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February 2017

Evaluation of the Philadelphia GEAR UP Partnership Initiative

Findings for Year 7 (2015–16)

Submitted To:

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Career Readiness

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Evaluation

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Table of Contents

Executive Summary	i
I. Introduction	1
II. Program Model	2
III. Implementation Findings	4
Characteristics of Students and Schools	4
Overview of GEAR UP Implementation.....	5
IV. Outcome Findings	9
Descriptive Analyses.....	9
Results from the Rigorous Quasi-Experimental Design Study	10
V. Conclusions	13
Appendix A: Technical Appendix for Impact Analyses	A-1

Figures and Tables

TABLE OF FIGURES

Figure 1: Logic Model for the Philadelphia GEAR UP Initiative.....	3
Figure 2: Characteristics of GEAR UP Students.....	4
Figure 3: Exposure to GEAR UP.....	6
Figure 4: On-Time High School Graduation and College Enrollment Results (2012-13 Ninth-Grade Cohort)	12

TABLE OF TABLES

Table 1: GEAR UP Student Characteristics, by School	5
Table 2: Student Participation in GEAR UP Activities, Overall and by Activity	7
Table 3: Student GEAR UP Participation, by School.....	8
Table 4: Parent Participation in GEAR UP, Overall and by Activity Type	8
Table 5: Percentage of Seniors Graduating from High School (2012–13, 2014–15, and 2015–16), Total and by School	9
Table 6: Percentage of High School Graduates Enrolling in College in the Subsequent Fall (2012–13, 2014–15, and 2015–16), Total and by School	10

Executive Summary

The Philadelphia GEAR UP Partnership initiative was a six-year federally-funded program that brought together a strong network of partner committed to improving the educational outcomes and graduation rates of Philadelphia public school students. **In 2015–2016, the Philadelphia GEAR UP Partnership initiative was granted a no-cost extension to continue providing services for seniors** attending the seven GEAR UP high schools: Edison, Frankford, Franklin, Lincoln, Roxborough, High School of the Future, and South Philadelphia High Schools.

The initiative was designed to provide a **comprehensive set of services to participating schools**, including academic enrichment and skills-building activities for students, support for the implementation and expansion of rigorous academic coursework, professional development for teachers, college and career preparation activities and family engagement. It was expected that the comprehensiveness of GEAR UP programming and involvement of all stakeholder groups (i.e., school staff, students, parents, internal SDP partners, and external partners) would help **create a school-wide college-bound culture**, which has been shown to increase the likelihood of each student’s own success.

THE PHILADELPHIA GEAR UP PARTNERSHIP: IMPLEMENTING BEST PRACTICES IN THE FIELD

- ✓ Early introduction to college readiness and career awareness interventions
- ✓ The use of a cohort-based approach (i.e., students are expected to participate for multiple years)
- ✓ Increased access to rigorous coursework and a college preparatory curriculum
- ✓ Counseling, support, and guidance provided by peer and adult mentors
- ✓ Provision of information on college application and financing

Evaluation Design

Over the course of the grant period, Metis and Branch Associates (the external evaluators) implemented a comprehensive evaluation framework that assessed implementation—including best practices, successes, challenges and lessons learned—and measured the initiative’s progress towards achieving its expected outcomes on students, families, and schools. In Year 7, the evaluation had a more limited scope of work, focusing on descriptive analyses of demographic, program participation, attendance, high school graduation and college enrollment data, and a rigorous quasi-experimental design study on high school graduation, and college enrollment.

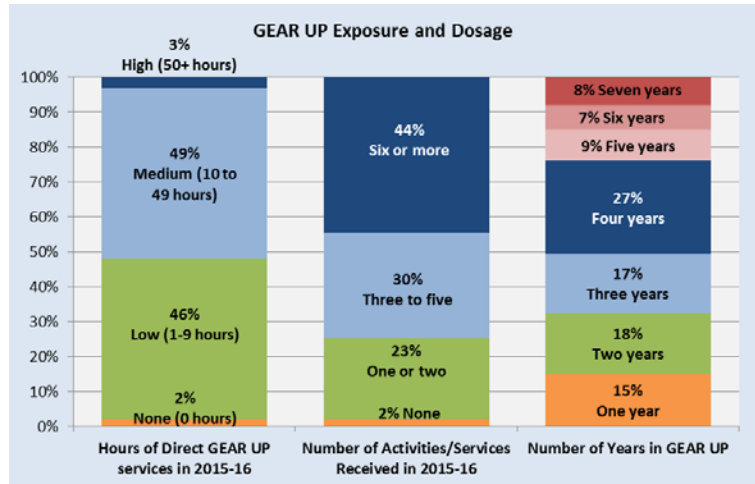
Profile of GEAR UP Schools and Students

In 2015–16, the GEAR UP cohort included 1,549 senior students attending seven Philadelphia neighborhood schools. Overall, GEAR UP students were predominantly African American and Latino and were economically disadvantaged. About 21 percent had a learning disability and 14 percent were English language learners. The seven GEAR UP schools varied widely in terms of demographic composition and the size of the cohort. For example, the percentage of African-American students ranged from 23 percent to 87 percent and the percentage of Latino students ranged from 5 percent to 73 percent. There was also a large variation in the proportions of ELL students (from 2 percent at one school to 26 percent at another).

Implementation Findings

The GEAR UP program had a strong presence at the participating schools, reaching 98 percent of seniors in the target schools.

- Seventy-four percent of all GEAR UP students participated in three or more activities, and over half of them had medium to high participation in 2015–2016.
- The number of years of exposure to GEAR UP varied widely amongst cohort students: 33 percent of students had been in GEAR UP for one or two years, 17 percent had been in GEAR UP for three years, and 51 percent had been in GEAR UP for four or more years.

