614*** (1.426)	.08		3.229* (1.334)	.05		2.145 (1.266)	
<b>Program characteristics</b>				.052***					
% BOE teacher					.008** (.003)	.07		.023*** (.003)	.20
Coordinator turnover rate					-.013*** (.002)	-.12		-.019*** (.002)	-.19
Highest ratio of children to staff					-.105*** (.014)	-.16		-.080*** (.014)	-.12
% Staff female					-.005 (.003)			-.009*** (.003)	-.07
Extent staff uses trainings					.336** (.097)	.08		.190* (.094)	.05
<b>Exposure to program</b>							.024***		
Number of days at program								.020*** (.003)	.19

Note: n sites = 48, n children = 429

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

**Table 9**  
**Hierarchical regression predicting fourth grade school attendance of *Virtual Y* participants**

	Model 1			Model 2			Model 3		
	(Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta
<b>Child characteristics</b>	.522***								
School attendance rate 98-99		.606*** (.035)	.72		.616*** (.029)	.73		.580*** (.026)	.69
% African American		.945*** (.216)	.20		1.990*** (.191)	.41		1.906*** (.170)	.40
% Recent immigrant		1.298 (1.555)			10.565*** (1.392)	.28		11.249*** (1.237)	.29
Age		.097 (.375)			1.277*** (.303)	.13		1.515*** (.270)	.16
% Limited English proficient		.361 (.856)			-1.516 (.795)			-2.127** (.783)	-.12
% Free/reduced price lunch		.230 (1.090)			1.537 (.868)			2.258** (.773)	.08
% Hispanic		.111 (.284)			-.535* (.260)	-.09		-.437 (.230)	
<b>Program characteristics</b>				.204***					
% Staff under 30 years old					1.836*** (.165)	.35		1.963*** (.147)	.38
Parent rating					3.785*** (.335)	.39		3.618*** (.298)	.37
% Staff with 4 year degree or higher					2.211*** (.275)	.31		2.539*** (.246)	.35
Coordinator turnover rate					-.012 (.002)	-.17		-.012** (.002)	-.17
Mean n of program enhancements					.133** (.041)	.11		.137 (.036)	.12
Highest number of children to counselor					-.030* (.011)	-.08		-.029** (.010)	-.08
<b>Exposure to program</b>							0.059***		
Number of days at program								.029*** (.003)	.26

Note: n sites = 49, n children = 477  
 \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

**Table 10**  
**Hierarchical regression predicting reading performance of fourth grade *Virtual Y* participants**

	Model 1			Model 2			Model 3		
	(Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta
<b>Child characteristics</b>	.745***								
Reading scale score 98-99		.912*** (.047)	.63		.791*** (.037)	.55		.776*** (.037)	.54
% African American		-11.023*** (1.772)	-.23		-12.653*** (1.423)	-.26		-15.817*** (1.584)	-.30
% Hispanic		-13.237*** (2.190)	-.21		-16.033*** (1.846)	-.25		-16.010 *** (1.833)	-.25
School attendance rate 98-99		1.846*** (.276)	.28		1.592*** (.226)	.18		1.598*** (.224)	.18
% Children female		-6.631** (2.766)	-.07		-15.867*** (2.246)	-.17		-15.765*** (2.230)	-.17
Age		-8.177** (3.025)	-.08		-13.480*** (2.403)	-.13		-13.180*** (2.389)	-.13
% Recent immigrant		-49.279*** (9.334)	-.15		-30.252*** (7.310)	-.09		-25.283** (7.546)	-.08
% Free/reduced price lunch		-23.627*** (6.526)	-.10		-3.416 (5.234)			-1.197 (5.278)	
<b>Program characteristics</b>				.109***					
Coordinator turnover rate					-.193*** (.019)	-.26		-.191*** (.019)	-.26
% Staff with 4 year degree or higher					16.061*** (1.793)	.23		17.776*** (1.917)	.26
% Staff under 30 years old					8.215*** (1.236)	.16		8.057*** (.1.229)	.16
Typical number of children to counselor					-.392*** (.100)	-.10		-.388*** (.099)	-.10
Staff confidence in ability to do job					3.205* (1.401)	.06		3.391*** (1.393)	.07
<b>Exposure to program</b>							.002*		
Number of days at program								.063* (.026)	.06

