

APPENDIX A:

QUALITATIVE DATA COLLECTION AND ANALYSIS METHODS

This section describes the data collection and analytic processes used to develop the interview and focus group findings in our report *Bringing Together Mentoring, Technology, and Whole-School Reform: A First Look at the iMentor College Ready Program*. Our qualitative data collection occurred during the spring of the 2013-2014 school year in three of the eight iMentor evaluation schools. We selected three schools with divergent academic outcomes as measured by graduation rates and other school-level characteristics. Below, we outline our qualitative data collection and analysis.

Data Collection

At each of the three schools, we conducted interviews with:

- The principal;
- The iMentor point person (a school staff member who assists in implementing iMentor);
- A teacher who sits in on the weekly iMentor class;
- The Program Coordinator (PC); and
- Three mentors (we randomly selected one mentor from each of iMentor’s mentor ratings categories: high, medium, and low quality; these ratings, determined by the PC, are currently being piloted).

Interviews were based on protocols developed by the research team. The protocols can be found later in this appendix. Interviews with school administration and staff (principal, point person, and teacher) and PC were conducted at schools. Interviews with mentors were conducted over the phone. All interviews were audio recorded and transcribed.

Data Analysis

Interview data was analyzed through of a three-step process designed to lead researchers from initial reflections to fine-grained analysis of major themes emerging from iMentor’s implementation in the three schools:

1. *Reflection memos*. Within two days of each interview, researchers completed a reflection memo for each interview, in which they provided loosely structured comments about each topic addressed in the interview protocol.
2. *Transcript coding*. Based on codebooks used in the previous year of fieldwork and a review of reflection memos, the researchers developed a separate codebook for each interview protocol with which to analyze the transcript data. The initial codebooks were refined after one round of trial coding of one transcript from each of the three corresponding codebooks. The research team then used these codes to analyze each interview transcript.
3. *Thematic outlines*. After all transcripts were coded, researchers met to discuss common themes. Two researchers then used the coded transcripts to create an outline of findings related to major themes and sub-themes.

Strengths and Limitations of this Approach

As with all research methodologies, this approach has both strengths and weaknesses. Our intention was to obtain a rich understanding of the implementation of the iMentor program. Selecting schools with divergent academic outcomes gave us a window into some of the differences in implementing iMentor in different types of school contexts. Another strength was that we interviewed a wide range of subjects who are involved in the iMentor

program, giving us a balance of perspectives. Using structured interview protocols and recording all sessions allowed us to elicit rich descriptions from which we could better understand what iMentor looked like on the ground.

Of course, there are inherent limitations to collecting and analyzing qualitative data. In this case, one limitation is that we interviewed a subset of three schools from the larger body of eight iMentor schools involved in this evaluation. The findings are illustrative and not representative of all eight evaluation schools. Additionally, there are schools implementing iMentor that are not involved in this evaluation. Second, we interviewed each research subject only once, and we decided not to adjust our interview protocols during our fieldwork, in an attempt to keep our questions standardized across subjects and schools. Without a follow-up interview or adjusted protocols, we may have missed the opportunity to dig deeper into certain areas of interest.

Teacher Interview Protocol

Program

- Can you describe the iMentor program in your school?
- What are its strengths and weaknesses?

Delivery/teaching

- Can you describe how the PC leads the class?
- What feedback would you give the PC about her teaching?

Collaboration/integration

- Do you attend events? Why or why not?
- Do you collaborate with the PC or iMentor during or after the school day? If so, how? Can you give an example?
 - Probe: Do you help with curriculum planning? Event attendance? Grade-level meetings?
- Do you find it helpful to have a PC working in your school? Why or why not?
- How well do you think your PC is integrated in your school? (Clarification: Is he/she like any other teacher in the school?)
 - Probe: Do you think she/he should be? How would you improve the integration?

Satisfaction

- Do you think your school should continue iMentor? Why or why not?
- Will you remain the iMentor point person? Why or why not?
 - How much time do you spend on the iMentor program? Do you wish you could spend more or less time? Why?
- Do you notice any changes in your students who have iMentor?
- How could the iMentor program be improved?
- How has your job (roles and responsibilities) changed since the introduction of iMentor at the school? How do you think your school has changed?

Closing

- Is there anything that you've said that you would like to amend? Is there anything we haven't asked that you think we should know?

Program Coordinator Interview Protocol

Student-Mentor Matches:

- Can you describe your role and responsibilities as a PC?
 - Probe: On average, how often do you communicate with your pairs during the week? How often are you in schools?
- What types of supports or strategies did you use to support pairs?
 - Probe: How do you provide individualized attention to the matches?

The next few questions are about pair closures.