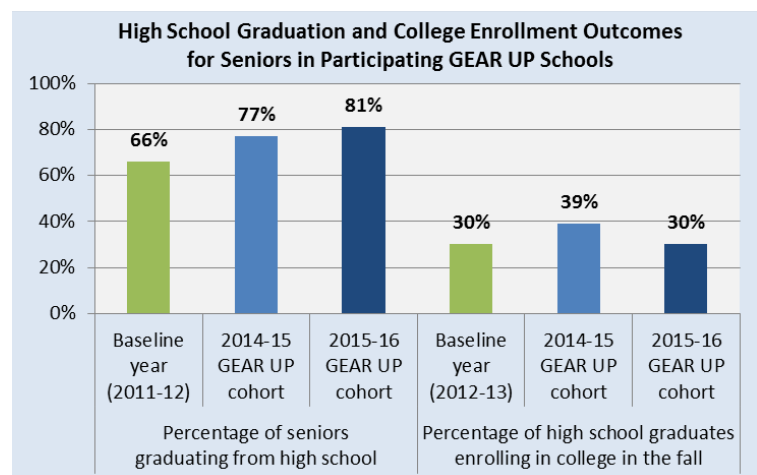


- The large majority of GEAR UP students received college readiness programming, including meetings with college representatives (70%), assistance with college applications (59%) and FAFSA (38%), and college visits (24%). About 45 percent of students in the cohort also received academic advisement and 43 percent participated in Summer Melt activities.

Outcome Findings

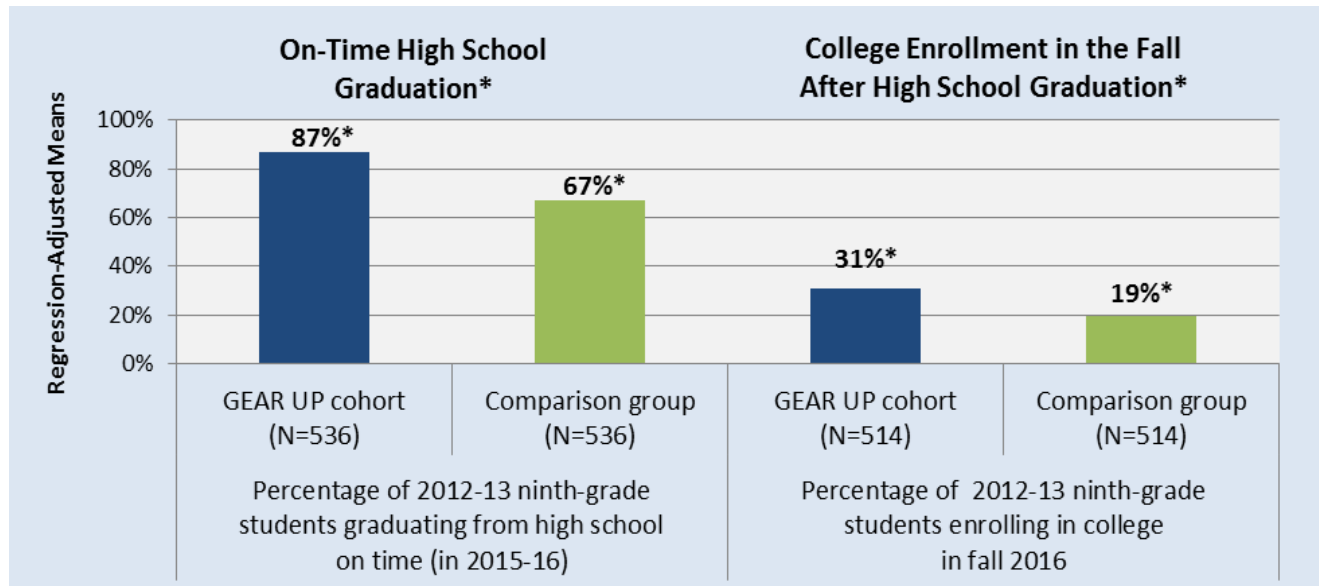
One of the main goals of the Philadelphia GEAR UP Partnership was to provide students with the knowledge, skills and competencies they need to succeed in school, college and later in life. In Years 6 and 7, the outcome evaluation focused on assessing the high school graduation and college enrollment outcomes of participating students.

- Descriptive results show that, across the seven GEAR UP schools, **the percentage of seniors who graduated from high school considerably increased** from 66 percent in 2011–12 (baseline year) to 77 percent in 2014–15 (first cohort of GEAR UP seniors) and 81 percent in 2015–16 (second cohort of GEAR UP seniors).
- Results from an analysis of National Student Clearinghouse (NSC) college enrollment data were mixed and showed **an increase in the percentage of graduates who enrolled in college in the fall semester immediately after graduating from high school**, from 30 percent in 2012–13 (baseline year) to 39 percent in 2014–15 (first cohort of GEAR UP seniors) **and a decline** to 30 percent in 2015–16 (second cohort).



Metis Associates also employed a rigorous quasi-experimental design (QED) to determine whether the Philadelphia GEAR UP Partnership initiative had a demonstrable impact on on-time high school graduation and college enrollment. Specifically, analyses were conducted for the outcomes of students in the GEAR UP cohort entering ninth-grade in 2012–13 (and therefore expected to graduate in 2015–16) who remained in a GEAR UP high school for more than a year and participated in at least 40 hours of programming, compared to those of a rigorously matched group of non-participants attending other neighborhood schools in Philadelphia (propensity score matching was used for selecting the comparison group). **Results showed that GEAR UP has had a positive, significant impact on high school graduation and college enrollment outcomes of participating students.** Results indicated the following:

- The probability of students graduating on time from high school was significantly higher for GEAR UP students than students in the comparison group, after controlling for differences at the student and school levels (87% compared to 67%, respectively). Differences were of a large magnitude.
- GEAR UP students also had a significantly higher probability (odds) of enrolling in college (in the fall semester after completing their fourth year of high school) than students in the comparison group (31% compared to 19%). Differences were statistically significant and of a moderate magnitude.



*An asterisk denotes a statistically significant difference at the .05 level.

Conclusions

The 2015–2016 school year was the seventh and final year of implementation of the Philadelphia GEAR UP Partnership initiative. Over the last seven years, this initiative has developed and refined a set of interventions and activities designed to provide the supports that students need to succeed in school and beyond. Findings from the evaluation are very promising and show that the GEAR UP senior cohorts (in Years 6 and 7) had better high school graduation and college enrollment outcomes than previous senior classes at the same GEAR UP schools. Results from an impact study using a rigorously matched comparison group from non-GEAR UP schools also showed a positive, significant impact of GEAR UP on high school graduation and college enrollment. **Overall, these results are indicative of significant impact by GEAR UP and represent the culmination of six years of college and career readiness interventions offered by the Philadelphia GEAR UP Partnership initiative in urban, under-performing neighborhood schools in Philadelphia.**

I. Introduction

In support of its **Anchor Goal 1 of ensuring that “100 percent of students will graduate ready for college and career”¹**, the School District of Philadelphia (SDP) has engaged in numerous efforts to provide the supports and opportunities that Philadelphia’s public school students need to succeed in school and reach their full potential. One of these key initiatives—the Philadelphia GEAR UP Partnership initiative—began in 2009, when the School District of Philadelphia was awarded a six-year Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) federal grant. Created in 1998 as part of the reauthorization of the Higher Education Act of 1965, GEAR UP is a national college readiness program that aims to promote equity for low-income students by improving their access to postsecondary education.

