The Impact of City Connects

Annual Report 2010

CITYCONNECTS
Optimized Student Support

BOSTON COLLEGE CENTER FOR
OPTIMIZED STUDENT SUPPORT

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Acknowledgements

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Introduction

City Connects (CCNX), formerly Boston Connects, began in 2001 in response to the difficult problem that out-of-school factors seriously impede students' ability to benefit from instruction in schools with high rates of poverty.[1] Schools cannot close the achievement gap without a systemic approach to addressing barriers to learning. At the same time, they do not have the capacity to provide the services and enrichment opportunities necessary to enable students to be successful.

To address these out-of-school factors that impede learning, we designed CCNX. The mission of CCNX is to have children engage and learn in school by connecting each child with the tailored set of prevention, intervention and enrichment services he or she needs to thrive. To accomplish this mission, CCNX relies on the rich services and enrichments provided by district programs and community agencies. To link schools and community agencies, CCNX has developed a school-based infrastructure that coordinates comprehensive supports for learning and healthy development. The intervention described in this report is designed for elementary school students. We are currently adapting the model for early childhood and for middle and high school students. We are also following the elementary school children once they leave the intervention, into middle school and high school.

This report is an abridged version of the quantitative and qualitative outcomes of the City Connects ongoing evaluation. Our appendices for 2009-2010 present more detailed information about the City Connects intervention, its phased rollout in two Boston Public School (BPS) clusters, and the demographics of the schools involved. The full appendices also describe in detail the data sources and methodologies employed and the full results of the quantitative and qualitative analyses of those data.

This summary describes the analyses we conducted in the academic year 2009-2010. Quantitative analyses drew on a rich variety of sources, including report card scores, state test scores, student and teacher surveys, and publicly available demographic data. Because quantitative data from the Boston Public Schools and the state do not become available until fall of the following year (in this case, Fall 2010), some of the quantitative analyses are based on data from 2008-2009. In order to supplement and illuminate the quantitative data, CCNX also rigorously analyzed qualitative data from key participants at the heart of the intervention:

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1 See Rothstein 2010; Berliner 2009; and Walsh & Brabeck 2005.

teachers, principals, and CCNX staff. Qualitative data were gathered and analyzed in academic year 2009-2010.

We begin with a short description of the context in which CCNX works. Then we briefly describe how urban poverty creates out-of-school factors that impact student development and learning. Next, we describe current approaches to student support and how they compare with "best practices." Then we briefly outline the City Connects intervention. Next, we present quantitative and qualitative findings on: 1) the impact of CCNX on academic achievement; 2) the impact of CCNX on factors related to thriving, school success, and life chances. Finally, we present data on the impact of CCNX on principals, teachers, and community agencies.

Context

City of Boston context

Characteristics of the City of Boston, its public schools, and the City Connects (CCNX) schools are important to interpreting and understanding the challenges CCNX students face and the impact of the intervention. We begin with an overview of Boston to provide a description of the context in which City Connects currently operates. Next, we describe characteristics of student participants and of the schools in City Connects.

Many Boston residents experience social and economic disadvantage, school children even more so than the population as a whole. In 2009, about 60% of all Boston residents were white, while only 13% of the school children were white; 26% of Boston residents were African American, while 37% of the school children were African American; and 16% of Boston residents were Hispanic /Latino (of any race), compared to 40% of the school children. About 25% of the city's population was foreign born and 34% spoke a language other than English at home. In the Boston schools, English was not the first language for 39% of students in 2009, and 20% of school children were classified as limited English proficiency.

In 2009, the poverty rate in Boston was 17% overall, but 22% for Boston residents with children under 18. [2] That same year, 15% of Boston residents received food stamps/SNAP benefits, while 76% of BPS students qualified for free or reduced lunch with family incomes at or below 185% of the poverty level. Poverty is also evidenced in growing rates of family homelessness. The Boston Homeless Census showed that the number of families living in emergency shelters or transitional housing jumped 22%

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2   American Community Survey, 2010.

that is, from 3,175 to 3,870 *families*, from 2007 to 2008, while the number of *children* living without a home increased 24% over the same period.

Boston Public Schools context

As described below, City Connects was implemented in eleven Boston Public Schools in 2009-10. It is important to note that Boston schools operate under a "controlled choice" plan of student assignment; families select and rank-order the schools they would like their children to attend. When demand exceeds supply, a system involving school proximity, school-based siblings, and a random selection number goes into play. Table 1 presents a summary of elementary school (grades K to 5) student characteristics for Boston Public Schools, City Connects schools, and our comparison schools during school year 2009-2010.

Table 1. Boston, City Connects, and comparison elementary school student characteristics, 2009-10

	Boston Public Schools	Pilot Schools	Charter Schools	Comparison Schools	City Connects
% Female	47.9	48.0	51.8	48.6	48.1
% Race/ Ethnicity					
Black	34.2	33.5	61.4	35.6	26.2
White	11.8	16.1	8.8	12.2	9.8
Asian	7.7	3.1	3.6	10.7	18.5
Hispanic	43.5	44.7	23.0	38.8	42.7
Multi-Race Non-Hispanic/Other	2.7	2.6	3.2	2.8	2.7
% First Language Not English	39.5	29.2	16.8	39.5	51.1
% Limited English Proficiency	24.9	18.6	3.9	14.6	24.0
Poverty: Eligible for Lunch Subsidy					
Reduced School Lunch	8.4	7.6	17.0	8.2	8.6
Free School Lunch	73.2	61.8	56.2	75.6	73.3
% Special Education	18.4	19.0	10.5	19.0	19.8
Mobility: % Attending Same School	84.5	89.6	96.1	87.0	89.0
Average Number of School Absences	10.6	10.3	7.3	9.5	9.0
Average Personal Crime Risk Index (SD) for Students' Home Zip Code*				316.8 (33.9)	313.6 (53.8)
Average Personal Crime Risk Index (SD) for Students' School Zip Code*				324.7 (24.9)	359.5 (83.8)
Average Property Crime Risk Index (SD) for Students' Home Zip Code*				182.1 (25.3)	159.2 (41.9)
Average Property Crime Risk Index (SD) for Students' School Zip Code*				189.4 (14.6)	155.7 (50.5)

Source: Massachusetts Department of Education enrollment data; Boston Public Schools student data for 2009-2010.

* Source: FBI's Uniform Crime Report (UCR) via OnBoard Informatics, onboardinformatics.com.

Table 1 shows that CCNX and comparison school students are similar across several characteristics, including gender, special education status, and poverty, mobility, and school attendance rates. However, CCNX students are more likely to be Asian than both BPS and comparison students, and less likely to be African American or White. (One of the City Connects elementary schools is located in a neighborhood with a high proportion of Cantonese-speaking residents and enrolls a high percentage of Asian students). City Connects has significantly more students for whom English is not the first language relative to all other school categories. Similarly, more CCNX than comparison students are designated as being limited in English proficiency. Pilot and charter schools include fewer students who are eligible for free- or reduced-price lunch, are English language learners or have special educational needs than BPS, comparison, and CCNX schools.

Unsafe neighborhoods can undermine children's sense of well-being and safety. Indices have been developed to estimate the likelihood of experiencing crime in specific neighborhoods compared to other locations in the United States[3]. We studied personal crime risk (representing more severe infractions such as rape, murder, assault, and robbery), and property crime risk (burglary, larceny, and motor vehicle theft). Nearly all CCNX and comparison school students come from home environments and go to school in locations for which all categories of crime is much more common than in the typical U.S. neighborhood.

- High risk for personal crime is especially notable in the CCNX and comparison school student contexts, with a **maximum value in one neighborhood equivalent to nearly five times the national rate of personal crimes**.

- CCNX and comparison school students are similar in the personal crime for their home neighborhood context, but CCNX schools are located in areas with higher rates of personal crime than comparison school students.

- Comparison school students' home and school neighborhoods present higher rates of property crime than CCNX.

3 For all of these measures, a score of 100 represents the national average and scores for a particular neighborhood can be interpreted as representing a risk level higher or lower than the U.S. overall (e.g., a score of 200 indicates twice the national average risk and a 50 indicates half the national risk). Risk indices are based on seven years of crime reports from the FBI's Uniform Crime Report (UCR) and are developed by OnBoard Informatics.

The Impact of Urban Poverty on Children's Development and Learning

The pervasive effects of poverty on academic achievement underscore the importance of addressing out-of-school factors in *any education reform effort*.[4] Poverty impacts children's achievement and growth in at least three noteworthy ways: 1) **limits investment**—a family's ability to invest money, time, and energy in fostering children's growth (e.g., less time to read and talk with their children); 2) **creates pervasive stress** within families and their neighborhoods—this undermines children's sense of well-being and safety (e.g., inconsistent parenting behavior or increased exposure to community violence that may undermine children's self-regulation and social-emotional stability); 3) **contributes to chaotic life**—unpredictable support systems (e.g., less-reliable transportation, municipal services, and businesses).

For children living in poverty, the impact of out-of-school factors is clearly evident in their ability to succeed in school. Limited resources, stress, and the chaos of poverty result in poor attendance, high mobility, social-emotional dysfunction, a lack of readiness for school, and limited cultural capital to understand schools as institutions.[5] Rothstein describes the impact on achievement of out-of-school factors relative to in-school factors: "Decades of social science research have demonstrated that differences in the quality of schools can explain about one-third of the variation in student achievement. *But the other two-thirds is attributable to non-school factors*" (emphasis added).[6] Figure 1 illustrates that academic success is predicated on children's readiness to engage and thrive in school. It also shows the overlapping impact of the various domains of development on children's readiness to learn and thrive.

Figure 1. Academic success is predicated on students' readiness to engage and thrive in school

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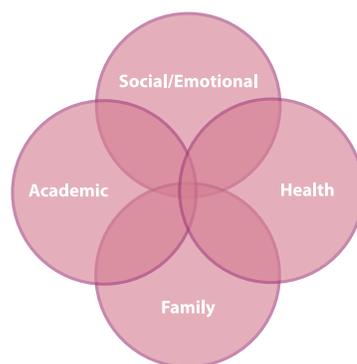
4   See Walsh & Murphy 2003, Berliner 2009, and Rothstein 2010.
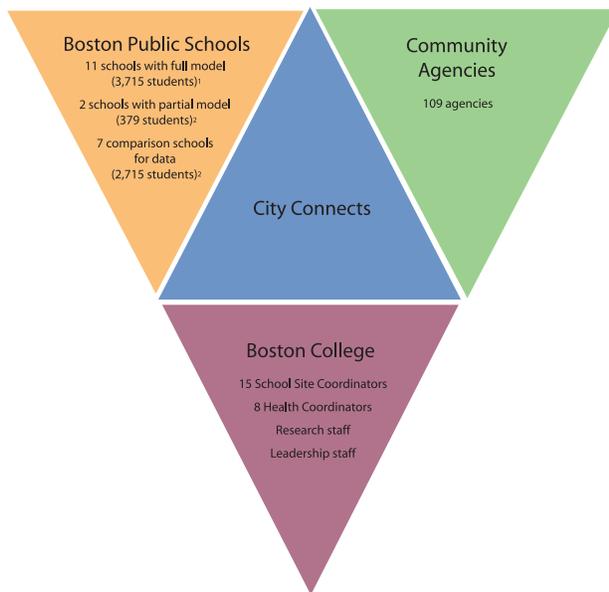5   Dearing 2008.
6   Rothstein 2010, p. 1.

Current Models and Best Practice in Student Support

Many schools presently are unable to respond to the pressing challenges facing students' out-of-school lives. Student support structures are the product of an earlier time, a different set of needs, and a less diverse demographic. The typical approach to student support in most schools: 1) is fragmented and idiosyncratic, serving a small number of high-need students; 2) does not address the full range of needs, focusing mainly on risk; 3) does not collect data on the effectiveness of the supports offered students; and 4) in practice, does not operate as a core function of the school, and as a result, seeks minimal teacher engagement.[7]

Grounded in research on child development and the need that it be implemented as a core function of schools, optimized student support has six identifying characteristics. It is: 1) **customized** to the unique strengths, needs, and interests of each student; 2) **comprehensive**, serving the academic, social/emotional, health, and family needs of all students from a variety of cultural and ethnic backgrounds; 3) **coordinated** among families, schools, and community agencies; 4) **cost-effective to schools** by leveraging the resources provided by community agencies; 5) **continuously monitored for effectiveness** through collecting and analyzing data to evaluate and improve service delivery and student outcomes; and 6) **implemented** in all sites with fidelity and oversight.

