



**Findings from the
Institute for Student Achievement
Outcome Evaluation**

**Final Report
2010**

**A report to:
The Institute for Student
Achievement**



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Institute for Student Achievement
Outcome Evaluation**

Final Report

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with

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**Academy for Educational Development
New York City**

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Table of Contents

Acknowledgements	ii
Table of Contents	iii
Tables and Figures	ii
Executive Summary	1
About ISA	3
AED's Evaluation of ISA.....	4
Methods.....	4
Evaluation Questions	4
Implementation of the ISA Model	6
Perceived Usefulness of ISA Professional Development	6
Teachers' Implementation of ISA Principles.....	8
Effect of ISA on Schools	10
Student Outcomes	15
Characteristics of ISA Students	15
ISA Effect on Students.....	15
Summary and Conclusion	32
Works Cited.....	33
Appendix A: Statistical Analysis	35
Outcomes	35
HLM Approach.....	35
Huber-White Robust Variance Estimation	37
Limitations	44
Appendix B: Procedures for Constructing ISA Comparison Group.....	45

Tables and Figures

Tables

Table 1. ISA Evaluation Data Sources

Table 2. Perceived Usefulness of ISA Teacher Professional Development

Table 3. College Prep Activities of ISA 12th Grade Students, 2008

Table 4. Financial Aid Activities and Assistance for ISA 12th Grade Students, 2008

Figures

Figure 1. Areas of Coaching Teachers Found Useful

Figure 2. Teachers' Implementation of ISA Principles

Figure 3. Supports for Students

Figure 4. ISA and Comparison School Ratings on Learning Environment Survey, 2007

Figure 5. Race/Ethnicity of ISA Students Entering 9th Grade in 2003 or 2004

Figure 6. Four-year Cumulative Credits Attempted, Earned, and Failed for ISA and Comparison Students Entering 9th Grade in 2003 or 2004

Figure 7. Grade Promotion Percentages for ISA and Comparison Students Entering 9th Grade in 2003 or 2004

Figure 8. Average Daily Attendance

Figure 9. Attendance, Grades 9–12, ISA vs. Comparison Students

Figure 10. Percent Passing Regents Exams in All Five Required Subjects

Figure 11. Four-year Graduation Outcomes

Figure 12. Four-year Cohort Outcomes, for ISA and Comparison Students Entering 9th Grade in 2003 or 2004

Figure 13. Factors Contributing to High School Retention and Graduation, for ISA and Chicago Public School Students

Figure 14. Post-High School Plans for ISA 12th Grade Students, 2008

Figure 15. Type of Post-Secondary School ISA 12th Grade Students Planned to Attend, 2008

Figure 16. ISA, National, and Black and Latino Students Attending 4-Year Colleges, 2008

Figure 17. ISA, National, and Black and Latino Students Attending College Full Time, 2008

Figure 18. ISA Applicants Enrolled in CUNY by Type of Degree: Bachelor's, Associate, Certificate, 2007 and 2008

Figure 19. Full-time Enrollment in CUNY Schools for ISA Graduates and All CUNY Students, Fall 2007

Figure 20. ISA Graduates and All CUNY First-Year Students Enrolled in Remedial Courses in Fall 2007 (Bachelor's & Associate)

Figure 21. Average Credits Attempted and Earned for ISA Graduates and All Students Enrolled in CUNY (Full-time Students), Fall 2007

Figure 22. Full-time First Year Students Returning Their Second Year: ISA Graduates, All CUNY Students, and Nationwide, 2008

Executive Summary

The Institute for Student Achievement (ISA) is a nonprofit organization that facilitates the transformation of high schools into small learning communities designed to prepare all students for college. ISA partners with school administrators and staff to create intellectually rigorous, caring, and personalized learning environments.

The Academy for Educational Development (AED) conducted a six-year study of two cohorts of 9th graders in New York City ISA schools through high school and into their early post-graduation careers. Using a quasi-experimental design, this study looked in depth at ISA's impact on student, teacher, and school outcomes. Quantitative data came from student achievement records and from teacher and student surveys. Qualitative data were obtained from site visits, interviews of key school and ISA staff, and classroom observations. We also compared achievement outcomes for ISA students with a matched comparison group of students in large New York City high schools who had similar characteristics and achievement levels.

Data show that the schools in this study generally implemented ISA principles well. ISA teachers attributed many positive changes in their practice and in the school environment to ISA professional development and particularly to the ISA coaches. Our analyses indicate that the implementation of ISA had a large and positive effect on student achievement outcomes.

High School Achievement

- ISA students had greater rates of grade promotion and attendance than comparable peers.
- ISA students accumulated more course credits and failed fewer core subject courses than comparable peers.

High School Completion

- Comparison students were more likely than ISA students to pass state exit exams at the more rigorous "Regents" level (scoring 65 or higher) and to earn an advanced diploma.
- Compared to the peer group, fewer ISA students dropped out of high school and more graduated in four years.

College Preparation

- Most ISA seniors planned to attend college. Most students reported that they received the support that low-income, first-generation college attenders often require to navigate the process of applying for college and financial aid. For instance, they visited colleges and received help in selecting schools, writing essays, and completing college and financial aid applications.

College Enrollment and Persistence

- ISA students attended four-year colleges, rather than two-year institutions, at higher rates than did Black and Latino students nationwide. They were also more likely to attend college full-time. Both factors are important indicators of future success in college and beyond.

- ISA graduates enrolled in City University of New York (CUNY) programs were somewhat less likely to have to take remedial courses than students CUNY-wide.
- Most ISA graduates who enrolled in college persisted into the second year of college, a major dropping-out point. Rates of college persistence for ISA graduates were much higher than the national rate.

In sum, this study indicates that the ISA model has improved students' performance in high school and persistence in college. Our findings suggest that small learning communities that emphasize individual attention, provide a college preparation curriculum, and foster a college-going culture can give students from low-income urban communities the support they need to achieve academic—and later economic—success.

About ISA

The Institute for Student Achievement (ISA) is a nonprofit organization that facilitates the transformation of high schools into small learning communities designed to prepare all students for college. ISA was created in 1990 by Lilo and Gerard Leeds as a direct service provider to underserved public schools. In 2000, under the leadership of Dr. Gerry House, ISA moved from being a direct service provider to serving as a “school partner,” developing the current ISA model with the intention of implementing it nationally.

In this model, ISA partners with school administrators and teachers to create and sustain intellectually rigorous, caring, and personalized learning environments. Building on a set of seven principles, ISA collaborates with schools to create comprehensive plans and implementation strategies customized to meet school and district needs. The seven ISA principles are:¹

1. College preparatory instructional program: Preparing students for college
2. Distributed counseling™: Building a safety net of support services across the school
3. Dedicated team of teachers and counselors: Providing a consistent, four-year support network
4. Continuing professional development: Establishing a professional community
5. Extended school day and school year: Extending personalized and challenging learning opportunities
6. Parent involvement: Encouraging parents to participate in their children’s education
7. Ongoing organizational improvement: Program accountability: monitoring progress and refining program components

ISA currently has 80 partner schools serving 20,000 students in school districts in Georgia, Louisiana, Maryland, Michigan, New Jersey, and New York.²

¹ <http://www.studentachievement.org/principles.aspx> , retrieved March 30, 2010.

² <http://www.studentachievement.org/content.aspx>, retrieved February 9, 2010.

AED's Evaluation of ISA

The Academy for Educational Development (AED), an independent, nonprofit organization with expertise in research and evaluation, was contracted by ISA to conduct an external evaluation of the effectiveness of the ISA model in improving student performance in its New York City schools. The purpose of the evaluation is to assess implementation of the ISA model and resulting outcomes for students, teachers, and schools.

Methods

A mixed-methods design allowed AED to “triangulate” data from different sources and gain a deep understanding of how and why expected outcomes were or were not achieved. Briefly, data collection methods included:

- Two- to three-day site visits to study schools, including classroom observations and interviews with teachers, counselors, and administrators
- Interviews with key ISA and NCREST staff
- Surveys of teachers and guidance counselors
- Student surveys: grades 9 and 10 in 2005, grades 10 and 11 in 2006, grades 11 and 12 in 2007, and grade 12 in 2008 (Cohort 2 only)
- Analysis of New York City Department of Education student achievement data—attendance, dropout status, Regents³ test scores, credit accumulation, and graduation data—for ISA students and appropriate comparison students
- Analysis of students' enrollment and persistence in college following graduation based on data from the National Student Clearinghouse and the City University of New York

Evaluation Questions

The evaluation explored three related questions:

1. What contextual characteristics relate to ISA implementation and outcomes? How and to what extent are the seven non-negotiable principles implemented at each study school?
 - What challenges are encountered in implementing the principles?
 - What factors hinder or help implementation?
 - What is the impact of ISA on teaching strategies and school climate?
2. What are the outcomes for ISA students?
 - Attachment to school (for example, perceptions that staff support students)
 - Attendance
 - Achievement: credit accumulation, grade promotion, Regents passing rates
 - Enrollment retention in high school

³ Regents tests are subject-area exams; required subjects are English, math A, global studies, U.S. history, and science. For the classes of 2007 and 2008, New York State required all high school students to pass all five exams with a score of at least 65 to obtain a Regents diploma.

- Graduation
 - College enrollment and persistence
3. How do outcomes for ISA students compare with those of similar students in non-ISA schools?
- Comparable national samples or samples from other cities
 - Comparable students from non-ISA large schools in NYC serving similar populations

AED conducted a six-year longitudinal outcome study to track two cohorts of students—9th graders in 2003 and in 2004—through high school into their early post-graduation careers. This study looked in depth at ISA small schools in New York City to determine ISA’s impact on student, teacher, and school outcomes, using a quasi-experimental design. Quantitative data came from student achievement records and from teacher and student surveys. Qualitative data were obtained from site visits, interviews of key school and ISA staff, and classroom observations. To determine the impact of ISA on student achievement, we compared achievement outcomes for ISA students with those of similar students at similar large New York City public high schools.

Five of the NYC ISA schools were intensive evaluation sites, where AED gathered data using all the methods outlined above. (See Table 1.) Additional data came from NYC Department of Education achievement data on the eight ISA schools that were in continuous operation from 2003 to 2008; AED compared this data with those of 12 similar NYC non-ISA schools. Having followed our two cohorts of 2003 and 2004 9th graders to graduation, we also examined enrollment and persistence data from the National Student Clearinghouse (5 ISA schools) and the City University of New York for the graduating classes of 2007 (10 ISA schools) and 2008 (13 schools).

Table 1. ISA Evaluation Data Sources

Data Source	Number of ISA Schools in Sample
Teacher surveys: 2005, 2006, 2007	5
Student surveys: 2005, 2006, 2007, 2008	5
Site visits, including interviews and observations	5
NYC DOE student achievement data	8 (and 12 comparison schools)
National Student Clearinghouse data, 2007–2008	5
CUNY enrollment & persistence data, 2007	10
CUNY enrollment & persistence data, 2008	13

This final report focuses on five years of data on the two cohorts of students who entered as 9th graders in 2003 and 2004. It presents 2008 student survey data, 2007 teacher survey data, rates of high school graduation and college attendance following high school, and NYC Department of Education achievement data from the 2007–08 school year. Previous reports have presented findings from teacher and student surveys for 2005–2007 and from achievement data for 2003–04 to 2006–07. This report includes these prior achievement data to show trends in student outcomes.

Implementation of the ISA Model

ISA ensures implementation of its model primarily through extensive, customized professional development for teachers, counselors and administrators and expert support from coaches. The supports ISA provides to participating schools include financial assistance (for example, to support extended day learning opportunities), professional development—including intensive summer and winter institutes, networking opportunities (for example, the ISA Leadership Network allows principals and vice-principals to interact with leaders of other ISA small schools across the country), and an ISA coach who works onsite one day per week.

Coaching is a key part of the ISA model. ISA coaches are skilled educators with experience in providing professional development and technical assistance to teachers and schools engaged in reform efforts. Individuals or teams of staff receive coaching on issues ranging from classroom management strategies to design and implementation of inquiry-based projects to performance and portfolio assessments.

ISA's strategic partner, the National Center for Restructuring Education, Schools & Teaching (NCREST) at Teachers College, Columbia University, provides additional support. In addition to collaborating on the design of professional development, NCREST collects data such as site-visit reports, periodic student assessments, and student surveys. These data are used to assess implementation of the ISA principles, student progress in writing and mathematics, and students' attitudes toward school and ambitions for the future. NCREST also facilitates conferences on scoring writing assessments of 9th and 11th grade students. Similarly, NCREST has facilitated workshops on reviewing student work to assess student progress and the effectiveness of teaching strategies. NCREST supports ISA coaches by providing professional development and facilitating networking.

Perceived Usefulness of ISA Professional Development

In interviews, teachers, counselors, and administrators described the value of the ISA institutes and coaches. Specifically, they noted that ISA institutes helped school staff understand the ISA mission and thus clarified what they should be working toward. ISA teachers attributed many positive changes in their practice and in the school environment to ISA professional development and particularly to the ISA coaches.

In their surveys, teachers were generally positive about ISA professional development. As shown in Table 2, about three-fourths of teachers reported that the summer and winter ISA institutes were “useful” or “very useful.” Over half of ISA teachers who participated in other types of professional development also reported that they were useful or very useful. Four areas (marked by asterisks in Table 2) show statistically significant variation in teachers' ratings of usefulness between the two years, but these differences form no discernable pattern.

Table 2. Perceived Usefulness of ISA Teacher Professional Development

ISA Professional Development Activities	% Who Participated		% Who Found It Useful or Very Useful	
	2005	2007	2005	2007
Summer institute	63%	76%	70%	77%
Winter institute	19%	35%	93%	74%
Working with the ISA coach in your team / small learning community*	92%	75%	69%	53%
Working with the ISA coach individually*	86%	59%	77%	58%
ISA scoring writing conferences	39%	38%	73%	56%
NCREST workshop on reviewing student work	28%	15%	52%	58%
Working with the math content coach*	21%	21%	53%	73%
Working with the literacy content coach	15%	20%	55%	52%
ISA guidance counselor group*	21%	10%	56%	92%

* $p \leq .05$

Sources: AED teacher surveys, 2005 (N = 77) and 2007 (N = 133)

When asked in an open-ended question to comment on other areas in which they would like professional development, teachers most often named developing literacy across the curriculum, inquiry-based instruction, and differentiated instruction. Many teachers also expressed a need for help in content areas other than literacy and math, including social studies, foreign languages, and special education.

Teachers were also asked how often they discussed professional development with other teachers in their school. About half of all teachers in 2005 (48%) and two-fifths in 2007 (39%) reported doing so “fairly often” or “very often.” More frequently, teachers said that they reflected with other teachers on classroom practices: 58% in 2005 and 72% in 2007. In our interviews, teachers noted that they often lacked time during the day to collaborate with colleagues. When they did have time for collaboration, they preferred to reflect on specific classroom practices rather than to share professional development experiences.