THE PHILADELPHIA GEAR UP PARTNERSHIP: MISSION

The Philadelphia GEAR UP Partnership initiative was a six-year federally-funded program that brings together a strong network of partner committed to improving the educational outcomes and graduation rates of Philadelphia public school students.

In 2015–2016, the Philadelphia GEAR UP Partnership initiative received a no-cost extension and completed its seventh and final year of implementation, serving 1,549 GEAR UP twelfth-grade students attending the seven GEAR UP high schools: Edison, Frankford, Franklin, Lincoln, Roxborough, High School of the Future, and South Philadelphia High Schools.

Metis Associates, Inc., a national research and evaluation consulting organization, in collaboration with Branch Associates, Inc. (BAI) was contracted as the external evaluator of the Philadelphia GEAR UP Partnership. This report presents the implementation and outcome findings for Year 7.

Following this introduction, the report continues with:

- A description of the Philadelphia GEAR UP Partnership model (Section II);
- Program implementation findings (Section III);
- Program outcome findings (Section IV); and,
- Conclusions (Section V).

¹ See SDP’s Action Plan v2 at: <http://www.philasd.org/announcements/actionplan/APv2.0.pdf>

II. Program Model

The ultimate goal of the Philadelphia GEAR UP Partnership initiative was to **ensure that participating students graduate from high school with the knowledge, skills and preparation needed** to gain acceptance to and succeed in a postsecondary institution of their choosing.

The wide array of programming, approaches, and strategies that the Philadelphia GEAR UP Partnership initiative implemented over the grant period have been identified as **best practices in the field of college readiness and access**, including:

- ✓ Early introduction to college readiness and career awareness interventions;
- ✓ The use of a cohort-based approach (i.e., students are expected to participate for multiple years);
- ✓ Increased access to rigorous coursework and a college preparatory curriculum;
- ✓ Counseling, support, and guidance provided by peer and adult mentors; and,
- ✓ Provision of information on college application and financing for students and their families.

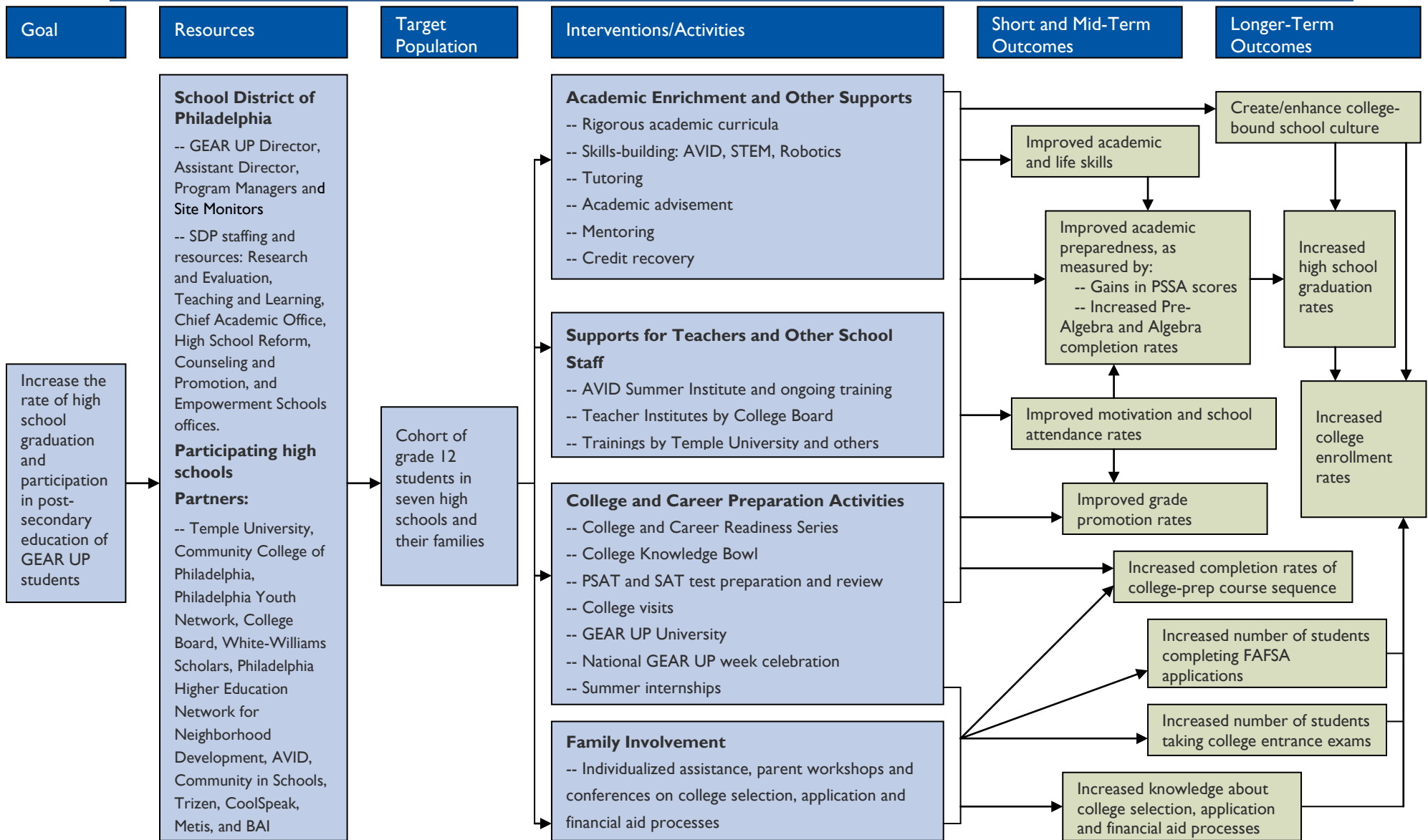
ABOUT THE GEAR UP MODEL

By providing a wide array of services targeting the varied needs of students and promoting the involvement of school, district and community stakeholders, GEAR UP aims to create a college-bound school culture, which has been shown to increase the likelihood of each student's own success.