- About how many *mentors* left before completing the year?
 - Why do you think this happened?
 - Can you tell me how you dealt with replacing mentors who left?.
- About how many *mentees* left before completing the year?
 - Why do you think this happened?
- What do you think are the most important aspects/characteristics for a match to be successful?
- What are some recommendations for the future?

Working with Schools:

- Please describe the school you work in?
 - How would you describe your relationships with school staff?
 - How integrated are you in the school?
 - Thinking about any challenges that you've experienced this past year, what changes or improvements would you like to see for next year to promote a better working relationship with schools?

Curriculum Delivery:

- Can you tell us about the 9th grade iMentor curriculum?
- Can you describe what an average class looks like?
 - Probe: How long is the period? Do students behave? Lesson structure? What type of support do you receive from the teachers? How do they know the students learn? Lesson objective?
- What, if any, modifications did you make to the iMentor curriculum?
 - In retrospect, is there anything you would like the change?
 - Probe: Which lessons stand out as the most engaging for students? What about least engaging? Why and how can you tell?
 - What particular challenges have you experienced in implementing the curriculum in your schools? And do you have future recommendations?

Event Programming: Tell us about event programming and planning.

- Can you tell us about the 9th grade iMentor events?
- Can you describe what an average event looks like?
 - Probe: How long is it? Do students behave? Event structure? How do your mentors or the teachers from the school support you? How do they know the students learn? Lesson objective?
 - Can you talk about the Mentor Huddle at the end of each event
- What, if any, modifications did you make to the iMentor events?
 - In retrospect, is there anything you would like the change?

- Probe: Which events stand out as the most engaging for students? What about least engaging? Why and how can you tell?
- What particular challenges have you experienced in implementing the events in your schools? Do you have future recommendations?

Closing:

- Overall, what is your general impression of iMentor in your school(s) this past year?
- Is there anything that you've said that you would like to amend? Is there anything we haven't asked that you think we should know?

Principal Interview Protocol

Satisfaction:

- Can you describe the iMentor program in your school?
- What are its strengths and weaknesses?
- Is the program reaching your expectations? Why or why not?
- How long do you plan to continue implementing the iMentor program?
 - Why? PROBE: Is there anything that would make you keep the program longer?
 - Do you notice any changes in your students who participated in iMentor?
- How could iMentor improve their program?
 - Probe: their events? Their curriculum? Their relationships with schools?
- What are your school's challenges when implementing iMentor?

Counterfactual:

- What college readiness programs were you implementing before iMentor?
- What other college readiness programs are you implementing in addition to iMentor?

Closing

- Is there anything that you've said that you would like to amend? Is there anything we haven't asked that you think we should know?

Mentor Interview Protocol

Matching Process

- iMentor matches you and your mentees based on shared interests and similar experiences—do you think they matched you well? Why or why not?
 - Probe: Do you think you are similar to your mentee?

Training

- How do you feel the iMentor training before you matched prepared you to mentor your mentee?
- What was missing from the training?

Support

- Can you describe your relationship with your PC?
 - Can you tell me about the kind of support your PC provides? Is it an adequate amount of support?

Relationship Development

- Can you describe how your relationship between you and your mentee has changed over the year?
- What was your biggest struggle in developing a relationship with your mentee?
- How do you know?

Event attendance

- What happens at an average event?
- Can you tell me about the Mentor Huddle?
- How did you and your mentee benefit from these events?
- How do you think these events could be improved?

Email/communication

- Can you tell me about the process of emailing your mentee?
- How did you and your mentee benefit from these emails?
- How do you think the emailing process could be improved?

Satisfaction

- In general, how do you think the mentors' experience could be improved?
- How long do you plan to remain a mentor? Why?
- Is the mentoring experience what you expected/hoped for?

Closing

- Overall, what is your general impression of iMentor in your school(s) this past year?
- Is there anything that you've said that you would like to amend? Is there anything we haven't asked that you think we should know?

APPENDIX B: USING PROGRAMMATIC DATA PROVIDED BY iMENTOR TO ASSESS IMPLEMENTATION

This appendix describes the programmatic data received from iMentor and referenced in the implementation chapter of this report. We received quarterly data for the 2012-2013 and 2013-2014 school years from iMentor. This data included information about event attendance, emailing, number of classes held, and match length. The data sets included one observation per mentee-mentor pair—students who had ever been matched with more than one mentor match had more than one observation. Because we were interested in outcomes at the student rather than at the pair level, we restructured the files to include just one observation per student.

For some students, this meant aggregating measures across multiple pairs. For the 2012-2013 school year files, student-level variable values accumulated across pair observations, so summing would result in double counting. Instead, we used the maximum value out of all of a student's pair observations.

In the 2013-2014 school year files, each pair observation only contained student information for activities completed during that particular match. Thus, in order to determine student totals, we summed across all of a student's pairs.