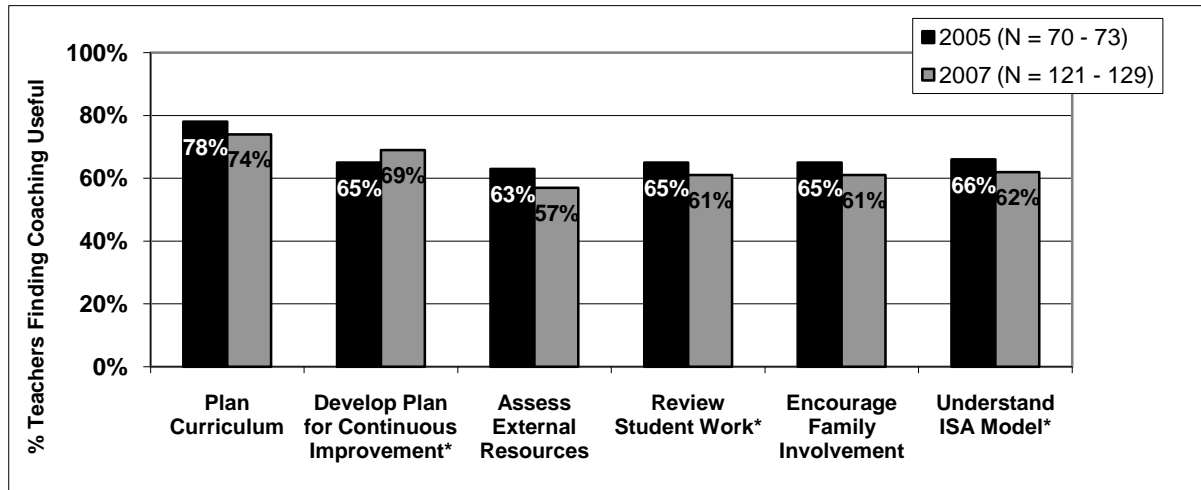
Most teachers worked with ISA coaches at least once during the school year in which they were surveyed: 97% in 2004–2005 and 78% in 2006–2007. Both the percentage of teachers who worked with coaches and the frequency with which they did so varied between the 2005 and 2007 surveys. In 2005, the majority of teachers worked with their coaches frequently: 1–2 times a month (32%) or once a week (40%). In contrast, in 2007, only 13% of teachers worked with their coaches 1–2 times a month, and 16% did so once a week. A larger proportion worked with their coaches 1–2 times a year (24%) or 3–8 times a year (26%).

We attribute this statistically significant difference⁴ to lack of contact with the ISA coaches in one school (housing three smaller learning communities) where two coaches were new to the school and worked primarily with the administrators. Therefore, teachers at this school had far less exposure to the coaches in 2007 than they had in the past. Further, having worked with schools for at least four years by 2007, coaches may have deliberately refocused their efforts away from working with teachers individually as teacher capacity increased.

⁴ Chi square = 44.09 (df = 5), $p < .001$.

The survey also asked teachers about the usefulness of their work with ISA coaches. As shown in Figure 1, the largest proportion of teachers who had worked with ISA coaches were positive about coaching in curriculum planning, with about three-quarters reporting that it was useful or very useful. A majority of teachers also found the five other major areas of coaching to be useful or very useful. (Areas marked with an asterisk in Figure 1 denote significant differences, although these differences are small in magnitude.)

Figure 1. Areas of Coaching Teachers Found Useful



* $p \leq .05$

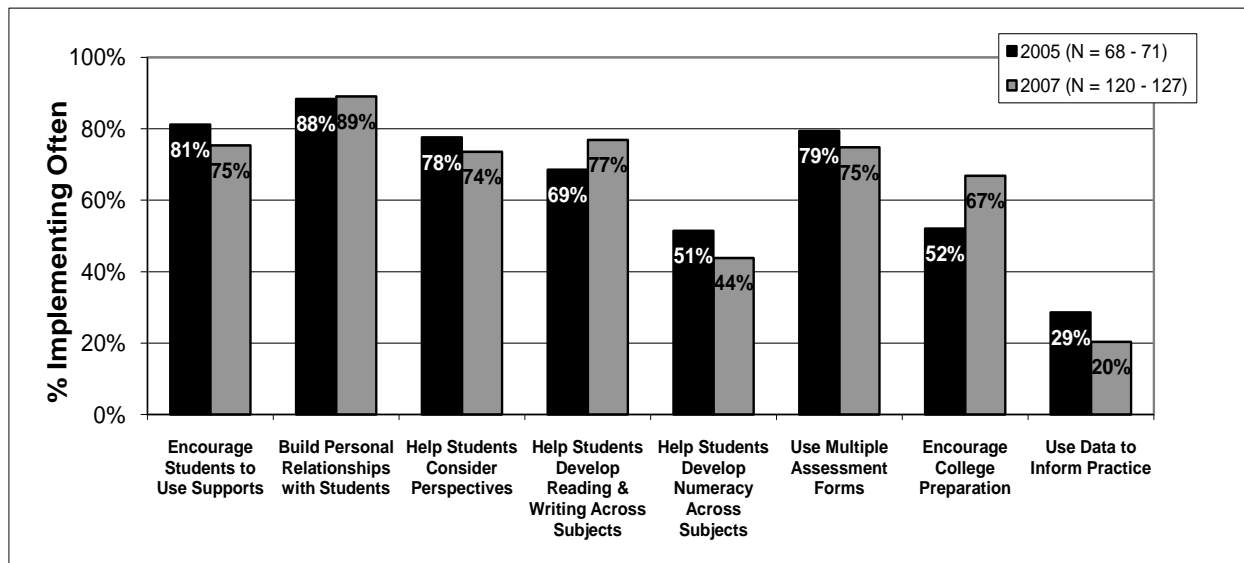
Sources: AED teacher surveys, 2005 and 2007

Teachers' Implementation of ISA Principles

To find out whether professional development activities resulted in change in teachers' practices, we inquired about the frequency with which teachers implemented key practices related to the ISA principles. Teachers in ISA schools reported a high level of adherence to most of the principles. A large majority of teachers reported implementing most of these practices fairly often or very often, as shown in Figure 2. For example, 9 out of 10 teachers said they fairly often or very often built personal relationships with students.

However, relatively few teachers said that they frequently implemented two practices: helping students develop numeracy across subjects and using data to inform practice. Only 51% of teachers in 2005 and 44% of teachers in 2007 reported helping students develop numeracy skills fairly often or very often. In interviews, teachers identified this practice as a difficult one to implement. In an attempt to address this area, many teachers worked with an ISA coach dedicated to mathematics content.

Figure 2. Teachers' Implementation of ISA Principles



Sources: AED teacher surveys, 2005 and 2007

Use of data to inform practice was implemented fairly often or very often by only 29% of teachers in 2005 and 20% of teachers in 2007. AED's site visits confirmed uneven use of data to inform practice across and within schools.

When teachers did report using data to inform their practice, discussion of data took on various forms including grade-level meetings, case conferencing, and "critical friends" groups, in which small groups of teachers come together to improve their teaching through such practices as reviewing student work. In such structures, school staff spent a great deal of time reviewing individual student data, school-wide data, and periodic assessments. These meetings often resulted in school-wide initiatives to address the concerns the data exposed. School staff indicated that they valued using data to help the school focus on improvements and address particular concerns.

In other schools, staff reported that they were not successful in using data to inform practice in part because the schools were struggling with issues such as lack of leadership around the practice, lack of time to meet, and staff feelings of being overwhelmed. For example, in one school, meetings to discuss data had taken place, but the administration did not follow up with a plan to address the identified concerns. This school's ISA coach explained:

With periodic assessments, the data haven't been used as effectively to address changes in instruction in the way they are supposed to be. We don't look at attendance, course failures, etc., enough—it's a flaw, and the principal isn't a numbers person.

Concerning the time issue, a teacher noted in an interview:

The biggest challenge is there's never enough time. We want to get deep into what it's going to take to ensure the academic success of our students; we keep our mission close, but we run out of time to put ideas into motion.

A principal from a different school echoed this viewpoint:

We use the NCREST assessment as our four periodic assessments. We use them less than we should. We don't have enough time to plan how to use the data and feed it back into planning.

These schools are committed to continuous organizational improvement, but they are struggling with how to institutionalize this principle in the face of competing demands.

Effect of ISA on Schools

Data from the NYC Department of Education Learning Environment Surveys⁵, the student and teacher surveys, and our interviews and site visits indicate that several practices implemented by ISA schools differentiate them from larger comprehensive high schools in NYC. The features outlined in this section are likely related to the positive student outcomes identified in our evaluation.

Providing Students with a Personalized Environment

The small size of ISA schools offers a clear advantage in providing students with a personalized environment. In addition, ISA principles call for building a school-wide safety net of support services. In ISA's unique model of "distributed counseling"TM, all school staff are responsible for knowing students well and for providing a caring, safe, and supportive environment. Counselors collaborate closely with teachers to help them expand their role to include advising a group of students.

Advisory groups in ISA schools took a variety of forms. Typically teachers and/or counselors met with a small group of 15–18 students during dedicated periods of the school day. Topics covered included social and emotional issues such as stereotyping, prejudice, interpersonal skills, and peer pressure, as well as academic issues such as career and college exploration, tutoring, and study skills. Advisory programs met from one to four times per week. Teachers described advisory groups as, in the words of one teacher we interviewed, "an opportunity to really get to know and develop a closer relationship with our students."

In addition to advisories, counselors supported teachers in various ways to help them integrate counseling strategies into their pedagogy. For instance, some conducted case-management sessions with teacher teams on dealing with student issues.

However, implementing distributed counseling was not without its challenges. Concerns revolved mostly around capacity and "boundary" issues about the responsibilities of teachers and counselors in carrying out the model. The fact that roles often got blurred was a point of distress for some teachers and counselors. For example, one counselor explained:

Teachers don't know where the line is, where I can help and should help. Sometimes teachers don't give me the information. Sometimes by the time they get to me the problem is really big.

Further, in some schools, the advisory structure was not well defined, with no set guidance curriculum. Teachers in these schools said in interviews that they felt unsure of how to structure advisory groups and what to do in them. A few also noted that they felt unqualified to take on the advisor role. Adding to the challenges teachers faced was the notion that, as teachers in small schools, they were already overburdened with many different tasks. Distributed counseling was viewed as "yet another thing to do," according to one interviewed teacher.

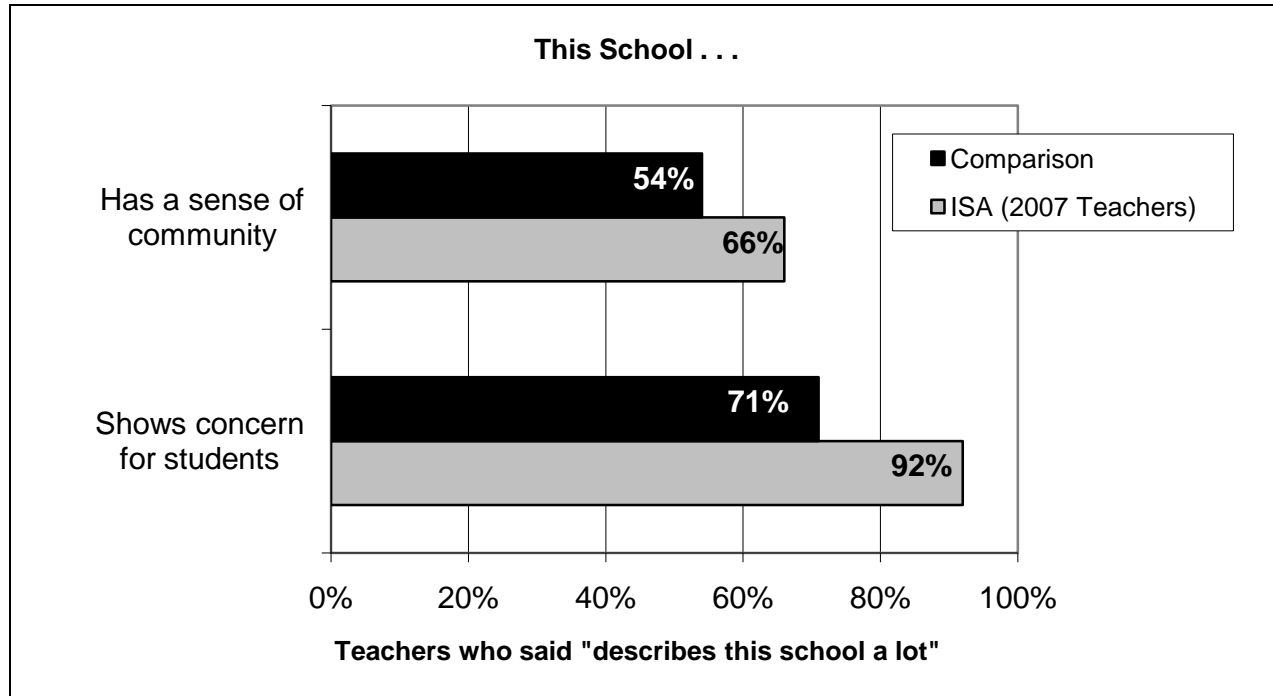
Supports Critical to Staying and Succeeding in School

Research shows high correlations between academic success and the kinds of social supports for students that ISA aims to provide. For example, one study showed that having highly supportive

⁵ <http://schools.nyc.gov/Accountability/SchoolReports/ProgressReports/FindAProgressReport/default.htm>

teachers reduced the probability of high school student dropout by half (Croninger & Lee, 2001). Our survey and site-visit data show that ISA schools are providing the types of supports that help students stay in, and succeed in, school—outperforming comparison schools in this area. In contrast to a national sample, ISA teachers reported higher levels of concern for students as well as a greater sense of community, as shown in Figure 3.