A logic model was developed as part of the evaluation in Year 1 (and revised each year) to show the relationships, assumptions and expectations for the project. Presented in Figure 1, the logic model includes detailed information about the context, resources, activities and outcomes of the Philadelphia GEAR UP Partnership. As shown, the initiative was designed to provide a **comprehensive set of services to participating schools**, including academic enrichment and skills-building activities for students, support for the implementation and expansion of rigorous academic coursework, professional development for teachers, college and career preparation activities and family engagement.

It was expected that the comprehensiveness of GEAR UP programming and involvement of all stakeholder groups (i.e., school staff, students, parents, internal SDP partners, and external partners) would help **create a school-wide college-bound culture**, which has been shown to increase the likelihood of each student's own success. Specifically, these interventions were expected to lead to a number of outcomes for students in the short- and mid-term, such as improved academic and life skills, increased academic achievement, gains in motivation and school attendance and improved knowledge and preparation for the college selection, application and financing processes. In the long-term, it was expected that **GEAR UP would contribute to increasing high school graduation and college enrollment rates for the participating schools**.

Figure 1: Logic Model for the Philadelphia GEAR UP Initiative



Context/Need

- Educational attainment has been identified as one of the most important means of social mobility and is associated with increased earnings, better working conditions and upward mobility, improved health and mental health outcomes, lower crime rates, and better quality of life. Yet, access to high quality secondary and post-secondary education remains inequitable.
- The Philadelphia GEAR UP Partnership targets middle school students attending some of the most impoverished and at-risk schools. Most of these schools have been cited as needing school-wide improvement and have failed to make AYP. Only 45% of the students in the original target high schools graduate within four years and less than half of these graduates enroll in postsecondary education.
- A number of best practices have been identified in the area of college readiness programming, including the use of cohort-based approaches, attention to academic rigor, the introduction of college and career preparatory activities in middle school, parental involvement, and effective college counseling.

III. Implementation Findings

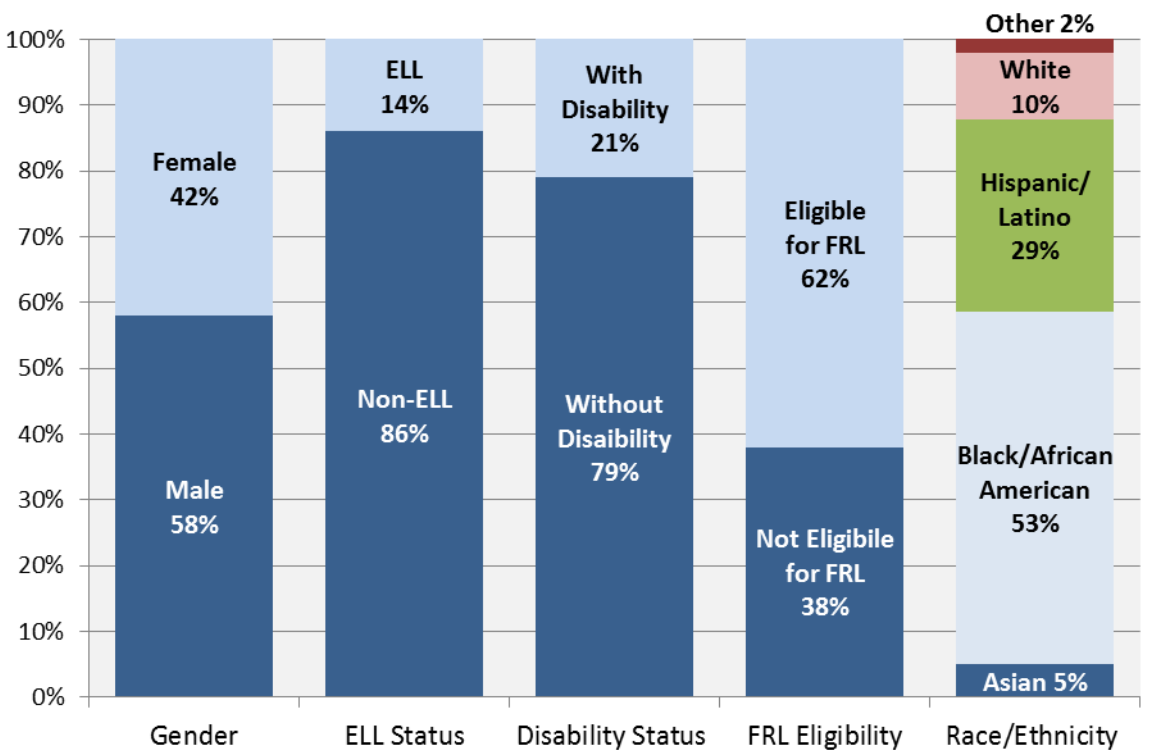
This section provides a detailed description of participating students and schools and presents an overview of implementation of the Philadelphia GEAR UP Partnership initiative for the period from September 1, 2015 to August 31, 2016.

Characteristics of Students and Schools

- Overall, GEAR UP students were predominantly African American and Latino and were economically disadvantaged. About 21 percent had a learning disability and 14 percent were English language learners. The seven GEAR UP schools, however, varied widely in terms of demographic composition and the size of the cohort.**

In 2015-2016 (Year 7), the GEAR UP cohort was composed of 1,549 seniors. As shown in Figure 2, the Philadelphia GEAR UP Partnership initiative served a predominantly minority student population, most of whom are African-American (53%) or Latino (29%). Approximately one-quarter (21%) of the cohort were classified as students with disabilities and 14 percent were classified as English language learner (ELL). Male students accounted for more than half (58%) of GEAR UP students. In addition, at least two-thirds (62%) of the students were economically disadvantaged, as measured by the fact that they were eligible for the free and reduced-price lunch (FRL) program.