Each file contained data for the discrete time period of a particular quarter. The files were not cumulative and did not reflect the entire year up to that point. In order to obtain yearly totals for our measures, we summed across all quarters for most variables. For average mentee pair rating, which we received as an average measure, we averaged across quarters in order to reflect the entire school year.

APPENDIX C: STUDENT SURVEY CONSTRUCT ITEMS

The following constructs and alphas are for the survey administered to students at the end of 9th grade.

Construct	Items	Response Range	Cronbach's Alpha
Scholastic Efficacy	I feel that I am very good at my school work.	1-Strongly Disagree	0.73
	I feel that I am just as smart as other kids my age.	2-Sort of Disagree	
	I have trouble figuring out the answers in school.	3-Sort of Agree	
	I'm pretty slow in finishing my school work.	4-Strongly Agree	
	I often forget what I learn.		
Interpersonal Support	There is a non-relative adult that I trust to help solve my problems.	1-Definitely False	0.75
	There is no one that I feel comfortable talking to about intimate personal problems.	2-Probably False	
	There really is no one who can give me an objective view of how I'm handling my problems.	3-Probably True	
	I feel that there is no one I can share my most private worries and fears with.	4-Definitely True	
	There is a non-relative adult I can turn to for advice about handling problems with my family.		
	When I need suggestions on how to deal with a personal problem, I know a non-relative adult I can turn to.		
	There is at least one non-relative adult I know whose advice I really trust.		
	If a family crisis happened, it would be difficult to find a non-relative adult who could give me good advice about how to handle it.		
	There really is no one I can trust to give me good advice.		
	There is a non-relative adult I could turn to for advice about my education or the kind of job I want.		
Internal Growth Mindset	What I do and how I do it will determine my successes in life.	1-Strongly Disagree	0.71
	If I succeed in life it will be because of my efforts.	2-Sort of Disagree	
	My own efforts and actions are what will determine my future.	3-Sort of Agree	
Perseverance	If something looks too hard, I will not even bother to try it.	1-Strongly Disagree	0.73
	Failure just makes me try harder.	2-Sort of Disagree	
	If I can't do a job the first time, I keep trying until I can.	3-Sort of Agree	

Construct	Items	Response Range	Cronbach's Alpha
	I handle unexpected problems very well. I give up easily. I can depend on myself. I am unsure about my ability to do things. I give up on things before finishing them.	4-Strongly Agree	
Hope and Sense of Optimism	I have a positive outlook toward life. I can recall happy/joyful times. I can see possibilities in the midst of difficulties. I feel my life has value and worth. I have a sense of direction. I have a faith that gives me comfort. I have deep inner strength. I have short and/or long range goals. I am able to give and receive caring/love. I feel alone. I feel scared about my future. I believe that each day has potential.	1-Strongly Disagree 2-Sort of Disagree 3-Sort of Agree 4-Strongly Agree	0.83
Self-Advocacy	I talk proudly about my experiences I let people know about things I do well. I let others know that I am valuable to groups I belong to (like my school, club, or team). I let people know about my accomplishments	1-Never 2-Rarely 3-Sometimes 4-Often 5-Always	0.59
Future Planning	Have you ever talked with an adult about... what financial aid might be available to help you pay for college? what you would like to do when you get older? which high school courses you should be taking to prepare for college? whether you should go to college? your special interests and talents (what things you are good at)?	1-Not at All 2-Some 3-Yes, Definitely	0.81

Construct	Items	Response Range	Cronbach's Alpha
	<p>how you can increase your chances of getting into a good college?</p> <p>what you can be doing now to make sure you reach your life goals?</p> <p>what activities you can do outside of school to help you prepare for college?</p>		
Adult Social Supports (Social Capital)	<p>How many non-relative adults...</p> <p>could you go to if you re having problems in school with classmates or teachers?</p> <p>could you ask about a career you are interested in?</p> <p>could you ask about what it's like to be in college?</p> <p>do you know who graduated from high school?</p> <p>do you know who graduated from college?</p> <p>do you know who have graduate degrees (e.g., MD, JD, PhD, MA/MS)?</p> <p>do you know who could help you get an after-school, weekend, or summer job?</p> <p>do you know who could help you with schoolwork or homework?</p> <p>do you know who could help you with problems or stuff that is bothering you?</p> <p>do you know who you could hang out or do fun things with?</p>	<p>0 adults</p> <p>1 adult</p> <p>2 adults</p> <p>3 adults</p> <p>4 adults</p> <p>5 or more adults</p>	0.92
Career Importance and Planning	<p>I know what kind of job or career I want as an adult.</p> <p>I have thought a lot about the kind of job I want when I am an adult.</p>	<p>1-Strongly Disagree</p> <p>2-Disagree</p> <p>3-Somewhat Disagree</p> <p>4-Unsure</p> <p>5-Somewhat agree</p> <p>6-Agree</p> <p>7-Strongly Agree</p>	0.79
College Aspirations	<p>How much education do you want to get?</p> <p>As thing stand now (realistically), how much education do you think you will get?</p> <p>What is the minimum level of education you need to live the life you want?</p>	<p>1-Some High School</p> <p>2-High School, Only</p> <p>3-Vocational/Technical Certificate</p> <p>4-Associate's Degree</p> <p>5-Bachelor's Degree</p> <p>6-Graduate/Professional Degree</p>	0.73