Figure 2. The CCNX partnership

Boston Public Schools
11 schools with full model
(3,715 students)[1]
2 schools with partial model
(379 students)[2]
7 comparison schools
for data
(2,715 students)[2]

Community Agencies
109 agencies

City Connects

Boston College
15 School Site Coordinators
8 Health Coordinators
Research staff
Leadership staff

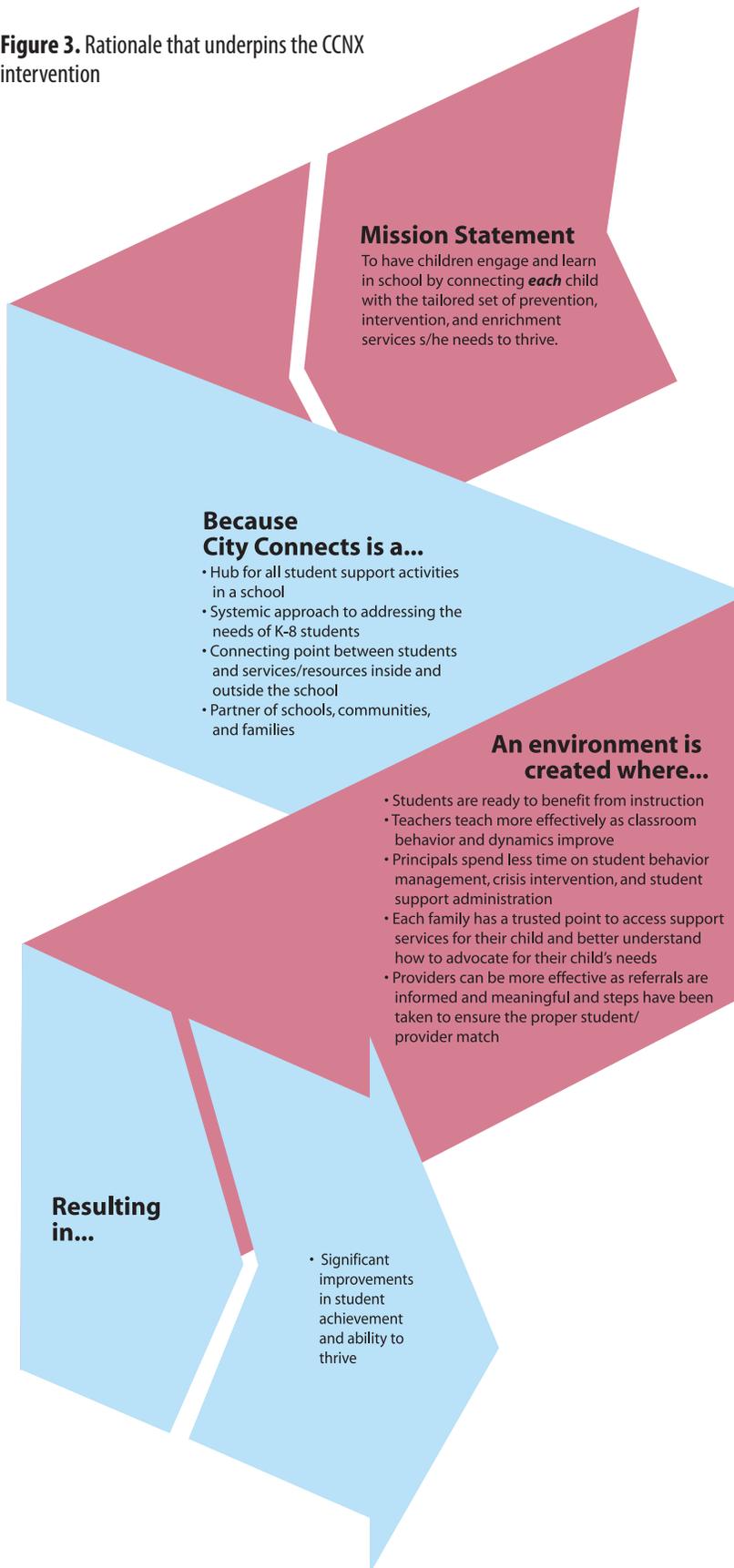# The City Connects Model

Partners and Rationale

Built on the best practices described above, City Connects is a partnership delivering optimized student support. Figure 2 shows the three partners - the Boston Public Schools, a wide range of community agencies, and Boston College. Boston College is the nerve center of City Connects. BC developed and delivers the City Connects intervention and is the home of the leadership, implementation, and research and evaluation teams.

1 Data source: CCNX Student Support Information System database, 2009-10.
2 Data source: Massachusetts Department of Education enrollment data, 2009-10.

7   Walsh & DePaul 2008.

Figure 3. Rationale that underpins the CCNX intervention

Mission Statement

To have children engage and learn in school by connecting *each* child with the tailored set of prevention, intervention, and enrichment services s/he needs to thrive.

Because City Connects is a...

- Hub for all student support activities in a school
- Systemic approach to addressing the needs of K-8 students
- Connecting point between students and services/resources inside and outside the school
- Partner of schools, communities, and families

An environment is created where...

- Students are ready to benefit from instruction
- Teachers teach more effectively as classroom behavior and dynamics improve
- Principals spend less time on student behavior management, crisis intervention, and student support administration
- Each family has a trusted point to access support services for their child and better understand how to advocate for their child's needs
- Providers can be more effective as referrals are informed and meaningful and steps have been taken to ensure the proper student/provider match

Resulting in...

- Significant improvements in student achievement and ability to thrive

History of the City Connects intervention

In the academic year 2001-02, CCNX was initially implemented in six schools located in one geographic neighborhood (BPS Cluster 5, which includes Allston, Brighton, and Mission Hill sections of the city). An external funder, who provided a planning grant in 1999, stipulated that development and design of CCNX take place in Cluster 5. In 2007, the district stipulated that expansion of CCNX occur in BPS Cluster 2 (the North End, South End, and Lower Roxbury), adding five new schools. At that time, seven schools from other BPS clusters were randomly chosen to serve as comparison schools. CCNX and comparison schools are our "legacy schools".[8] By this we mean that the students from these schools are being followed longitudinally from kindergarten through high school to assess the long term impact of the CCNX intervention. Figure 4 shows the map of Boston with the locations of the CCNX and comparison schools. In September of the academic year 2010-11, at the invitation of the district, CCNX expanded to seven "turnaround" schools—that is, schools officially designated by No Child Left Behind (NCLB) standards as in the category of "Restructuring." Next year's Annual Report will focus on these and our "legacy schools."

"City Connects has been in partnership with us since its beginning. We have found that the schools that have a City Connects Coordinator easier to work with and the students are better [served]."

—Community agency partner

8   It is important to note that during the history of CCNX implementation, there have been several school closings and mergers, which is a common fact of life in any urban school district.

Figure 4. Location of City Connects schools

East Boston

Charlestown

Eliot School

Beacon
Hill

North End

Financial
District

Gardner
School

Allston

Horace Mann
School

Jackson-Mann
School

Back Bay

Quincy School

Winship School

Edison School

Fenway

Blackstone School

Brighton

South Boston

Farragut School

South End

Tobin School

Mission
Hill

Mission K-8 School

Mason School

Emerson School

Jamaica Plain

Roxbury

Dorchester

Mattapan

Roslindale

Hyde Park

West Roxbury

Description of the City Connects intervention

CCNX connects each and every student with the tailored set of prevention, intervention, and enrichment services that s/he needs to succeed in school. There are six key components of the model:

School Site Coordinator. At the core of the intervention is a full-time School Site Coordinator (SSC) in each school, trained as a school counselor or school social worker, who connects students to a customized set of services through collaboration with families, teachers, school staff, and community agencies. The ratio of SSC to student population is 1:400. The SSC follows standardized practices codified in the CCNX Practice Manual.

Whole Class Review. The SSC works with each classroom teacher to develop a customized support plan for every student. There are five aspects of the Whole Class Review (WCR): 1) identifying the strengths and needs of each student across four domains (academic, social/emotional/behavioral, health, and family); 2) identifying and locating appropriate school- and/or community-based services and enrichments; 3) establishing the connection between these service providers and individual children and their families; 4) documenting and tracking the delivery of the service, and 5) following up to ensure appropriateness of fit.

As they conduct the WCR, at the most general level, the teacher and SSC group the students in a class into three tiers: strengths and minimal risk (Tier 1); strengths and mild to moderate risk (Tier 2); or strengths and severe risk (Tier 3). It should be noted that, in 2009-10, for the first time, in response to teachers' requests, Tier 2 was divided into two levels: 2a (mild risk) and 2b (moderate risk). In the 2009-10 school year, 94% of students received a WCR. The number of students in each tier is illustrated in Figure 5.[9]
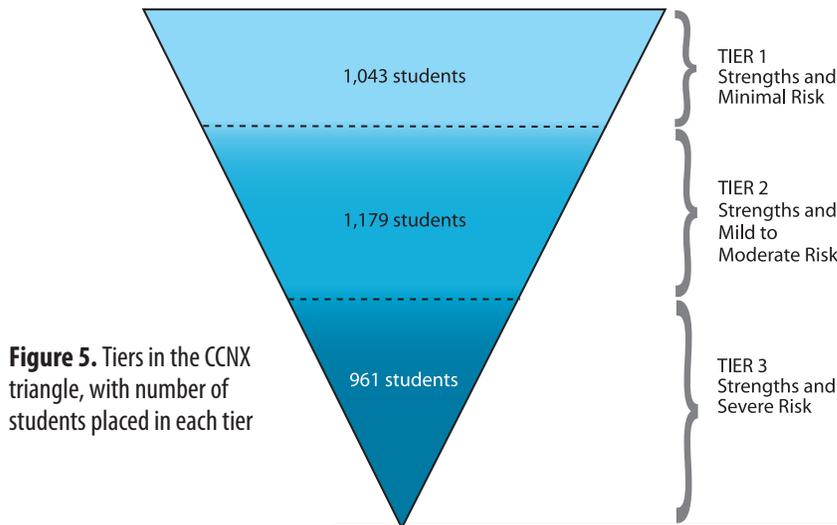

Figure 5. Tiers in the CCNX triangle, with number of students placed in each tier

1,043 students — TIER 1 Strengths and Minimal Risk

1,179 students — TIER 2 Strengths and Mild to Moderate Risk

961 students — TIER 3 Strengths and Severe Risk

9   In the past, CCNX has presented data presented in three tiers. To maintain some comparability with past reports that discussed the number and types of services delivery to students in the 3 different tiers, the 4 tiers from the 2009-10 school year needed to be collapsed into 3 tiers. We accomplished this with a statistical model documented in our appendices.

Individual Student Review. Students identified as having intensive needs*, at any point during the school year*, receive an Individual Student Review (ISR). This review is independent and distinct from a Special Education referral. A wider team of professionals discuss and develop specific measureable goals and strategies for the student. The ISR is conducted by the student support team—an existing school structure that can include school psychologists, teachers, principals, nurses, and occasional community agency staff members and that is typically led by the SSC. The number of ISRs in 2009-10 was 242.

Community agency partnerships. A critical aspect of the role of the SSC is developing and maintaining partnerships with community agencies and institutions. These relationships are formalized through a CCNX Community Resource Advisory Board, comprised of selected citywide agency leaders, and a CCNX Resource Advisory Council, which includes selected agency representatives working at the local neighborhood level. In 2009-10, City Connects worked with 208 community partners.

Connecting students to services, tracking, and following up. During and after the conversations with teachers, school staff and leaders, and community agency representatives, CCNX School Site Coordinators connect each student to the particular enrichment and service programs that best meet his or her strengths and needs. To aid with this process, and to permit streamlined tracking and follow-up, CCNX has developed a proprietary Web-based database, Student Support Information System (SSIS).   The SSIS allows for secure collection of data on student reviews, individual student plans, service referrals, and providers (both school-based and community agencies) who deliver services. SSIS data are used for three purposes: 1) record-keeping at the individual and school level; 2) monitoring and evaluating the implementation of the intervention throughout the school year; and 3) conducting research on the effectiveness of the intervention.

The tailoring of services is accomplished through different combinations of quantity and type of services from Figure 6, resulting in a unique set of services for each student. *For any single student, regardless of tier, the tailored set might include a combination of prevention and enrichment, early intervention, and/or intensive services.*

"Whole Class Review brings the teachers' attention to every student in their class. It is a focused time to review a student's history … and discuss plans to help students progress. It also gives teachers the sense that there is additional support for the work they're doing with their students."