Figure 2: Characteristics of GEAR UP Students



Student demographics varied greatly by school, as shown in Table 1. For example, across schools, the percentage of African-American students ranged from 23 percent to 87 percent and the percentage of Latino students ranged from 5 percent to 73 percent. There was also a large variation in the proportions of ELL students (from 2 percent at Roxborough to 25 percent at Edison) and—to a lesser extent—students with disabilities (from 10 percent at Lincoln to 32 percent at South Philadelphia High School and School of the Future). The proportion of students who received free or reduced-price meals also varied from a low of 51 percent at Roxborough to a high of 71 percent at School of the Future.

Table 1: GEAR UP Student Characteristics, by School

School	Percentage of GEAR UP Students by Subgroup									
	Female	ELL	With Disability	FRL	Minority (non-white)	Race/ethnicity				
						Asian	African American	Hispanic Latino	White	Other
Edison	43%	25%	28%	66%	98%	1%	23%	73%	2%	1%
Frankford	45%	12%	20%	68%	91%	1%	56%	31%	9%	2%
Franklin	39%	16%	12%	62%	100%	5%	82%	11%	0%	2%
Lincoln	41%	8%	10%	52%	68%	8%	36%	19%	32%	4%
Roxborough	36%	2%	20%	51%	92%	1%	87%	5%	8%	0%
School of the Future	49%	3%	32%	71%	99%	3%	87%	8%	1%	1%
South Philadelphia	37%	24%	32%	69%	95%	24%	58%	11%	5%	2%

Overview of GEAR UP Implementation

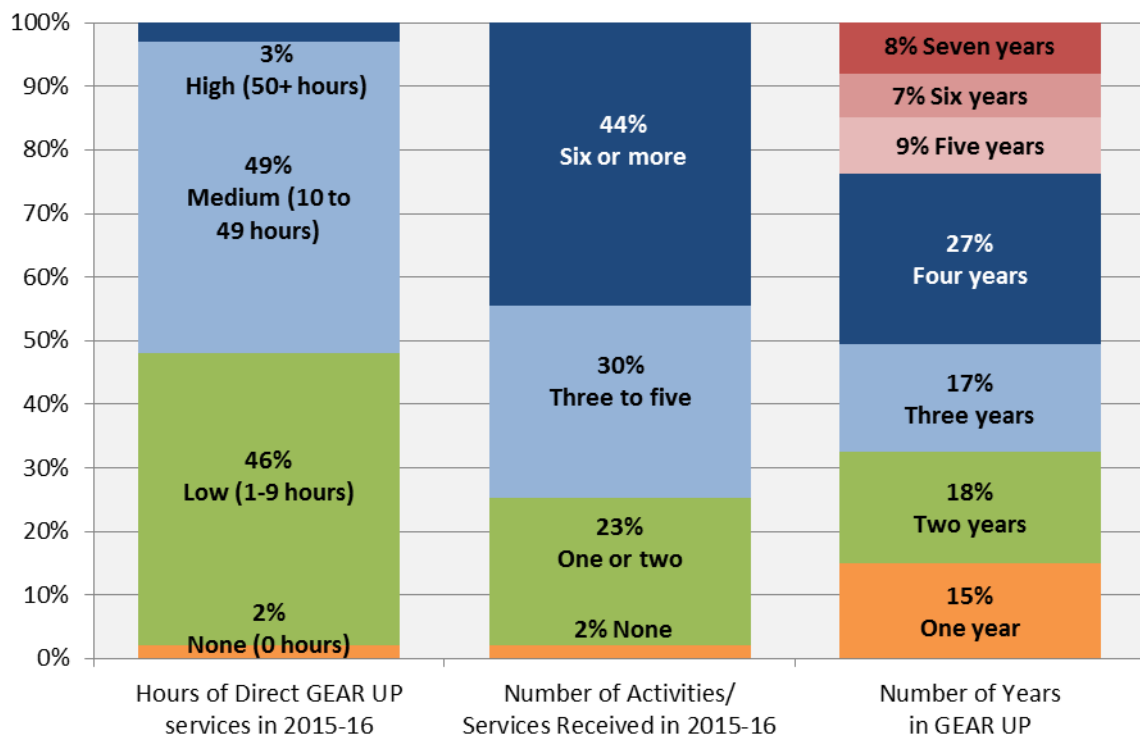
- **The GEAR UP program had a strong presence at the participating schools, reaching almost every GEAR UP senior. Seventy-four percent of all GEAR UP students participated in three or more activities, and over half had medium to high participation in 2015-2016.**

In Year 7 of the grant, 1,513 students received direct GEAR UP student services, representing 98 percent of students in the GEAR UP cohort.² Dosage analyses were conducted to gain a more in-depth understanding of the intensity and breadth of GEAR UP participation. Four dosage groups were created based on the number of hours of participation: high dosage (50 hours or more), medium dosage (10 to 49 hours), low dosage (1 to 9 hours), and no dosage (0 hours).

² Participation data analyses were based on students who had some participation data or students who did not have any participation data but had attended a GEAR UP school for at least 60 days (N=1,549).

As shown in Figure 3, more than half of the GEAR UP students had medium or high participation (49 percent and 3 percent, respectively), while the remainder had low participation or no participation (46 percent and 2 percent, respectively). When looking at the number of activities they participated in, results show that students were fairly distributed across the board, with 23 percent of students participating in one to two activities, 30 percent in three to five activities, and 44 percent in six or more activities. There was also some variation in terms of years of GEAR UP exposure: 33 percent of students had been in GEAR UP for one or two years, 17 percent had been in GEAR UP for three years, and 51 percent had been in GEAR UP for four or more years.

Figure 3: Exposure to GEAR UP



GEAR UP participation data were also disaggregated by activity type. As shown in Table 2:

- The large majority of GEAR UP students received college readiness programming, including 70 percent of students who participated in college fairs and/or meetings with college representatives, 59 percent who received support with college applications, and 24 percent who participated in college visits. About 45 percent of students in the cohort also received academic advisement and 43 percent participated in Summer Melt activities.
- The most intense types of activities were AVID, SAT/ACT prep course and enhanced college visits, with students receiving an average of 83 hours, 11.3 hours and 7.9 hours, respectively.

