Evaluation Report

Breakthrough

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In 2011, independent researchers at Technology & Education Consulting Associates began a long-term, quasi-experimental study on the impact of our AmeriCorps intervention on participants in the Breakthrough program in the Manor Independent School District. This Evaluation Report describes the preliminary results of this impact study.

The study compares Breakthrough participants to non-participants with similar backgrounds through year-over-year surveys and de-identified student data, including grades, attendance, standardized test scores, and selection of rigorous courses. Breakthrough intentionally aligned the launch of this study with the beginning of our partnership with Manor ISD, and the first year of our AmeriCorps programming. The evaluation examines survey results and academic outcomes over time.

This report summarizes two sets of preliminary results: 1) academic outcomes during the first two years of Breakthrough's program, and 2) educational and career goals and non-cognitive skill development. This study compares the results for Breakthrough program participants to other students with similar backgrounds at the same grade levels in Manor ISD.

Purpose

The purpose of the evaluation is to study the effects of the Breakthrough AmeriCorps program in Manor ISD on academic achievement and non-cognitive factors of participants and non-participants over time.

Specifically, this study attempts to answer the following questions:
1.   How do participants compare to non-participants on academic measures (grades and test scores) after matching for demographic characteristics, prior academic performance and attendance?
2.   How do participants compare to non-participants on attendance after matching for demographic characteristics, prior academic performance and attendance?
3.   How do participants compare to non-participants on self-reported non-cognitive measures, such as motivation, educational and professional goals, and self-discipline, after matching for demographic characteristics, prior academic performance and attendance?
4.   How do participants compare to non-participants on teacher-reported non-cognitive measures after matching for demographic characteristics, prior academic performance and attendance?
5.   How do program participants compare to similar non-participants on changes in non-cognitive measures?

Background and Theory of Change

Low-income, first-generation students graduate from high school, enroll in college, and persist and graduate from college at significantly lower rates than other students (The Pell Institute, 2006). Through a combination of out-of-school learning time and individualized case management support, Breakthrough's AmeriCorps program targets low academic achievement, college-ready milestone completion, high school graduation, and college enrollment rates for low-income students whose parents

or guardians have never been to college. The Breakthrough program is based on best practices in the field and research that demonstrates the interventions low-income, first-generation students need to make it to and through college.

This Evaluation Report includes results collected during the 2012-2013 school year and 2014-2015 school year and focuses on the program in Manor ISD. During each of these school years, Breakthrough utilized year-round AmeriCorps members to serve an 11.5 month term supporting the Breakthrough Manor ISD program and quarter-time members to serve a 9-week summer term in the Breakthrough Manor Middle School Summer Program.

With AmeriCorps member support, Breakthrough implemented a robust year-round program for students in Manor ISD that included individualized case management support alongside academic out-of-school learning time. AmeriCorps members, supported by Breakthrough staff members, provided out-of-school-time learning and academic case management to Manor Breakthrough students to support their development in the following areas: academics, social and emotional development, and college knowledge. Because research demonstrates that low-income students often lose academic ground during the summer compared to their more affluent peers, Breakthrough utilized AmeriCorps members to deliver a rigorous summer program for participating students. The summer program included six full weeks of intensive, full-day academic programming, including a nutritious breakfast, lunch and snack, well-organized workshops, field trips, and counseling sessions. Throughout the program, AmeriCorps members provided instruction in all core subjects, direct instruction on social-emotional learning, physical fitness, and teacher-crafted electives. The goals of the summer program were to address the academic deficits experienced by low-income, first-generation students, while fostering mission-critical relationships between students and staff and boosting motivation for college at an early age. In addition, full-time AmeriCorps members supported Breakthrough Program Coordinators by delivering year-round interventions, providing individualized counseling and mentorship, and helping to plan and implement Saturday, after school, and summer programs for our Manor ISD students. Full-time members provided critical academic support, help students build college-preparatory non-academic skills, and ensure students take necessary steps to enroll in and succeed in college.

With AmeriCorps member support, Breakthrough ensured students met important benchmarks on the path to college graduation. Breakthrough tracks each student's progress toward short and long-term outcomes, and our ultimate goal is for students to attain a college degree.

Target Population

For the 2013 analysis, the population sample includes the 563 students who, according to district records, were enrolled as fifth graders in the district during the 2010-2011 school year. Within the population, 55 students were enrolled in Breakthrough. In order to be eligible for the program, neither of a student's parents may have graduated from a four-year college or university. Students who chose to apply to the program were then selected for participation based upon their grades, state assessment performance, regular school attendance, and teacher recommendations. The remaining 508 students comprise all other fifth grade students in the district during 2010-2011. To answer the pre-participation research questions for this study, and to conduct the selectivity analysis, we included all students for whom relevant data were available in fifth grade. Post-participation research questions compared the seventh grade academic, attendance and non-cognitive outcomes of program participants and a matched group of students who were not program participants. The students included in these analyses were restricted to those who were enrolled in the school district in both 2010-2011 and 2012-2013 and to those who had pertinent academic, attendance and questionnaire data available.

In addition, this report includes survey results from 1,209 Manor ISD students, of which 166 participated in the Breakthrough program, who were in 5th, 7th, and 9th grade during the 2014-2015 school year.

Past Research

There is considerable evidence that intensive and early intervention programs (Fenske, Geranios & Keller, 1997), personalized case management (Dynarski, Clark, Cobb, Finn, Rumberger & Smink, 2008), and out-of-school support (Beckett, Borman, Capizzano, Parsley, Ross, Schirm & Taylor, 2009) are associated with success in school.

There is also a growing body of research linking non-cognitive factors, academic performance and success in school. Recent work by the University of Chicago Consortium on School Research (Farrington et al., 2012) highlighted the important roles of non-cognitive factors in academic performance, focusing especially on their potential as levers for increasing student educational attainment and providing educators with clear strategies to promote positive academic mindsets and behaviors in a school and classroom context. The non-cognitive factors measured as a part of this study were selected because of their previously demonstrated associations with educational outcomes (Eccles, 2009; Eccles & Wigfield, 2001; Weiner, 1992) and because of their potential to indicate longitudinal change between program participants and non-participants over the course of secondary school.