Figure 3. Supports for Students



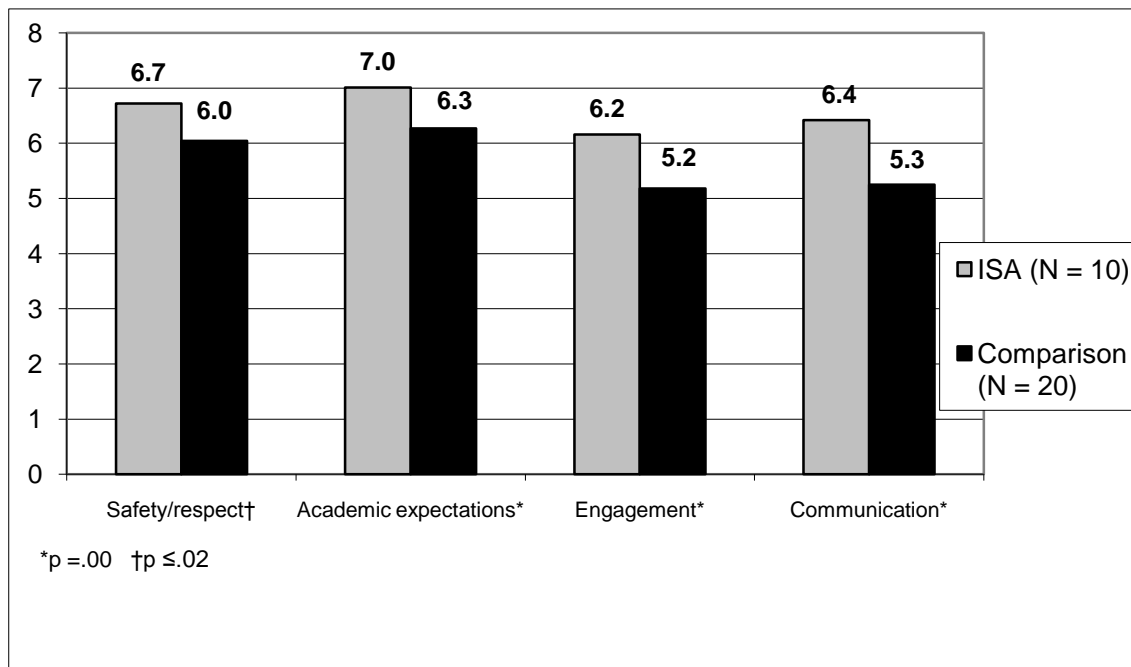
Sources: AED teacher survey, 2007 (N = 113), and AED calculations on data provided by the MetLife 2003 Survey of the American Teacher (N = 244)

The 2007 NYC Learning Environment Survey (NYC Department of Education, 2007) data also showed favorable results for ISA schools. These surveys, administered citywide to teachers and students, covered a range of topics, including:

- **Safety/respect:** the degree to which the school provides a physically and emotionally secure environment
- **Academic expectations:** the degree to which the school has high expectations and encourages students to do their best
- **Engagement:** the degree to which the school involves students, parents, and teachers in partnerships to promote student learning through, for example, a broad range of courses and activities as well as opportunities to have input in the school
- **Communication:** the degree to which the school effectively communicates goals and requirements, gets community input, and provides feedback to students (NYC Department of Education, 2007)

On these four scales, ISA schools showed significantly better results than a sample of comparison schools that served demographically similar students, as shown in Figure 4.

Figure 4. ISA and Comparison School Ratings on the NYC Learning Environment Survey, 2007



Scale score range: 1–10

Sources: ISA student survey, 2007, and AED calculations on NYC DOE (2007) report card data.

Parent Involvement

Another area of focus for ISA schools is meaningful parent involvement. Study schools provided multiple opportunities for parents to communicate with school staff, although each school went about parent-staff communication a little differently. For example, one school purchased an e-mail program to facilitate communication between teachers and parents. Other schools used the advisory group structure to communicate with parents. One school had a stated goal for advisory teachers to contact parents at least twice a month, for positive reasons as well as to raise issues or concerns. An ISA teacher and advisor noted:

I've had the same advisees for three years, so the parents have my phone number and I have theirs. I have no problem calling parents, and they have no problem calling me. I try to make it a point to call when the students have done well and not only when there is a problem.

Schools also made efforts to involve parents in college preparation by, for example, inviting them to college fairs and informational meetings and assisting with financial applications.

Cultivating a College-going Culture

In interviews, staff stressed the importance of instilling the message that every student is expected to go to college. An ISA math teacher stated: “From day one, we tell our students that they are going to college.” Many ISA schools also dedicate staff solely to getting students into college. College placement offices and guidance counselors assist students with deciding which schools to apply to, completing admission applications, reviewing forms, preparing for PSAT/SAT tests, completing financial aid forms, obtaining letters of recommendation, and writing application essays. One school requires all seniors to apply to at least two schools, assisting students with every step of the process. Advisory periods were also used to

communicate college-going expectations and to work on concrete skills such as essay writing, completing applications, and researching colleges and their requirements. However, our interviews revealed that ISA schools with no dedicated college counselor found it difficult to provide students with all the support needed in this area. In particular, these schools had difficulty in starting to focus on college preparation in grades 9 and 10.

Extended School Day and School Year Learning Opportunities

All ISA schools in our study offered extended day and extended school year opportunities. These offerings, which varied greatly by school, included enrichment activities, such as a school newspaper, a drama club, and an art class; academic supports, including tutoring, homework help, and SAT and Regents test preparation; and some recreational activities. Schools typically mandated attendance in extended day academic activities for students failing or at risk of failing a course. Some schools also offered credit-recovery courses through their extended-learning offerings. In one school, summer school participants attended an intensive two-week inquiry-based program. Students who successfully completed this program received course credit.

Ongoing Organizational Improvement

One of ISA's principles is ongoing organizational improvement. ISA schools work toward this goal both by continually evaluating and refining the program and by instilling a culture of continuing professional development (another ISA principle).

To implement ongoing organizational improvement, the ISA model calls for teams to meet regularly to ensure that the program is aligned with the seven principles and is fulfilling its goal to create and sustain an intellectually rigorous, caring, and personalized learning environment. Schools use multiple mechanisms to assess their organizational and program effectiveness, including "critical friends" processes; peer observations; reviews of student work; analysis of student performance data, such as course passing rates, attendance, and growth on periodic assessments; surveys of students' attitudes and expectations about school and their futures; and documentation reports on the implementation of ISA principles. ISA's strategic partner, NCREST, assists ISA with collecting and using these data to inform practice.

Although our implementation data showed that ISA schools varied in the extent to which they embedded organizational improvement strategies in their daily operations, interviews with staff from schools with strong implementation indicated that they believed these strategies were beneficial because they helped the school focus on ways to resolve specific concerns. As one principal said:

Everything we have instituted has been because we looked at the data and saw we had a need. We look at the NCREST data and then we design a program around what our students' needs are; we look at the Regents data and pinpoint where are our weaknesses and how are we going to make it better. Our two-team structure—advisory and instructional—came from our retreat on how to improve our school. We are always using data to drive our instructional program.

Another way in which ISA schools strive for continuous improvement is continuing professional development. Schools work toward this principle by strengthening teachers' content knowledge and pedagogical skills in regularly scheduled common meetings for curriculum planning, problem solving, and reviewing student progress. Continuing professional development occurred in several forums, including at whole-staff meetings; during observations of and feedback to teachers by coaches, administrators, or colleagues; and at team-level meetings.

For example, teachers at one school formed study groups. Group members worked on individual projects focused on ISA goals and presented their findings to their fellow teachers for feedback. The principal explained the value of this process:

The most successful PD we've done was when we asked the staff to form study groups. Every study group took one of the goals, studied it, and compiled a report which they then presented to their colleagues. This was very effective because the staff showed what they learned, shared how they would use their newfound learning in the classroom, and then asked their colleagues for feedback on the lessons they presented. It was fabulous.

In another school, more experienced teachers mentored teachers who were new to the field or the subject area.

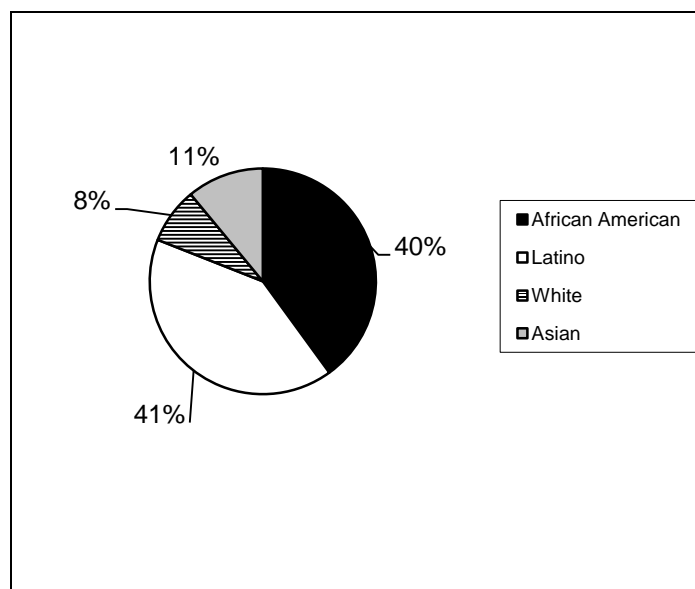
Student Outcomes

Our evaluation found that ISA schools generally implemented ISA principles and that the implementation had the desired effect on teachers and schools. Next we describe how ISA implementation affected student outcomes.

Characteristics of ISA Students

ISA study schools served a diverse student population. A majority of students in the study were African American or Latino/a, as shown in Figure 5. Slightly more ISA students were African-American and Latino/a and fewer were white, compared with students citywide. ISA students faced several disadvantages, including low socioeconomic status and poor prior achievement. Compared with all NYC students, ISA students were much more likely to be eligible for free or reduced-priced lunch (73% versus 50% citywide).

Figure 5. Race/Ethnicity of ISA Students Entering 9th Grade in 2003 or 2004



In addition, of ISA students,

- 73% were eligible for free or reduced-priced lunch.
- 9% were English language learners.
- 11% were designated as special education students.
- 36% (versus 42% citywide) scored “proficient” in math and 31% (versus 36% citywide) scored “proficient” in reading on 8th grade state tests.

Source: AED calculations on data provided by the NYC DOE, N = 1,598

Despite these disadvantages, ISA students showed some promising outcomes, outperforming comparison students on several key indicators.

ISA Effect on Students

Research indicates that a myriad of factors contribute to whether students drop out or graduate from high school. Chief among them is credit accumulation in the early years of high school (Allensworth & Easton, 2007). Credit accumulation is in turn related to attendance and grade promotion. Further, even after graduating from high school, students from low-income families often do not enroll in college unless they have intensive supports and preparation.

To assess these factors for the evaluation, AED obtained information from the NYC Department of Education about credit accumulation, grade promotion, attendance, and results of Regents exams. In addition, we surveyed students about several factors that have been linked to staying and succeeding in high school, such as peer support and academic engagement. We also asked about student supports in the teacher survey. Finally, we obtained information from the National

Student Clearinghouse and from the City University of New York regarding ISA students' enrollment and retention in college.

Student outcomes are presented below under the following categories:

- Credit accumulation
- Grade promotion
- Attendance
- Regents exams
- Graduation and drop-out rates
- Factors contributing to high school retention and graduation
- College readiness
- College enrollment
- College retention

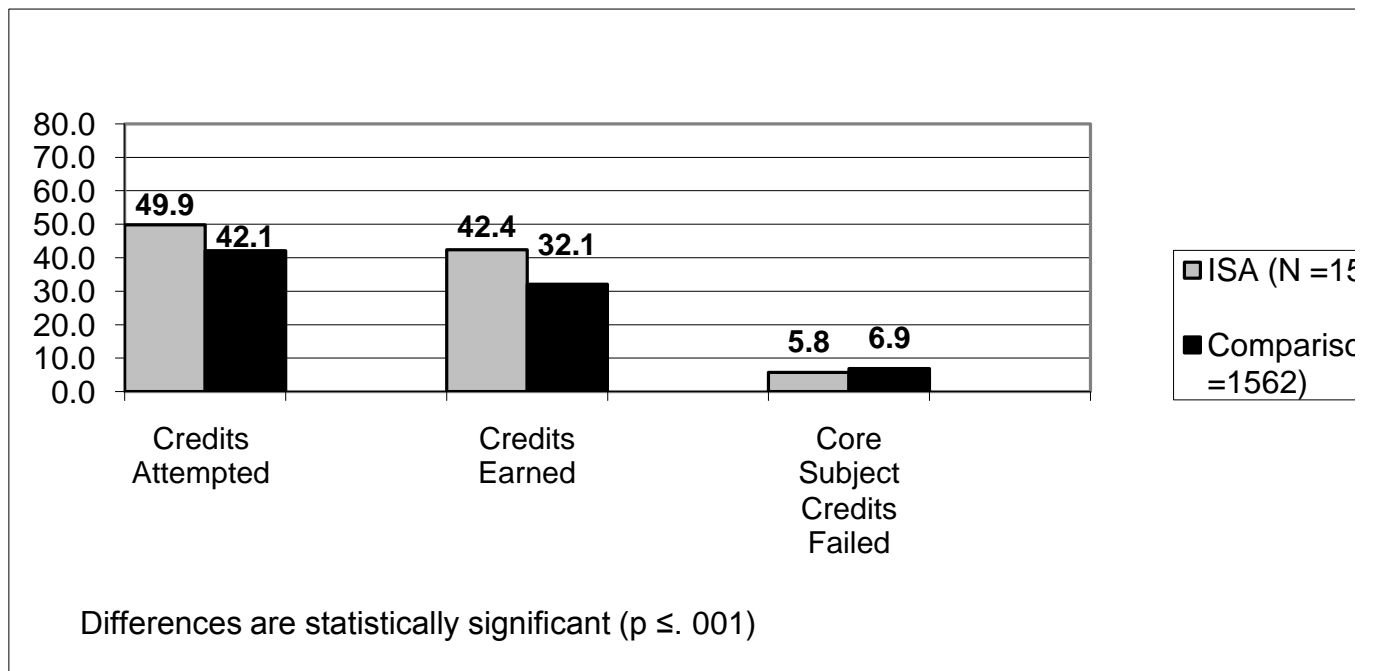
Credit Accumulation

Credit accumulation is a key indicator of students' progress towards graduation. The strong correlation between lower credit accumulation and dropping out of school is demonstrated by the fact that 93% of New York City dropouts were found to be over-age and under-credited (Parthenon Group, 2005).

Figure 6 shows that ISA students attempted and earned more credits than their comparison peers.⁶ NYC requires 44 total credits for graduation. After controlling for differences in student characteristics, we found that ISA students earned an average of 6.3 more credits and attempted 2.9 more credits over the four years than did their comparison peers. These differences are large and statistically significant. ISA students were also less likely to fail credits in the four core subjects: English, math, science, and social studies. Controlling for background differences, ISA students were 42% less likely than comparison students to fail any core subject course.

⁶ All achievement data are from the NYC Department of Education (2003–04 to 2005–06). Comparison students are students who attended large non-ISA schools and were matched to ISA students by gender, over-age for grade, race/ethnicity, prior achievement, free-lunch status, income, special education, and English language learner status, using propensity scoring. See appendix B for additional details on the construction of the comparison group.