Note: n sites = 49, n children = 478  
 \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

**Table 11**  
**Hierarchical regression predicting math performance of fourth grade *Virtual Y* participants**

	Model 1			Model 2			Model 3		
	(Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta	Change (Adj) R <sup>2</sup>	B (SE)	Beta
<b>Child characteristics</b>	.614***								
% African American		-4.600 (2.520)			-16.904*** (2.386)	-.34		-19.721*** (2.324)	-.40
% Hispanic		-4.988 (2.944)			-19.392*** (2.756)	-.34		-21.509*** (2.252)	-.38
Math scale score 98-99		.548*** (.051)	.65		.287*** (.047)	.34		.262*** (.045)	.31
School attendance rate 98-99		1.031** (.369)	.13		2.102*** (.342)	.27		1.993*** (.327)	.26
% Recent immigrant		25.633** (8.005)	.12		-24.607** (9.290)	-.12		-17.202 (8.944)	
% Free/reduced price lunch		1.858 (8.236)			19.544* (7.528)	.09		36.651*** (7.732)	.17
Age		-12.871*** (3.612)	-.13		-8.602** (3.182)	-.08		-5.264* (3.085)	
<b>Program characteristics</b>				.129***					
% Staff with 4 year degree or higher					20.165*** (2.414)	.31		25.029*** (2.443)	.38
% Staff BOE teachers					7.796*** (2.324)	.13		13.183*** (2.394)	.21
Extent staff uses VY Manual					6.445*** (1.164)	.22		5.236*** (1.128)	.18
Coordinator turnover rate					-.110*** (.028)	-.15		-.125*** (.027)	-.17
Counselor absentee rate					-1.949*** (.922)	-.08		-2.893*** (.744)	-.17
Typical number of children to counselor					-.554*** (.126)	-.13		-.533*** (.120)	-.15
% Staff under 30 years old					4.580** (1.493)	.09		5.429*** (1.430)	.11
% Staff female					-8.730** (2.646)	-.12		-6.349* (2.554)	-.09
<b>Exposure to program</b>							.023***		
Number of days at program								.200*** (.034)	.19

Note: n sites = 49, n children = 449  
 \* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$

## V. Discussion

This research is a preliminary exploration of data relating to the impact of the *Virtual Y* on students' school-day attendance and performance on standardized tests. Given that students were not randomly assigned to the program, it is possible that students in the comparison group differ from program participants in ways we do not know (such as parental attention, and participation in other enrichment programs) in addition to ways we do know (such as socioeconomic status) and for which we have controlled statistically.

With that caveat, the data document the positive effects of the *Virtual Y* on children's academic performance using school attendance and scores on standardized tests as indicators. *Virtual Y* students attended school more frequently than comparison group students in the third and fourth grade, and *Virtual Y* students had higher scores on the City's fourth grade math skills test than comparison group children. Regression studies show further that attending the *Virtual Y* added significantly to students' school day attendance and their performance on reading and math standardized tests.

The study provides extensive evidence of the beneficial effects of specific program practices, among them the following<sup>7</sup>:

- Hiring staff with four-year degrees
- Maintaining 10:1 student-to-staff ratios
- Hiring staff under 30 years old
- Maintaining low coordinator turnover rates
- Ensuring staff are trained in youth development practices and draw on lessons in program manuals
- Hiring Board of Education teachers

Other factors associated with success included the following: higher parent ratings, increasing numbers of male staff; staff who speak foreign languages; low counselor absentee rates; counselors' use of coordinator's and other counselors' suggestions when preparing lessons; lower workloads; staff members' confidence in their ability to do the job; hiring Board of Education paraprofessionals; hiring non-Board of Education employees, and program enhancements.