According to Conley (2007), college and career readiness consists of four key elements: cognitive strategies, content knowledge, learning skills and techniques, and transition knowledge and skills. Many college preparation programs and much of the related research have focused on specific aspects of college readiness, such as academic preparation, college knowledge, mentoring, or financial aid. Few programs have integrated these critical components and thus little research has been conducted with all of these interrelated factors in mind.

Evaluation Approach and Design

This impact study examines the program's intermediate objectives by comparing program participants and non-participants on academic achievement, attendance and non-cognitive factors in 5th grade and then every two years thereafter.

For the 2013 results, the study examined academic achievement, attendance and non-cognitive factors in 5th grade and then in 7th grade for both program participants and non-participants. Because it was not possible to design a random assignment experiment to answer the research questions posed, several non-experimental methods were used to compare differences between program participants and non-participants on several variables. Using student survey data coupled with demographic, academic achievement and attendance data, participating students were compared with a matched group of non-participants.

Data sources include administrative records and student and teacher questionnaire responses. Because the school district and community-based organization that are the focus of this study have a comprehensive memorandum of understanding and data sharing agreement, demographic, academic and attendance data were obtained directly from the district's central office. In order to collect information regarding non-cognitive factors, student questionnaires were administered in 5th grade homeroom classes during the spring of 2011 and student and teacher questionnaires were completed in 7th grade English Language Arts classes during the spring of 2013 at the request of the district's Director of College Readiness, who serves as the liaison between the district and the community-based organization. Questionnaire participation for program participants was 78% in 2011 and 2013. For various reasons, questionnaire participation for program non-participants was inconsistent, 31% in

2011 and 45% in 2013.

The student questionnaires administered for both the 2013 analysis and the 2015 analysis included items based on a review of the literature and adapted from questionnaires developed as part of the University of Michigan Childhood and Beyond Study (Eccles, 1986-1995), as well as a Brief Self-Control Scale developed by Tangney, Baumeister & Boone (2004). The Childhood and Beyond Study was a large scale, longitudinal study that examined children's achievement and self-perceptions in various domains and the roles that parents and teacher play in socializing those beliefs. Items included from that study included those that asked students to report their intrinsic, extrinsic, and moral motivations for doing school work, and the likelihood of achieving various long-term educational goals. The Brief Self-Control Scale focuses on factors related to impulse control that have been correlated with higher grade point averages and better adjustment. Although many items on the student questionnaire administered in 2011 were replicated on the questionnaire in 2013 and 2015, there were some changes and additions. For example, there was a set of items regarding problem-solving abilities that was not included on the seventh grade questionnaire because most students rated themselves very highly on those skills. The teacher questionnaire was developed for this study based on a review of the literature regarding non-cognitive factors that are associated with success in school.

Independent Variables
- Program participation
- Gender (male or female)
- Ethnicity (African-American, Hispanic, White, or Other, including multiple races)
- Economic disadvantage (parent or guardian applied for and student was approved to receive free or reduced lunch according to criteria set by U.S. Department of Agriculture)
- State assessment scores in reading and math in 5th grade in 2010-11—scaled scores on Texas Assessment of Knowledge and Skills (TAKS)
- Final course grades in reading and math in 5th grade in 2010-2011 (0-100% scale)
- School enrollment in 5th grade in 2010-2011 (days enrolled; maximum 175 days)
- School attendance in 5th grade in 2010-2011 (days attended divided by days enrolled)
- Special education designation in 5th grade
- Limited English Proficient (LEP) designation in 5th grade
- First or second year monitored in 5th grade (student in first or second year after exit from Limited English Proficiency status)
- Gifted and Talented designation in 5th grade

Dependent Variables
- State assessment scores in reading, math and writing in 7th grade in 2012-2013—scaled scores on State of Texas Assessment of Academic Readiness (STAAR)
- Final course grades in reading and math in 7th grade in 2012-2013—(0-100% scale)
- School attendance in 7th grade in 2012-2013 (days attended divided by days enrolled)
- Motivation for doing schoolwork in 7th grade in 2012-2013 and 7th grade and 9th grade in 2014-2015—student questionnaire adapted from Childhood and Beyond Study (Eccles, 1986-1995). This 7-item self-report measure indicates the degree to which students have intrinsic, extrinsic or moral reasons for doing schoolwork. This questionnaire was also administered to a subset of 5th graders in 2011 and 2013.
- Educational goals in 7th grade in 2012-2013 and 7th grade and 9th grade in 2014-2015—student questionnaire adapted from Childhood and Beyond Study (Eccles). This 6-item

self-report measure asked students to individually rate the likelihood of their achieving various educational outcomes, ranging from dropping out of school to attending a graduate or professional school. This questionnaire was also administered to a subset of 5th graders in 2011 and 2013.

- Self-perceptions of non-cognitive skills in 7th grade in 2012-2013 and 7th grade and 9th grade in 2014-2015—student questionnaire items developed for this project. This 5-item self-report measure was designed to measure students' own assessment of their level of tenacity with schoolwork that have been identified in the literature as important for success in school.

- Self-discipline in 7th grade in 2012-2013 and 7th grade and 9th grade in 2014-2015—student questionnaire items adapted from Brief Self-Control Scale (Tagney, Boone & Baumeister, 2004). This 11-item self-report measure was designed to assess student perceptions of their own self-discipline. Items are rated on a scale from 1 (not at all like me) to 7 (very like me).

- Teacher ratings of students' non-cognitive skills in 7th grade in 2012-2013 and 7th grade and 9th grade in 2014-2015—teacher questionnaire developed for this study. This 10-item questionnaire asked teachers to rate each positive statement on a scale from 1 (rarely) to 5 (almost all of the time).

- Changes in motivation and educational goals from 5th grade to 7th grade to 9th grade as measured by comparing mean differences.

Data Analysis

Descriptive statistics were used to compare the demographic, academic and attendance characteristics of program participants to all other 5th grade students in the district in 2011-2012. Significance tests were conducted using the chi-square or t-tests as appropriate. These analyses allowed us to identify the ways in which program participants were similar or different from the student body overall. Because there was evidence of group differences, we confirmed which student characteristics were correlated with program participation and used those variables to construct a comparison group.