Figure 6. Four-year Cumulative Credits Attempted, Earned, and Failed for ISA and Comparison Students Entering 9th Grade in 2003 or 2004



Source: AED calculations on data provided by the NYC DOE

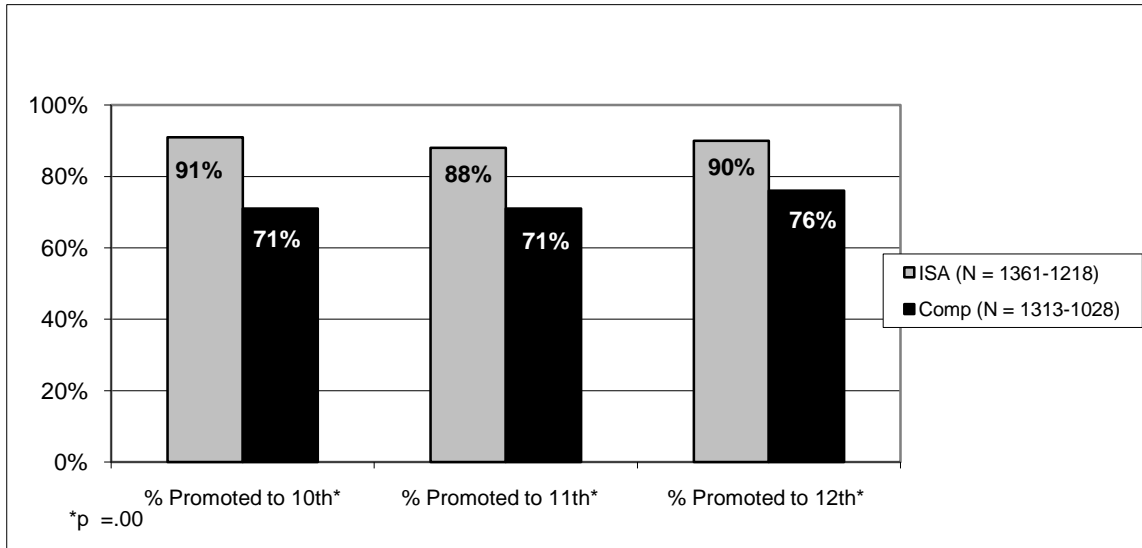
Grade Promotion

Grade promotion is another early indicator of high school success. One study showed that 9th graders who are promoted to 10th grade are more than 3.5 times more likely to stay in school and graduate in four years than students who are not promoted (Roderick, 2006).

ISA students had very high rates of promotion at each grade level, as shown in Figure 7, and far outperformed comparison students in non-ISA schools. Nearly all ISA 9th graders (91%) were promoted to 10th grade, compared to only 71% of comparison students. Similar differences are found in promotions to 11th and 12th grades. Controlling for background factors, ISA 9th and 10th graders were about five times as likely as comparison students to be promoted to the next grade, and ISA 11th graders were more than three times as likely to be promoted.⁷

⁷ Odds ratios were determined using multilevel logistic analyses.

Figure 7. Grade Promotion Percentages for ISA and Comparison Students Entering 9th Grade in 2003 or 2004



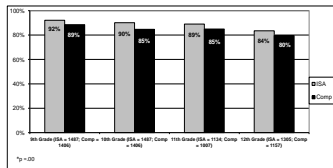
Source: AED calculations on data provided by the NYC DOE

Attendance

Attendance is also a key predictor of graduation. According to one study, low attendance during the first 30 days of grade 9 is a more powerful predictor that a student will drop out than any 8th grade factor, including test scores, age, or academic failure (Neild & Balfanz, 2001).

ISA students had consistently higher attendance rates than did comparison students. As shown in Figure 8, ISA students’ attendance was 3–5 percentage points higher than that of their comparison peers in the 9th through 12th grades. These differences were statistically significant at each grade level.

Figure 8. Average Daily Attendance

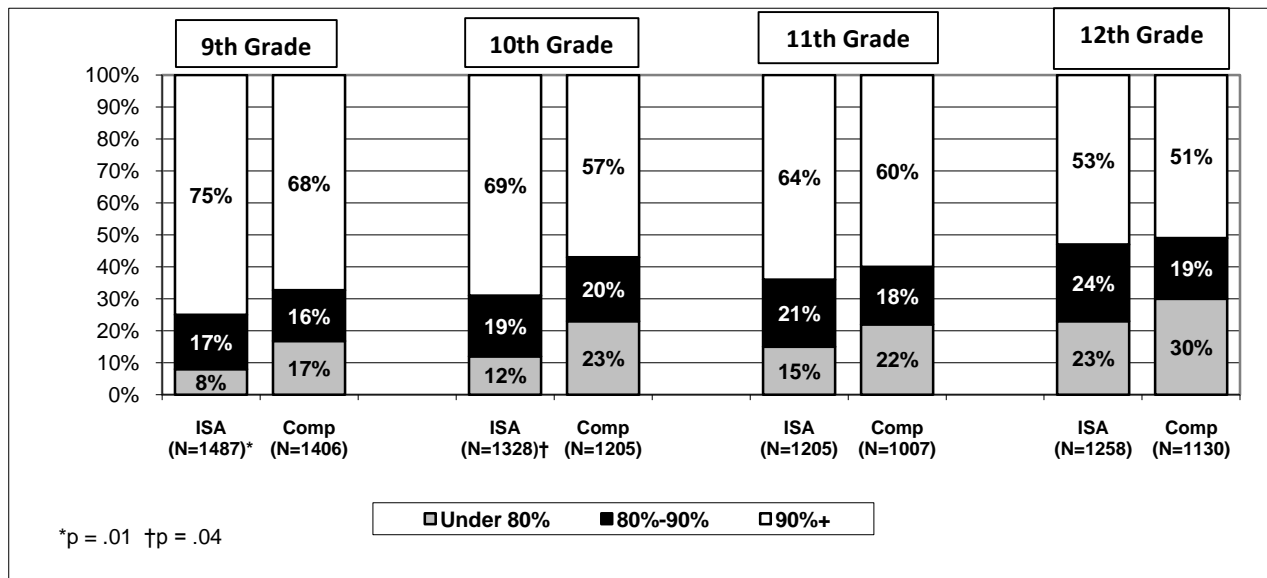


Source: AED calculations on data provided by the NYC DOE

NYC Department of Education policy states that students must attain a minimum of 90% attendance for promotion and graduation. Between 53% and 75% of ISA students met this minimum standard, as shown in Figure 9 below.

Figure 9 also shows that more comparison students than ISA students had chronic low attendance; that is, they averaged one or more days absent per week. In grades 9 and 10, about half as many ISA students as comparison students were chronically absent. The trend continues in the upper grades, though the difference between ISA and comparison students is not as large.

Figure 9. Attendance, Grades 9–12, ISA vs. Comparison Students



Source: AED calculations on data provided by the NYC DOE

The small, personalized environment of ISA schools is a likely explanation for the positive effect on attendance. One feature of the ISA model is weekly attendance meetings in which student support staff (social workers, guidance counselors, administrators, parent coordinator) reviewed attendance data and identified interventions for students who were chronically absent.

Teachers, administrators, and ISA coaches also described advisory classes as a mechanism that helped bolster students' attendance. For instance, one principal said:

As soon as a student is absent, my advisory team is on it. They call home asking, "What's going on? Why weren't you in school today?" It's made a difference.

A teacher agreed:

Any attendance problem—I work on it through advisory [class] and, if that doesn't work, I hand it over to the advisory team, who are on the phone with parents every day.

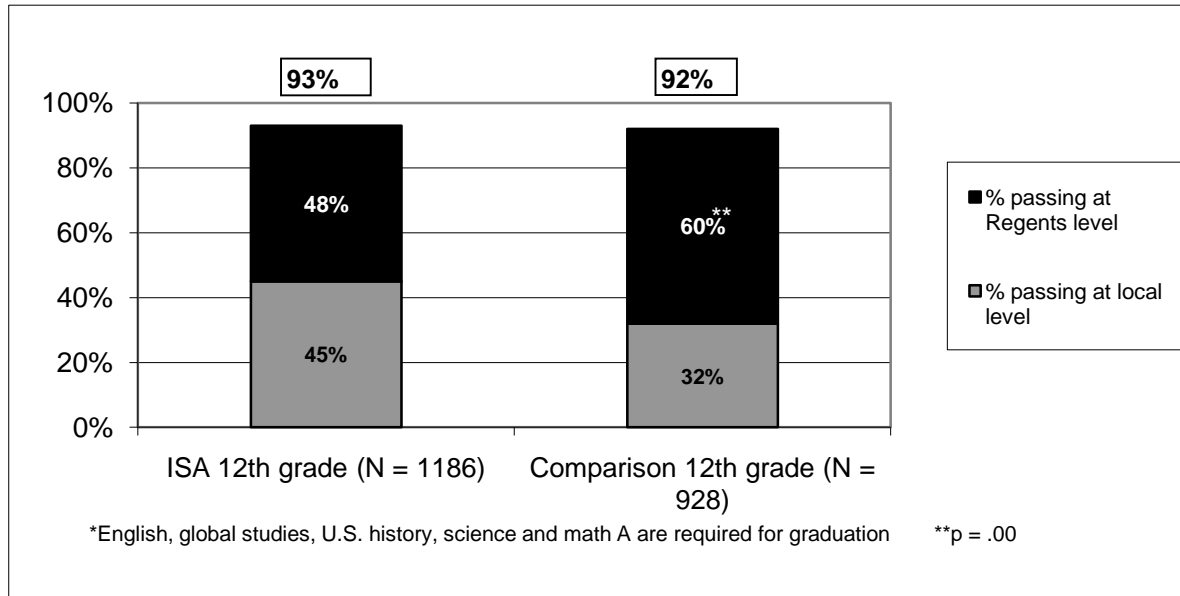
The positive attendance results for ISA students are very likely related to these specific and immediate responses to absenteeism.

Regents Exams

New York City requires that students entering grade 9 in 2003 or 2004 pass five Regents exams—comprehensive English, math A, science, global history and geography, and U.S.

history and government—to obtain a high school diploma.⁸ By the end of 12th grade, nearly all ISA students (93%) had passed all five required subjects, slightly more than comparison students. When controlling for background factors, differences in overall pass rates were not statistically significant. However, comparison students were more likely to pass at the Regents level, as opposed to the less rigorous local level, as shown in Figure 10.

Figure 10. Percent Passing Regents Exams in All Five Required* Subjects



Source: AED calculations on data provided by the NYC DOE

Data from our interviews with ISA teachers and administrators indicate that one challenge schools face in preparing students for the Regents exams is integrating test preparation with the ISA principle of providing an inquiry-based, college preparatory curriculum. They do not see passing the Regents tests as synonymous with college readiness. Principals expressed a conflict between preparing students for Regents exams and offering inquiry-based curriculum designed to provide students with the skills for success in college and in life:

Inquiry-based instruction—it’s hard to do this with all the test prep that needs to be done.

How do I balance [NYC Department of Education (DOE)] mandates with ISA goals? They don’t mesh. [For example,] DOE requires six periodic assessments per year. ISA encourages inquiry, project work, interdisciplinary assignments, etc.

A teacher echoed this viewpoint:

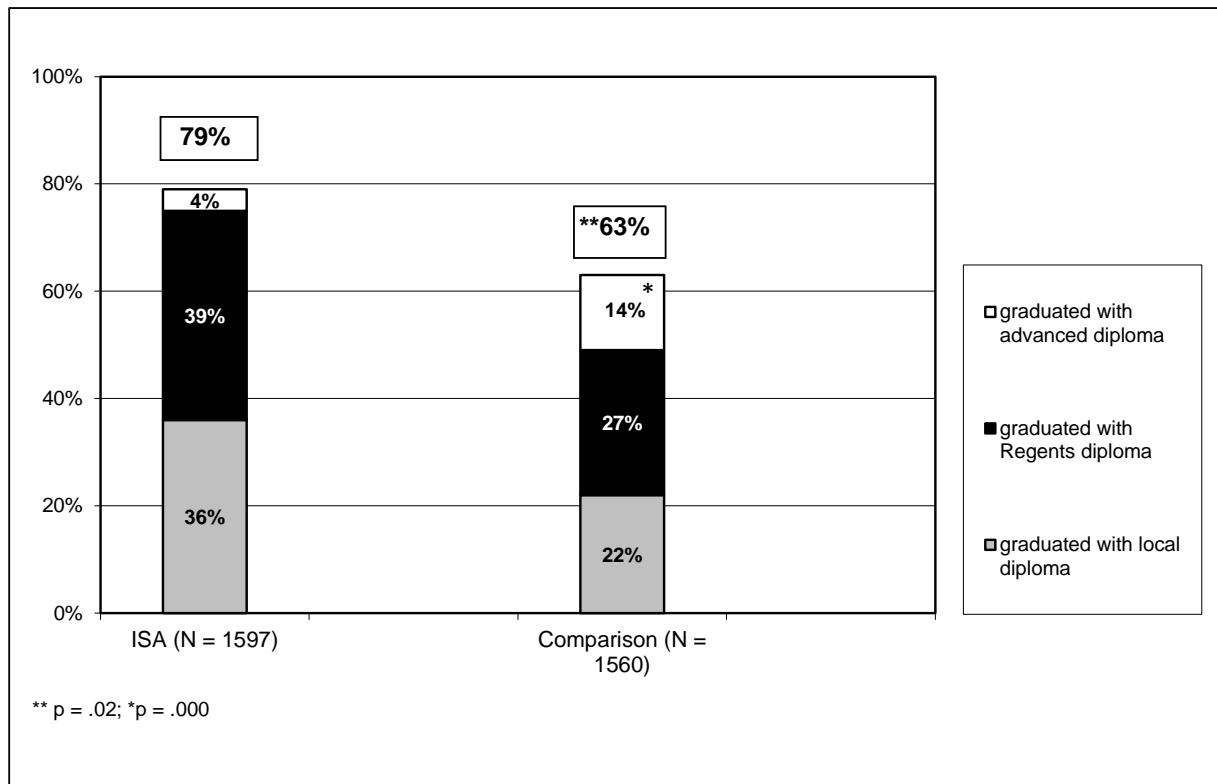
Regents exam, mandated curriculum, regional initiatives—all lack flexibility in programming. It gets in the way of how we want to do instruction.

⁸ The Regents diploma requires students to pass all five required Regents exams with a score of 65 or higher. The “local” diploma level requires a score of 55 or above on all five exams. However, after 2008, NYC no longer offered a local diploma. The advanced diploma requires students to earn six credits in a foreign language and to pass the five required Regents exams, plus an additional science exam and a foreign language exam, with a score of 65 or higher.

Graduation and Dropout Rates

As shown in Figure 11, ISA students who entered the 9th grade in either 2003 or 2004 were more likely to graduate in four years than comparison peers. The difference between 79% of ISA students and 63% of comparison students graduating in four years is statistically significant. The ISA student graduation rate also exceeded the 2008 citywide four-year graduation rate of 66% (NYC DOE, 2009). When controlling for background factors, ISA students had a 31% greater likelihood of graduating in four years than did comparable peers. ISA students were as likely as non-ISA students to earn a Regents diploma; the difference between 39% of ISA students versus 27% of comparison students was not statistically significant. However, ISA students were less likely to get an advanced diploma when controlling for background factors.