These analyses suggest that the impact of the *Virtual Y* on student performance was both statistically significant and academically meaningful. These initial examinations also suggest the potential of continued data analysis applying more rigorous methods.

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<sup>7</sup> The following program elements were associated with improved outcomes in, not only reading, math, and attendance, but also (based on data from a prior study in this series) students' classroom behavior.

### References

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## **Appendix A**

Table 7 lists performance variables in column headings and predictor variables at the start of each row. Significant predictors are ranked for each performance variable with a rank of one given to the best predictor. Positive and negative signs indicate the direction of predictors’ to the criterion.<sup>8</sup> Positive relationships (signs) mean that increases in the predictor were associated with increases in the criterion variable (scale scores), and indicate, in the case of program variables, that more of that program component resulted in better outcomes. Positive signs are, therefore, the expected sign in every case except staffing ratios, and staff turnover and absentee rate. It is expected that the sign would be negative there, i.e. more students would produce less improvement, as would a higher staff turnover and absentee rate.

**Table A1. Summary of findings from hierarchical regression analyses**

Predictors	Academic Improvement				Behavior Improvement							
	Grade 3 Attendance	Grade 4 Attendance	Grade 4 Math	Grade 4 Reading	Acting Out	Shy/ Anxious	Learning	Frustration Tolerance	Assertive Social Skills	Task Orientation	Peer Social Skills	Overall Behavior
N of Enhancements		10			7	12		10				4
Parent rating		4			2	1	4	1	1	1		2
% Staff aged under 30		3	13	8	Not a significant predictor							
% Staff female	-10		-14		Not a significant predictor							
% Staff having a 4 year degree or higher		5	2	3	8		5				7	8
N Foreign Languages staff speaks	Not a significant predictor							5		2	8	
Coordinator turnover	-5	-8	-9	-3	Not a significant predictor							
Counselor absentee rate			-9		Not a significant predictor							
Degree uses coordinators’ suggestions	Not a significant predictor									8		
Degree uses counselors’ suggestions	Not a significant predictor					7					1	
Degree staff uses training material/ideas	11						11	11	5	7		11
Degree staff uses Virtual Y Manual			8		Not a significant predictor							
N students/staff	-7	-12	-12	-10			-3			-11		
Staff perception of workload <sup>9</sup>					-3	-11	-2	-4			-4	-5
Staff confidence in ability to do job				12	Not a significant predictor							
% Staff Board of Education teachers	4		6				13			3		
% Staff Board of Education paraprofessionals	Not a significant predictor				13							
% Staff non-Board of Education employed						5		5	6	13		12
Exposure to program	5	7	7	13	Interaction effects with parent rating							

<sup>8</sup> Lower ratings on a behavior scales signify less difficulty with behaviors. In this table the directionality of the behavior ratings was reversed so that **higher** ratings signify less difficulty. This facilitates comparison of impact of program components across performance variables.

<sup>9</sup> High workloads tend to negatively impact socio-emotional govt attainment, but not cognitive attainment.

## **APPENDIX B**

**YMCA of Greater New York  
1999-2000  
Parent Questionnaire**

1. BEDFORD	6. CHINATOWN	11. GREENPOINT	16. S. BROOKLYN
2. BRONX	7. CROSS ISLAND	12. HARLEM	17. STATEN ISLAND
3. BROOKLYN CENTRAL	8. EASTERN DISTRICT	13. LONG ISLAND CITY	18. TWELVE TOWNS
4. CATALPA	9. FLATBUSH	14. MCBURNEY	19. VANDERBILT
5. CENTRAL QUEENS	10. FLUSHING	15. PROSPECT PARK	20. WESTSIDE

**P.S.** \_\_\_\_\_

The YMCA of Greater New York is committed to providing you and your child with the highest quality family services. We continuously look at our programs to learn what is good and what could be improved.