The comparison group was created by using the propensity score procedure, pscore, in STATA 12. Students were matched on the independent variables from their 5th grade year that were significantly different between the two groups of students before program participation: gender, LEP monitored status, gifted and talented, special education, number of days enrolled in 2010-2011, and TAKS scores in reading and math. Students also differed on their reading and math grades, however, because those were highly correlated with TAKS performance, they were excluded from the matching procedure

Program outcomes were assessed by comparing program participants to matched non-participants on 7th grade academic performance (final reading and math grades, reading and math state assessment performance), school attendance, motivations for doing schoolwork, educational goals, self-perceptions, self-discipline, and teacher ratings of non-cognitive skills. Most of these comparisons were conducted using t-tests. However, because even after the propensity matching procedure there was still evidence of higher rates of state assessment performance among program participants in 5th grade, we used linear regression to examine the association between program participation and 7th grade STAAR scores while controlling for the students' own TAKS scores in 5th grade.

Scores on the student motivation and educational goals questions of the student questionnaire were available for a subset of program participants and matched non-participants in both fifth and seventh

grades, which allowed us to calculate change scores for each item. Mean differences in change from fifth to seventh grade were examined using t-tests.

Limitations

The results of this study should be considered in light of the following potential limitations. First, because students elected whether or not to participate in the program, it was not possible to conduct a controlled experiment. This created the potential for self-selection bias. Second, students in the comparison group were matched on demographic, academic and attendance factors only and differed from program participants on some non-cognitive factors. Third, although attempts were made to account for a variety of student factors in fifth grade, some important variables, such as parent and teacher support, or other program participation, were not measured. Fourth, although the questionnaires used in this study were adapted from other studies or based upon a review of the literature, they were not subject to prior validation and were the result of student self-reports and teachers perceptions. Fifth, the size of the participant group was quite small in comparison to non-participants and only represented one cohort of the program. Sixth, because questionnaires were only received from a portion of the campuses and students, the possibility of systematic missing data is a limitation. Seventh, because the researchers had no way of accessing data for students who left the district between fifth and seventh grades, student attrition, mobility and data quality are potential limitations. Finally, although the community-based college preparation program that is the focus of this study uses a variety of research supported best practices for helping low-income and underserved students succeed in school and eventually graduate from high school and enroll in college, this study did not directly examine the quality or quantity of program features which students received.

Findings

2013 Results

In 2011, data were collected to establish baseline measures of student characteristics on demographic, academic, attendance and specific non-cognitive measures and to determine ways in which program participants were similar to or different from their peers prior to program participation. Table 1 shows the comparison between program participants and all other fifth graders in the district on demographic, academic and attendance measures. Table 2 shows the correlations among demographic, academic and attendance measures and program participation.

Table 1
**Pre-participation demographic and academic characteristics of
program participants and all other 5th grade students in the district in 2011**

Student Characteristics	Program Participants N=55		Other Students N=507		Significance tests
	Frequency	Percentage	Frequency	Percentage	
Demographics					
African-American	11	20%	147	29%	$\chi^2(1, N = 562) =$ 1.99, $p = .16$
Hispanic	35	64%	301	59%	$\chi^2(1, N = 562) =$ .38, $p = .54$
White	8	14%	42	8%	$\chi^2(1, N = 562) =$

					2.40, $p = .121$
Other	1	2%	17	3%	$\chi^2(1, N = 562) =$ .01, $p = .94$
Female	37	67%	230	45%	$\chi^2(1, n= 559) =$ 9.31, $p < .01$
Male	18	33%	274	54%	
Economic Disadvantage	46	84%	395	84%	$\chi^2(1, N = 524) =$ 0.01, $p = .91$

Academics

Gifted and Talented	12	22%	51	11%	$\chi^2(1, N = 522) =$ 5.51, $p < .05$
Special Education	1	2%	48	10%	$\chi^2(1, N = 524) =$ 4.11, $p < .05$
Limited English Proficient	10	18%	113	24%	$\chi^2(1, N = 524) =$ .96, $p = .33$
1st or 2nd Year Monitored	15	27%	56	12%	$\chi^2(1, N = 524) =$ 9.88, $p < .01$

State Assessment	Scaled Score				
TAKS					
Reading	733		673		$t(469)= 4.60$, $p<.001$
Math	736		664		$t(469)= 5.02$, $p<.001$

Final Course Grades	0-100% scale				
Reading	87.9		81.9		$t(460)= 5.46$, $p<.001$
Math	87.7		81.9		$t(460)= 4.67$, $p<.001$

Enrollment/ Attendance

Average Days Enrolled in 2010-2011 (maximum of 175)	173		155		$t(303) = 7.25$, $p<.001$
Attendance Rate in 2010-2011	97.4%		96.6%		$t(560) = 1.35$, ns

Note: The frequencies represent the number of students with each characteristic and may not add up to the total 'n' because of missing data. The denominator was adjusted in order to reflect valid percentages for each indicator.

Table 2
Correlations between program participation and 5th grade demographic, attendance and academic variables

	Program participation	White	Black	Hispanic	Other race-ethnicity	Female	Economic disadvantage	Limited English Proficiency	Monitored	Gifted & Talented	Special Education	Days enrolled	Attendance rate	TAKS reading scale score	TAKS math scale score	Final reading grade	Final math grade
Program participation	-																
White	.066	-															
Black	-.059	-.195**	-														
Hispanic	.025	-.381**	-.763**	-													
Other race-ethnicity	-.003	-.044	-.088*	-.172**	-												
Female	.128**	.039	.051	-.072	-.007	-											
Economic disadvantage	-.005	-.376**	.022	.225**	-.063	-.007	-										
Limited English Proficiency	-.044	-.174**	-.333**	.414**	.030	-.056	.180**	-									
Monitored	.138**	-.124**	-.232**	.263**	.119**	-.061	.126**	-.220**	-								
Gifted & Talented	.103*	.113**	-.097*	.010	.087*	-.067	-.147**	-.179**	.196**	-							
Special Education	-.088*	-.009	.065	-.061	.008	-.141**	-.022	.022	-.108*	-.116**	-						
Days enrolled	.125**	.028	-.053	.014	.027	.032	-.072	.044	.084	.064	-.008	-					
Attendance rate	.057	-.113**	-.034	.084*	.030	-.010	-.035	.147**	.146**	.095*	-.034	.333**	-				
TAKS reading scale score	.208**	.148**	-.076	-.049	.098*	.113*	-.134**	-.391**	.192**	.379**	-.042	.038	.040	-			
TAKS math scale score	.227**	.198**	-.235**	.065	.109*	-.030	-.126**	-.219**	.269**	.466**	-.064	.136**	.229**	.597**	-		
Final reading grade	.246**	.152**	-.151**	.024	.128**	.198**	-.066	-.229**	.220**	.393**	-.120*	.066	.222**	.636**	.621**	-	
Final math grade	.213**	.122**	-.202**	.098*	.099*	.096*	-.014	-.091	.229**	.393**	-.130**	.008	.335**	.492**	.722**	.756**	-

*p < .05. **p < .01.