APPENDIX D: MENTOR SURVEY CONSTRUCT ITEMS

The following constructs and alphas are for the survey administered to mentors at the end of the 9th grade year.

Construct	Items	Response Range	Cronbach's Alpha
Satisfaction with iMentor Support	How satisfied are you with...	1-Very dissatisfied	0.86
	iMentor training prior to beginning my match?	2-Somewhat dissatisfied	
	iMentor training after my match started?	3-Somewhat satisfied	
	opportunities to interact with other mentors?	4-Very satisfied	
	opportunities to interact with other pairs?		
	the frequency of guidance/support from my PC?		
	the quality of the guidance/support from my PC?		
I feel effective as a mentor	How effective are you at...	1-Very ineffective	0.94
	Being a positive role model for your mentee?	2-Somewhat ineffective	
	Helping your mentee develop career interests?	3-Somewhat effective	
	Helping your mentee cope with stresses or other life difficulties?	4-Very effective	
	Helping your mentee develop positive relationships with others?		
	Sustaining a positive relationship with your mentee for four years?		
	Helping your mentee understand the importance of college?		
	Helping your mentee improve critical thinking skills?		
	Helping your mentee improve literacy (i.e., reading and writing) skills?		
	Helping your mentee learn how to manage school projects more effectively?		
Similar to mentee	To what extent is your personal background similar to your mentee's...	1-Not at all similar	0.76
	Socioeconomic background?	2-Not very similar	
	Cultural background?	3-Somewhat similar	
	Family background (e.g., number of parents and/or children in household, family dynamics)?	4-Very similar	
	Social challenges (e.g., peer difficulties)?		
	Academic challenges?		

Construct	Items	Response Range	Cronbach's Alpha
Trust/Enjoy mentee	I look forward to the time I spend with my mentee. My relationship with my mentee is important to me. I enjoy talking with my mentee. I trust my mentee. I feel comfortable with my mentee.	1-Not at all true 2-A little true 3-Pretty true 4-Very true	0.87
Growth Goals	My mentee and I spend time working on how s/he can improve as a person. I help my mentee to set and reach goals. My mentee and I work on projects together. My mentee and I accomplish a lot of things together. My mentee and I talk about how to solve problems. Learning new things together is an important part of our relationship.	1-Not at all true 2-A little true 3-Pretty true 4-Very true	0.89
Negative Relations	My mentee and I... Get upset or mad at each other. Disagree with each other. Argue with each other. Say mean or harsh things to each other. Put each other down. Criticize each other. Get on each other's nerves. Make each other feel stupid. Get annoyed with each other's behavior.	1-Never 2-Rarely 3-Sometimes 4-Often 5-Always	0.81

APPENDIX E: OTHER COLLEGE READINESS AND MENTORING-RELATED PROGRAMS THAT IMENTOR EVALUATION SCHOOLS ARE IMPLEMENTING

In Chapter 2, we describe that one limitation of the lagged cohort design used for our study of non-academic outcomes is that we cannot isolate the effect of iMentor from that of other school-level initiatives that have similar goals and were introduced concurrently to iMentor. We investigated other programs at the evaluation schools, and found that while iMentor schools did offer other college readiness programs, they were constant across the treatment and comparison cohorts. Not all schools offered the same college readiness programs, and some schools offered more than one. This table lists all the college readiness programs offered at one or more evaluation school.