—Principal

Figure 6. Total number of services delivered to students, by service category

CATEGORY 1 (Prevention and Enrichment)			
NBF Health Program	2421	34	18
NBF Social Competence Program	2421	34	18
Enrichments:			
Arts	1122	16	9
Sports/Physical Activity	269	4	2
Academic	476	7	4
Youth Development	312	4	2
Before School Programs	133	2	1
Category Total	**7154**	**100**	**54**
CATEGORY 1.5			
After School Program	817	58	6
Vacation/Summer Program	591	42	4
Category Total	**1408**	**100**	**11**
CATEGORY 2 (Early Intervention)			
Mentoring	734	33	6
Academic Support	860	39	7
Psycho-Social Group	230	10	2
Behavior Plan/Special Observation	215	10	2
Classroom-based Interventions	159	7	1
Category Total	**2198**	**100**	**17**
CATEGORY 2.5			
Tutoring	547	39	4
Family Outreach/Intervention	723	51	5
Supplemental Educational Services (SES)	147	10	1
Category Total	**1417**	**100**	**11**
CATEGORY 3 (Intensive/ Crisis Intervention)			
Mental Health Counseling	318	31	2
Daily Check-In with SSCs	160	16	1
SPED Eval/Screening	89	9	1
Health/Medical	293	29	2
Crisis/Violence Intervention	134	13	1
Family Counseling	25	2	0
Category Total	**1019**	**100**	**8**
TOTAL # All Services..............................	**13,196**	**100**	**100**

Table 2 and Figure 7 present the distribution by tier of students receiving different numbers of services.
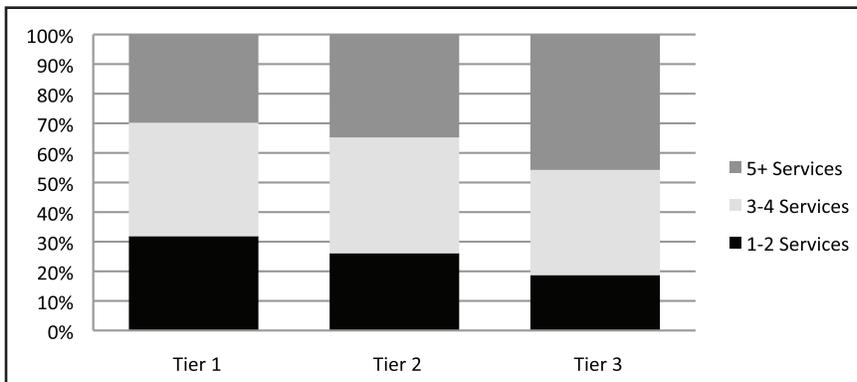
Table 2. Proportion of students in each tier receiving different numbers of services, grades K-5

	N	Mean*	St. Dev.	1-2 Services		3-4 Services		5+ Services		Total N Receiving Services	Total % Receiving Services
				#	%	#	%	#	%		
Tier 1	1043	3.22	2.31	285	32%	343	38%	266	30%	894	86%
Tier 2	1179	3.76	2.49	284	26%	425	39%	378	35%	1087	92%
Tier 3	961	4.36	2.53	172	19%	326	36%	420	46%	918	96%
Total	3183	3.76	2.49	741	23%	1094	34%	1064	34%	2899	91%

All mean differences statistically significant at alpha .05

Table 2 shows first that the mean number of services per student is smallest at Tier 1 and largest at Tier 3, and the differences between these means for Tiers 1 through 3 are all statistically significant. Second, as shown in both Table 2 and Figure 7, the proportion of students receiving 1-2 services is highest for Tier 1 students and lowest for Tier 3. Third, the corresponding proportions for 5 or more services are the mirror image: the proportion of students receiving 5 or more services is smallest for Tier 1 and largest for Tier 3.[10]

Figure 7. Proportion of students in each tier receiving 1-2, 3-4, or 5 or more services

"Our ability to have programs within the school is a direct result of having a site coordinator who can help arrange the details and can identify students who may need the services."
—Community agency partner

Providing specific services within the school. In response to specific needs, School Site Coordinators provide the following services within the school and classrooms: 1) leading small social skills groups on a time-limited basis that address focused topics such as making friends, bullying, and healthy eating; 2) crisis intervention for individual or small groups of children; 3) family outreach and support addressing specific family needs

10 The total N for Table 2 is smaller than the total number of students in CCNX schools because the table does not include (i) students who entered CCNX schools after the Whole Class Review had been completed, and (ii) some students whose data lacked sufficient information to include them in the collapsing of Tiers 2a and 2b.

that are impacting the child's performance in school. Data from weekly project updates showed that over the course of the year, 93% of School Site Coordinators indicated that they provided behavior interventions at some point during the school year.

Fidelity of implementation

In 2009-10, the CCNX program team developed checklists of tasks detailing whether School Site Coordinators had implemented key procedures required in the CCNX Practice Manual. In an effort to start measuring and reporting on fidelity, CCNX is piloting the use of some of the SSC self-report Checklists items as indicators of fidelity to the model. Currently, a two-year analysis of checklist data is underway that will inform the development of a more comprehensive fidelity and quality monitoring system. The Whole Class Review checklist data strongly support fidelity to the CCNX model. Highlights include:

- 100% of SSCs developed a WCR schedule with meetings beginning in October and ending in January that was shared with the principal. [11]

- 91% of SSCs held pre-WCR meetings with teachers where the whole-child orientation of the WCR, its emphasis on strengths and needs across the four domains, and accompanying forms were explained to teachers.

- 100% of SSCs facilitated and documented WCR discussions of every student, focusing on their strengths and needs in the four domains.

- 100% of SSCs identified and documented services needed and what follow-up was necessary for each student.

- 92% of SSCs determined and documented which Tier 3 students were appropriate for referral to the Student Support Team meeting for an Individual Student Review.

- 100% of SSCs followed up on referral progress and, if applicable, documented whether the students had started receiving services.

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11 The calculations included the number of SSCs that responded "Yes" or "No" to each item. The counts exclude SSCs with missing data or ambiguous answers.

Impact on Students

City Connects helps students achieve academically

A range of evidence demonstrates that City Connects positively impacts student academic achievement. This section presents effects on report card scores and statewide achievement tests.

Report card scores: academic outcomes

We begin with report card scores. Table 3 presents the results of analyses of mean report card scores for CCNX and comparison school students (Reading, Writing and Mathematics) without adjustment for demographic variables.[12]

Table 3. Report card mean scores (standard deviations) in Reading, Writing, and Math: CCNX vs. comparison students

Report Card Subject (Min-Max possible score)	Grade 3		Grade 4		Grade 5	
	CCNX (N=2277)	**Comparison** (N=3492)	**CCNX** (N=2030)	**Comparison** (N=3171)	**CCNX** (N=1696)	**Comparison** (N=2530)
Reading (3-12)	8.52 (2.25)	8.12* (2.28)	8.25 (2.22)	8.01* (2.19)	8.82 (2.12)	8.42* (2.17)
Writing (4-16)	10.34 (2.62)	10.08* (2.65)	10.47 (2.62)	10.23* (2.60)	11.22 (2.62)	10.76* (2.64)
Mathematics (3-12)	7.83 (2.41)	7.59* (2.33)	7.74 (2.37)	7.30* (2.26)	8.08 (2.41)	7.60* (2.36)

SOURCE: Boston Public Schools report card data, 2000-2009.

* Mean scores significantly different, p<.05

In every academic subject, at every grade, CCNX students achieve significantly higher mean report card scores than comparison school students.

We turn next to analyses of report card scores that are adjusted for relevant demographic variables. We carried out multiple regression analyses in which we controlled for student background and demographic characteristics (i.e., gender, race, bilingual status, special needs status, eligibility for free- or reduced-price lunch, number of school absences, number of school transitions, and number of retention in grade episodes as covariates) and applied a technique called the generalized propensity

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12 The sample includes all students in cohorts 2000-2006 (e.g., who were in grade 1 during one of those years) who reached the outcome grade (i.e., grade 3, 4 or 5) being analyzed and have report card data available. Report card scores here represent a sum of multiple teacher-assigned sub-scores in that subject, e.g. three in Reading and Mathematics and four in Writing.

score method (PSM).[13] We evaluated the effects on outcomes using both the experience of ever being in a CCNX school and the number of years a student was in CCNX.

Table 4 presents adjusted mean report card scores for CCNX and comparison school students from these models.

Table 4. Adjusted report card mean scores (standard errors) in Reading, Writing, and Math: CCNX vs. comparison students

Report Card Subject (Min-Max possible score)	Grade 3		Grade 4		Grade 5	
	CCNX (N=1591)	Comparison (N=2190)	CCNX (N=1309)	Comparison (N=1830)	CCNX (N=982)	Comparison (N=1288)
Reading (3-12)	8.50 (1.10)	8.00* (1.06)	8.25 (1.06)	7.84* (1.00)	8.79 (1.19)	8.39* (1.00)
Writing (4-16)	10.35 (1.43)	9.95 (1.33)	10.46 (1.22)	10.08* (1.09)	11.11 (1.59)	10.73 (1.32)
Mathematics (3-12)	7.84 (1.15)	7.47ˣ (1.05)	7.68 (1.15)	7.19* (0.98)	8.02 (1.37)	7.52* (1.10)

SOURCE: Boston Public Schools report card data, 2000-2009.

* Regression coefficient for maximum or average number of years in CCNX significant in propensity-weighted and standard error-adjusted models, p<.05

ˣ Regression coefficient for maximum number of years in CCNX significant, p<.10

> Models that control for student demographic characteristics and include propensity matching weights (representing a conservative estimate of treatment effect) demonstrate that students in CCNX schools achieve higher report card scores than comparison students for grades 3, 4, and 5 in Reading and Math and grade 4 in Writing.

Differences in adjusted mean scores can be converted to standardized effect size units (Hedges' G) to assist in comparing the relative magnitude of the difference between CCNX and comparison students. Standardized effect sizes present the *size* of the difference between CCNX and comparison school students in standard deviation units, and they are helpful for comparing how large the difference is between the two groups across different measures, such as report card scores or MCAS scores, in different subjects. Effect sizes greater that zero here indicate that *CCNX students scored higher than comparsion-school students*. Effect sizes less

---

13 See Imbens 2000. Using propensity score weights helps to minimize possible study selection effects by adjusting for the probability of being in CCNX given baseline observed background variables (race, gender, eligibility for free- or reduced-price school lunch, bilingual status, special needs status, school mobility, distance from home to school, and baseline Reading, Math, Writing, Behavior, and Work Habits report card scores were used to calculate propensity score weights). We also adjusted standard errors for school-level clustering effects.

than zero indicate that *comparison-school students scored higher than CCNX students.*

Figure 8 presents effect sizes based on adjusted means[14] for the CCNX treatment effect on elementary school report card scores for students who have been in CCNX schools since starting school.

Figure 8. Report card adjusted mean differences, Reading, Writing, and Math, Maximum # Years in CCNX vs. comparison students (effect size units)
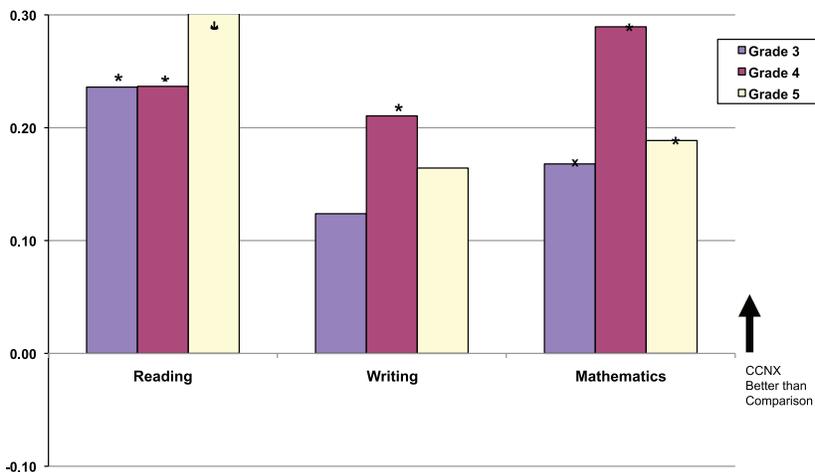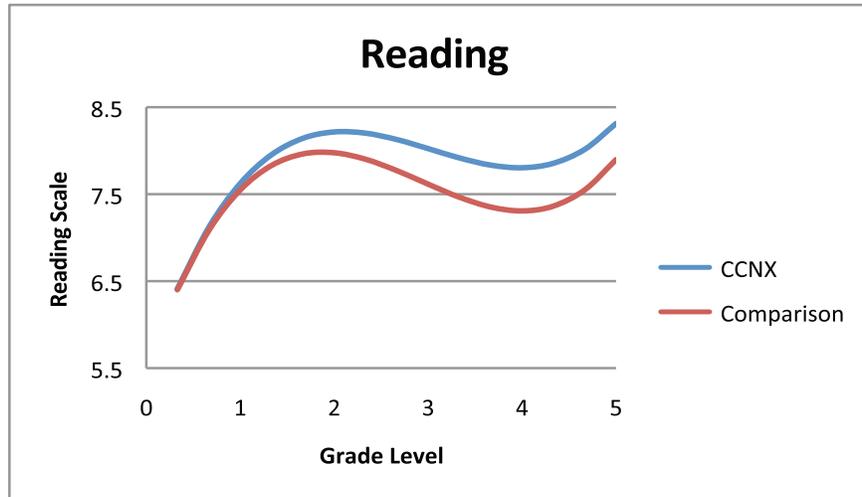

* p<.05, maximum or average # years in CCNX in propensity-score-weighted regression models

As Figure 8 shows, CCNX has higher adjusted report card scores in all subjects, with effect sizes ranging from 0.12 in grade 3 Writing to 0.30 in grade 5 Reading.