The results indicate that program participants were similar to other 5th grade students with regard to ethnicity, economic disadvantage, attendance rate and Limited English Proficiency status. The majority of students in both groups were Hispanic and the majority of students in both groups were economically disadvantaged. Program participants and non-participants were also different in many ways. Program participants were more likely to be female and designated as Gifted and Talented. Program participants were enrolled in more days of school and had higher state assessment scores and final course grades in reading and math. In addition, students enrolled in the program were less likely to be in Special Education and more likely to have been exited from Limited English Proficiency status.

Tables 3 and 4 show the results comparing program participants and non-participants in fifth grade, prior to program participation, on students' motivation for doing schoolwork and future educational goals. Program participants and non-participants rated equally their likelihood of attending a 4-year college or attending graduate or professional school. Program participants were more likely than other students to say they do their school work because they "feel bad it it's not done" and less likely than other students to say they do their schoolwork because "my parents told me I have to." In addition, program participants were less likely than other students to say they would "dropout of high school" or "work full time right after high school."

Table 3
Average responses in 5th grade prior to program participation to the question:
"Circle the number that shows WHY you do your schoolwork…?"

Why you do your school work	Program Participants N=44 Mean	Other Students N=157 Mean	Significance tests
I want to learn new things	5.727	5.819	$t(197) = .38$, *ns*
It's fun and interesting	5.136	4.928	$t(195) = .68$, *ns*
I feel bad if it's not done	5.614	4.707	$t(192) = 3.04, p < .01$
I think I should	5.977	5.667	$t(188) = -1.11$, ns
The teacher says have to	5.095	5.527	$t(188) = 1.24$, ns
It makes my parents happy	5.791	6.285	$t(54) = 1.70$, ns
My parents told me I have to	4.227	5.273	$t(196)) = 2.68,$ $p < .01$

Note. Response scale ranged from 1 "This is not like me at all" to 7 "This is a lot like me."

Table 4
Average responses in 5th grade prior to program participation to the question:
"We can't always do what we most want to do.
How likely do you think each of the following will be?"

Outcome	Program Participants N=44 Mean	Other Students N=157 Mean	Significance tests
You will drop out of high school before you finish	1.091	1.484	$t(196) = 3.06, p < .01$
You will go to work full time right after high school	4.159	4.949	$t(198) = 2.12,$ $p < .05$
You will go into the military right after high school	2.070	2.242	$t(194) = .51$, *ns*
You will graduate from a 4-year college	6.636	6.420	$t(93) = 1.26$, *ns*
You will attend a graduate or professional school after college	5.818	5.378	$t(82) = 1.75$, *ns*

Note. Response scale ranged from 1 "Very unlikely" to 7 "Very likely."

Table 5 shows the demographic, academic and attendance characteristics of program participants and the comparison group of non-participants after the propensity match. The one program participant who was enrolled in special education was dropped from the participant group because it was interfering with the matching procedure. After the matching procedures, program participants still had significantly higher scores than the comparison group on TAKS math and final

course grades in reading and math. These differences were controlled for in subsequent tests of academic achievement by including students' fifth grade TAKS scores in reading or math as covariates in regression analyses.

Table 5
Comparison of program participants and propensity matched non-participants on demographic, academic and attendance variables

Student Characteristics	Program participants (n=54) Average or Percentage	Matched non-participants (n=265) Average or Percentage	Significance tests
Demographics			
African-American	20%	24%	$\chi^2(1, N = 319) = .43$, $p = .51$
Hispanic	63%	60%	$\chi^2(1, N = 319) = .17$, $p = .69$
White	15%	11%	$\chi^2(1, N = 319) = .66$, $p = .121$
Other	2%	5%	$\chi^2(1, N = 319) = .11$, $p = .42$
Female	67%	63%	$\chi^2(1, n= 319) = .26$, $p = .61$
Male	33%	37%	
Economic Disadvantage	83%	81	$\chi^2(1, N = 319) = .14$, $p = .70$
Academics			
Gifted and Talented	22%	18%	$\chi^2(1, N = 319) = .56$, $p = .44$
Special Education	0%	0%	n/a no SPED students in analysis group
Limited English Proficient	17%	17%	$\chi^2(1, N = 319) = .04$, $p = .85$
1st or 2nd Year Monitored	28%	20%	$\chi^2(1, N = 319) = 1.62$, $p = .20$
State Assessment-TAKS			
Reading	733	710	$t(317) = 1.89$, *ns*
Math	736	707	$t(317) = 2.16$, $p < .05$
Final Course Grades			
Reading	88	85	$t(98) = 3.90$, $p < .001$
Math	88	85	$t(297) = 2.60$, $p < .05$
Enrollment/Attendance			
Average Days Enrolled in 2010-2011 (maximum of 175)	173	173	$t(317) = .19$, *ns*
Attendance Rate in 2010-2011	97.3%	97.3%	$t(317) = .15$, *ns*

Table 6 shows how program participants and a matching group of non-participants compare on grades, test scores and attendance in seventh grade, after two years of the program (Research Question 2). In comparison to the propensity-matched group, program participants had significantly higher state assessment (STAAR) scores in seventh grade reading and math but no significant differences in final course grades in reading and math. No significant differences were found between the attendance rates of seventh grade participants and non-participants.

Table 6

Comparison of program participants and matching group of non-participants on test scores, grades and attendance in 7th grade after two years of the program

Measure	Program Participants (n=49)	Matched Non-Participants (n=190)	Significance tests
	Mean		
Final course grade in reading	86.94	85.67	$t(235) = 1.21$, *ns*
Final course grade in math	81.90	82.25	$t(236) = .32$, *ns*
	Scaled Score		
STAAR reading*	1676	1639	$t(246) = 2.39$, $p < .05$
STAAR math*	1670	1630	$t(245) = 2.45$, $p < .05$
	Average Daily Attendance		
Attendance Rate	93.6%	93.4%	$t(257) = .28$, *ns*

Note. The number of matched non-participants varied slightly depending upon the indicator.