Organization	Relevant Outcomes	Description
Blue Engine	College Readiness	Blue Engine partners with public high schools serving low-income communities and aims to increase academic rigor and prepare dramatically greater numbers of students for postsecondary success. To ensure that students build strong academic foundations in high school, Blue Engine recruits, trains, and supports Blue Engine Teaching Assistants (BETAs), recent college graduates who collaborate with teachers to help students develop advanced skills in mathematics, literacy, and social cognition before they set foot on campus. (http://blueengine.org/)
Bottom Line	College Readiness /College Retention	Bottom Line is dedicated to helping disadvantaged students get in to college, graduate, and go far in life. Bottom Line provides low-income and first-generation students with one-on-one guidance through the application process and during college. Students participating in the College Success Program continue to receive personalized guidance for up to six years after high school graduation or until they earn their degrees. (http://www.bottomline.org/locations/worcester/leadership.aspx)
College Access: Research & Action (CARA)	College Readiness	CARA works with schools and organizations to equip them with tools that help young people build “knowledge about college,” strengthen navigational skills, and develop multicultural college-going identities. (http://caranyc.org/)
College for Every Student (CFES)	College Readiness /Mentoring	CFES is committed to raising the academic aspirations and performance of underserved youth, so that they can prepare for, gain access to, and succeed in college. CFES has developed mentoring initiatives, partnerships with regional colleges, and student leadership programs. These programs aim to improve academic achievement and attendance, build leadership capacity and civic engagement, and ultimately ensure that targeted students, the “CFES Scholars,” graduate from high school and get to and through college. (http://www.collegefes.org/)

College Summit	College Readiness	College Summit aims to transform the lives of low-income youth by connecting them to college and career. College Summit uses peer leadership, custom curricula, real-time student performance data and technology to help get these high school students from low-income communities to and through college. (http://www.collegesummit.org/)
CollegeBound Initiative (CBI)	College Readiness	CBI places full-time college guidance experts in public schools to work one-on-one with every student as early as the sixth grade. CBI counselors work to maximize students' college awareness, access, and financial aid awards.

APPENDIX F: METHODS FOR CALCULATING iMENTOR'S EFFECTS ON NON-ACADEMIC OUTCOMES

Lagged Cohort Model

We designed a lagged cohort study to test if students eligible to receive¹ the iMentor intervention had better outcomes at the end of 9th grade than comparison students who did not. The analytic model we used to test this statement is a student-level fixed effects model. In this model, the comparison and treatment students are enrolled in the same school—the comparison students entered 9th grade in the year prior to the treatment students. We use school fixed effects to control for differences between the eight evaluation schools. We also control for additional student characteristics enumerated below using variables from the NYC Department of Education administrative data as well as other measures from the iMentor survey. Most importantly, we control for their baseline status on each survey outcome. The variable TREAT below equals 1 if a student was enrolled in 9th grade when iMentor was implemented and 0 if a student was enrolled prior to implementation. The coefficient on the treatment indicator is the effect of iMentor.

Model:

$$Outcome_i = INT + BL_i + SCH_i + TREAT_i + ELAG08_i + MTHG08_i + Female_i + FstGEN_i + ABSPECTROL_i + Race_i + SelfEff_i + FREDLUNCH_i + SPED_i + ELL_i + OVAGE_i + e_i$$

$Outcome_i$ = Student spring score on non-academic outcome construct

BL_i = Student fall (baseline) score on non-academic outcome construct

SCH_i = School fixed effect

$TREAT_i$ = Indicator of being eligible to participate in iMentor (1 = treatment)

$ELAG08_i$ = Percentile score (0-100) for 8th grade ELA Achievement Score

$MTHG08_i$ = Percentile score (0-100) for 8th grade Math Achievement Score

$Female_i$ = Indicator of being female

$FstGEN_i$ = Indicator of being a potential first generation college student, defined as having a mother/sibling who has not attended any college

$ABSPECTROL_i$ = Indicator of being chronically absent in the 8th grade year

$Race_i$ = Indicator of race/ethnicity category from follow-up survey (i.e. Asian, Black, Latino, White, or Other), the reference group is Black

$SelfEff_i$ = Measure of student self-efficacy as determined from the baseline study

$FREDLUNCH_i$ = Indicator of receiving Free or Reduced priced lunch

$SPED_i$ = Indicator of having a related service in 8th grade

ELL_i = Indicator of having an ELL designation in 8th grade

$OVAGE_i$ = Indicator of being 15 at the start of 9th grade

e_i = error

For students with an outcome variable, any missing predictor variables were imputed using a multiple imputation process based on all remaining variables. No outcome variables were imputed.

Sensitivity Tests

Before conducting these analyses, we conducted a sensitivity test to assess if being a member of the treatment cohort was predictive of having higher baseline scores. We found that for three outcome variables, participating in iMentor was predictive of higher baseline scores. However, once other student characteristics were incorporated into the model, the association between participating in iMentor and baseline scores were no longer statistically significant. This suggests that there were differences between cohorts in the same school on the outcomes of interest, but that these differences could be controlled for using other student-level characteristics.

Baseline Equivalence

We tested for baseline equivalence between the treatment and control students to assess if the two groups were similar enough to test the effect of iMentor. If the groups were very different, then we could not be confident that any differences we saw between the two groups could be attributed to iMentor. We used the What Works Clearinghouse (WWC) standard for baseline equivalence for a lagged cohort model with a baseline predictor. The standard is that there must be less than a .25 standard units difference on background characteristics between the treatment and comparison groups. Table G-1 shows that for each variable, the treatment and control groups have a smaller than .25 difference on Hedge's G—the preferred standard unit of comparison by WWC.