Figure 11. Four-year Graduation Outcomes



Source: AED calculations on data provided by the NYC DOE

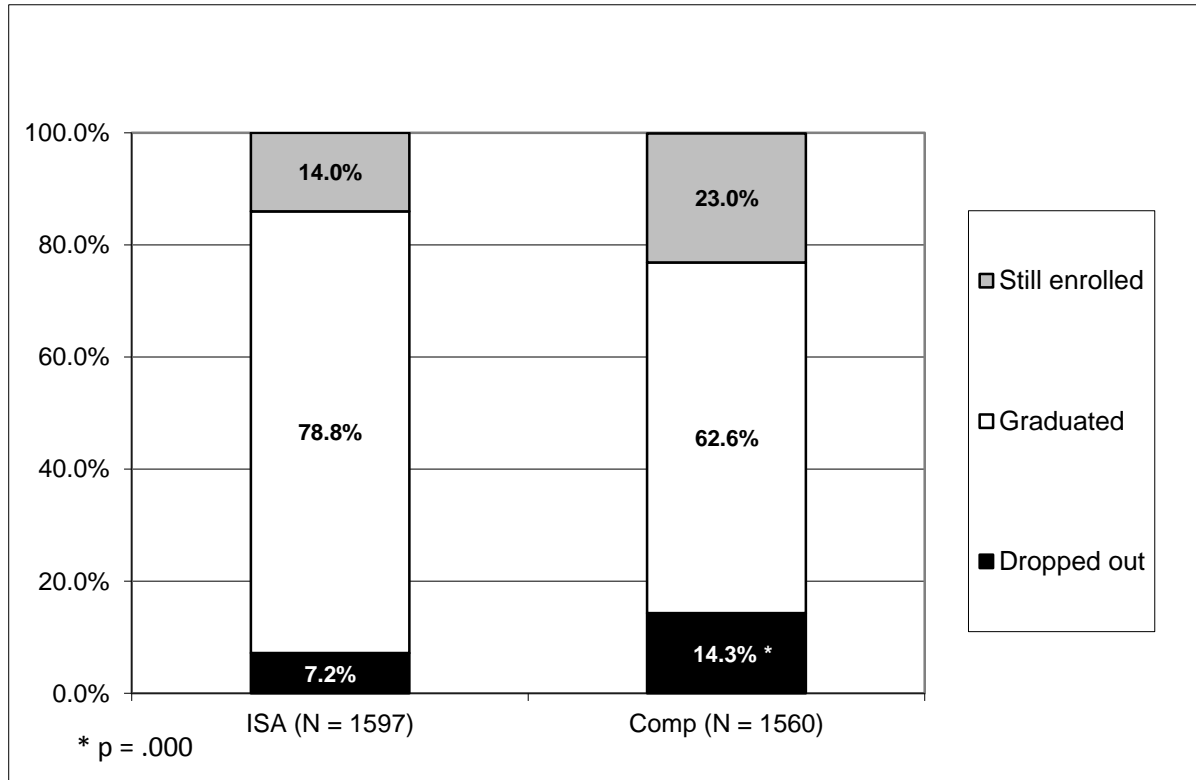
Fewer ISA than comparison students dropped out of high school within four years, as shown in Figure 12; after controlling for background factors, we find that ISA students were 49% less likely to drop out than comparison students. The ISA dropout rate of 7.2% was also far lower than the citywide rate of 13.5 % for the class of 2008 (NYC DOE, 2009).

A substantial portion of students were still enrolled in the New York City public school system in the fall following their fourth year,⁹ according to Department of Education records. Specifically, 14% of ISA students and 23% of comparison students were still enrolled beyond their fourth year of high school. This is consistent with citywide data showing that approximately one-fourth of students stay enrolled beyond their fourth year. Many low-income students take five or more years to graduate; thus the proportion of students who graduate from high school

⁹ The fall following students' fourth year in high school was fall 2007 for Cohort 1 students and fall 2008 for Cohort 2.

ultimately increases beyond the four- or five-year rate. For example, the citywide seven-year graduation rate was 72% for the class of 2004 (New York City Coalition for Educational Justice, 2009).

Figure 12. Four-year Cohort Outcomes, for ISA and Comparison Students Entering 9th Grade in 2003 or 2004



Source: AED calculations on data provided by the NYC DOE

Factors Contributing to High School Retention and Graduation

According to a 2007 report from the University of Chicago, several factors predict whether students will stay on track and graduate from high school, increasing the likelihood that they will attend college (Allensworth & Easton, 2007). We assessed the degree to which students in ISA schools reported these factors and compared them to data from students in the Chicago public schools.

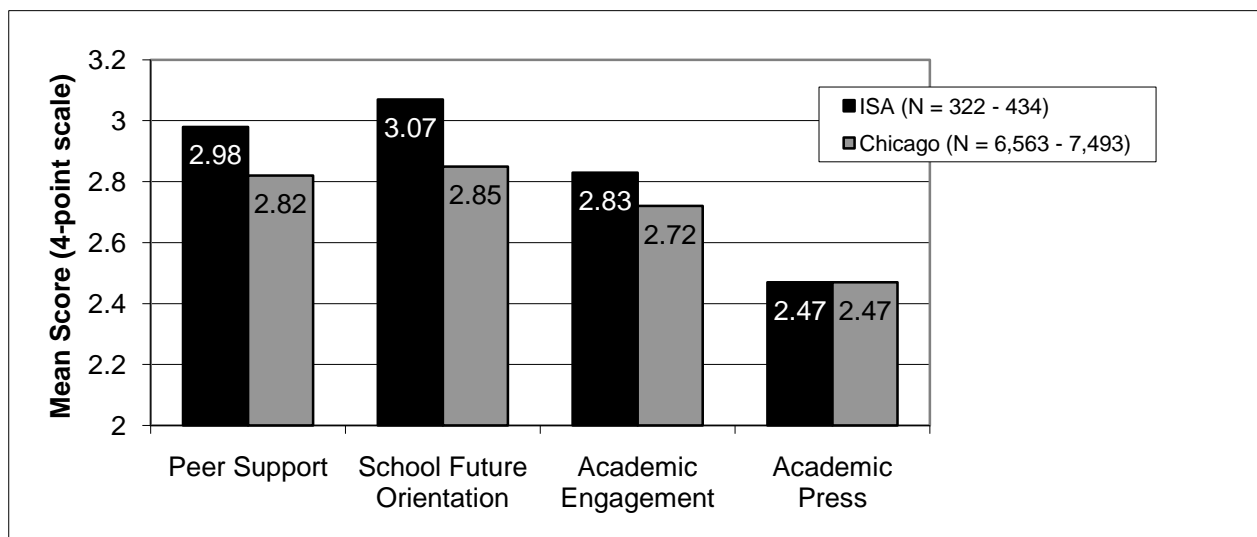
For four of the retention and graduation factors from the University of Chicago report, we had data both from the 2008 ISA student survey and from a 2007 survey administered of students in Chicago public schools with similar demographics (Allensworth & Easton, 2007). The four factors are listed below with corresponding sample questions from the Chicago survey:

- Peer Support for Academic Achievement: “My friends and I think that it is important to do well in school.”
- School-Wide Future Orientation: “At my high school teachers make sure that all students are planning for life after graduation.”
- Academic Engagement: “The topics we are studying are interesting and challenging.”

- Academic Press: “Do you have to work hard to do well?”¹⁰

For three out of the four factors, students in ISA schools had significantly higher scores than students in the Chicago public schools, as shown in Figure 13. The difference is likely the result of the ISA intervention, in which teachers and counselors provided individual attention and stressed the importance of going to college.

Figure 13. Factors Contributing to High School Retention and Graduation, for ISA and Chicago Public School Students



Source: ISA 12th grade survey, 2008, and Chicago Public School senior survey (Allensworth & Easton, 2007)

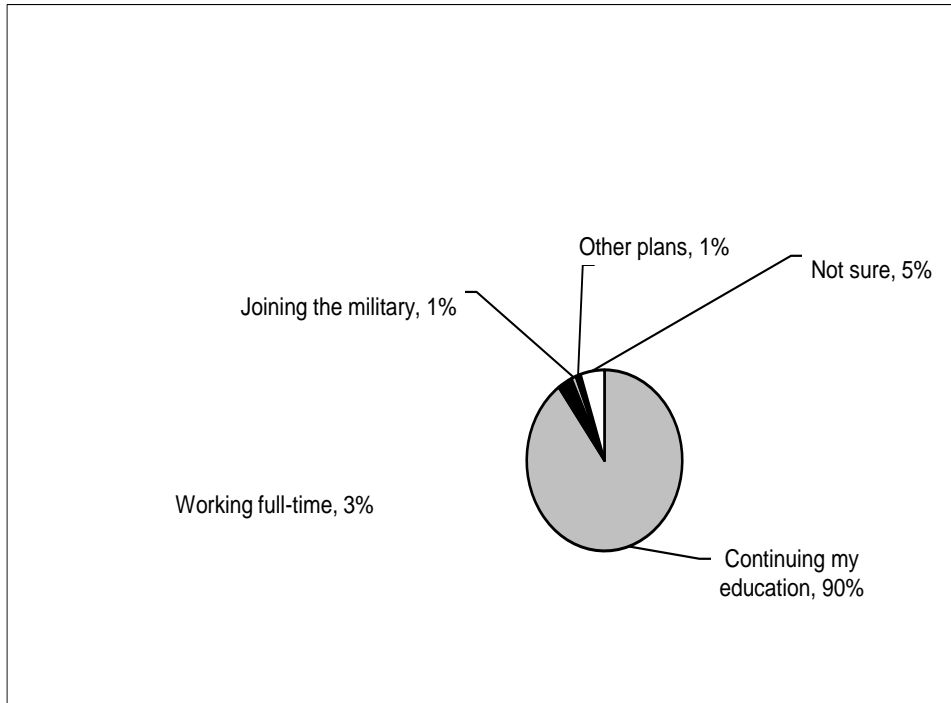
College Readiness

Most ISA seniors surveyed (90%)¹¹ reported that they planned to continue their education after high school, as illustrated in Figure 14.

¹⁰ Information about scale construction is available at <http://csr.uchicago.edu/surveymeasures2007/>.

¹¹ Senior survey results are from 437 respondents in five ISA schools. The survey was administered in May 2008.

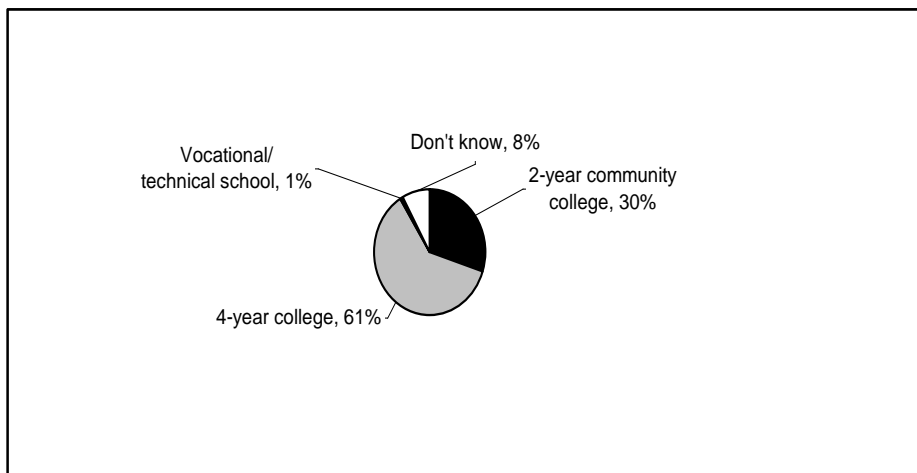
Figure 14. Post-High School Plans for ISA 12th Grade Students, 2008



Source: ISA 2008 12th grade survey, N = 414

Figure 15 shows that a majority (61%) of ISA 12th graders who planned to continue their education planned to attend a four-year college, and 30% planned to attend a two-year college. These rates are higher than those reported for all NYC seniors in 2007: 47% of all seniors, and only 40% of those in high-poverty schools, planned to attend a four-year college, and 17% planned to attend a two-year school (New York City Coalition for Educational Justice, 2009).

Figure 15. Type of Post-Secondary School ISA 12th Grade Students Planned to Attend, 2008



Source: ISA 2008 12th grade survey, N = 397

ISA schools use a variety of social and academic supports to emphasize college preparation, starting in 9th grade. Because a majority of ISA students are low income and many will be first-generation college students, they need help with the application and enrollment process,

including assistance in selecting schools that are the right “fit,” help with completing college and financial applications on time, and others (Quint, Levy Thompson, & Bald, 2008; Roderick et al., 2008; Venezia, Kirst, & Antonio, 2003). A recent study of Chicago public high school students found that a strong college climate in the high school was the single most consistent predictor of whether students took steps toward college enrollment. A strong college culture was characterized by staff who strongly encourage students to go to college, who work to ensure that students are prepared for college, and who support students in all aspects of the college application process (Roderick et al., 2008).

Findings from the student survey indicate that a majority of ISA students had access to these kinds of support in the college enrollment process. A majority of students reported that their teachers and counselors provided “some” or “a lot” of assistance in selecting coursework that met graduation (75%) and college admissions (66%) requirements as well as counseling and advice about selecting the right college (74%) and preparing for the realities of college life (78%).

In addition to the support provided by teachers and counselors, key college preparation activities were available to ISA students; see Table 3. Well over 80% of ISA seniors said they had researched colleges, visited campuses, and prepared for the SAT exam. Nearly half of surveyed seniors had also sat in on a college-level course, which, in addition to allowing students to earn college credit and learn college-level material, can also help them understand the expectations of college.

Table 3. College Prep Activities of ISA 12th Grade Students, 2008

Activity	% Yes
1. Researched colleges (spoke to representatives, went to college fairs, reviewed websites and guidebooks)	96.6%
2. Visited in-state and/or out-of-state college campuses	83.3%
3. Sat in on a college-level course	46.0%
4. Took practice SAT exams	89.2%
5. Took the PSAT/NMSQT (Pre-SAT)	87.3%

Source: ISA 2008 12th grade survey, N = 422–432

Financing college can be one of the biggest hurdles high school graduates face. The Free Application for Federal Student Aid (FAFSA) can be confusing, and students may miss opportunities for aid if they do not complete the form on time. In one study, completing the FAFSA by May of the senior year improved students’ chances of enrolling in college the following fall by 50% (Roderick, et al., 2008) Among the ISA seniors who completed a survey, over three-fourths reported that they did apply for financial aid by the May 1 New York State deadline; nearly 60% applied for a scholarship, as shown in Table 4. Teachers and counselors played a critical role: Over three-fourths of seniors reported that their teachers and counselors helped them find scholarships and plan how to pay for college.

Table 4. Financial Aid Activities and Assistance for ISA 12th Grade Students, 2008

Activity	% Yes
1. Applied for financial aid	77.2%
2. Applied for a scholarship	59.1%
	% A little, Some, A lot
3. Teachers/counselors helped students find scholarships to apply for	79.2%
4. Teachers/counselors helped students plan how to pay for tuition and other expenses	76.4%

Source: ISA 2008 12th grade survey. N = 423–428

The Chicago high school study (Roderick, et al., 2008) showed that chances of being accepted to a college increase when students apply to several different colleges. One ISA school requires that students apply to at least eight colleges, including CUNY and SUNY schools. Even in ISA schools that do not require multiple applications, teachers and counselors are encouraging the practice; 77% of seniors reported being encouraged to apply to more than one school.