In order to account for baseline differences in academic achievement between the groups, regression analyses were used to examine the associations between program participation and seventh grade state assessment scores while controlling for students' state assessment performance in fifth grade. In this more rigorous analysis shown in Table 7, program participation was significantly associated with higher state assessment (STAAR) scores in reading but not in math or writing in seventh grade.

Table 7

Summary of regression analyses for seventh grade state assessment outcomes

Variable	7th grade STAAR reading score			7th grade STAAR math score			7th grade STAAR writing score		
	B	SE B	β	B	SE B	β	B	SE B	β
Program participation	30.2	12.69	.124**	19.84	10.10	.077	71.37	52.52	.077
5th grade TAKS reading score	.693	.063	.567***				2.125	.262	.460***
5th grade TAKS math score				.861	.048	.740***			
R^2	.586			.566			.220		
F	$F(2, 245) = 64.23, p < .001$			$F(2, 244) = 159.15, p < .001$			$F(2, 243) = 34.35, p < .001$		

**p < .01. ***p < .001.

Tables 8, 9, 10 and 11 show how participants and matched non-participants compare on self-reported non-cognitive measures after matching for demographic characteristics, prior academic performance and attendance (Research Question 4). Results indicate that program participants and matched non-participants reported similar motivation, educational goals and self-discipline except for a few key areas. Program participants were significantly less likely to report doing their schoolwork because it makes their parents happy, an external motivation. Program participants also were significantly less likely to report they will go into the military right after high school. Although both groups had high average ratings of likely college graduation, program participants had significantly higher ratings on this goal. Surprisingly, program participants were significantly less likely to report that they completed their schoolwork on

time. Also surprisingly, program participants were less likely than the comparison group to describe themselves as having a lot of self-discipline. No significant differences were found between participants and match non-participants on the self-discipline scale.

Table 8

Comparison of program participants and matching group of non-participants to the question: "Circle the number that shows WHY you do your schoolwork…?"
in 7th grade

Why you do your school work	Program Participants n=43 Mean	Matched Non-Participants n=168 Mean	Significance tests
I want to learn new things	5.023	5.226	t(209) = .76 , *ns*
It's fun and interesting	3.744	3.982	t(208) = .77 , *ns*
I feel bad if it's not done	3.977	4.533	t(208) = 1.65 , *ns*
I think I should	4.930	5.357	t(209) = .1.62, *ns*
The teacher says have to	4.767	5.120	t(207) = .1.10, *ns*
It makes my parents happy	4.907	5.554	t(209) = 2.15, p < .05
My parents told me I have to	4.558	5.244	t(209) = 1.97 , *ns*

Note. Response scale ranged from 1 "This is not like me at all" to 7 "This is a lot like me."

Table 9

Comparison of program participants and matching group of non-participants to the question: "We can't always do what we most want to do. How likely do you think each of the following will be?" in 7th grade

Outcome	Program Participants n=44 Mean	Matched Non-Participants n=157 Mean	Significance tests
You will drop out of high school before you finish	1.093	1.320	t(210) = 1.51 , *ns*
You will go to work full time right after high school	3.814	4.118	t(210) = .90, *ns*
You will go into the military right after high school	1.488	2.036	t(129) = 2.83, p < .05
You will graduate from a technical program or 2-year college	3.605	3.754	t(208) = .42 , *ns*
You will graduate from a 4-year college	6.233	5.574	t(92) = 2.88, *p < .05*
You will attend a graduate or professional school after college	5.071	4.625	t(208) = 1.37, *ns*

Note. Response scale ranged from 1 "Very unlikely" to 7 "Very likely."

Table 10

Comparison of program participants and matching group of non-participants to questions related to self-perceptions of non-cognitive skills in 7th grade

Question	Program Participants n=43	Matched Non-Participants n=168	Significance tests
	Mean	Mean	
How often did you complete your schoolwork on time?	5.047	5.375	t(81) = 2.01 , p < .05
How often were you excited about learning new things in at school?	4.302	4.574	t(210) = 1.08 , *ns*
How often did you stick with your schoolwork even when it was difficult?	4.907	5.000	t(209) = .39, *ns*
How often did you get along with the other students at school?	5.256	5.349	t(210) = ..41 , *ns*
How often did you get along with the adults at school?	5.262	5.186	t(201) = .28, *ns*

Note. Response scale ranged from 1 "never" to 7 "always."

Table 11

Comparison of program participants and matching group of non-participants on student self-reported self-discipline in 7th grade

Question	Program Participants n=433	Matched Non-Participants n=168	Significance tests
	Mean	Mean	
I have a hard time breaking bad habits.	3.024	3.163	t(206) = .79 , *ns*
I say inappropriate things.	3.349	3.554	t(209) = 1.09 , *ns*
I refuse things that are bad for me.	3.837	3.842	t(206) = .03, *ns*
I wish I had more self- discipline.	3.349	3.452	t(20) = .52 , *ns*
I am good at resisting temptation.	3.674	3.436	t(204) = 1.33 , *ns*
People would say that I have a lot of self-discipline	2.837	3.217	t(207) = 1.93 , *ns*
Pleasure and fun sometimes keep me from getting work done	2.814	2.695	t(205) = .61 , *ns*
I have trouble concentrating.	2.930	3.137	t(209) = .99 , *ns*
I am able to work effectively toward long-term goals	3.605	3.750	t(209) = .91 , *ns*
Sometimes I can't stop myself from doing something, even if I know it is wrong.	3.628	3.405	t(209) = 1.15, *ns*
I often act without thinking through all the alternatives.	3.372	3.149	t(209) = 1.08 , *ns*

Note. Response scale ranged from 1 "Not like me at all" to 5 "Very like me."

Table 12 shows teacher ratings of program participants and matching non-participants in 7th grade in 2013 on non-cognitive measures related to school success. No significant differences in teacher ratings were detected between the two groups.