Please take a few minutes to fill out the following questionnaire about the *Virtual Y*. We want to know how you genuinely feel about the program, both good and bad. There are no right or wrong answers. And you don't have to put your name on the questionnaire.

Circle the word that best describes your opinion. If the question is not applicable to your situation, then leave it blank. At the very end of the questionnaire there are open-ended questions where you can write comments.

Thank you for your time.

QUESTION	ANSWERS			
1. Does your child like coming to the program?	Never	Sometimes	Usually	Always
2. Does staff seem to like and respect your child?	Never	Sometimes	Usually	Always
3. Is your child learning how to get along with other children?	Never	Sometimes	Usually	Always
4. Is there sufficient staff to provide your child with needed attention?	Never	Sometimes	Usually	Always
5. Does staff respond to your child's individual needs?	Never	Sometimes	Usually	Always
6. Does staff work well together to meet your child's needs?	Never	Sometimes	Usually	Always

QUESTION	ANSWERS			
7. Does the program handle homework in a way that you like?	Never	Sometimes	Usually	Always
8. Is the program helping your child to get the homework done?	Never	Sometimes	Usually	Always
9. Does your child get enough recreation and exercise during the program day?	Never	Sometimes	Usually	Always
10. Is the program motivating your child to learn?	Never	Sometimes	Usually	Always
11. Is your child getting help with reading?	Never	Sometimes	Usually	Always
12. Is your child getting help with math?	Never	Sometimes	Usually	Always
13. Does the program give adequate attention to values?	Never	Sometimes	Usually	Always
14. Is your child learning how to follow rules?	Never	Sometimes	Usually	Always
15. Are you satisfied with the type and amount of food your child eats at the program?	Never	Sometimes	Usually	Always
16. Are you satisfied with the supply of games and toys and play equipment?	Never	Sometimes	Usually	Always
17. Does the facility seem safe and secure?	Never	Sometimes	Usually	Always
18. Is the facility clean?	Never	Sometimes	Usually	Always
19. Are staff warm and helpful to you?	Never	Sometimes	Usually	Always
20. Does staff discuss your child’s growth and behavior in helpful ways?	Never	Sometimes	Usually	Always

QUESTION	ANSWERS			
21. Does the program prepare you and your child for staff changes that occur?	Never	Sometimes	Usually	Always
22. Do program hours fit your needs?	Never	Sometimes	Usually	Always
23. Has the program made it easier for you to work or go to school or fulfill other obligations?	Never	Sometimes	Usually	Always
24. Is staff able to refer you to community resources?	Never	Sometimes	Usually	Always
25. Does the program keep you informed about important decisions such as the schedule of activities?	Never	Sometimes	Usually	Always
26. Does the program keep you informed about your child’s successes and difficulties?	Never	Sometimes	Usually	Always
27. Do you have a say in how your child spends time at the program?	Never	Sometimes	Usually	Always
28. Do you feel free to visit the program at any time?	Never	Sometimes	Usually	Always
29. Are there special events for families?	Never	Sometimes	Usually	Always
30. Do you feel free to share your ideas about the program and its policies?	Never	Sometimes	Usually	Always
31. Are families involved in important decisions about the program?	Never	Sometimes	Usually	Always

32. What do you like best about the program?

33. What would you like to change about the program?

34. Is there anything else you would like us to know?

35. Previous questions have asked about the *Virtual Y* in your child's school. This question is about the school itself. How satisfied are you with the climate for learning in your child's school? Circle one.