Further, most students said that they received guidance on completing applications and deciding which schools to attend. Guidance on selecting a school that is a good match for the student is critical, especially given that approximately 50% of community college and 25% of four-year college students drop out after their first year (Venezia, Kirst, & Antonio, 2003)

Data from the 2007 ISA teacher survey indicate that ISA played a strong role in helping teachers and counselors provide support for college enrollment. Specifically, 75% said ISA helped them develop practices that foster a strong college culture in their school. Assistance included workshops, cross-school meetings, and coaching for counselors on supporting students in the college selection and application process; professional development for teachers on fostering academic rigor and creating a college culture; and financial support for student college visits.

College Enrollment

AED obtained data from both the National Student Clearinghouse (NSC) and from the City University of New York (CUNY) regarding ISA students' enrollment in college. Although there are limitations to both data sets, the information gleaned about ISA students points to positive outcomes.

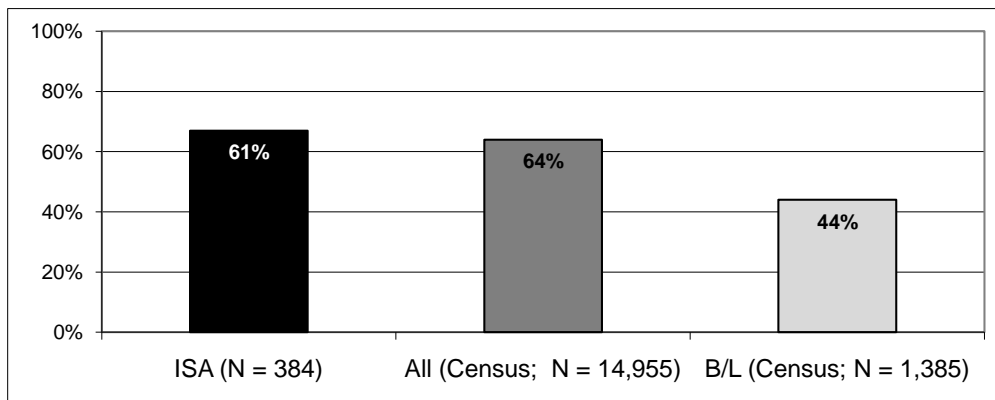
Specifically, we looked at two-year versus four-year program enrollment and at full-time versus part-time enrollment. Both factors are important indicators of future success. Students who start a full-time four-year program are much more likely to persist in college and graduate than those who attend part-time or in a two-year program (McIntosh & Rouse, 2009). Further, the potential earning power for individuals with a four-year degree is much higher for than those with a two-year degree, and the unemployment rate among people with a bachelor's degree is about a third lower than for those with an associate's degree (Alliance for Excellent Education, 2009).

National data

NSC gathers and reports information on student enrollment from 92% of colleges in the United States. Of the 954 students from five ISA schools, 56% (N=533) were matched by NSC, indicating they enrolled in college.¹²

Of these college-enrolled ISA students, 67% were attending a four-year college and 33% were attending a two-year college. In comparison, data from the U.S. Census annual population survey indicates that only 61% of college students of all races attend four-year colleges, as shown in Figure 16. Among Black and Latino college students—the groups into which most ISA students fall—44% attend four-year institutions (U.S. Census Bureau, 2008).

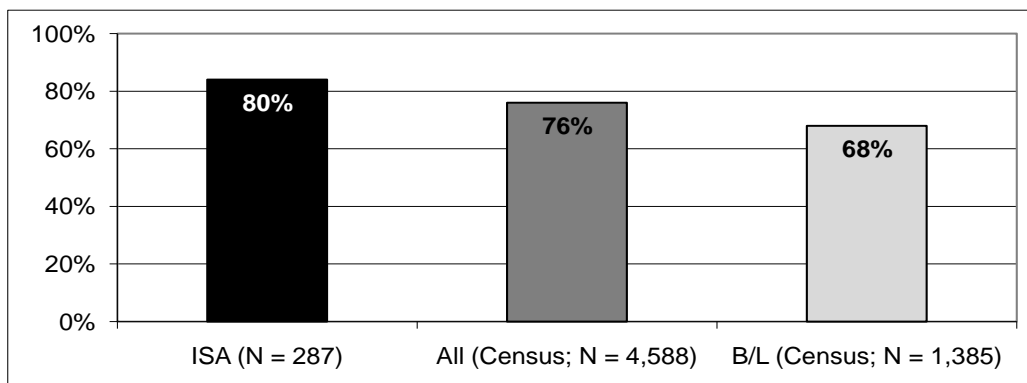
Figure 16. Percent of ISA, National, and Black and Latino College Students Attending 4-Year Institutions, 2008



Sources: AED calculations on data provided by the National Student Clearinghouse and U.S. Census Bureau, 2008

Finally, according to the census data, 76% of all first-year college students and 68% of Black and Latino college students attend full time. According to NSC data, 80% of ISA students attended full time during their first year of college, as shown in Figure 17.

Figure 17. Percent of ISA, National, and Black and Latino College Students Attending Full Time, 2008



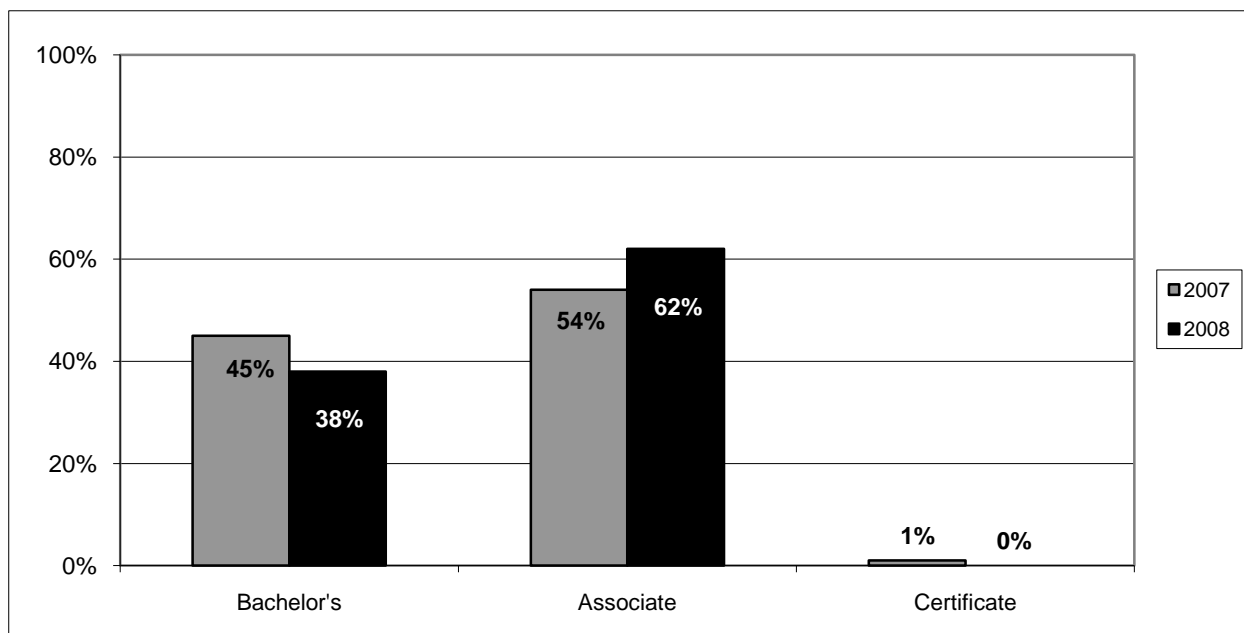
¹² This rate is likely to be lower than the real rate of college attendance for these ISA students because of misspelling of students' names and other information. Because the missing students seem to be missing at random and not systematically, we believe that the students accounted for in the NSC database are representative of those who are missing.

CUNY Data

CUNY data on ISA students' enrollment and college readiness must be interpreted with caution, as they do not reflect all ISA students in the study.¹³ A total of 869 students from 10 ISA schools with graduating classes in New York State¹⁴ applied for admission to at least one CUNY school in 2007, and 1,086 students from 13 ISA schools applied for admission in 2008. The large number of ISA applicants to CUNY colleges is not surprising: ISA schools strongly encourage all students to apply to the CUNY system as well as to other colleges. Some ISA schools even require students to apply to a CUNY school.

According to CUNY data, a total of 52% of ISA graduates who applied to CUNY schools in 2007 and 2008 ultimately enrolled. Of the ISA graduates who enrolled in CUNY schools in 2007, just over half (54%) enrolled in the associate degree program and 45% in the bachelor's program. In 2008, a larger proportion of students enrolled in the associate program; see Figure 18.

Figure 18. ISA Applicants Enrolled in CUNY by Type of Degree: Bachelor's, Associate, Certificate, 2007 and 2008



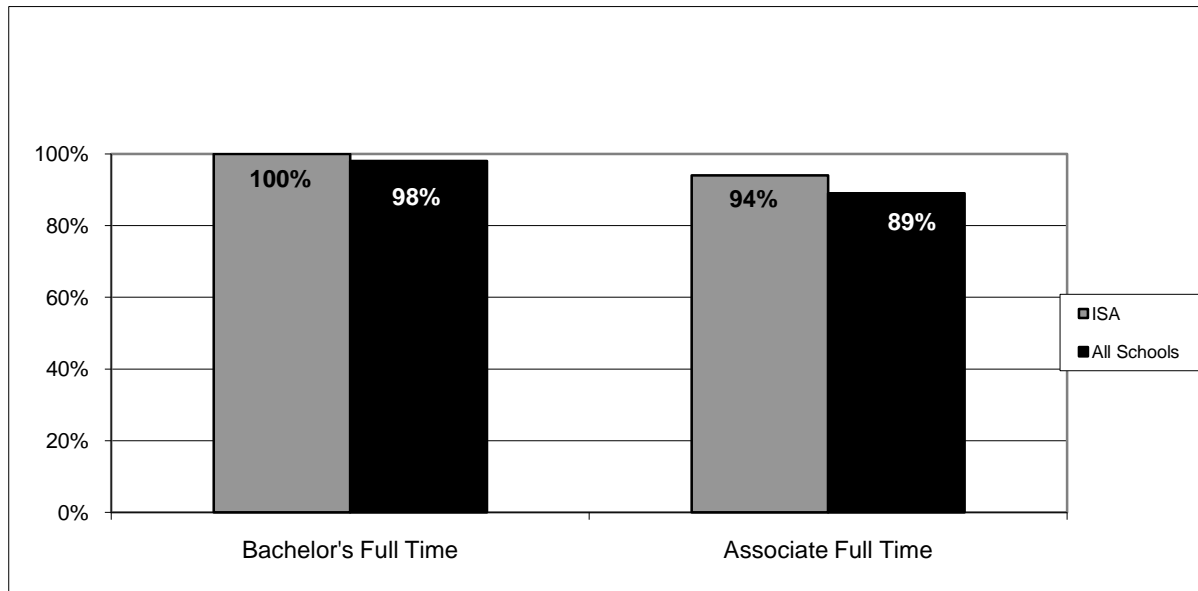
Source: AED calculations on data provided by CUNY

¹³ CUNY data were available aggregated at the school level, rather than individual student level. Therefore, we could not determine enrollment rates and outcomes specifically for our two cohorts of 9th grade students. Nor could we determine outcomes for ISA comparison students, because our comparison sample was constructed at the individual student level and did not include all students attending comparison schools. Individual student data is necessary to conduct more refined analyses.

¹⁴ Included in these figures are ISA schools located in cities surrounding New York City where high percentages are likely to apply to CUNY schools. While we did not have access to other evaluation data (such as student achievement records or surveys), we included these schools in order to broaden our sample.

As shown in Figure 19, nearly all ISA students in CUNY bachelor's or associate programs in 2007 enrolled full time.

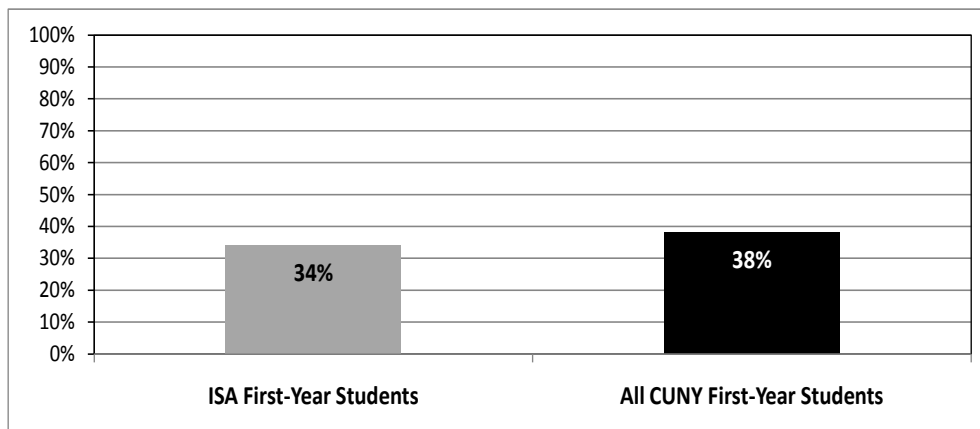
Figure 19. Full-time Enrollment in CUNY Schools for ISA Graduates and All CUNY Students, Fall 2007¹⁵



Source: AED calculations on data provided by CUNY

Figure 20 shows that 34% of ISA graduates who enrolled in CUNY programs enrolled in at least one remedial course. In comparison, a slightly greater proportion of all CUNY first-year students (38%) enrolled in at least one remedial course. Bypassing remedial courses is one measure of college readiness in first-year students.

Figure 20. ISA Graduates and All CUNY First-Year Students Enrolled in Remedial Courses in Fall 2007 (Bachelor's & Associate)

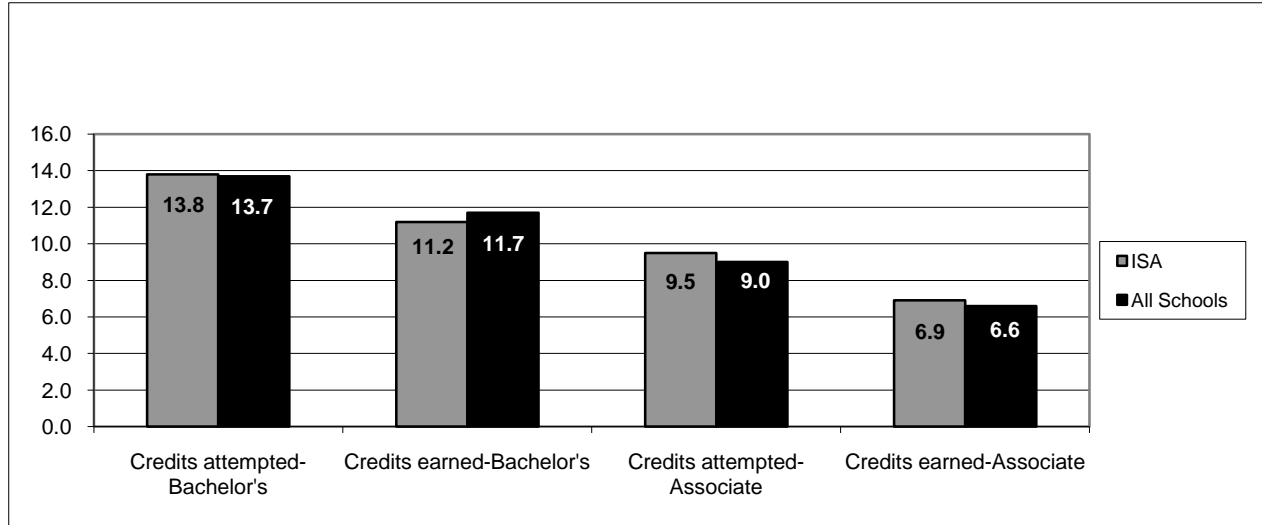


Source: AED calculations on data provided by CUNY

¹⁵ Data for 2008 were not available at the writing of this report.