Table 12
Comparison of teacher ratings of program participants and matching group of non-participants on student non-cognitive skills in 7th grade

This student….	Program Participants n=34 Mean	Matched Non-Participants n=157 Mean	Significance tests
is well organized	4.152	4.108	t(188) = .20, *ns*
comes to class prepared for the day's lesson	4.118	4.025	t(189) = .42 , *ns*
handles frustration well	4.088	3.949	t(190) = .61 , *ns*
seeks help when it's needed	4.364	4.217	t(188) = .80 , *ns*
is curious about the world	4.258	4.275	t(171) = .10 , *ns*
is a creative problem-solver	4.152	4.119	t(174) = .18 , *ns*
thinks before they act (not impulsive)	4.212	4.095	t(174) = .54 , *ns*
shows empathy for others	4.333	4.184	t(183) = .82 , *ns*
has positive relationships with peers at school	4.471	4.386	t(190) = .57 , *ns*
has positive relationships with adults at school	4.471	4.323	t(190) = .87 , *ns*

Note. Response scale ranged from 1 "Rarely" to 5 "Almost all of the time"

Tables 13 and 14 compare how program participants and matched non-participants changed between 5th and 7th grade on self-reported scores of student motivation and educational goals.

Table 13
Changes in self-reported motivation from 5th grade to 7th grade

Why you do your school work	Program Participants n=36 Mean Difference	Other Students n=55 Mean Difference	Significance tests
I want to learn new things	-0.944	-0.782	t(89) = .44 , *ns*
It's fun and interesting*	-1.694	-0.566	t(87) = 2.56 , *p < .05*
I feel bad if it's not done**	-1.861	0.157	t(85) = 3.68 , *p < .001*
I think I should	-1.229	-0.580	t(83) = 1.42 , *ns*
The teacher says have to	-0.412	-0.600	t(82) = .29 , *ns*
It makes my parents happy	-0.914	-0.519	t(87) = .89 , *ns*
My parents told me I have to	0.056	0.278	t(88) = .39 , *ns*

Note. Response scale ranged from 1 "This is not like me at all" to 7 "This is a lot like me."

Table 14
Changes in self-reported educational goals from 5th grade to 7th grade

Outcome	Program Participants n=36 Mean Difference	Other Students n=55 Mean Difference	Significance tests
You will drop out of high school before you finish	0.000	-0.278	t(88) = 1.08 , *ns*
You will go to work full time right after high school	-0.083	-0.963	t(88) = 1.52, *ns*
You will go into the military right after high school	-0.556	0.038	t(86) = 1.37, *ns*
You will graduate from a 4-year college	-0.472	-0.782	t(89) = .97, *ns*
You will attend a graduate or professional school after college	-0.971	-1.000	t(86) = .07, *ns*

Note. Response scale ranged from 1 "Very unlikely" to 7 "Very likely."

Additional Findings: 2015 Results

These results pertain to Manor ISD 5th, 7th, and 9th grade student self-ratings of educational and career goals and non-cognitive skills, and teacher ratings of non-cognitive skills. Additionally, it compares these ratings for Breakthrough program participants in comparison to other students at the same grade levels. A summary of these survey results follow.

Over 1,200 students participated in the survey; approximately 14% of the students are in Breakthrough program. Some students did not provide a student Identification number, so not all of these records will be included in the subsequent academic analysis. Too many 5th grade student surveys were attributed to Manor Elementary School, this error will be corrected upon receipt of the academic records which will allow us to merge in the correct school for each student.

Teachers completed just over 700 surveys about their students. Approximately 12% of those surveys were completed about students in the Breakthrough program.

*Students' Long-Term Educational and Career Goals*
- Across all grade levels, students rated graduating from a 4-year college and their most likely educational outcome; however, the average rating was slightly lower for older students than it was for younger students. These ratings were statistically equivalent among 7th and 9th graders whether they were in Breakthrough or not; however older Breakthrough students rated a higher likelihood of going to graduate or professional schools.
- Breakthrough students consistently rated the risk of dropping out lower than did other students. Among 7th and 9th graders they also rated the likelihood of working full-time after high school graduation lower than their district peers.
- Only the Breakthrough 7th grade cohort rated the likelihood of entering the military significantly lower than their district peers.
- When asked what type of job they would most like to have, the majority (50% or more) of students at all grade levels named a job that would require a 4-year degree (professional).
- Breakthrough students listed professional jobs at a somewhat higher rate than other Manor ISD students at the same grade level.

Manor ISD students rated graduating from a 4-year college as their most likely educational outcome
However older students gave slightly average lower ratings than younger students
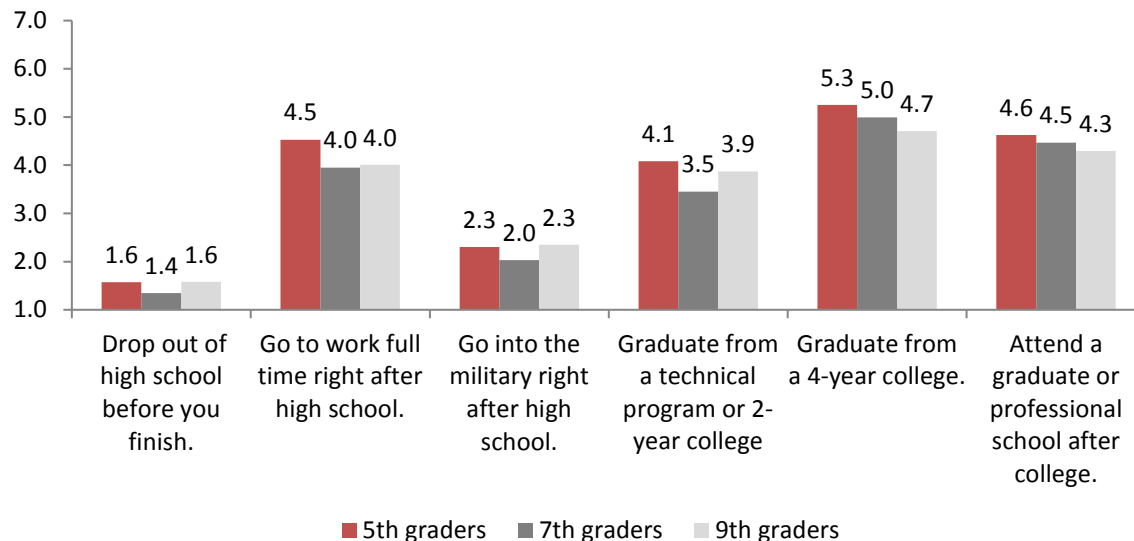
Note. Students rated this item on a scale from (1) very unlikely to (7) very likely.