In addition to these comparisons of scores at particular grades, we analyzed report card scores longitudinally. For Reading, Writing, and Math, the beneficial effects of CCNX change students' growth trajectories soon after they enter a CCNX school, leading their academic achievement to surpass that of their counterparts in comparison schools.

14 Calculated as the difference between CCNX and Comparison group adjusted mean score for cases at the average level of model covariates, divided by the unadjusted pooled standard deviation for the total sample, per WWC Procedures and Standards Handbook Version 2.0: Appendix B - Effect Size Computations, http://ies.ed.gov/ncee/wwc/references/idocviewer/Doc.aspx?docId=19&tocId=8

Figure 9. Longitudinal change in Reading report card scores, CCNX vs. comparison students

Reading
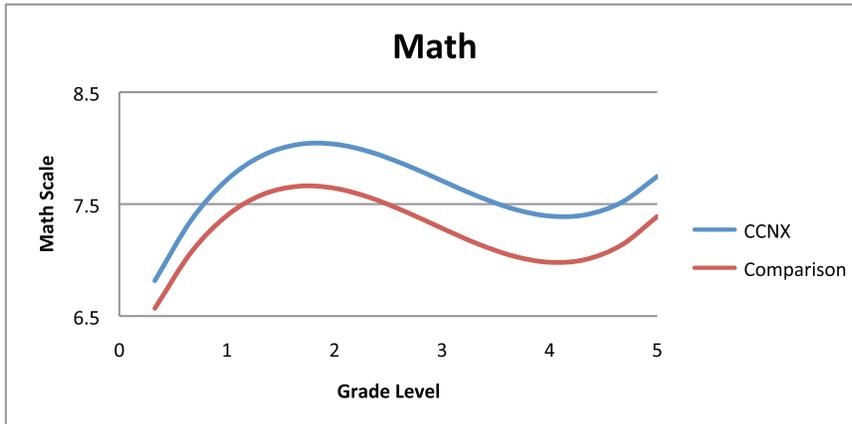
Reading Scale vs *Grade Level*

CCNX
Comparison

Data source: Boston Public Schools report card data, 2001-02 through Fall 2009-10.

**Figure 10.** Longitudinal change in Writing report card scores, CCNX vs. comparison students

Writing

Writing Scale vs *Grade Level*

CCNX
Comparison
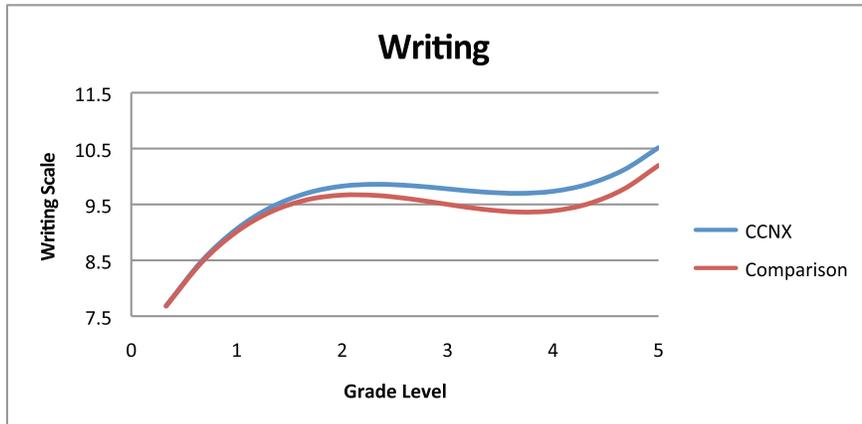
Data source: Boston Public Schools report card data, 2001-02 through Fall 2009-10.

Figure 11. Longitudinal change in Math report card scores, BNCX vs. comparison students

Math

Data source: Boston Public Schools report card data, 2001-02 through Fall 2009-10.

Figures 9-11 show the results of growth curve analysis for all three academic subjects for students who entered CCNX in grade 1 and remained in CCNX through grade 5. Within each graph, the blue line shows the trajectory of the CCNX students' report card scores. The red line shows the trajectory of the comparison students' report card scores.

- After their initial entrance into a CCNX school, CCNX students had significantly greater improvement over time in report card outcomes in Reading, Writing, and Math than students who were never in CCNX.

- The comparison and CCNX trajectories starts at the same (or near the same level) in all subjects, but the CCNX trajectory always moves higher by around the end of grade 2. These differences persist through the end of grade 5.

Figure 12 disaggregates the Reading findings by English Language Limited (ELL) status for students enrolled in CCNX for five years and for comparison school students.

Figure 12. Longitudinal change in Reading report card scores, CCNX vs. comparison students, by ELL status

Reading by ELL
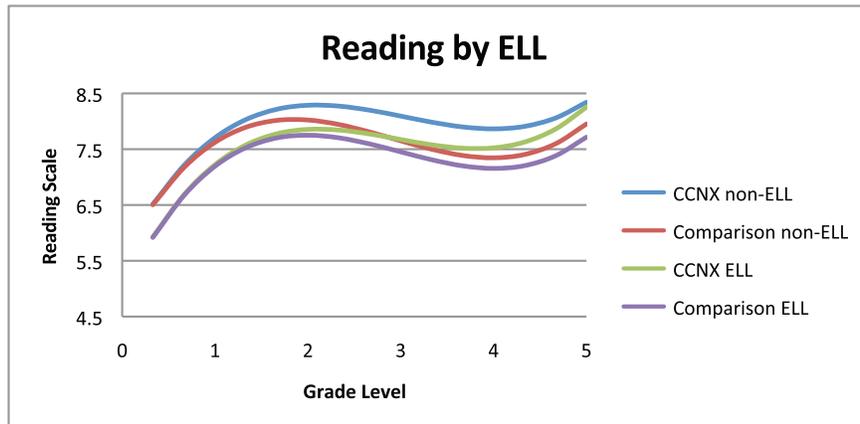
Data source: Boston Public Schools report card data, 2001-02 through Fall 2009-10.

Both ELL and non-ELL students who were in CCNX schools started, on average, with the same scores as their respective comparison students.

- Both ELL and non-ELL students who were continuously in CCNX schools from grades 1 through 5 had significantly greater improvement over time in Reading scores than students who were never in CCNX.

- The effect of CCNX on both Reading and Writing score improvements was largest for ELL students. By third grade, ELL students in City Connects schools demonstrated similar Reading and Writing report card scores to those proficient in English in the comparison schools, thereby eliminating the achievement gap in Reading and Writing between ELL and non-ELL students.

In sum, report card scores for academic achievement are consistently higher in elementary school for CCNX than for comparison school students. In light of the fact that report card scores are often criticized as outcome measures in favor of standardized test scores (e.g., fears of teacher reporting biases), it is interesting to note that report card scores and later statewide standardized test scores (Massachusetts Comprehensive Assessment System, or MCAS) scores are correlated. For example, fifth grade Reading report card scores for CCNX students and comparison school students combined are correlated with MCAS English Language

Arts scores at grade 6 (r=.60), grade 7 (r=.55) and grade 8 (r=.53). These correlations underscore the validity of teacher assessments on report cards as measures of student achievement.

As we will see below, MCAS scores in middle school—after the CCNX intervention ends—are in fact significantly higher (for most grades and tests) for students previously enrolled in CCNX than for comparison school students. The association of report card scores and later MCAS scores is likely due to the fact that teachers' evaluations of students on report cards are based on students evidencing learning skills that are critical for success on MCAS tests. Moreover, our results are consistent with the causal hypothesis that the intervention promotes skill-building in elementary school math and reading that eventually translates into middle school benefits on standardized achievement tests. It appears that teachers first recognize important skills that are later detected by middle school MCAS.

Statewide standardized test scores (MCAS)

CCNX has a long-term positive impact on students' statewide test scores. In this section we examine the effects of CCNX on MCAS in English Language Arts (ELA) and Mathematics (Math). MCAS is a series of high-stakes tests administered to all students and used to determine Annual Yearly Progress as part of the No Child Left Behind Act (NCLB). To date, few of our analyses have been able to examine "lagged effects" (i.e. the long term effects of CCNX on student outcomes in middle and upper school). The analysis of middle school MCAS scores provide one opportunity to study lagged effects.

We begin with MCAS scores analyzed without adjustment for demographic variables for CCNX and comparison school students. In unadjusted comparisons of CCNX and comparison student performance on MCAS, the two groups do not significantly differ in elementary school, except for grade 3 Math. Table 5 presents unadjusted mean differences for MCAS ELA and Math standardized raw scores (we also studied MCAS scaled scores, but report results for raw scores as recommended by the Massachusetts Department of Education).

Table 5. MCAS ELA and Math mean scores (standard deviations): CCNX vs. comparison students, elementary school

	Grade 3		Grade 4		Grade 5	
	CCNX (N=2404)	Comparison (N=3547)	CCNX (N=2120)	Comparison (N=3193)	CCNX (N=1570)	Comparison (N=2353)
MCAS ELA Mean (SD)	0.18 (0.94)	0.22 (0.88)	0.28 (0.89)	0.26 (0.86)	0.28 (0.87)	0.27 (0.87)
MCAS Math Mean (SD)	0.24 (0.92)	0.14* (0.89)	0.26 (0.95)	0.24 (0.90)	0.29 (0.96)	0.24 (0.91)

SOURCE: Boston Public Schools data, 2000-2009.

* Mean scores significantly different, p<.05

More differences emerge in middle school. Table 6 presents unadjusted means for CCNX and comparison students in grades 6 to 8. CCNX English Language Arts MCAS scores are significantly higher in grades 6 and 7 and Math scores are higher in grades 6 and 8.

Table 6. MCAS ELA and Math scores (standard deviations): CCNX vs. comparison students, middle school

	Grade 6		Grade 7		Grade 8	
	CCNX (N=1083)	Comparison (N=1662)	CCNX (N=627)	Comparison (N=1176)	CCNX (N=371)	Comparison (N=591)
MCAS ELA Mean (SD)	0.40 (0.86)	0.30* (0.89)	0.44 (0.80)	0.33* (0.84)	0.47 (0.80)	.41 (0.80)
MCAS Math Mean (SD)	0.44 (0.92)	0.30* (0.93)	0.43 (0.95)	0.35 (0.93)	0.53 (0.95)	.38* (0.94)

SOURCE: Boston Public Schools data, 2000-2009.

* Mean scores significantly different, p<.05

We turn next to analyses of MCAS scores that are adjusted for relevant demographic variables. For MCAS scores, we again carried out multiple regression analyses in which we controlled for student background characteristics and included propensity score weights to minimize any baseline differences between CCNX and comparison students. Tables 7 (elementary school) and 8 (middle school) present adjusted mean MCAS scores for CCNX and comparison school students from these models.

Table 7. Adjusted MCAS ELA and Math mean scores (standard errors): CCNX vs. comparison students, elementary school

	Grade 3		Grade 4		Grade 5	
	CCNX (N=2008)	**Comparison** (N=2983)	**CCNX** (N=1720)	**Comparison** (N=2601)	**CCNX** (N=1355)	**Comparison** (N=1934)
MCAS ELA Mean (SE)	0.17 (0.39)	0.20 (0.35)	0.29 (0.48)	0.25 (0.45)	0.32 (0.49)	0.27 (0.45)
MCAS Math Mean (SE)	0.27 (0.45)	0.16 (0.40)	0.27 (0.52)	0.23 (0.47)	0.32 (0.59)	0.27 (0.51)

SOURCE: Boston Public Schools data, 2000-2009.

In the elementary school grades there were no significant differences between CCNX and comparison students in MCAS scores once baseline propensity weights and current student characteristics were taken into account. However, significant differences did emerge by the time CCNX students had left the intervention and were in middle school.

Table 8. Adjusted MCAS ELA and Math mean scores (standard errors): CCNX vs. comparison students, middle school

|	Grade 6		Grade 7		Grade 8	
	CCNX (N=787)	**Comparison** (N=1260)	**CCNX** (N=376)	**Comparison** (N=812)	**CCNX** (N=169)	**Comparison** (N=319)
MCAS ELA Mean (SE)	0.42 (0.47)	0.27x (0.44)	0.45 (0.48)	0.29* (0.48)	0.47 (0.45)	0.30* (0.50)
MCAS Math Mean (SE)	0.48 (0.61)	0.28* (0.56)	0.53 (0.66)	0.33* (0.61)	0.64 (0.60)	0.29* (0.60)

SOURCE: Boston Public Schools data, 2000-2009.