Very Satisfied

Somewhat Satisfied

Somewhat Unsatisfied

Very Unsatisfied

## **APPENDIX C**

**Correlations for regression predicting third grade school attendance**

\*\* $p \leq .001$ , \* $p \leq .05$

	School average daily attendance 99-00	School average daily attendance 98-99	Mean age	% Free or reduced price lunch	% Female	% African-American	% Hispanic	% Recent Immigrant	% Female staff	% Staff Board of Education teachers	Coordinator turnover rate	Ratio of children to staff	Extent staff uses VY trainings	Mean number of days at program
School ADA 99-00	1.000 (424)													
School ADA 98-99	.862** (424)	1.000 (424)												
Mean age	-.157** (424)	-.262** (424)	1.000 (424)											
% Free/reduced price lunch	.056 (424)	-.093 (424)	-.115* (424)	1.000 (424)										
% Female	.224** (424)	.042 (424)	-.384** (424)	.256** (424)	1.000 (424)									
% African-American	-.091 (424)	-.065 (424)	-.060 (424)	-.080 (424)	.197** (424)	1.000 (424)								
% Hispanic	-.261** (424)	-.298** (424)	.157** (424)	.192** (424)	-.119* (424)	-.656** (424)	1.000 (424)							
% Recent Immigrant	.296** (424)	.190** (424)	-.048 (424)	.075 (424)	.163** (424)	.161** (424)	-.185** (424)	1.000 (424)						
% Female staff	.006 (401)	-.067 (401)	.201** (401)	-.177** (401)	.277** (401)	.120* (401)	-.148** (401)	.018 (401)	1.000 (401)					
% Staff BOE teachers	-.040 (383)	-.034 (383)	.001 (383)	-.077 (383)	-.105* (383)	.097 (383)	.131* (383)	.130* (383)	-.304** (383)	1.000 (383)				
Coordinator turnover rate	-.229** (420)	-.137** (420)	-.155** (420)	.097* (420)	.028 (420)	.126** (420)	-.058 (420)	.069 (420)	-.130** (398)	-.009 (380)	1.000 (420)			
Ratio of children to staff	-.238** (365)	-.041 (365)	-.034 (365)	.147** (365)	-.089 (365)	.037 (365)	.278** (365)	.018 (365)	-.021 (365)	.016 (347)	.175** (365)	1.000 (365)		
Extent staff uses VY trainings	.209** (401)	.021 (401)	.117* (401)	.286** (401)	.039 (401)	.143** (401)	-.170** (401)	.242** (401)	-.172** (401)	.116* (383)	-.126* (398)	-.089 (365)	1.000 (401)	
Mean number of days at program	.402** (424)	.347** (424)	-.067 (424)	.083 (424)	.180** (424)	-.071 (424)	-.182** (424)	.027 (424)	-.073 (401)	-.399** (383)	-.078 (420)	-.211** (365)	.165** (401)	1.000 (424)