Manor ISD students in Breakthrough rated graduating from a 4-year college as their most likely educational outcome
However, older students gave lower average ratings than younger students
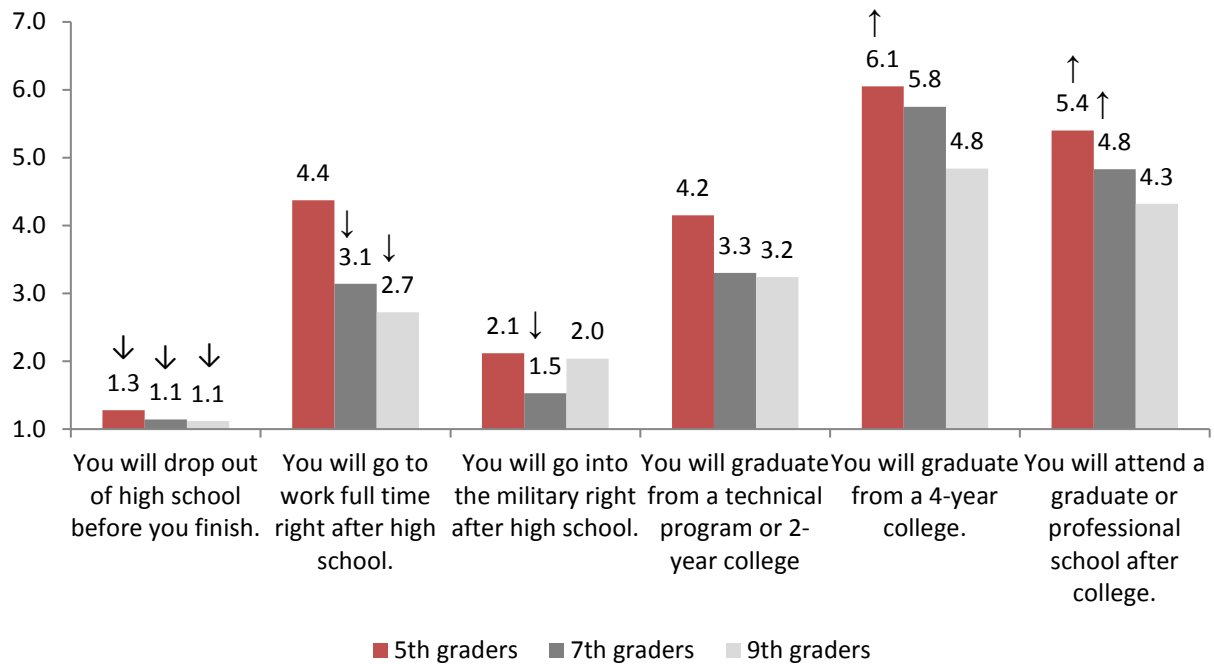
Note. Students rated this item on a scale from (1) very unlikely to (7) very likely. Arrows indicate whether Breakthrough student averages were lower (↓) or higher (↑) than other Manor ISD students at the in the same grade.

Job type	5th grade		7th grade		9th grade	
	Breakthrough	Other students	Breakthrough	Other students	Breakthrough	Other students
Professional	72.2%	51.7%	67.7%	52.5%	70.8%	56.1%
Skilled	8.3%	14.4%	10.8%	14.0%	4.2%	16.2%
Athlete	6.9%	13.2%	4.6%	14.3%	12.5%	6.3%
Artist/entertainer/musician	4.2%	6.9%	9.2%	5.4%	4.2%	3.3%
Unclear	1.4%	3.7%	4.6%	3.0%	4.2%	3.7%
Don't know	1.4%	3.2%	0.0%	2.1%	4.2%	6.3%
Military	2.8%	4.6%	1.5%	2.7%	0.0%	3.3%
Retail/food service	1.4%	1.7%	0.0%	3.0%	0.0%	2.2%
Entrepreneur	1.4%	0.6%	1.5%	1.5%	0.0%	1.8%
Unskilled	0.0%	0.0%	0.0%	1.5%	0.0%	0.7%

Note. If a student listed more than one profession, their first example was recoded into one of these categories.
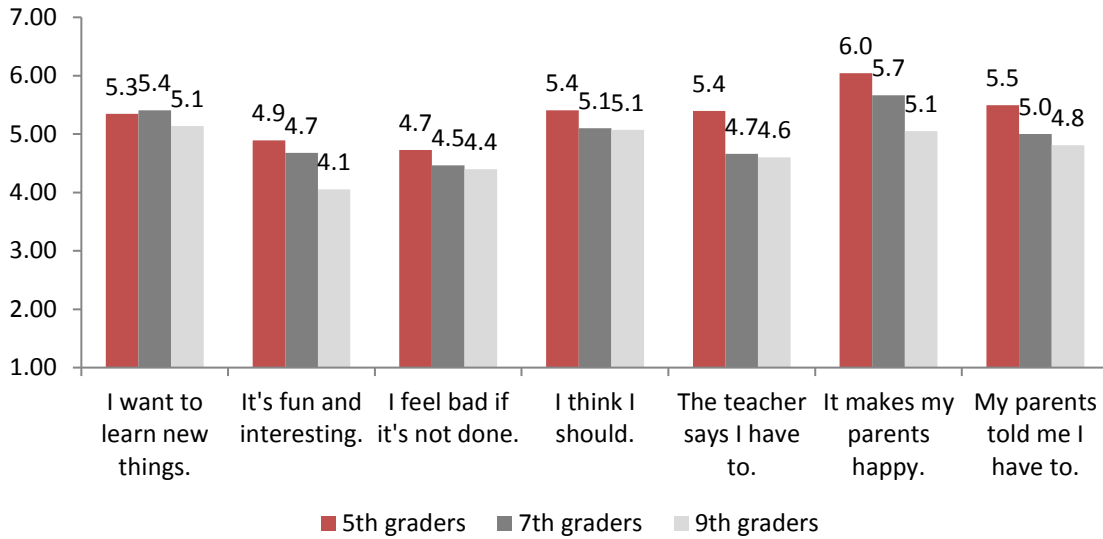
Academic Motivation
The student survey included a subscale that measured three types of motivation for doing schoolwork: **intrinsic motivation** (I want to learn new things, It's fun and interesting), **conscientiousness** (I feel bad if it's not done, I think I should) and **extrinsic motivation** (The teacher says I have to, It makes my parents happy, My parents told me I have to).
- Motivation results for Breakthrough and other students were not significantly different except at 5th grade. We believe this can be attributed to pre-participation differences between students who are admitted to the program and other students, so the results for all students are combined in the figure below.
- All motivations are somewhat lower among secondary students than elementary students, with the exception of wanting to learn new things.
- The largest differences between elementary and secondary students are in the intrinsic motivation of schoolwork being fun and interesting and all three of the extrinsic motivations.