* Regression coefficient for maximum or average number of years in CCNX significant in propensity-weighted and standard error-adjusted models, p<.05

ˣ Regression coefficient for maximum number of years in CCNX significant, p<.10

- Students who had been enrolled in CCNX during elementary school had significantly higher MCAS scores in both English Language Arts and Mathematics in grades 6, 7, and 8, after they had left the intervention.

- Further, the number of years being in CCNX had an additional effect in improving Math MCAS scores in grade 7.

Figure 13 presents the difference between CCNX and comparison student scores in standardized effect size units based on adjusted means[15] for students in CCNX schools since starting school.

Figure 13. MCAS ELA and Math adjusted score adjusted differences, CCNX vs. comparison students (effect size units)
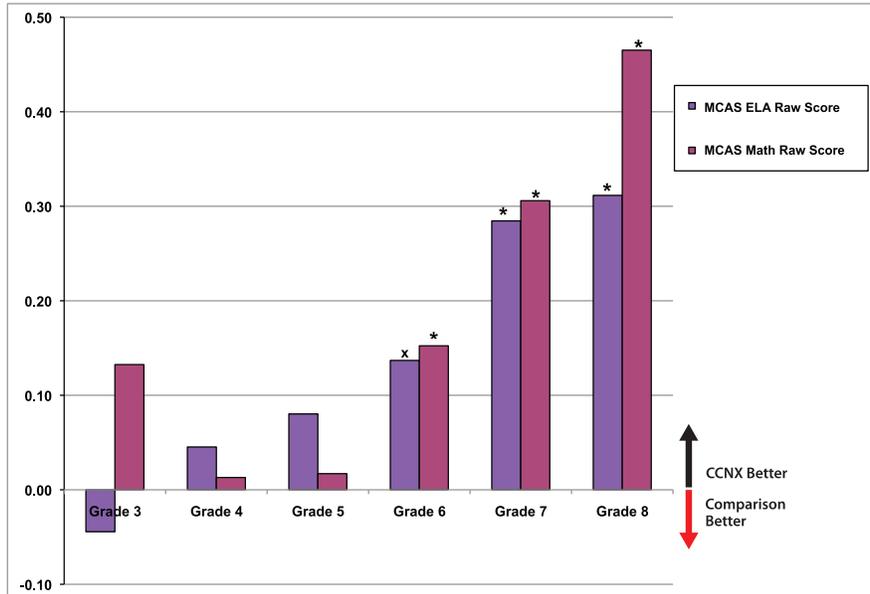
As shown in Figure 13, effect sizes grow over time, and are particularly large in middle school.[16]

The analysis of MCAS mean scores relative to comparison schools yields encouraging results that show positive effects of CCNX. Analysis of scores by **performance level** also provides corroborating positive evidence. Students' MCAS scores are classified into four categories: Advanced, Proficient, Needs Improvement, and Warning/Failing. An analysis comparing the percentage of CCNX students scoring proficient or above in ELA and Math yields the results shown in Figures 14 and 15. Figure 16 shows the percentage of ELL students in CCNX and comparison schools scoring proficient or above on the ELA test, relative to overall statewide scores.

15 Calculated as the difference between CCNX and comparison group adjusted mean score for cases at the average level of model covariates, divided by the unadjusted pooled standard deviation for the total sample, per WWC Procedures and Standards Handbook Version 2.0: Appendix B - Effect Size Computations, http://ies.ed.gov/ncee/wwc/references/idocviewer/Doc.aspx?docId=19&tocId=8

16 Grade 8 results should be interpreted with caution. Sample size was small for grade 8 relative to other grades, primarily because the analysis required participants' grade 2 report card scores; these scores were typically not available electronically when these participants were in grade 2.

Figure 14. Percentage of students scoring at proficient or above, MCAS English Language Arts
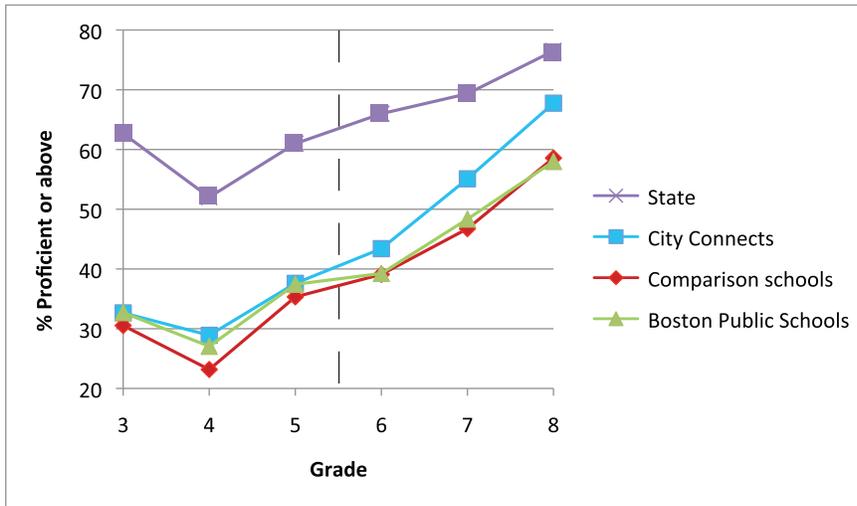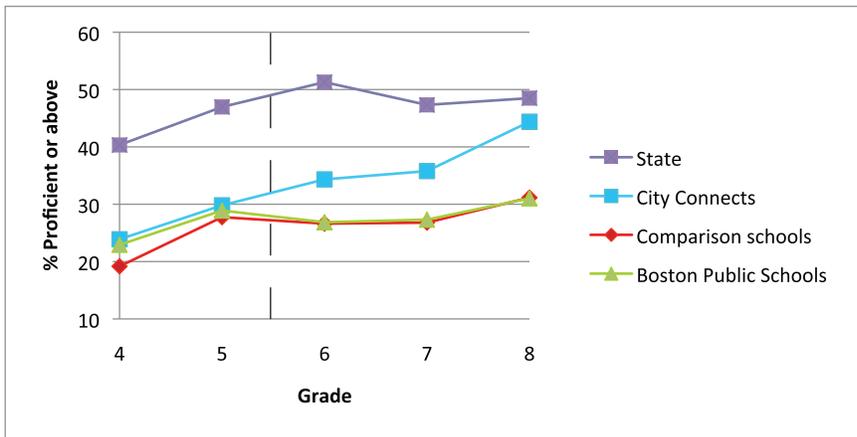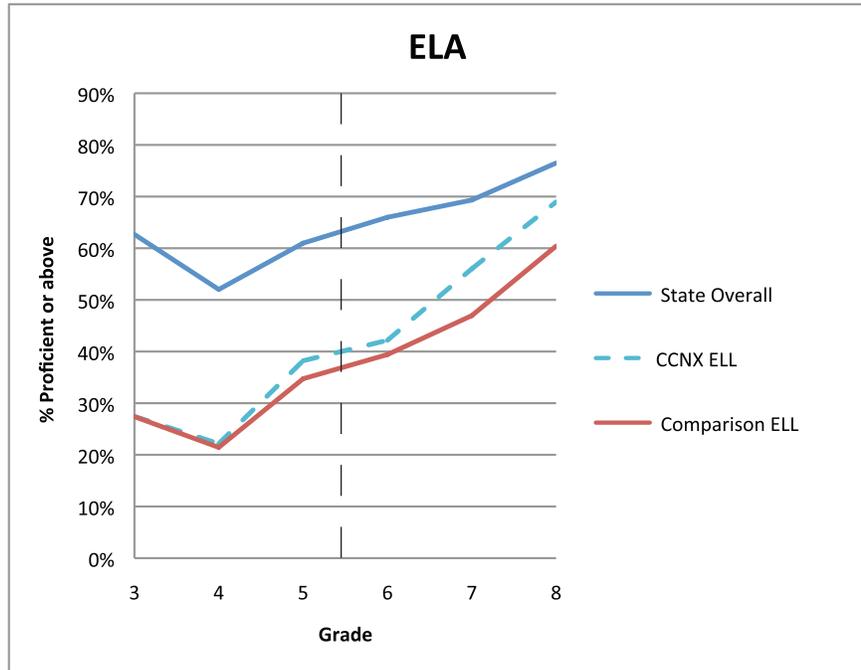

Figure 15. Percentage of students scoring at proficient or above, MCAS Math

Here and elsewhere in this report, the vertical dotted line represents the point at which students leave CCNX and move on to middle school.

Figure 16. Percentage scoring at proficient or above, MCAS English Language Arts: CCNX ELL students, comparison school ELL students, and all students statewide

ELA

A line graph titled "ELA" with y-axis labeled "% Proficient or above" ranging from 0% to 90%, and x-axis labeled "Grade" ranging from 3 to 8. Three lines are shown: State Overall (solid blue), CCNX ELL (dashed teal), and Comparison ELL (solid red).

- Figures 14 and 15 show that CCNX students outperform both students from the comparison schools and their Boston peers in middle school and **achieve close to state proficiency levels on both English and Math** on MCAS.

- Figure 16 shows that ELL students in CCNX achieve gains that move them close to statewide levels of proficiency in the MCAS ELA test by grade 8. As in the analysis of report card scores, the positive impact of CCNX is seen for students particularly at risk for literacy outcomes.

City Connects helps students thrive

Beyond academic achievement, City Connects helps students to thrive across three important outcomes that contribute to school success and life chances: 1) Classroom Behavior, Effort, and Work Habits as measured by report card scores in these domains, 2) students' year-to-year academic progress measured by retention rates, and 3) healthy lifestyle as measured by knowledge and behavior related to nutrition and physical exercise.

Report card score measures of thriving

In the areas of Classroom Behavior, Work Habits, and Effort, we begin with analyses of mean report card scores without adjustment for demographic variables. Table 9 presents unadjusted report card mean scores and standard deviations for CCNX and comparison school students.

Table 9. Report card mean scores (standard deviations) in Classroom Behavior, Work Habits and Effort: CCNX vs. comparison students

Report Card Subject (Min-Max possible score)	Grade 3		Grade 4		Grade 5	
	CCNX (N=2277)	**Comparison** (N=3492)	**CCNX** (N=2030)	**Comparison** (N=3171)	**CCNX** (N=1696)	**Comparison** (N=2530)
Classroom Behavior (6-24)	19.03 (4.42)	18.67* (4.44)	18.78 (4.54)	18.72 (4.71)	19.27 (4.48)	18.61* (4.44)
Work Habits (8-32)	23.83 (5.27)	23.49* (5.47)	23.55 (5.63)	23.25 (5.68)	24.59 (5.55)	23.47* (5.49)
Effort (3-12)	8.30 (1.89)	8.07* (1.95)	8.15 (2.03)	7.89* (2.04)	8.51 (2.03)	8.01* (2.08)

SOURCE: Boston Public Schools report card data, 2000-2009.
* Mean scores significantly different, p<.05

- In all three areas – Behavior, Work Habits, and Effort – CCNX students significantly outperform comparison school students at grades 3 and 5.

- CCNX students also significantly outperform comparison students in academic Effort at grade 4.

Next, we present analyses of report card scores on thriving measures that are adjusted for demographic variables. Again, we carried out multiple regression analyses in which we controlled for student background and demographic characteristics, applying propensity score weights. Table 10 presents adjusted report card mean scores and standard errors in the thriving subjects of Classroom Behavior, Work Habits, and Effort for CCNX and comparison school students.