Figure 21 compares ISA graduates with all CUNY first-year full-time students in terms of credits attempted and earned. In both the bachelor's and associate programs, ISA graduates showed rates very similar to those of all CUNY students.

Figure 21. Average Credits Attempted and Earned for ISA Graduates and All Students Enrolled in CUNY (Full-time Students), Fall 2007



Source: AED calculations on data provided by CUNY

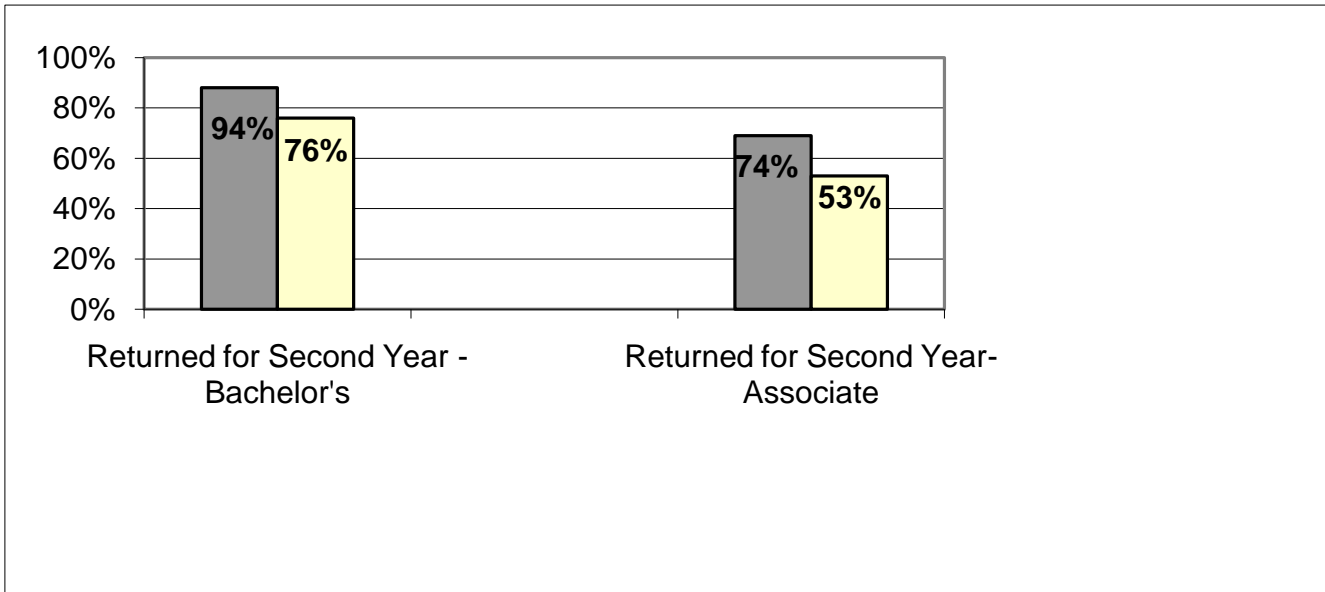
College Retention

Applying to and enrolling in college are only a beginning: Persisting to complete a degree is a better measure of success. Yet the dropout rate for college students nationwide, particularly in the first year and particularly for students enrolled in two-year programs, is high. As previously noted, approximately 50% of community college and 25% of four-year college students drop out after their first year (NCHEMS Information Center for State Higher Education Policymaking and Analysis, 2008; Venezia, Kirst, & Antonio, 2003).

According to data from the National Student Clearinghouse, ISA students returned to college for the second year in much higher numbers than the national average. Of the ISA students who enrolled in college, 74% of those attending a two-year institution and 94% of those attending a four-year school completed at least their third semester, as shown in Figure 22.

Data on ISA students who attended CUNY showed similar findings: 88% of 2007 ISA graduates at CUNY in the bachelor's degree program and 69% of those in the associate degree program persisted to their second year. This rate is slightly higher than the rate for all students attending CUNY (84% for four-year programs and 65% for two-year programs) and far better than the nationwide figures (76% and 53%, respectively).

Figure 22. Full-time First Year Students Returning Their Second Year: ISA and Nationwide, 2008



Source: AED calculations on data provided by the National Student Clearinghouse. National figures are for 2007, from NCHEMS Information Center for State Higher Education Policymaking and Analysis (2008).

Summary and Conclusion

The findings from AED's formative and summative evaluation show the positive results of ISA's partnerships with high schools to create and sustain intellectually rigorous, caring, and personalized learning environments. The schools in this study generally implemented ISA principles well. ISA teachers attributed many positive changes in their practice and in the school environment to ISA professional development and particularly to the ISA coaches.

Using a carefully matched comparison group of students in large, comprehensive high schools, our analyses indicate that the implementation of ISA had a large and positive effect on several student achievement outcomes including grade promotion, attendance, course passing, credit accumulation, retention, and graduation rates. Comparison students were more likely to pass Regents exams at the Regents level (scoring 65 or higher) and to earn an advanced diploma. Nevertheless, ISA students were as likely as comparison students to earn a Regents diploma. One reason for this finding may be that ISA teachers reported that they promoted academic rigor through inquiry-based instruction, privileging this type of teaching over test preparation.

Most ISA seniors were planning to attend college the following fall, and most reported in the senior survey that they received the kinds of support that low-income, first-generation college attenders often require to navigate the process of applying for college and financial aid. For example, they visited colleges; discussed career and college options with teachers and counselors; and received help in selecting schools, writing essays and applications, and completing financial aid applications.

Although data on college attendance from CUNY and from the National Student Clearinghouse (NSC) have limitations and need to be interpreted with caution, these data show positive post-secondary outcomes for ISA students. According to the NSC data, ISA students attend four-year colleges, rather than two-year institutions, at higher rates than do students nationwide. Data from the CUNY schools show that large numbers of ISA students apply to CUNY and that about half of the applicants ultimately enroll. More students enrolled in two-year associate degree programs than in bachelor's degree programs. About one third of ISA graduates in CUNY programs were required to take remedial courses, slightly fewer than students CUNY-wide. Most ISA graduates who enrolled in college, whether CUNY or elsewhere, persisted into the second year of college, a major dropping-out point for students nationwide. Rates of college persistence for ISA graduates were similar to those of all CUNY students, but much higher than the national rate.

The results of the ISA evaluation can inform the national conversation about school reform and improving student outcomes. Our findings demonstrate that schools that, like ISA schools, emphasize personalized attention for students, provide a college preparation curriculum, and foster a college-going culture from the beginning have the potential to markedly improve students' retention in and graduation from high school and to increase college persistence rates.

The positive findings from this study warrant further research on ISA. Specifically, it would be instructive to continue following ISA students through their college years and beyond to determine the long-term effects of the ISA approach. Further, it will be important to see if the schools in this study are able to sustain strong implementation of the ISA model and can continue to achieve positive outcomes for subsequent cohorts of students. Finally, it will be important to examine efforts to expand and scale-up ISA to discover the conditions under which scaling up is successful and ISA schools continue to achieve positive results.

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Appendix A: Statistical Analysis

Because our data were collected in a two-level structure, wherein students (level 1, our primary unit of observation) attend the school(s) (level 2), the requirement that observations be independent of one another is violated. As a consequence, variation among students is minimized, which artificially reduces the size of the estimated standard errors. There are two common approaches to analyzing two-level data to correct the bias introduced to the standard errors: Hierarchical Linear Modeling (HLM) and the Huber-White robust variance estimation procedure.

We analyzed the data using two-level HLM models (Raudenbush, Bryk, Cheong, Congdon, & DuToit, 2004) for the 9th and 10th grade outcomes and a single-level logistic regression for the 11th grade outcomes. We used the Huber-White robust variance estimation procedure to analyze 12th grade outcomes. Both of these approaches enabled us to assess the impact on students of being in an ISA school beyond the influence of individual student characteristics (e.g., race, ethnicity, grade 8 reading and math achievement) and school characteristics (e.g., percentage of ELL and special education students). Student and school characteristics are used as covariates in this analysis; their primary function is to improve the prediction of student outcomes based on whether or not a student is attending an ISA school. The ability to distinguish student effects from school effects is one of the unique advantages of an HLM approach. However, we were not able to conduct a multi-level analysis of the 11th grade data because of an insufficient number of schools in the sample.

Outcomes

The analyses presented in this report were concerned with the assessment of the following outcomes:

Promotion to 10th grade

Promotion to 11th grade

Promotion in 12th grade

Code: 1: Promoted, 0: Not Promoted. The analyses model the probability of being promoted.

Attendance rate in 9th grade

Attendance rate in 10th grade

Attendance rate in 11th grade

Code: 1: Attendance \geq 90%, 0: Attendance $<$ 90%. The analyses model the probability of a student achieving above 90% attendance.

Passing all five required Regents exams (English, math, science, global studies, history) at the local level by the end of 11th grade

Passing all five required exams at the Regents level by the end of 11th grade

Code: 1: Passed all five, 0: Did not pass all five. The HLM analyses model the probability of passing all five, at either the local or the Regents level.

HLM Approach

In the analyses of the 9th and 10th grade outcomes, all equations used were some variation of the following:

Level 1 (Students)

Prob ($Y = 1 | \pi_{ij}$) = ϕ_{ij}

$$\text{Log} (\varphi_{ij}/(1- \varphi_{ij}) = \eta_{ij}$$

$$\eta_{ij} = \pi_{0j} + \pi_{1j} (\text{Cohort})_{ij} + \pi_{2j} (\text{Male})_{ij} + \pi_{3j} (\text{FRPL})_{ij} + \pi_{4j} (\text{White})_{ij} + \pi_{5j} (\text{ELL})_{ij} + \pi_{6j} (\text{Grade 8 Reading})_{ij} + \pi_{7j} (\text{Grade 8 Math})_{ij} + \pi_{8j} (\geq 2 \text{ Yrs. Over Age})_{ij} + \pi_{9j} (\text{Special Ed})_{ij} + \pi_{10j} (\text{Resource Room})_{ij} + e_{ij}$$

where:

$P(Y=1|\pi_{ij})$ stands for the probability of the aforementioned outcomes occurring, given the student level covariates specified in the model (i.e., cohort, being male, free or reduced priced lunch, being white, being ELL, grade 8 reading achievement score, grade 8 math achievement score, being two years or more over age relative to grade level, special education status, and resource room status).

π_{0j} is the intercept of the student level model.

π_{ij} stands for the coefficients associated with the student covariates in the equation.

e_{ij} is a random error associated with student i in school j.

Level 2 (Schools)

$$\pi_0 = \gamma_{00} + \gamma_{01} \text{ISA} + \gamma_{02} (\% \text{ Passing ELA Standard}) + \gamma_{03} (\% \text{ Student Stability}) + \gamma_{04} (\text{Days Absent}) + \gamma_{05} (\% \text{ Special Education Students}) + \gamma_{06} (\% \text{ ELL Students}) + \gamma_{07} (\% \text{ Non-white}) + u_{0j}$$

$$\pi_{pk} = \gamma_{p0} \text{ for } p = 1 \text{ to } 10$$

γ_{00} is the intercept of the school-level component of the model.

γ_{01} stands for the coefficient associated with the estimation of the treatment effect.

ISA is the variable depicting whether the school is an ISA school or a comparison school (Code: 1: ISA school, 0: comparison school).

γ_{0k} represents the coefficients associated with the school-level covariates (percent 9th and 10th graders meeting ELA standard, stability, mean number of days of teacher absence, percent of special education students, percent of ELL students, percent of non-white student).

u_{0j} is the error term associated with the school-level component of the model.

The equation shown here represents the best-fitting model for the 9th and 10th grade outcomes (Model V in Table A.1). The other equations analyzed are some variation of this equation with terms added or deleted at either of the two levels or both, as indicated in Table A.1.

In the analyses of the 11th grade outcomes, the following equation was used:

$$\text{Prob} (Y = 1|\pi_{ij}) = \varphi_{ij}$$

$$\text{Log} (\varphi_{ij}/(1- \varphi_{ij}) = \eta_{ij}$$

$$\eta_{ij} = \pi_{0j} + \pi_{1j} (\text{ISA})_{ij} + \pi_{2j} (\text{Male})_{ij} + \pi_{3j} (\text{FRPL})_{ij} + \pi_{4j} (\text{White})_{ij} + \pi_{5j} (\text{ELL})_{ij} + \pi_{6j} (\text{Grade 8 Reading})_{ij} + \pi_{7j} (\text{Grade 8 Math})_{ij} + \pi_{8j} (\geq 2 \text{ Yrs. Over Age})_{ij} + \pi_{9j} (\text{Special Ed})_{ij} + \pi_{10j} (\text{Resource Room.})_{ij} + e_{ij}$$

where:

$P(Y=1|\pi_{ij})$ stands for the probability of the aforementioned outcomes occurring, given the student level covariates specified in the model (i.e., being male, free or reduced priced lunch, being white, being ELL, grade 8 reading achievement score, grade 8 math achievement score, being two years or more over age relative to grade level, special education status, and resource room status).

π_{0j} is the intercept of the student level model

π_{ij} stands for the coefficients associated with the student level covariates in the equation.

e_{ij} is a random error associated with student i in school j .

Table A.1 summarizes the model-fitting process for this analysis. The analyses of the 9th and 10th grade outcomes consisted of five steps. Model I, II, III, IV, and V are considered to improve the prediction of the 9th and 10th grade promotion and attendance outcomes. While there were slight variations among outcome predictions in the list of student predictors that attained statistical significance, the combination of student predictors included Model II, III, IV, and V and listed in Table A.1 yielded a good fit to the data concerning all 9th and 10th grade outcomes considered. In the prediction of those outcomes, adding the school predictors included in Model V produced further improvements to the goodness of fit.

We estimated the 11th grade outcomes using a logistic regression model that includes all predictors, including ISA, at the student level. An insufficient number of schools were included in the 11th grade sample to use schools as a unit of analysis. In this context, the ISA treatment variable refers to the effect of being in an ISA school rather than a comparison school. Model VI and VII summarize the model selection process for the prediction of 11th grade outcomes (promotion, attendance, and passage of the required five exams at either the local or the Regent's level).