Table 2: Student Participation in GEAR UP Activities, Overall and by Activity

Activity Type	Students Participating		Average Hours Per Student ¹
	Number	% of Student Enrollment	
Academic Advising	701	45%	2.2
Attendance Initiative	277	18%	1.5
AVID Course	18	1%	83.0
College Roadmap Sequence: College Applications Assistance	908	59%	2.9
College Roadmap Sequence: College Fair/College Representative	1,090	70%	2.3
College Roadmap Sequence: Enhanced College Visits	370	24%	7.9
College Roadmap Sequence: FAFSA completion	590	38%	1.3
College Roadmap Sequence: SAT/ACT Registration	436	28%	1.5
College Signing Day Event	550	36%	4.2
College readiness workshops	450	29%	2.0
FAFSA Completion Campaign	494	32%	2.3
Grade Improvement/Credit Recovery	67	4%	6.6
National GEAR UP Week	923	60%	2.2
Online tutoring	48	3%	2.1
SAT/ACT Prep Course	26	2%	11.3
Summer Melt	659	43%	2.3
All Activities (Unduplicated Count)	1,513	98%	14.3

¹Averages were calculated based on the total number of students participating in each GEAR UP activity and not the total number of students in the participation database

Results revealed strong GEAR UP participation in all schools, although the intensity of services varied across schools. As shown in Table 3, the proportion of students who participated in at least one activity ranged from 95 percent at Franklin and Lincoln High Schools to a high of 100 percent (all students participated) at Frankford High School and High School of the Future. Differences across schools were found when looking at intensity of program participation. For example, when looking at hours of GEAR UP programming, school-wide averages ranged from a low of 9.4 hours per participating student for Edison High School to a high of almost 20 hours for High School of the Future.

Table 3: Student GEAR UP Participation, by School

School	Total N Participating	% of Student Enrollment	Average Hours Per Participating Student
Edison, Thomas A. High School	357	98%	9.4
Frankford High School	225	100%	14.0
Franklin Benjamin High School	166	95%	19.6
Lincoln, Abraham High School	299	95%	12.4
Roxborough High School	146	97%	15.9
High School of the Future	149	100%	20.3
South Philadelphia High School	171	99%	16.2
All Schools	1,513	98%	14.3

In Year 7, 1,810 parents (representing 86 percent of GEAR UP students) were involved in one or more GEAR UP activities. The majority of GEAR UP parents and families received critical information and advisement through the quarterly GEAR UP newsletters and additional ongoing communications. Parents also had the opportunity to receive one-on-one advisement and participate in symposiums and school workshops on college readiness. On average, parents received about three hours of programming; hours of participation however ranged from a low of less than one hour to about 29 hours for one parent. Table 4 presents data on parent participation, including the number of parents who participated in each type of activity, the number of students and percent of student enrollment they represented (this takes into account instances when more than one family member for the same student participated), and the average number of hours per participating parent.

Table 4: Parent Participation in GEAR UP, Overall and by Activity Type

Activity Type	Parents Participating			Average Hours Per Participating Parent
	Number of Parents	Number of Students Represented	% of Student Enrollment	
AVID Family Events	5	5	<1%	2.0
College Roadmap Sequence: Workshops	308	274	18%	1.5
FAFSA Completion Campaign (Parents)	108	100	1%	2.0
Parent Communication	1,604	1,201	78%	2.7
Parent Symposiums	187	151	10%	1.2
Quarterly Parent Newsletter	1,150	893	58%	1.6
Total (Unduplicated Count)	1,810	1,333	86%	4.0

IV. Outcome Findings

The ultimate goal of the Philadelphia GEAR UP Partnership initiative was to ensure that students graduate from high school and are prepared to successfully enroll and complete college, if they choose to attend. In addition to tracking high school graduation and college enrollment outcomes, the project developed interim benchmarks that need to be achieved throughout students' educational pathway, including being promoted to the next grade level and maintaining a good school attendance rate. This section of the report presents the results from the outcome study, which draws from an analysis of high school graduation, and college enrollment data, and includes descriptive analyses and a rigorous quasi-experimental design study.

Descriptive Analyses

High school graduation data for the 2014–15 and 2015–16 school year were obtained for all twelfth-grade students in participating GEAR UP schools. Results were compared to data from the same target schools for the 2011–12 school year (the earliest year with available data and the first year that GEAR UP was implemented in ninth-grade at the target schools). Results are very promising and show that, across the seven GEAR UP schools, **the percentage of seniors who graduated from high school considerably increased from 66 percent in 2011–12 (baseline year) to 77 percent in 2014–15 (first GEAR UP senior cohort) and 81 percent in 2015–16 (second GEAR UP senior cohort)**³. There were notable differences across schools. Table 5 shows these results, overall and by school.

Table 5: Percentage of Seniors Graduating from High School (2012–13, 2014–15, and 2015–16), Total and by School

School	2011–12 (Baseline year)	2014–15 GEAR UP cohort (Percentage point difference with baseline)	2015–16 GEAR UP cohort (Percentage point difference with baseline)
Edison, Thomas A. High School	67%	68% (+1)	85% (+18)
Frankford High School	66%	73% (+7)	87% (+21)
Franklin Benjamin High School	51%	83% (+32)	77% (+26)
Lincoln, Abraham High School	74%	80% (+6)	80% (+6)
Roxborough High School	70%	77% (+7)	82% (+12)
High School of the Future	65%	80% (+15)	77% (+12)
South Philadelphia High School	59%	81% (+22)	74% (+15)
Across schools	66%	77% (+11)	81% (+15)

³ It should be noted that these percentages are based on the seniors in the target GEAR UP cohort and are based on different calculations than those used in the four-year graduation rates reported by the School District of Philadelphia.

National Student Clearinghouse (NSC) data on college enrollment were also obtained for the GEAR UP high school graduates (these results represent college enrollment as of fall 2015 for the first GEAR UP cohort and fall 2016 for the second GEAR UP cohort). Results for the two GEAR UP cohorts were compared to the 2012-13 cohort of high school graduates at the target schools⁴. **Results on college enrollment were mixed and show an increase in the percentage of high school graduates who enroll in college**, from 30 percent in 2012–13 (baseline year) to 39 percent in 2014–15 (first GEAR UP senior cohort), **and a decline** to 30 percent in 2015–16 (second GEAR UP senior cohort). There were notable differences between schools. Table 6 shows these results, overall and by school.