Table 10. Adjusted report card mean scores (standard error) in Classroom Behavior, Work Habits and Effort: CCNX vs. comparison students

Report Card Subject (Min-Max possible score)	Grade 3		Grade 4		Grade 5	
	CCNX (N=1591)	Comparison (N=2190)	CCNX (N=1309)	Comparison (N=1830)	CCNX (N=982)	Comparison (N=1288)
Classroom Behavior (6-24)	19.19 (1.87)	18.44 (1.73)	18.87 (1.85)	18.34 (1.73)	19.17 (2.08)	18.48 (1.83)
Work Habits (8-32)	23.93 (2.63)	23.22 (2.47)	23.59 (2.54)	22.91 (2.37)	24.42 (2.96)	23.42* (2.55)
Effort (3-12)	8.36 (0.90)	8.02* (0.78)	8.18 (0.87)	7.84 x (0.81)	8.40 (1.04)	7.94* (0.87)

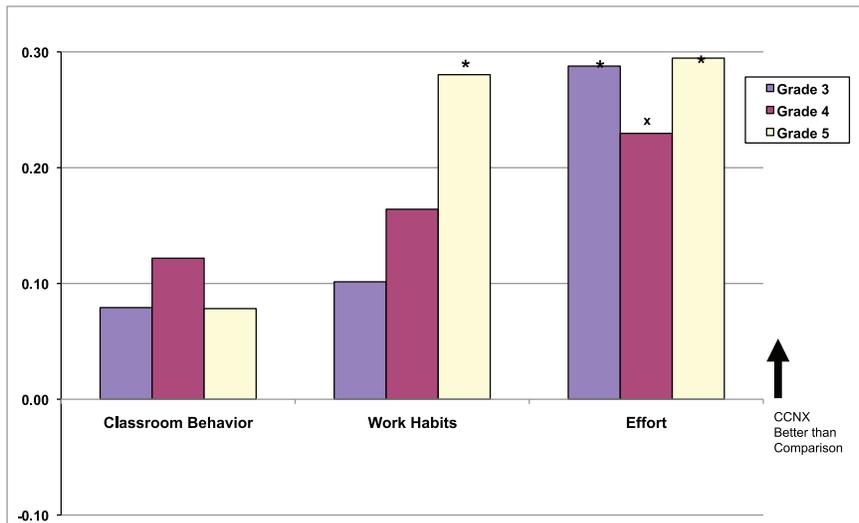*SOURCE: Boston Public Schools report card data, 2000-2009.*
* Regression coefficient for maximum or average number of years in CCNX significant in propensity-weighted and standard error-adjusted models, p<.05

ˣ Regression coefficient for maximum number of years in CCNX significant, p<.10

- Once propensity weights and student characteristics are taken into account, CCNX students significantly outperform comparison students in academic Effort across all elementary grades (3 through 5).

- CCNX students perform significantly better than comparison-school students in Work Habits scores in grade 5.

Figure 17 presents CCNX effect sizes for adjusted means in thriving report card grades for grades 3, 4, and 5. As Figure 17 shows, the greatest adjusted CCNX treatment effects are seen in grade 5 Work Habits and Effort.

Figure 17. Report card mean differences, Behavior, Work Habits and Effort, CCNX vs. comparison students (effect size units)

* p<.05, maximum or average # years in CCNX in propensity-score-weighted regression models

* p<.10, maximum or average # years in CCNX in propensity-score-weighted regression models

In addition to these comparisons of scores at particular grades, an analysis of students' growth over time in report card scores in Behavior, Work Habits, and Effort shows that that after entry in a CCNX school, students surpass their counterparts in comparison schools in these three areas of thriving.

Figure 18. Longitudinal change in Behavior report card scores, CNCX vs. comparison students
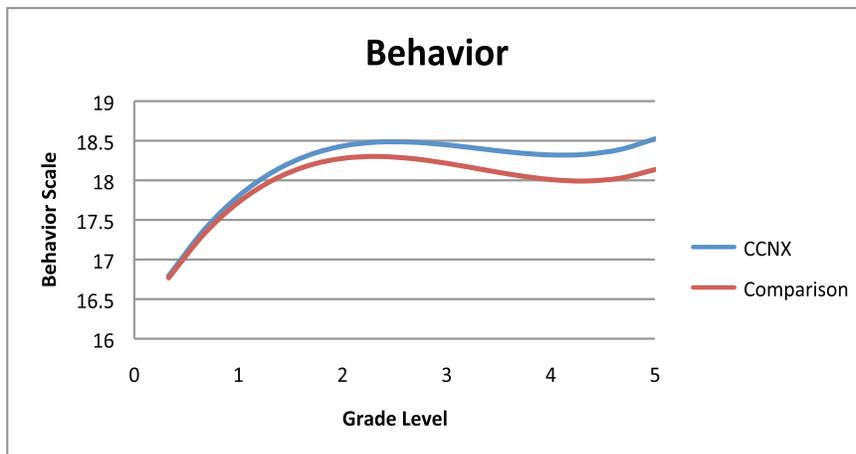
"Since my whole class review, I have learned to think more about the reasons behind the behaviors of my students (good or bad). I don't just react, I try to think before I react. For example, when a student gets in trouble I will analyze the situation and deal with it and sometimes pull students aside to have a conversation. Now, some of my students pull me aside to talk when they want to share something in private."

—Teacher

Figure 19. Longitudinal change in Effort report card scores, CNCX vs. comparison students

Academic Effort
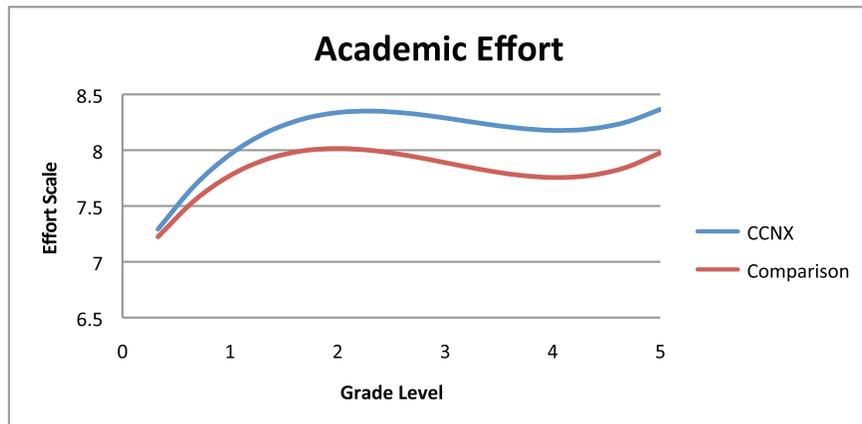
Figure 20. Longitudinal change in Work Habits report card scores, CNCX vs. comparison students

Work Habits

"Since I was made aware of the information, I was able to note that some behaviors were a cause of outside stresses and to act accordingly both in support and instruction."

—Teacher
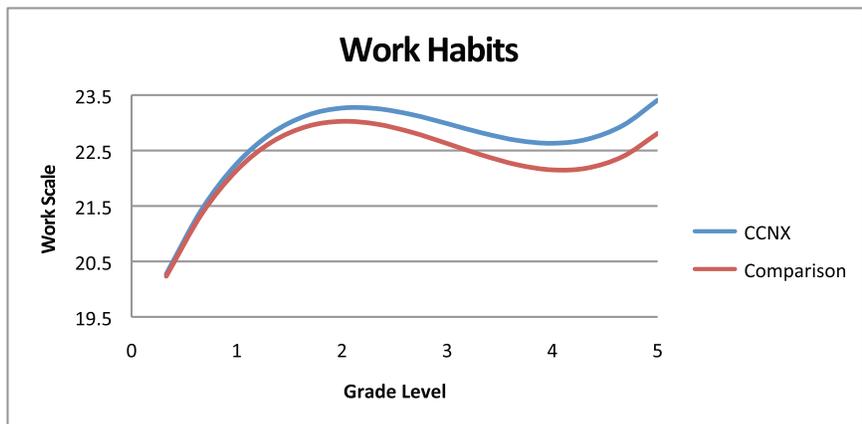
As shown in Figure 18, after their initial entrance into a CCNX school, CCNX students had significantly greater improvement over time in Behavior report card outcomes than students who were never in CCNX. The CCNX Behavior trajectory immediately begins to increase more rapidly and steeply than that of the comparison group, and the difference persists through the end of grade 5. In Figures 19 and 20, the Effort and Work Habits graphs, after their initial entrance into a CCNX school, CCNX students had significantly greater improvement over time in report card outcomes in Effort and Work Habits than students who were never in CCNX.
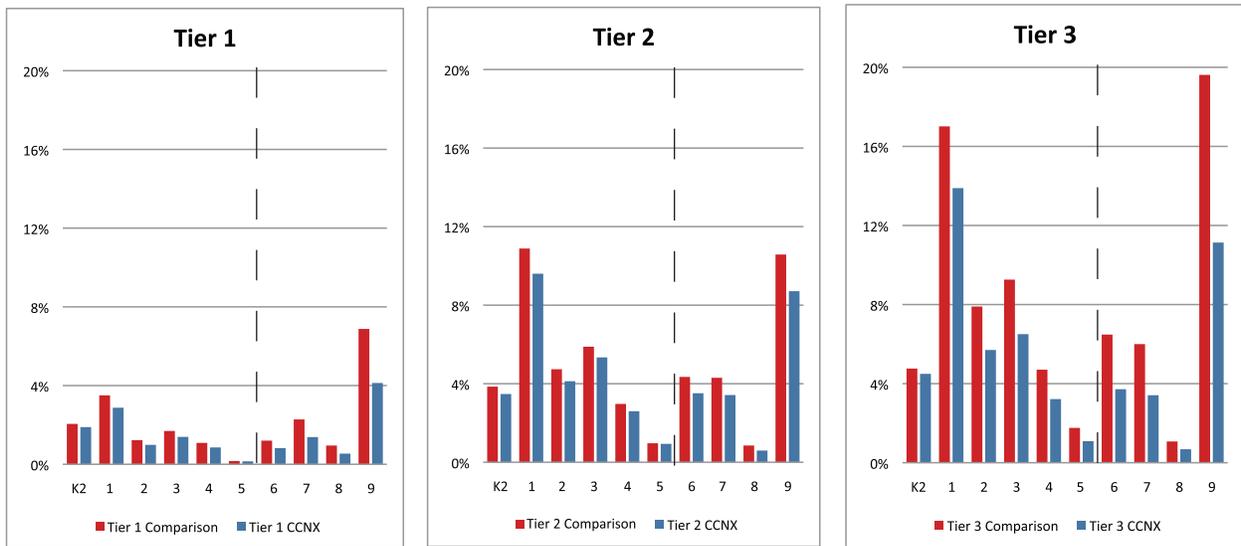
Retention in grade

We turn next to a second indicator of thriving: rates of retention in grade. This analysis provides another opportunity to examine "lagged effects" (i.e. the long term effects of CCNX on student outcomes in middle and high school). An analysis of retention in grade shows that enrollment in CCNX

is correlated with a lower likelihood of being "kept back" in a grade. This analysis studied first retentions, considering only the first time a student was retained in grade.

Figure 21 shows the modeled probabilities of being retained a first time for CCNX and comparison students. In other words, we present probabilities of being retained in a specific grade level, given that a previous retention had not taken place.

Figure 21. Modeled probabilities of being retained in grade, CCNX vs. comparison students

Note: Table presents modeled probability of first retention (being retained in grade for the first time).

Figure 21 disaggregates the retention findings by tier. As noted above, Tier 1 corresponds to a classification of a student as having strengths and minimal risk; Tier 2, strengths and mild to moderate risk; and Tier 3, strengths and severe risk. Within each tier, the figure shows how likelihood of retention varies grade to grade. As expected, we see that retentions are much more likely as tiers increase.

Within each tier, the figure shows that CCNX students have lower probabilities of retention in any given grade level. Importantly, **the beneficial effect of CCNX on lowering retention rates persists after students have left the intervention and moved into middle school and beyond.** It is noteworthy that this beneficial effect is especially large for students in Tier 3 in grade 9.

Health Knowledge and Behavior

Our evaluation examines the impact of specific services, or combinations of services, on student outcomes. In this year's report, we have zeroed in on the impact of one specific service that was offered to all students in grades 2-5, the New Balance Health and Social Competence Curriculum. The curriculum was delivered on a weekly basis in the classroom over the course of the year by Health Coordinators. This curriculum was available in all of the CCNX schools. The evaluation utilized measures of a number of social competence and health outcome variables. The health variables included knowledge, attitude, and behavior related to nutrition and physical exercise. A full description of the sources, statistical analyses, and properties of these measures can be found in the appendices. This report presents the outcomes of the health portion of the curriculum.

Exposure to the New Balance Health and Social Competence Curriculum makes a significant difference in students' health knowledge and behaviors as measured by the pre- and post-tests in the annual student survey.[17] Table 11 presents results for individual health behavior survey items on which responses showed significant improvement after students participated in the New Balance Health and Wellness Program.

Table 11. Health behavior reported, pre-test vs. post-test, by specific test items showing improvement

	Pre-Test		Post-Test			
	Mean	SD	Mean	SD	*t*	*p*
Grade 2 and 3 Students						
Ever seen the food pyramid?	0.68	0.47	0.91	0.29	11.3	<.001
Exercise, dance, play sports yesterday?	0.82	0.38	0.87	0.34	2.49	0.013
Drink regular soda yesterday?	3.09	1.08	3.35	0.95	6.75	<.001
Grade 4 and 5 Students						
Eat junk food after TV?	3.40	0.82	3.48	0.78	3.65	<.001
Eat junk food during TV?	3.10	0.90	3.15	0.88	2.76	0.006
Drink regular soda yesterday?	3.35	0.94	3.41	0.88	2.06	0.039
Eat candy yesterday?	2.70	1.15	3.22	0.96	13.30	< .001
Eat french fries yesterday?	3.34	0.89	3.42	0.80	2.96	0.003

Note: Higher numbers indicate healthier behaviors or choices (e.g., less soda) for all items

17 Health surveys were administered to students twice during the 2009-2010 academic year – at the beginning of the health curriculum in November 2009 and close to the end in March 2010 -- to assess student gains in health behavior and knowledge. Different developmentally-appropriate health survey forms were developed for grade 2 and 3 students (28 items, including 14 behavior and 11 knowledge) and grade 4 and 5 students (52 items, including 22 behavior and 30 knowledge).