Table F-1: iMentor Baseline Equivalence Test for Treatment and Comparison Students

	Treatment		Comparison		Hedge's G
	Mean	Standard Deviation	Mean	Standard Deviation	
Gender (%)					
Female	45.6	50.0	52.3	50.0	-0.13
Male	54.4	49.8	47.7	50.0	-0.13
Race (%)					
Asian	3.0	17.0	2.8	16.6	0.01
Black	32.2	46.7	34.8	47.7	-0.06
Latino	62.2	48.5	59.3	49.2	0.06
White	1.3	11.4	1.1	10.3	0.02
Other	1.3	11.4	2.0	14.0	-0.05
Background Characteristics (%)					
8 th Grade English Language Learner	28.3	45.1	22.9	42.0	0.12
8 th Grade Free/Reduced Lunch	88.9	30.8	85.2	34.5	0.11
8 th Grade Special Education	21.0	39.8	21.9	40.2	-0.02
8 th Grade Chronic Absentee ^a	22.9	41.9	27.2	44.2	-0.10
8 th Grade NYS ELA Test Score (Z)	-0.6	0.9	-0.5	0.9	-0.04
8 th Grade NYS ELA Test Score (Z)	-0.5	0.8	-0.4	1.0	-0.14
Overage by 9 th grade	35.4	47.9	36.4	48.1	-0.02
Baseline Measures					
Interpersonal Support (1-4)	2.8	0.5	2.8	0.5	-0.15
Growth Mindset (1-4)	3.2	0.4	3.2	0.4	0.03
Perseverance (1-4)	3.2	0.5	3.2	0.4	-0.06
Hope and Sense of Optimism (1-4)	3.3	0.4	3.3	0.4	-0.10
Self-Advocacy (1-5)	3.6	0.9	3.6	0.8	-0.04
Future Planning (1-3)	2.3	0.4	2.4	0.4	-0.16
Adult Social Supports (0-5 adults)	2.5	1.3	2.7	1.2	-0.16
College Aspirations (1-6)	4.7	1.0	4.9	0.9	-0.05
Career Importance & Planning (1-7)	5.7	1.2	5.7	1.2	-0.06
Number of Schools	8		8		
Number of Students	847		836		

Source: Research Alliance calculations based on data obtained from Student survey and the NYC Department of Education.^a A Chronic Absentee student has been absent from schools for at least 20 days during a single school year.

APPENDIX G: METHODS FOR CALCULATING iMENTOR'S EFFECT ON ACADEMIC OUTCOMES AND ATTENDANCE

Comparative Interrupted Time Series (CITS) Model

The CITS procedure involves multiple comparisons but is run as a single equation regression (Bloom, 2003). The regression equation models the academic outcome on a set of dummy variables with interactions designed to isolate the treatment effect (at the cohort level). The model is written as follows, with the subscripts i for student, j for school, and t for relative year (where the first treatment year is $t = 0$):

$$\text{Outcome}_{ijt} = \beta_0 + X_{it}\beta_{1-9} + t\delta_1 + \text{iMentor}_{ijt}\delta_2 + \text{iMentor}_{ijt} \cdot t\delta_3 + \text{TreatYr}_{it}\delta_4 + \underline{\text{iMentor}_{ijt} \cdot \text{TreatYr}_{it}\delta_5} + \sigma_j^{\text{school}} + \gamma_{jt}^{\text{cohort}} + \varepsilon_{ijt}$$

- X : a vector of student characteristics (i.e. gender, race/ethnicity, 8th grade test scores, 8th grade attendance, and free/reduced price lunch);
- iMentor : equals 1 when student i in school j is enrolled in an iMentor school in year t , otherwise equals 0;
- TreatYr : equals 1 when year t is a year in which iMentor was offered, otherwise equals 0
- σ : school random effect; and
- γ : cohort-school random effect.

No student in the sample is missing all variables when outcomes are available. Missing variables are imputed using a multiple imputation process based on all remaining variables carried out separately by race and gender.

The underlined term indicates the impact of iMentor, based on the following:

- δ_1 is the slope parameter (for the outcome variable with respect to year) for comparison schools, over the three years of pre-treatment and one year of treatment;
- δ_2 is the difference in intercepts (for the outcome variable with respect to year) between iMentor and comparison schools;
- δ_3 is the difference in slopes between iMentor and comparison schools, over the entire time period;
- δ_4 is the difference in expected (conditional) outcome for all students in the treatment year; and
- δ_5 is the additional difference in expected outcome for iMentor students in the treatment year.