**Correlations for regression predicting fourth grade school attendance**

\*\**p* < .001, \**p* < .05

	School average daily attendance 99-00	School average daily attendance 98-99	Mean age	% Free or reduced price lunch	% Female	% African-American	% Hispanic	% Recent Immigrant	Parent rating	Mean number of program enhancements	% Staff under 30 years old	% Staff having a 4-year degree or higher	Coordinator turnover rate	Ratio of children to staff	Mean number of days at program
School ADA 99-00	1.000 (476)														
School ADA 98-99	.680** (476)	1.000 (476)													
Mean age	-.028 (476)	-.047 (476)	1.000 (476)												
% Free/reduced price lunch	-.130** (476)	-.187** (476)	.000 (476)	1.000 (476)											
% Female	.026 (476)	-.008 (476)	-.208** (476)	.041 (476)	1.000 (476)										
% African-American	.078 (476)	-.114* (476)	-.111* (476)	-.080 (476)	-.064 (476)	1.000 (476)									
% Hispanic	-.014 (476)	-.019 (476)	.307** (476)	.082 (476)	.083 (476)	-.524** (476)	1.000 (476)								
% Recent Immigrant	.203** (476)	.314** (476)	-.131** (476)	.087 (476)	.054 (476)	-.207** (476)	.165** (476)	1.000 (476)							
Parent rating	.003 (465)	-.115* (465)	-.204** (465)	-.009 (465)	.092* (465)	-.315** (465)	.109* (465)	-.006 (465)	1.000 (465)						
Mean n program enhancements	.073 (405)	.187** (405)	.056 (405)	.152** (405)	-.078 (405)	-.264** (405)	-.022 (405)	-.063 (405)	.063 (395)	1.000 (405)					
% Staff under 30 years old	.264** (435)	.129** (435)	.048 (435)	.004 (435)	-.183** (435)	-.060 (435)	-.047 (435)	-.066 (435)	-.246** (425)	.039 (383)	1.000 (435)				
% Staff with 4-year/higher degree	-.038 (435)	-.233** (435)	.002 (435)	-.111* (435)	.054 (435)	.059 (435)	.231** (435)	-.149** (435)	-.140** (425)	-.464** (383)	.071 (435)	1.000 (435)			
Coordinator turnover rate	.035 (405)	.008 (405)	.066 (405)	.098* (405)	-.216** (405)	.146** (405)	-.149** (405)	.183** (405)	-.076 (395)	-.108* (405)	.306** (383)	.180** (383)	1.000 (405)		
Children to staff ratio	-.024 (435)	-.023 (435)	.091 (435)	.144** (435)	-.041 (435)	.129** (435)	.016 (435)	-.018 (435)	-.365** (425)	-.031 (383)	-.110* (435)	.115* (435)	.311** (383)	1.000 (435)	
Mean number of days at program	.419** (476)	.288** (476)	-.073 (476)	-.123** (476)	.140 (476)	-.017 (476)	.073 (476)	.090 (476)	.280** (465)	.066 (405)	-.082 (435)	-.305** (435)	-.067 (405)	-.278** (435)	1.000 (476)

**Correlations for regression predicting fourth grade reading performance**

**\*\* $p \leq .001$ , \* $p \leq .05$**

	Mean reading scale score 99-00	Mean reading scale score 98-99	School average daily attendance 98-99	Mean age	% Free or reduced price lunch	% Female	% African-American	% Recent Immigrant	% Recent Immigrant	% Staff under 30 years old	% Staff having a 4-year degree or higher	Coordinator turnover rate	Ratio of children to staff	Staff confidence in ability to do job	Mean number of days at program
Mean reading scale score 99-00	1.000 (446)														
Mean reading scale score 98-99	.774** (446)	1.000 (446)													
School ADA 98-99	.419** (446)	.240** (446)	1.000 (446)												
Mean age	-.319** (446)	-.403** (446)	-.050 (446)	1.000 (446)											
% Free/reduced price lunch	-.107* (446)	-.055 (446)	-.104* (446)	.015 (446)	1.000 (446)										
% Female	.178** (446)	.168** (446)	-.063 (446)	-.231** (446)	.067 (446)	1.000 (446)									
% African-American	-.260** (446)	-.059 (446)	-.178** (446)	-.035 (446)	-.142** (446)	-.143** (446)	1.000 (446)								
% Hispanic	-.063 (446)	-.123** (446)	-.002 (446)	.191** (446)	.106* (446)	.133** (446)	-.491** (446)	1.000 (446)							
% Recent Immigrant	-.123** (446)	-.052 (446)	.058 (446)	.028 (446)	-.100* (446)	-.103* (446)	.303** (446)	-.270** (446)	1.000 (446)						
% Staff under 30 years old	.142** (409)	-.003 (409)	.190** (409)	.014 (409)	-.014 (409)	-.237** (409)	-.043 (409)	-.099* (409)	-.016 (409)	1.000 (409)					
% Staff with 4-year degree or higher	.080 (409)	.062 (409)	-.172** (409)	.008 (409)	-.132** (409)	.097 (409)	.106* (409)	.161** (409)	-.196** (409)	.080 (409)	1.000 (415)				
<b>Coordinator turnover rate</b>	-.185** (374)	-.084 (374)	-.032 (374)	.017 (374)	.096 (374)	-.238** (374)	.111* (374)	-.124* (374)	.079 (374)	.246** (356)	.199** (356)	1.000 (374)			
Ratio of children to staff	-.288** (409)	-.118* (409)	.036 (409)	-.010 (409)	.052 (409)	.031 (409)	.107* (409)	-.030 (409)	.146** (409)	-.108* (409)	-.118* (409)	.208** (356)	1.000 (409)		
Staff confidence in ability to do job	.105* (409)	.122* (409)	.093 (409)	.122* (409)	-.163** (409)	.106* (409)	-.024 (409)	-.110* (409)	-.118* (409)	-.250** (409)	-.004 (409)	-.281** (356)	.184** (409)	1.000 (409)	
Mean number of days at program	.286** (446)	.103* (446)	.266** (446)	-.020 (446)	.036 (446)	.094* (446)	-.077 (446)	.153** (446)	-.028 (446)	-.105* (409)	-.346** (409)	-.118* (374)	-.056 (409)	-.030 (409)	1.000 (446)