Table 11 shows that for these health behavior items, students reported significantly higher levels of healthy behavior on the post-test than they had on the pre-test.

Survey results can also be studied through scales, which combine items that measure the same concept. For example, for the grade 2-3 survey, 11 items were combined to create a total Health Knowledge score. The content of these eleven items included tasks such as identifying food groups, healthy snacks, the location for measuring pulse, and activities to improve fitness. [18] Table 12 presents pre- and post-test results for the health scales.

Table 12. Health knowledge and reported behavior, pre-test vs. post-test, by health scales

| Scale	# Items	Pre-Test		Post-Test		t	p
		Mean	SD	Mean	SD		
Grade 2 and 3 Students							
Health Knowledge	11	5.24	1.97	5.92	1.99	9.59	<.001
Grade 4 and 5 Students							
Nutrition Efficacy	4	2.19	0.59	2.24	0.58	3.02	.003
Unhealthy Nutrition Behavior	7	3.15	0.56	3.35	0.55	12.52	<.001
Healthy Habits	7	2.52	0.62	2.51	0.61	0.91	0.365
Healthy Nutrition Behavior	3	2.77	0.82	2.79	0.82	0.91	0.362
Physical Activity	4	2.32	0.63	2.29	0.62	1.61	0.108
Screen Time	3	3.72	0.99	3.78	0.92	2.11	0.035
Health Knowledge	28	13.83	4.84	16.05	5.44	16.89	<.001
Nutrition Knowledge	17	8.07	2.95	9.58	3.30	16.41	<.001
Physical Knowledge	7	3.37	1.57	3.94	1.71	10.76	<.001

Note: For all scales, higher scores represent more favorable values.

- Exposure to the New Balance Health and Social Competence Curriculum produced significant improvements in health **knowledge** for both younger (grade 2-3) and older (grade 4-5) participants.

- In addition, grade 4-5 students produced improved health **behavior** scores in Nutrition Efficacy, Unhealthy Nutrition, and Screen Time, as demonstrated by higher post-test scores for these scales.

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18 For the grade 4-5 survey, four Health Behavior scales were produced (Nutrition Efficacy, Unhealthy Nutrition Behavior, Healthy Habits (including subscales Healthy Nutrition Behavior and Physical Activity), and Screen Time). Also, for the grade 4-5 survey, 28 items were totaled to produce an overall Health Knowledge scale, including sub-scales for Nutrition Knowledge and Physical Knowledge.

In the 2009-10 survey of teachers in City Connects schools, teachers were asked about the New Balance Foundation Health and Wellness Program. As they did last year, teachers report high levels of engagement with the health and wellness program: they know the content covered, they integrate it into their classes, and they believe the curriculum has a positive impact on students' healthy choices (see Figure 22).

Figure 22. Teacher perceptions of the impact of the New Balance Foundation Health and Wellness Program on students
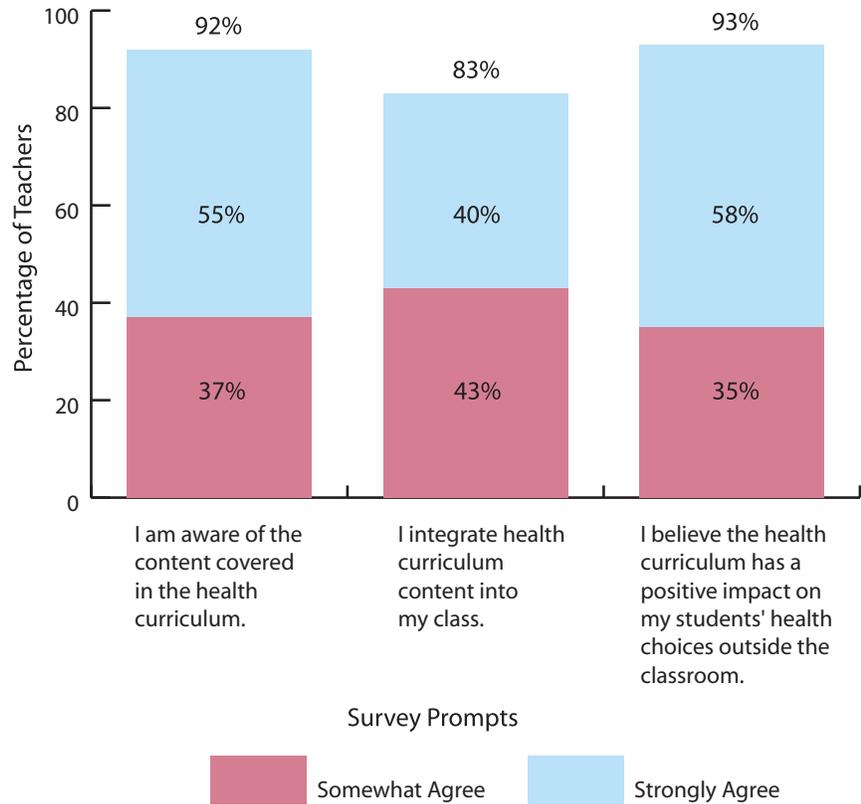
Principals and assistant principals also indicated they were satisfied with the work of the Health Coordinator (92% satisfaction reported in 2009-10 principal survey).

The positive effects of CCNX are meaningful in a practical sense

Beyond statistical significance, it is critical to examine the practical significance of CCNX. In other words, does the intervention have a meaningful impact on children's lives? If so, how large is that impact relative to that of factors known to affect academic achievement (i.e., the harmful effect of poverty)?

On average, the effect sizes for CCNX were similar to those for other interventions focused on children in poverty (e.g., SAGE, Head Start). Indeed, we find that the impacts of the CCNX intervention were of significant practical importance.

Figure 23 shows effect sizes for the positive impact of CCNX on academic report card scores alongside the effect sizes for the negative impact of poverty on achievement.

Figure 23. CCNX effect sizes for Reading, Writing, and Mathematics vs. poverty effect sizes, by grade
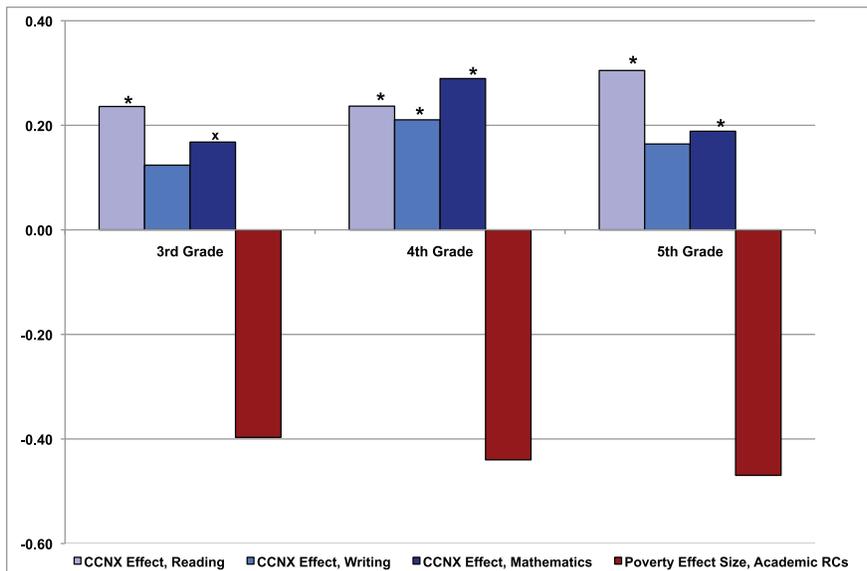

* p<.05, maximum or average # years in CCNX in propensity-score-weighted regression models

- The positive effects of CCNX on elementary school academic report card scores are generally about half the size of the harmful effects of poverty.

- Grade 4 CCNX Math and grade 5 CCNX Reading effects are even larger, at about 65% the size of poverty effects.

- In general, these effect sizes are nearly as large as the typical growth from grade 3 to grade 4 on national standardized Reading achievement assessments and are about 30% of the national Black-White achievement gap in Reading at grade 4.[19]

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19 Hill, Bloom, Black & Lipsey 2008.

Figure 24 presents similar findings for report card measures of thriving—Classroom Behavior, Work Habits, and Effort.

Figure 24. CCNX effect sizes for Classroom Behavior, Work Habits, and Effort vs. poverty effect sizes, by grade

* p<.05, maximum or average # years in CCNX in propensity-score-weighted regression models
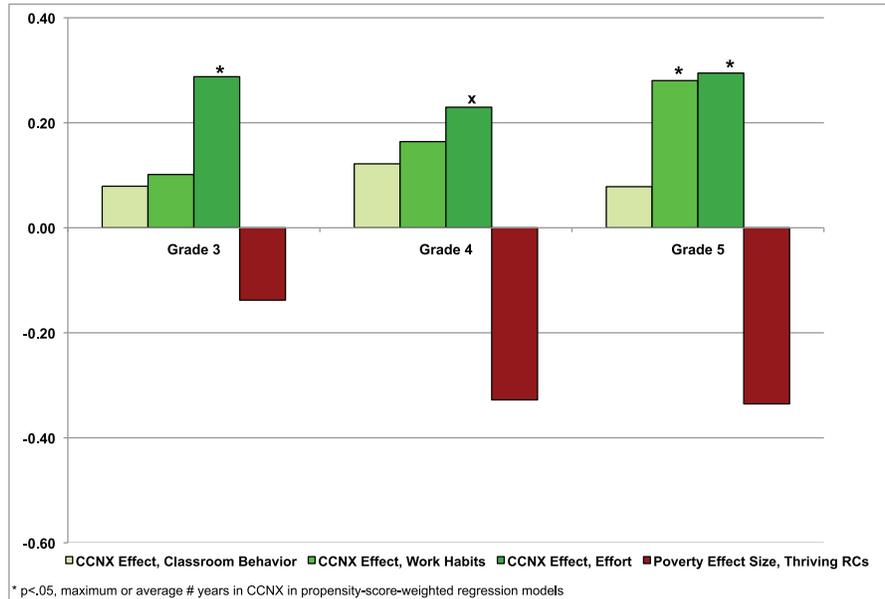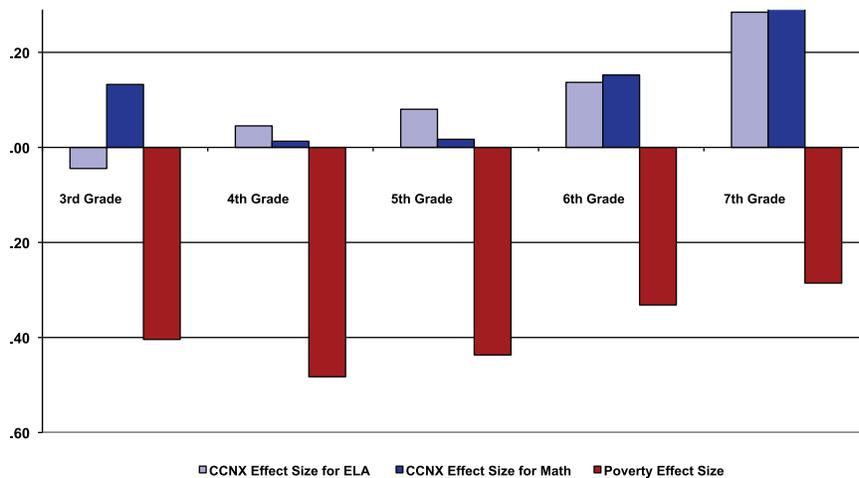
- The positive effects of CCNX on elementary school report card scores in Effort and grade 5 Work Habits are about the same size as, or larger than, the harmful effects of poverty.

- These effects are more than a third (35%) the size of the grade 4 national Black-White achievement gap.

Figure 25 shows effect sizes for the positive impact of CCNX on MCAS scores alongside the effect sizes for the negative impact of poverty on achievement.[20]

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20 For grade 8, the sample size was too small to allow this comparison of CCNX and poverty effect sizes.

Figure 25. CCNX effect sizes for MCAS ELA and Math vs. poverty effect sizes, by grade

□ CCNX Effect Size for ELA ■ CCNX Effect Size for Math ■ Poverty Effect Size

- The significant, positive effects of CCNX on middle school MCAS scores are about half as large as the harmful effects of poverty by grade 6.