Matching Procedure

As described in Chapter 2 of the full report, we selected schools similar to those in our evaluation to serve as a comparison group for iMentor schools, which allows us to differentiate the effect of iMentor from other factors that are simultaneously influencing schools district-wide.

We used Euclidian Distance Matching to select 16 comparison schools that are statistically similar to the eight iMentor schools in terms of the demographic characteristics and prior performance of incoming 9th graders, as well as the academic trajectories of prior cohorts of 9th graders. Below, we describe the pool of schools from which we selected comparison schools, define the characteristics by which we matched, and specify the model we used to conduct the match. We then briefly assess the quality of the match between the iMentor and comparison schools.

Comparison Pool

We selected comparison schools from a pool of 356 potential matches that met the following criteria:

- Grade 9-12 high school;
- Not a District 75 (special education), District 84 (charter), or specialized high school;
- Began enrolling students in or before October 2009;
- Has only one admissions method (e.g., screened or limited unscreened, not both); and
- Had at least three years of consecutive cohorts enrolled between 2009 and 2013.

Matching Characteristics

We measured the similarity of iMentor and potential comparison schools along the following characteristics:

- Four-year high school graduation rate, measured at the school level (weighted by a factor of 2);
- Percentage of students who meet the Research Alliance’s definition of being “on-track” for high school graduation, as defined passing at least one Regents Exam and earning at least 10 course credits in the 9th grade (weighted by a factor of 4);
- The percentage of incoming 9th grade students classified as English Language Learners in the eighth grade;
- The percentage of incoming 9th grade students who qualified for reduced priced lunch in the 8th grade (a measure of poverty);
- The percentage of students grades 9 through 12 with an Individualized Education Plan;
- The total number of students enrolled in the school;
- The percentage of students deemed chronically absent (missing at least 20 days of school);
- The percentage of students who are Asian or White;
- The slope of grade 8 English and Language Arts (ELA) scale scores in the three years prior to iMentor’s implementation;
- The intercept of grade 8 ELA scale scores corresponding to the ELA score slope defined above;
- The slope of grade 8 math scale scores in the three years prior to iMentor’s implementation; and
- The intercept of grade 8 math scale scores corresponding to the math score slope defined above.

Matching Method

Comparison schools were selected using the Euclidian Distance Matching method, as described in Chapter 32: The DISTANCE procedure of the SAS 9.2 User’s Guide (SAS, 2008).

Match Quality

Because the CITS estimate is largely based on schools’ academic trajectories in the three years before iMentor was first implemented, assessing the equivalency of iMentor and matched comparison schools also requires comparing their pre-iMentor trends. Schools with similar trajectories—i.e., schools with similar rates of change in both their student population and in the academic outcomes of their 9th grade students—are likely to be subject to a similar set of policy influences. They are also likely to respond to any future policy shocks in similar ways (Somers et al, 2013).

In our study, matched comparison schools demonstrated similar trends to iMentor schools in terms of prior student performance and student background characteristics. Schools were more difficult to match on credits and on-track rates (of which credits are a component), in part because some of these schools are unique (e.g., offer CTE programs,

or perform better or worse than other schools with demographically similar student populations). Overall, we think that the matched comparison schools are fairly similar to the evaluation schools.

Table G-1: Baseline Equivalence, Prior Year Outcomes

	iMentor Schools Mean	Comparison Schools Mean	Hedge's G ^a
On-Track^b	62.69	57.01	0.12
Academic GPA (Weighted)	74.34	72.61	0.12
Chronic Absentee (%)^c	29.45	30.56	-0.02
Passed One Regents Exam			
Credits Earned	12.17	11.32	0.20
Academic Credits Earned	9.29	8.74	0.15
Attendance (%)	88.92	88.31	0.04
Students per School	105.88	108.31	
Number of Schools	8	16	

Source: Research Alliance calculations based on data obtained from the NYC Department of Education.

Notes: ^a Hedge's G is the "effect size difference" between groups and is defined as the difference in means divided by the pooled standard deviation. Values of 0.25 or greater are considered not to be equivalent. ^b On-Track is defined as passing at least one Regents Exam and earning at least 10 course credits. ^c A Chronic Absentee student has been absent from schools for at least twenty days during a single school year.