Table 6: Percentage of High School Graduates Enrolling in College in the Subsequent Fall (2012–13, 2014–15, and 2015–16), Total and by School

School	2012–13 (Baseline year)	2014–15 GEAR UP cohort (Percentage point difference with baseline)	2015–16 GEAR UP cohort (Percentage point difference with baseline)
Edison, Thomas A. High School	20%	29% (+9)	20% (+0)
Frankford High School	23%	32% (+10)	23% (+0)
Franklin Benjamin High School	28%	34% (+6)	28% (+0)
Lincoln, Abraham High School	35%	41% (+7)	34% (-1)
Roxborough High School	39%	57% (+17)	50% (+11)
High School of the Future	57%	47% (-11)	48% (-9)
South Philadelphia High School	31%	36% (+6)	26% (-5)
Across schools	30%	39% (+9)	30% (+0)

Results from the Rigorous Quasi-Experimental Design Study

Metis employed a rigorous quasi-experimental design (QED) to determine whether the Philadelphia GEAR UP Partnership initiative has a demonstrable impact on on-time high school graduation and college enrollment. The analyses presented in this section focus on the outcomes of students in the GEAR UP cohort entering ninth-grade in 2012–13 (and therefore expected to graduate in 2015–16), compared to those of a similar group of non-participants attending other neighborhood schools in Philadelphia. Using propensity score matching (PSM), GEAR UP students were matched with nonparticipants based on important observed baseline characteristics related to the outcomes of interest, including demographic characteristics (i.e., gender, race/ethnicity, age), English language learner and special education status, free and reduced lunch eligibility, eighth-grade academic achievement in English and mathematics, and eighth-grade school attendance.

⁴ Unfortunately, NSC data for the 2011–12 cohort for fall enrollment were not available at the time this report was written, therefore 2012–13 data were used instead as a proxy to baseline.

Hierarchical generalized linear modeling (HGLM) was used to assess the overall impact of the initiative on student outcomes due to its methodological advantages.⁵ The technical appendix (Appendix A) presents additional information on the methodology and approach used to conduct this study, as well as the detailed results from the analyses, including: sample sizes, unadjusted probability for each group, regression-adjusted probability for each group, effect size (which measures the magnitude of the differences), and statistical significance (which measures the probability that the regression-adjusted group difference is purely due to chance).

Student mobility and attrition is a widespread issue in Philadelphia, which deeply affects the ability of long-term multi-year educational initiatives, such as GEAR UP, to work with the same group of students over the span of their schooling years. For example, of the 2,294 students who were first-time ninth-graders in 2012–13 and enrolled in a GEAR UP school at some point during high school, only one-quarter were enrolled in GEAR UP for all four high school years; and in fact, a considerable proportion (38%) only stayed in GEAR UP for one year during high school (this was in part due to the closing of two GEAR UP schools at the end of the 2012-13 school year). To offset the decline in GEAR UP enrollment resulting from these schools' closings and in order to continue serving some students from these schools, a new high school was added to the GEAR UP cohort.

In order to take into account the aforementioned issues, which are often outside of the control of GEAR UP (e.g., families moving in/out of neighborhoods or in/out of Philadelphia; schools closing), analyses were conducted for students who were first-time ninth-graders in 2012–13 and were enrolled in a GEAR UP high school for at least two years and received at least 40 hours of GEAR UP programming across years⁶ and a carefully matched comparison group (i.e., students who were first-time ninth-graders in 2012–13 at a non-GEAR UP neighborhood school and never participated in GEAR UP)⁷. Of the 754 GEAR UP students who met these criteria, 218 were excluded from the analyses because they either transferred to a school outside of the Philadelphia school district or had missing baseline data (these same criteria were applied to students in the comparison group).

Results show that GEAR UP has had a positive, significant impact on high school graduation and college enrollment outcomes of students participating in GEAR UP for at least two years.

- As shown in Figure 4, it was found that the probability of students graduating on time from high school was significantly higher for GEAR UP students than students in the comparison group, after controlling for differences at the student and school levels (87% compared to 67%, respectively). Furthermore, the magnitude of these differences, as measured by a Cox index of 0.711, were of a large magnitude and are considered substantively important according to What Works Clearinghouse standards.

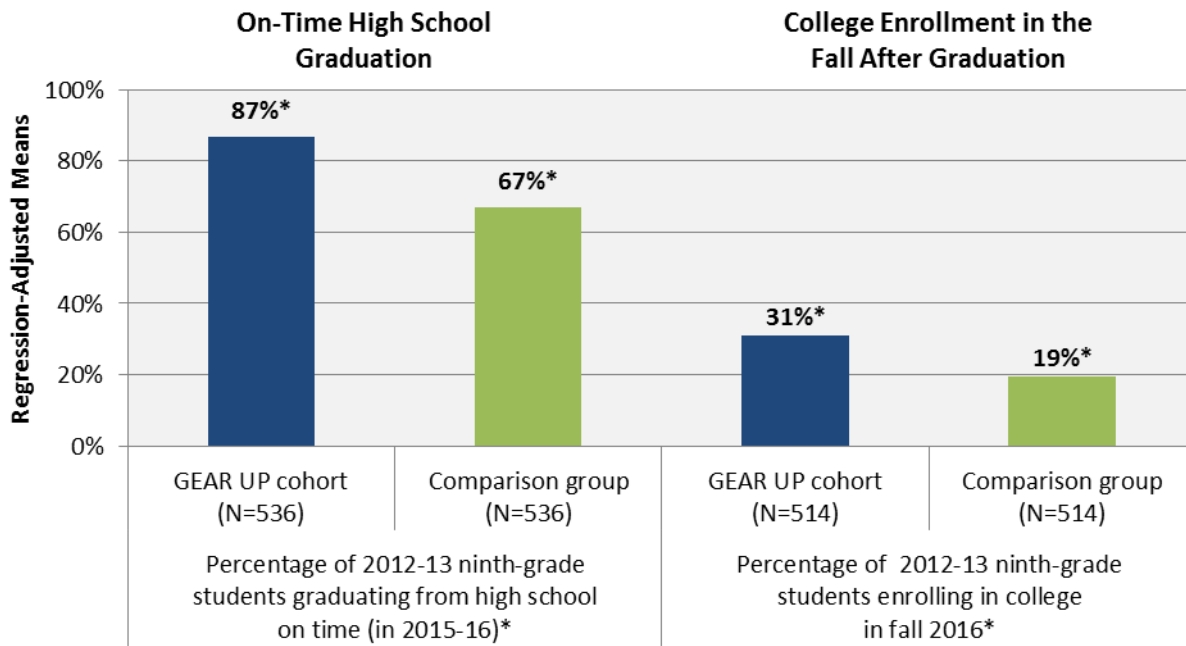
⁵ HGLM not only takes into account the multi-level structure of the data (i.e., students are nested within schools) but also allows for statistical control of multiple confounding factors at both school- and student-level.