Huber-White Robust Variance Estimation

The 12th grade analyses use single-level models that employ the Huber-White robust variance estimation procedure. This is done using the *robust cluster* specification within STATA. This provides accurate assessments of the sample-to-sample variability of the parameter estimates even when the model is mis-specified. The mathematical form of the estimate is calculated as the product of three matrices: the matrix formed by taking the outer product of the observation-level likelihood/pseudo-likelihood score vectors is used as the middle of these matrices, and this matrix is in turn pre- and post- multiplied by the usual model-based variance matrix. The robust calculation is straightforwardly generalized by substituting the middle matrix with a matrix formed by taking the outer product of the "cluster-level" or, in our case, school-level outcome variables, where within each school the school-level outcome is obtained by summing the student-level outcomes for all students in the school.

Table A.1. Summary of HLM and Logistic Regression Models Examined to Predict the Effects of Attending an ISA School on 9th, 10th, and 11th Grade Student Outcomes

Outcome	Promotion to 10 th Grade, Promotion to 11 th Grade, Attendance in 9 th Grade, Attendance in 10 th Grade					Promotion to 12 th Grade, Attendance in 11 th Grade, Exam Passage Local or Regents Level	
	I	II	III	IV	V	VI	VII
Student Predictors							
Cohort	X	X	X	X	X		
Male	X	X	X	X	X	X	X
Black	X					X	
Latino	X					X	
White	X	X	X	X	X	X	X
Native American	X					X	
Asian	X					X	
ELL	X	X	X	X	X	X	X
Resource Room	X	X	X	X	X	X	X
Special Education	X	X	X	X	X	X	X
Over Age (≥2 yrs)	X	X	X	X	X	X	X
FRP Lunch	X	X	X	X	X	X	X
Grade 8 Reading	X	X	X	X	X	X	X
Grade 8 Math	X	X	X	X	X	X	X
ISA Enrollment						X	X
School Predictors							
ISA (Treatment)	X	X	X	X	X	X	X
Students							
% Special Ed			X		X		
% Male			X				
% ELL			X		X		
% Over Age			X				
Avg. Gr. 8 ELA			X				
Avg. Gr. 8 Math			X				
Avg. Gr. 9 ELA				X	X		
Teachers/Students			X				
%FRP Lunch			X				
% Non-white			X		X		
Stability			X		X		
Teachers							
% Licensed				X			
% > 5 yrs exp				X			
% with Master's				X			
Days Absent				X	X		

Examining the Best-fitting Models

The best-fitting models were further examined, and the adjusted odds-ratios— the predicted odds of a certain outcome occurring in ISA schools *vs.* comparison schools, adjusting for the student and school covariates listed in Model V—were generated. Including these covariates helps to ensure that differences in predicted outcomes between ISA and comparison schools are not confounded with differences in the covariate measures in the two groups. For the 9th and 10th grade outcomes, these predicted odds-ratios are summarized in Table A.2. The 11th grade outcomes are shown in Table A.3.

Table A.2. Variance Component of the Bestfitting Models and the Predicted Odds of Attaining Outcomes: 9th and 10th Grade Results

Outcome	Odds of Attaining Outcome	Confidence Interval	Variance Component	Df
Promotion to 10 th grade	4.90	2.13 – 11.27	0.4866	14
Attendance in 9 th grade	1.66	1.17 – 2.36	0.0610	14
Promotion to 11 th grade	5.33	2.43 – 11.70	0.4747	14
Attendance in 10 th grade	1.54	1.03 – 2.29	0.1061	14

Table A.3. Goodness-of-Fit Statistics and Predicted Odds of Attaining Outcomes: 11th Grade Results

Outcome	Odds of Attaining Outcome	Confidence Interval	χ^2	Df
Promotion to 12 th grade	4.07	2.47 – 6.68	525.44*	10
Attendance in 11 th grade	1.04	0.76 – 1.42	138.10*	10
Pass all 5 required exams at Regents level	2.05	1.43 – 2.93	239.14*	10
Pass all 5 required exams at local level	2.43	1.77 – 3.33	98.07*	10

* p < .0001

Table A.4 and A.5 show the parameter estimates for the 9th grade outcomes promotion to grade 10 and attendance. The estimates show the relative contribution of student and school covariates to those outcomes, as well as the contribution of being in an ISA *vs.* a comparison school (modeled here as a school predictor). These tables show that being enrolled in an ISA school is associated with a greater likelihood of being promoted and a greater likelihood of meeting the 90% attendance criterion.

Table A.4: Model-based Estimation of Promotion to Grade 10 in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Students			
Cohort	-0.57	0.28	-2.02*
Male	-0.36	0.15	-2.31*
White	-0.12	0.35	-0.35
ELL	0.28	0.23	1.24
Special Education	-0.72	1.89	-0.38
Resource Room	0.09	0.21	0.43

Fixed Effect	Coefficient	SE	T
Over Age (≥ 2 yrs)	-0.44	0.16	-2.74*
FRP Lunch	-0.45	0.37	-1.22
Grade 8 Reading	0.02	0.01	2.58*
Grade 8 Math	0.02	0.00	5.77*
Schools			
Intercept	2.32	0.26	8.91*
Enrolled in ISA	1.59	0.39	4.09*
% Special Education	-1.83	4.25	-0.43
% ELL	0.08	3.90	0.02
Avg. Grade 9 ELA	0.04	0.03	1.39
% Non-white	-0.00	0.01	-0.29
% Stability	-0.25	0.05	-4.71*
Avg. Teacher Days Absent	-0.12	0.08	-1.44

^o $p < .10$, * $p < .05$

Table A.5: Model-based Estimation of 9th Grade Attendance in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Students			
Cohort	-0.33	0.17	-1.94 ^o
Male	0.21	0.08	2.63*
White	-0.48	0.28	-1.74 ^o
ELL	0.28	0.17	1.70 ^o
Special Education	-0.01	0.23	-0.04
Resource Room	0.10	0.12	0.85
Over Age (≥ 2 yrs)	-0.59	0.10	-6.03*
FRP Lunch	-0.47	0.22	-2.09*
Grade 8 Reading	0.00	0.00	1.60
Grade 8 Math	0.01	0.00	4.83*
Schools			
Intercept	1.36	0.19	7.12*
Enrolled in ISA	0.51	0.16	3.12*
% Special Education	1.30	2.28	0.57
% ELL	-3.50	2.02	-1.73
Avg. Grade 9 ELA	0.02	0.02	1.62
% Non-white	-0.02	0.01	-2.97
% Stability	0.02	0.02	0.75
Avg. Teacher Days Absent	0.03	0.03	0.97

^o $p < .10$, * $p < .05$

Table A.6 and A.7 show the regression findings for the 10th grade outcomes promotion to grade 11 and attendance in grade 10. Enrollment in an ISA school rather than a comparison school has a statistically significant impact on both outcomes, over and above the effects of the student and school covariates included in this analysis.

Table A.6: Model-based Estimation of Promotion to Grade 11 in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Students			
Cohort	0.74	0.32	2.34*
Male	-0.15	0.11	-1.35
White	0.60	0.24	2.52
ELL	0.56	0.20	2.77
Special Education	-0.46	1.81	-0.26
Resource Room	0.02	0.26	-0.07
Over Age (≥2 yrs)	-0.24	0.14	-1.68 ^o
FRP Lunch	-0.35	0.16	-2.24*
Grade 8 Reading	0.02	0.01	3.78
Grade 8 Math	0.01	0.00	4.28
Schools			
Intercept	0.70	0.38	1.84 ^o
Enrolled in ISA	1.67	0.37	4.56*
% Special Education	5.62	3.90	1.44
% ELL	1.33	3.22	0.41
Avg. Grade 9 ELA	0.01	0.02	0.28
% Non-white	-0.03	0.01	-1.57
% Stability	-0.14	0.02	-5.82*
Avg. Teacher Days Absent	0.01	0.09	0.11

^o p < .10, * p < .05

Table A.7: Model-based Estimation of 10th Grade Attendance in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Students			
Cohort	-0.18	0.09	-2.17*
Male	0.25	0.07	3.51*
White	-0.57	0.26	-2.17*
ELL	0.54	0.21	2.60*
Special Education	-0.64	0.33	-1.93 ^o
Resource Room	0.10	0.19	0.53
Over Age (≥2 yrs)	-0.42	0.13	-3.34*

Fixed Effect	Coefficient	SE	T
FRP Lunch	-0.26	0.16	-1.56
Grade 8 Reading	0.00	0.00	0.98
Grade 8 Math	0.01	0.00	3.62*
Schools			
Intercept	0.57	0.23	2.50*
Enrolled in ISA	0.43	0.19	2.32*
% Special Education	1.52	2.74	0.56
% ELL	-3.91	2.18	-1.79 ^o
Avg. Grade 9 ELA	0.02	0.02	1.03
% Non-white	-0.02	0.01	-2.32*
% Stability	0.00	0.03	0.19
Avg. Teacher Days Absent	0.01	0.03	0.20

^o p < .10, * p < .05

Tables A.8–12 show regression findings for 11th grade outcomes. These outcomes are promotion to grade 12, 11th grade attendance, passage of all five required Regents exams at the Regents level, and passage of those exams at the local level. All effects, including the effect of being in an ISA school, are measured as student variables, rather than school variables, in the grade 11 analyses. These tables show that, over and above the effects of student covariates, being enrolled in an ISA school is associated with a significantly greater likelihood of being promoted to grade 12 and of passing the required Regents exams regardless of whether the local or Regents criterion of passage is used. Being enrolled in an ISA school does not significantly affect the attendance of 11th graders.

Table A.8: Model-based Estimation of Promotion to Grade 12 in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Male	-0.14	0.24	0.34
White	1.22	0.80	2.30
ELL	-1.11	0.38	8.70*
Special Education	20.57	52904.74	0.00
Resource Room	0.37	0.49	0.57
Over Age (≥2 yrs)	-0.54	0.30	3.36 ^o
FRP Lunch	-1.09	0.41	7.25*
Grade 8 Reading	-0.01	0.01	4.51*
Grade 8 Math	0.02	0.01	7.74*
Enrolled in ISA	1.40	0.25	30.60*

^o p < .10, * p < .05

Table A.9: Model-based Estimation of 11th Grade Attendance in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Male	0.25	0.16	2.36
White	0.65	0.35	3.36 ^o
ELL	-0.54	3.12	2.90 ^o
Special Education	1.03	0.59	2.99 ^o
Resource Room	-0.06	0.30	0.03
Over Age (≥2 yrs)	-0.26	0.21	1.48
FRP Lunch	-1.32	0.22	35.25*
Grade 8 Reading	-0.01	0.00	2.72 ^o
Grade 8 Math	0.01	0.00	5.15*
Enrolled in ISA	0.04	0.16	0.05

^o p < .10, * p < .05

Table A.10: Model-based Estimation for Passage of Required 5 Regents Exams at the Regents Level in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Male	0.01	0.18	0.01
White	-0.04	0.30	0.02
ELL	0.72	0.33	4.94*
Special Education	-0.64	0.75	0.72
Resource Room	-0.23	0.35	0.43
Over Age (≥2 yrs)	0.55	0.22	5.96
FRP Lunch	-0.48	0.20	5.88
Grade 8 Reading	0.00	0.00	0.27
Grade 8 Math	-0.00	0.00	1.07
Enrolled in ISA	0.72	0.18	15.38*

^o p < .10, * p < .05

Table A.11: Model-based Estimation for Passage of Required 5 Regents Exams at the Local Level in ISA and Comparison Schools

Fixed Effect	Coefficient	SE	T
Male	0.13	0.16	0.69
White	0.05	0.27	0.03
ELL	0.58	0.32	3.36 ^o
Special Education	-0.60	0.63	0.88
Resource Room	-0.28	0.32	0.78
Over Age (≥ 2 yrs)	0.38	0.21	3.27 ^o
FRP Lunch	-0.47	0.18	6.60
Grade 8 Reading	0.00	0.00	1.13
Grade 8 Math	-0.01	0.00	2.01
Enrolled in ISA	0.89	0.16	30.27*

^o $p < .10$, * $p < .05$

Limitations

The total number of schools included in this sample is small; the study may therefore have low statistical power. While we control the level of uncertainty associated with the rejection of the hypothesis of no effect of ISA (at $\alpha = .05$), more uncertainty may be associated with the conclusion that there is an effect. To increase our confidence in the findings, subsequent studies must replicate them. A related issue is that, as a result of the small number of participating schools, the confidence intervals around the odds-ratios reported are quite broad. However, with one exception (11th grade attendance), the confidence intervals reported here do not include 1.00. We can therefore conclude with confidence that the odds of attaining the outcomes examined are greater when a student is enrolled in an ISA school than when a student is not.

Appendix B: Procedures for Constructing ISA Comparison Group

Using data collected from the NYC DOE, AED selected students from large (more than 750 students enrolled) comprehensive high schools in NYC who were similar to ISA students in terms of:

- Eighth-grade math and ELA achievement test scores
- Race/ethnicity
- Income (free-lunch status and median income in student's residence zip code)
- English language learner (ELL) status
- Special education status
- Over-age for grade status

Using a propensity scoring procedure, students who were most similar to ISA students on the variables listed above were selected to comprise the comparison group. In the case that a comparison student matched more than one ISA school, the comparison student was randomly assigned to match one ISA school. In order to form a composite of comparison students who were most like ISA students, we included all comparison students who were well matched to our ISA sample. Thus the number of comparison students is much greater than the number of ISA students. Comparison and ISA students were weighted so that each group had equal influence in the analyses. As shown in the tables below, ISA and comparison group differences in the analytic samples used for the primary outcomes were not statistically significant.

Baseline Equivalence Tables for Primary Outcomes

Table B.1. Baseline Equivalence of the ISA and Comparison Group for the Analytic Sample used for credit accumulation, 4-year graduation, and dropout analyses (Figures 6, 11 and 12).

	ISA Treatment (n=1597)			Comparison (n=1560)		
	Mean	Standard deviation	Sample size	Mean	Standard deviation	Sample size
Gender (male)	.45	.50	1597	.45	.50	1560
Race/ethnicity (minority)	.90	.11	1597	.85	.18	1560
Free/reduced Lunch	.73	.45	1597	.76	.43	1560
Special Education status	.01	.11	1597	.02	.14	1560
English Language Learner status	.09	.28	1597	.09	.28	1560
Grade 8 math score	702.9	35.5	1597	702.4	35.3	1560
Grade 8 ELA score	687.6	25.8	1597	686.7	24.0	1560

Differences are not statistically significant.

Table B.2. Baseline Equivalence of ISA and Comparison Group for Analytic Sample used for the Passed All Five Required Regents Tests Analysis (Figure 10).

	ISA Treatment (n=1186)			Comparison (n=928)		
	Mean	Standard deviation	Sample size	Mean	Standard deviation	Sample size
Gender (male)	.43	.50	1186	.41	.49	928
Race/ethnicity (minority)	.89	.12	1186	.84	.18	928
Free/reduced Lunch	.72	.45	1186	.79	.41	928
ELL status	.08	.27	1186	.08	.27	928
Special Education status	.00	.05	1186	.01	.08	928
Grade 8 math score	707.9	31.9	1186	710.5	30.4	928
Grade 8 ELA score	690.8	25.4	1186	691.7	23.3	928

Differences are not statistically significant.

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