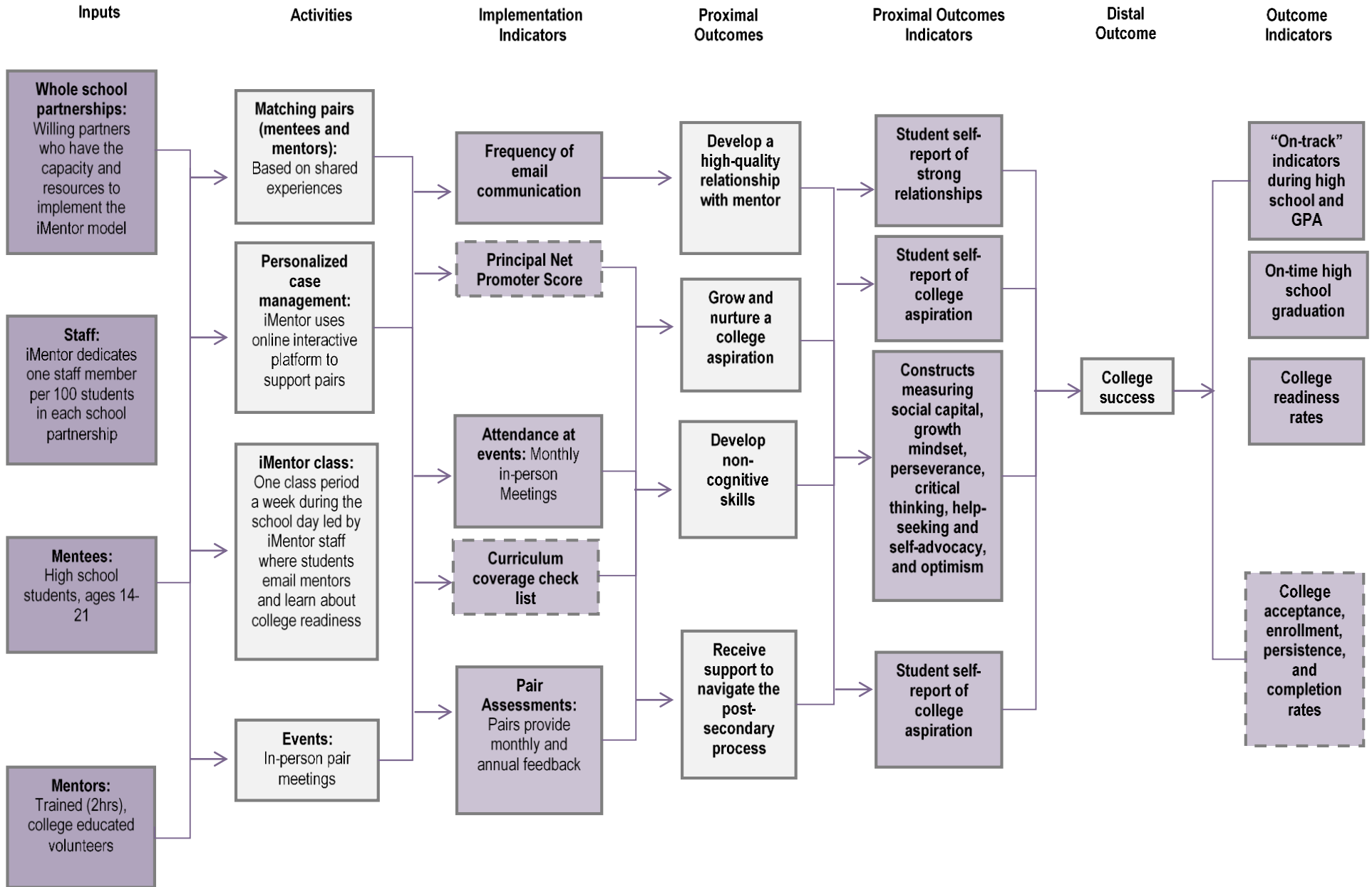
Table G-2: Baseline Equivalence, Prior Year Characteristics

	iMentor Mean	Comp. Mean	Hedge's G ^a
8th Grade Attendance (%)	87.66	88.16	-0.03
8th Grade NYS ELA Test Score (Z)	-0.49	-0.41	-0.09
8th Grade NYS Math Test Score (Z)	-0.42	-0.39	-0.04
Female (%)	0.52	0.57	-0.10
Race (%)			
Black	34.83	28.45	0.14
Latino	59.27	60.59	-0.03
Asian	2.83	6.29	-0.16
Other	2.01	1.50	0.04
At Least One Year Overage as of 9th grade	36.36	31.85	0.10
Poverty Status	92.44	92.27	0.01
English Language Learner (%)	24.91	18.12	0.17
Special Education Student (%)	17.59	18.40	-0.02
Students per School	95.50	98.19	
Number of Schools	8	16	

Source: Research Alliance calculations based on data obtained from the NYC Department of Education.

Notes: ^a Hedge's G is the "effect size difference" between groups and is defined as the difference in means divided by the pooled standard deviation. Values of 0.25 or greater are considered not to be equivalent.

APPENDIX H: iMENTOR'S LOGIC MODEL



Endnotes

¹ All students in a treatment cohort who were on the school roster as of October 20th are considered eligible for iMentor.

References

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