- In grade 7, the magnitude of the positive effect of CCNX on MCAS scores is similar to the harmful effect of poverty on achievement.

Impact on Schools

Principal satisfaction

In spring of 2010, City Connects surveyed principals (and, in schools large enough to have one, assistant principals) about their satisfaction with the program.[21] One hundred percent of principals reported that they are satisfied with City Connects as a whole, with School Site Coordinator support for students, and with School Site Coordinator support of principals. Another strong indicator of principal satisfaction: 100% of principals and assistant principals would recommend City Connects to a principal in another school.

Principals are also satisfied with the supports CCNX provides to teachers and families (92% satisfied). They cite several School Site Coordinator

"I am completely thrilled with the work that we have accomplished at [my school] with Ciry Connects as our partner. All components of this program align with my personal and professional beliefs around supporting the whole child."

—Principal

21 Fourteen respondents (principals and assistant principals) completed the survey.

activities that they see as particularly supportive of teachers, such as conducting Whole Class Reviews and assisting with behavior challenges in the classroom. They also value support to families, such as following up on services referrals and facilitating parent meetings.

The work that School Site Coordinators do with community partners is valued by principals. Beyond their general satisfaction with the support School Site Coordinators provide for sustaining community partnerships (92% satisfied), the majority of principals feel that CCNX has improved their school's relationships with community partners (86%). They note that School Site Coordinators help maintain communication with community agencies, follow up with agencies to secure services, and coordinate agency work in the school. In the 2009-10 survey, one principal noted, "We have established new [community] partners due to CCNX outreach. There is a new sense of order and protocol in our dealings with our partners." A second principal commented, "We simply do not have time to manage these very important relationships [with community partners]."

Teacher satisfaction and impact on teaching

In the 2009-10 anonymous survey of teachers at CCNX schools, 95% percent of responding teachers answered "yes" to the question "Are you satisfied with City Connects?"[22] Additionally, 97% of the respondents would recommend City Connects to a teacher in another school.

Teachers were asked to indicate which specific ways CCNX supported their work. Figure 26 presents the percentage who selected each of several areas of support.

"I see City Connects as a liaison to resources for students. I also see City Connects as a great support system that helps keep track of children who are at risk or could benefit from extra services. The City Connects approach is such a powerful process. There is no other time we get to sit and talk about each child across all domains-- not just academic."

—Teacher

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22 All 234 teachers in City Connects schools were invited to participate in the survey. Of these, 95 completed the survey.

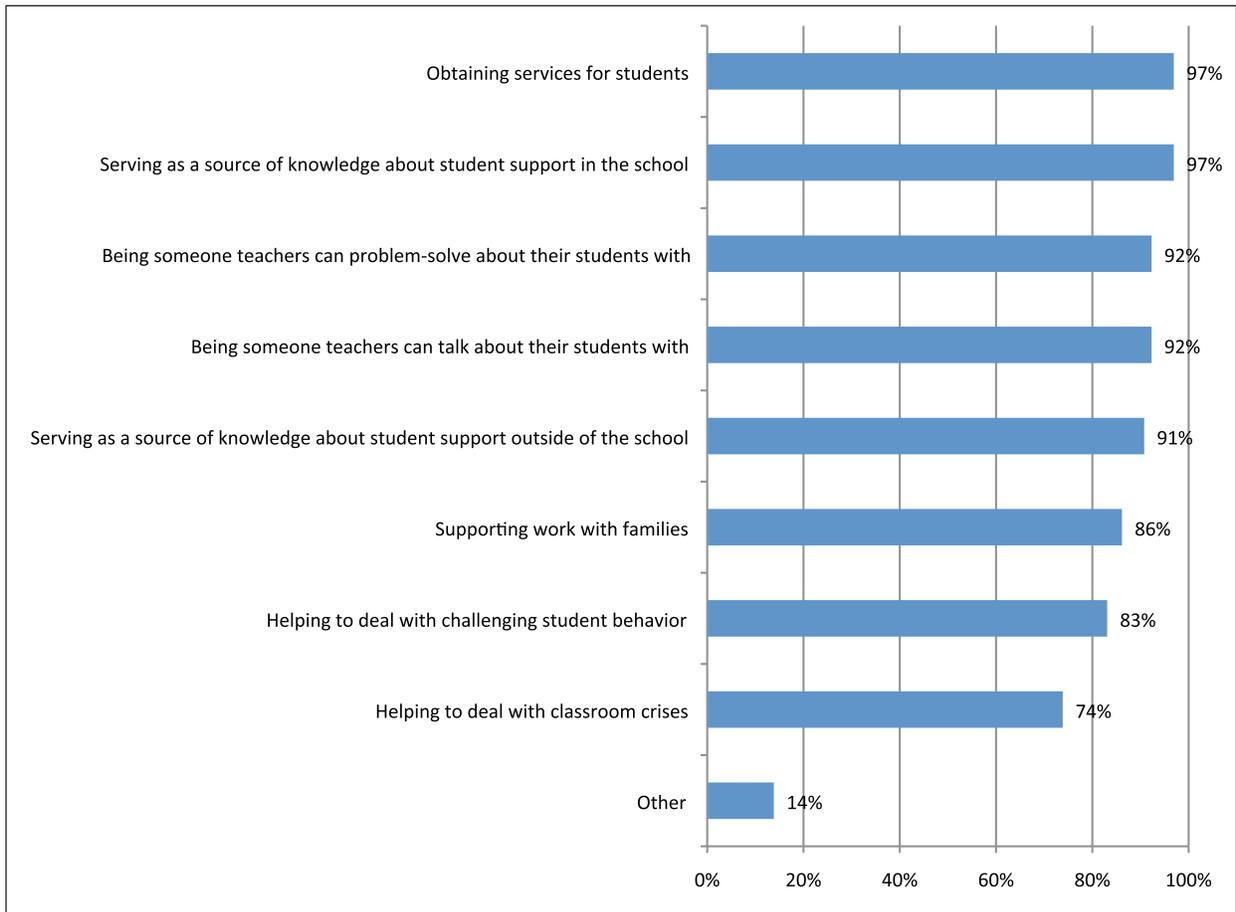**Figure 26.** Percentage of teachers reporting City Connects support in different areas of their work

Figure 26 shows that CCNX School Site Coordinators are providing specific supports to teachers as well as students. Almost all teachers report that School Site Coordinators support their work by obtaining services for students and serving as a source of knowledge about student support in the school. High percentages report that School Site Coordinators talk with teachers about students and help them solve problems.

The majority of teachers also reported that City Connects has increased their effectiveness as teachers. Some reported that CCNX has provided them with more time to focus on their primary responsibilities as teachers, because CCNX connects students to services and helps manage crises. Some also reported that CCNX helps to improve relationships with families by reinforcing teacher's messages to families and "bridging the gap between home and school."

Though reported spontaneously by only a small number of teachers, an

important finding is that some feel CCNX increases their accountability: "I have been held more accountable for my action plans with regards to my Tier 3 students. [CCNX] always checks in with me to check on students' progress."

Most importantly, teachers said that as a result of CCNX, they feel they are able to deliver more effective instruction and manage their classrooms more efficiently. This finding was robust: almost 20% of the teachers responding to the open-ended question spontaneously mentioned improvements in their ability to shape and deliver instruction.

CCNX may enable teachers to deliver more effective instruction by deepening their knowledge of students and providing insight into their needs, background, and family life. In an open-ended question, teachers offered the following insights into how their practice changed as a result of knowing more about their students' non-academic lives:

- "Academic instruction changes" – tailoring lessons to students' needs and modifying homework assignments.

- "New behavior management techniques can be used" - employing specific behavior strategies, adjusting lessons to fit students' attention spans, or addressing a student's particular challenge, such as anxiety or ADHD.

- "Patience and empathy increases" towards their students—profiting from increased sensitivity to students' needs and the reasons behind their behavior.

"Teachers benefit a great deal when updated on students. Our time is precious and we want to make use of any moment we can to better and help our students."

—Teacher

One teacher wrote, "Having access to essential background information about my students permits me to craft strategies that will enhance a child's experience. Understanding that a child may be dealing with stressful situations at home will ensure that I respond to that child's inability to participate appropriately in the classroom with patience and calmness."

Taken together, these findings strongly suggest that CCNX makes it easier for teachers to take the perspective of their students—a fundamental ability underlying the most effective instruction. The findings suggest that CCNX helps inform teachers' strategies for reaching a particular student as an individual.

Impact on Community Agencies

Number of 2009-10 Partnerships

City Connects collaborated with 208 community partners during the 2009-2010 academic year. Services to students and to schools were provided by (a) community agencies; (b) community institutions and businesses; and (c) universities. Table 13 displays the number of each type of community partner by year from 2007-08 to 2009-10.

Table 13. Number of CCNX community partners, by year and by partner type

Community Partner Type	2007-08	2008-09	2009-10
Community Agency	91	103	109
Community Institution/Business	34	38	56
University Partner	31	32	43
Total	**157**	**173**	**208**

Note: Three additional partners for 2007-08, and eight additional partners for 2008-09, could not be classified into these categories.

As Table 13 shows, although the largest partnership type across years is community agencies, and although we see a slight increase in this category, more growth over the past year has happened with community institution/ business partners; 18 were added from 2008-09 to 2009-10.

Community Partner Satisfaction

Fifty of the 2009-10 City Connects community partners responded to an online survey. Results showed that the large majority of participants indicated (via Y/N prompt) that they were satisfied with City Connects. One strong indicator of satisfaction was that 94% of partners would recommend a partnership with City Connects to other agencies.

Partners were asked to rate their levels of satisfaction when working with City Connects schools and non-City Connects schools. These survey questions formed two categories: "Partnership Quality" (i.e. communication, referrals, and follow-up) and "Partnership Effectiveness" (i.e. meeting goals, tailoring services, and providing student support).[23]

"The City Connects site contacts are the most responsive contacts I have found in the schools. They are consistently available and supportive of the [students], the volunteers, and myself."

—Community agency partner

23 Participants were asked to use a four-point scale to denote level of satisfaction: Very Satisfied, Somewhat Satisfied, Somewhat Dissatisfied, and Very Dissatisfied. Not Applicable was also listed as an answer choice.

Similar to the 2008-09 community partner survey results, respondents' levels of Quality and Effectiveness satisfaction were higher for CCNX schools than non-CCNX schools; see Figures 27 and 28.

Figure 27. Community partner satisfaction with partnership quality, CCNX vs. non-CCNX schools
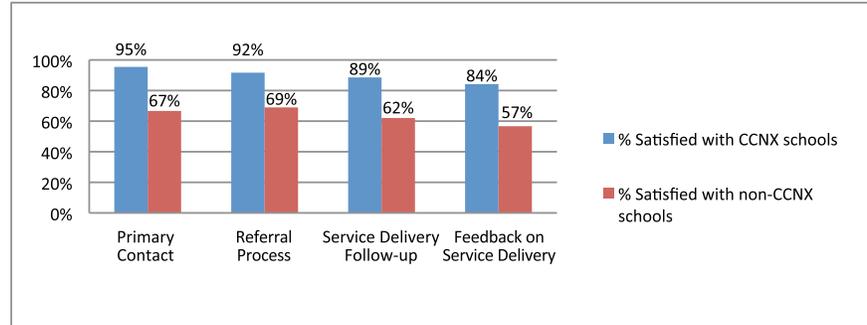
Figure 28. Community partner satisfaction with partnership effectiveness, CCNX vs. non-CCNX schools
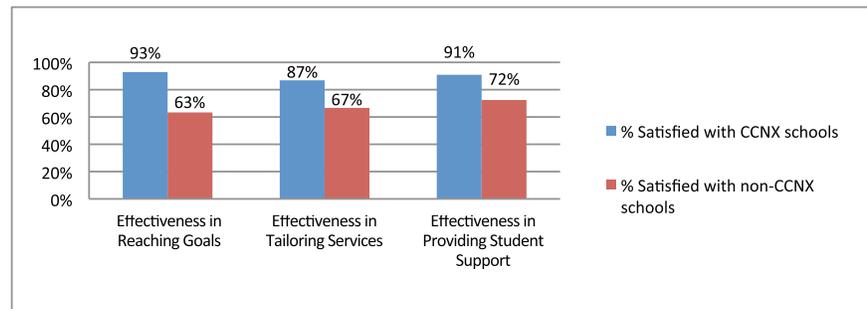
Conclusions

City Connects has shown that optimized student support can be delivered in a high-impact, cost-effective way. By making use of existing structures in the public schools, and by leveraging the rich resources of the city's community agencies, City Connects is able to link students to the services and enrichments that match their individual strengths and needs. Careful attention to the unique skills, talents, and needs of each student makes a difference.

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