⁶ This participation threshold was consistent with prior year analyses where dosage was found to be a critical factor when assessing GEAR UP impact on outcome measures.

⁷ Students enrolled in the two high schools that closed are also included if they transferred to another GEAR UP high school.

- Students who were enrolled in a GEAR UP school for two or more years had a significantly higher probability (odds) of enrolling in college (in the fall semester after completing their fourth year of high school) than students in the comparison group (31% compared to 19%). These differences were statistically significant and of a moderate magnitude (Cox index of 0.377).

Figure 4: On-Time High School Graduation and College Enrollment Results (2012-13 Ninth-Grade Cohort)



*An asterisk denotes a statistically significant difference at the .05 level.

V. Conclusions

The 2015-2016 school year was the seventh and final year of implementation of the Philadelphia GEAR UP Partnership initiative. Over the last seven years, the initiative developed and refined a set of interventions and activities designed to provide the supports that students need to succeed in school and beyond. Following many best practices in the college readiness field, GEAR UP offered a comprehensive, well-thought portfolio of services that included skills-building and academic enrichment interventions, college and career readiness activities, supports for struggling students, professional development activities for school staff, and parent/family advisement, workshops and events.

Findings from the evaluation are extremely positive as they show that the GEAR UP senior cohorts (in Years 6 and 7) had better high school graduation outcomes than previous senior classes at the same GEAR UP schools. Results from an impact study using a rigorously matched comparison group from non-GEAR UP schools also showed a **positive, significant impact of GEAR UP on high school graduation and college enrollment** for students exposed to GEAR UP for at least two years with a minimum participation of 40 hours. Overall, these results are indicative of significant impact by GEAR UP and represent the culmination of seven years of college and career readiness interventions offered by the Philadelphia GEAR UP Partnership initiative in urban, under-performing neighborhood schools in Philadelphia.

Appendix A: Technical Appendix for Impact Analyses

Methodology

Metis used a carefully matched comparison group design to determine whether the Philadelphia GEAR UP initiative has demonstrable impact on the target outcomes of their high exposure participants compared with a similar group of non-participants. The target program participants were matched with nonparticipants based on important observed baseline characteristics related to the outcomes of interest. Propensity score matching (PSM)⁸ is currently considered the best available approach to generating a comparable group of non-participants without random assignment. PSM techniques first summarize all pertinent characteristics observed prior to treatment (i.e., the matching variables) into a single score (i.e., the propensity) that indicates the predicted conditional probability of an individual participating in a given program. After propensity score estimation, PSM techniques typically match each program participant with one or more comparison students with similar propensity scores. One commonly used PSM technique for program evaluation is the nearest neighbor matching within caliper (also known as greedy matching).

Metis adopted greedy matching algorithms in the evaluation of Philadelphia GEAR UP to match high exposure GEAR UP students one-to-one with comparison students.⁹ The following student-level variables were included in the matching process: baseline achievement (both reading and mathematics scale scores), gender, race/ethnicity, free/reduced price lunch (FRL) eligibility, English language learner (ELL) and disability status, and previous average daily attendance. After PSM, 536 of the 536 target GEAR UP students with complete data (100.0%) were appropriately matched to their comparison counterparts.¹⁰

After generating a closely matched group of comparison students for the high exposure GEAR UP students, hierarchical linear modeling (HLM) was used to assess the overall impact of the Philadelphia GEAR UP initiative on target student outcomes (i.e., high school graduation and college enrollment). Because school was the unit of assignment but impacts are measured at the student level, two-level models were used for these cross-sectional analyses in order to account for the clustering of students within schools. For all HLM analyses, listwise deletion was used to remove students with missing data from the analytic samples. Main effects models were fitted to address the research questions regarding the overall program impacts of the Philadelphia GEAR UP initiative on student attendance and credit attainment. The matching variables used for PSM were also included as pertinent covariates in the student-level models of HLMs to further control for possible confounding effects in the impact analyses. In addition, the school characteristics (i.e., size, percent minority, percent female, percent low-income, percent special education students, percent ELL students, and percent proficient in baseline reading and math) were included in the school-level models of HLMs for more precise estimates of intervention impacts.

⁸ Under the PSM framework (Rosenbaum & Rubin, 1983, 1984, 1985; Rosenbaum, 1991, 2002), initial statistically significant imbalances on observed covariates (e.g., demographic variables and baseline achievement) between treated and comparison groups could be removed/reduced.

⁹ Following Rosenbaum and Rubin's recommendation, a caliper size of a quarter of standard deviation of the estimated propensity score was employed in the PSM applications for the Philadelphia GEAR UP evaluation.

¹⁰ Among a total of 712 high exposure GEAR UP students, 536 of them had complete data for PSM.

Detailed Results

As shown in Table B1 below, **there was a significant positive program impact on both high school graduation and college enrollment, when comparing high participation GEAR UP students with their matched comparisons.** Specifically, 86.8% of the high exposure GEAR UP students graduated from high school, while 67.0% of the matched comparisons became high school graduates. This positive effect measured by Cox Index is of large size (0.711). In addition, 30.9% of the high exposure treatment students were enrolled in colleges, whereas only 19.4% of their counterparts became college students. The effect size of the second analysis measured by Cox Index is of medium size (0.377).

Table B1. Summary of multi-level regression results for impact analyses (high exposure GEAR UP students vs. matched comparisons)

Outcomes	Sample Size (Matched Pairs x 2)	Observed Probability of Success (Descriptive)		Regression-Adjusted Probability of Success		Effect Size in Cox Index ^a	p-value
		Comparison	Treatment	Comparison	Treatment		
High School Graduation	536 x 2	0.657	0.840	0.670	0.868	0.711	< .0001
College Enrollment	514 x 2	0.274	0.313	0.194	0.309	0.377	0.0007

^a Effect sizes for the dichotomous outcomes (i.e., high school graduation and college enrollment) in this report were derived based on Cox Index. According to the What Works Clearinghouse (WWC), a Cox index of 0.25 or larger is considered to be substantively important, regardless of whether it reaches statistical significance.

References

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