**Correlations for regression predicting fourth grade math performance**

\*\* $p \leq .001$ , \* $p \leq .05$

	Mean math scale score 99-00 (478)	Mean math scale score 98-99 (478)	School average daily attendance 98-99 (478)	Mean age (478)	% Free or reduced price lunch (478)	% African-American (478)	% Hispanic (478)	% Recent Immigrant (478)	% Female staff (437)	% Staff under 30 years old (437)	% Staff having a 4-year degree or higher (437)	% Staff Board of Education teachers (413)	Coordinator turnover rate (405)	Counselor absentee rate (478)	Ratio of children to staff (437)	Extent staff uses VY Manual (437)	Mean number of days at program (478)
Mean math scale score 99-00	1.000																
Mean math scale score 98-99	.834**	1.000															
School average daily attendance 98-99	.442**	.383**	1.000														
Mean Age	-.247**	-.160**	-.088	1.000													
% Free or reduced price lunch	-.006	.028	-.156**	-.039	1.000												
% African-American	-.244**	-.301**	-.133**	-.067	-.080	1.000											
% Hispanic	-.189**	-.231**	.045	.297**	.005	-.551**	1.000										
% Recent Immigrant	-.132**	-.294**	.152**	.136**	-.257**	.026	.280*	1.000									
% Female staff	.009	.075	.008	.146**	.269**	-.044	-.055	-.200**	1.000								
% Staff under 30 years old	-.198**	.232**	.145**	.032	-.040	-.020	-.102*	-.050	-.153**	1.000							
% Staff having a 4-year degree or higher	.099*	-.021	-.183**	.006	-.067	.014	.219**	-.010	-.053	.068	1.000						
% Staff Board of Education teachers	.022	-.114*	.178**	.030	-.490**	.182**	.141**	.454**	-.439**	.106*	.105*	1.000					
Coordinator turnover rate	-.001	.016	-.006	.020	.103*	.129**	-.148**	-.087	-.074	.294**	.176**	.141**	1.000				
Counselor absentee rate	-.234**	-.119**	-.376**	.258**	-.008	-.133**	.100*	-.084	-.058	.438**	.224**	.079	.161**	1.000			
Ratio of children to staff	-.154**	-.111*	.091	.011	.020	.106*	-.029	-.038	-.120*	-.100*	-.104*	.055	.222**	-.241**	1.000		
Extent staff uses VY Manual	.147**	.063	.193**	.050	.023	-.105*	.153**	.504**	.015	.173**	-.067	.154**	.049	.132**	-.277**	1.000	
Mean number of days at program	.324**	.227**	.295**	-.078	-.121**	.008	.057	-.022	-.056	-.098*	-.350**	-.078	-.088	-.488**	-.060	.077	1.000