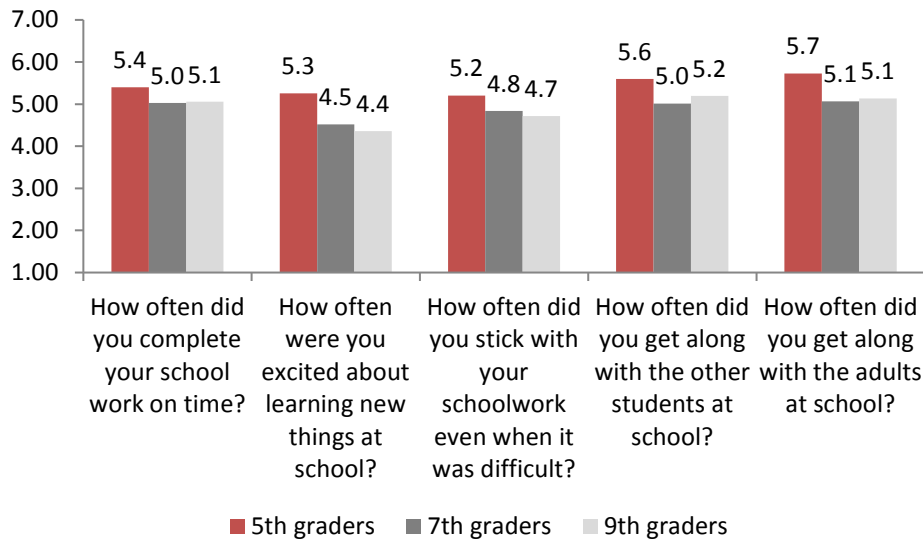**External motivations are lower among secondary students than elementary students**
The motivation to learning new things is similar across the grade level groups

Legend: 5th graders, 7th graders, 9th graders

Categories: I want to learn new things. | It's fun and interesting. | I feel bad if it's not done. | I think I should. | The teacher says I have to. | It makes my parents happy. | My parents told me I have to.

Student Self Ratings of Non-Cognitive Skills
- On average, district students at all grade levels give themselves moderately high ratings on the non-cognitive skills; elementary students rated themselves more highly than did secondary students.
- At 5th and 7th grade, Breakthrough gave self-ratings that were significantly higher than other students with regard to completing their schoolwork on time and getting along with other students at school.

District elementary students rate themselves slightly higher on these noncognitive skills than do secondary students

Legend: 5th graders, 7th graders, 9th graders

Categories: How often did you complete your school work on time? | How often were you excited about learning new things at school? | How often did you stick with your schoolwork even when it was difficult? | How often did you get along with the other students at school? | How often did you get along with the adults at school?

Note. Rated on a scale from (1) never to (7) always.

Breakthrough elementary students provide higher self-ratings of noncognitive skills than do secondary students
5th and 7th grade students are more likely to say they complete their schoolwork on time and get along with other student than do other district students
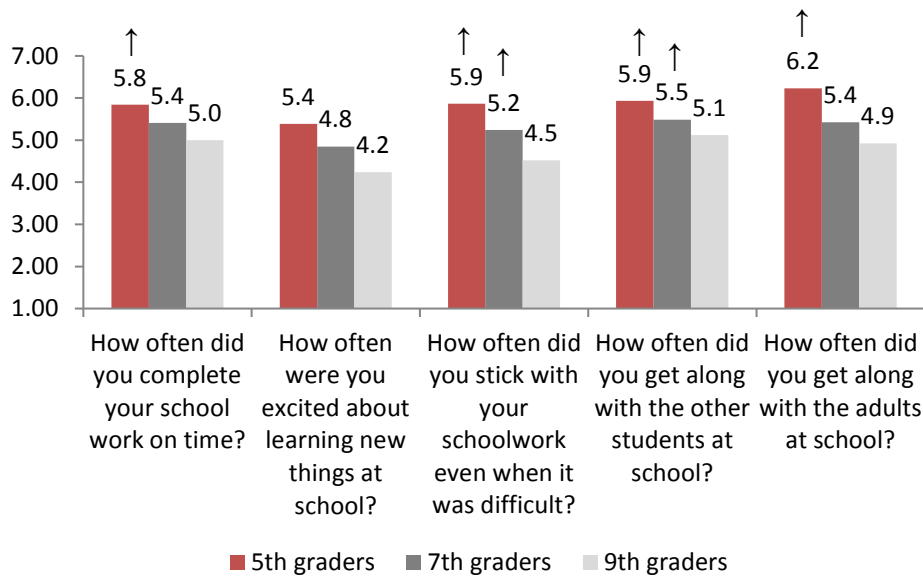

Note. Rated on a scale from (1) never to (7) always. *Arrows indicate when Breakthrough student averages were higher (↑) than other Manor ISD students at the in the same grade.*

Student Self Ratings of Self-Control
- Overall, students reported moderate levels of self-control.
- There were few grade level differences in student reported aspects of self-control. The one notable exception is that elementary students report lower levels of saying inappropriate things than do secondary students.
- There also were very few differences in self-control ratings between Breakthrough participants and other district students; for this reason, results are combined across groups.
- Although results from prior administration of the Brief Self Control Scale (BSCS) showed that lower ratings of self-control are associated with lower levels of student achievement, the present results indicate that the BSCS does not consistently distinguish between students who participate in Breakthrough and those who do not.
    o One exception was that 5th and 7th grade Breakthrough students both gave significantly higher ratings to their ability to work effectively toward long-term goals.

Across grade levels, students give fairly similar ratings to various aspects of self-control
Elementary students were slightly less likely to say inappropriate things than secondary students
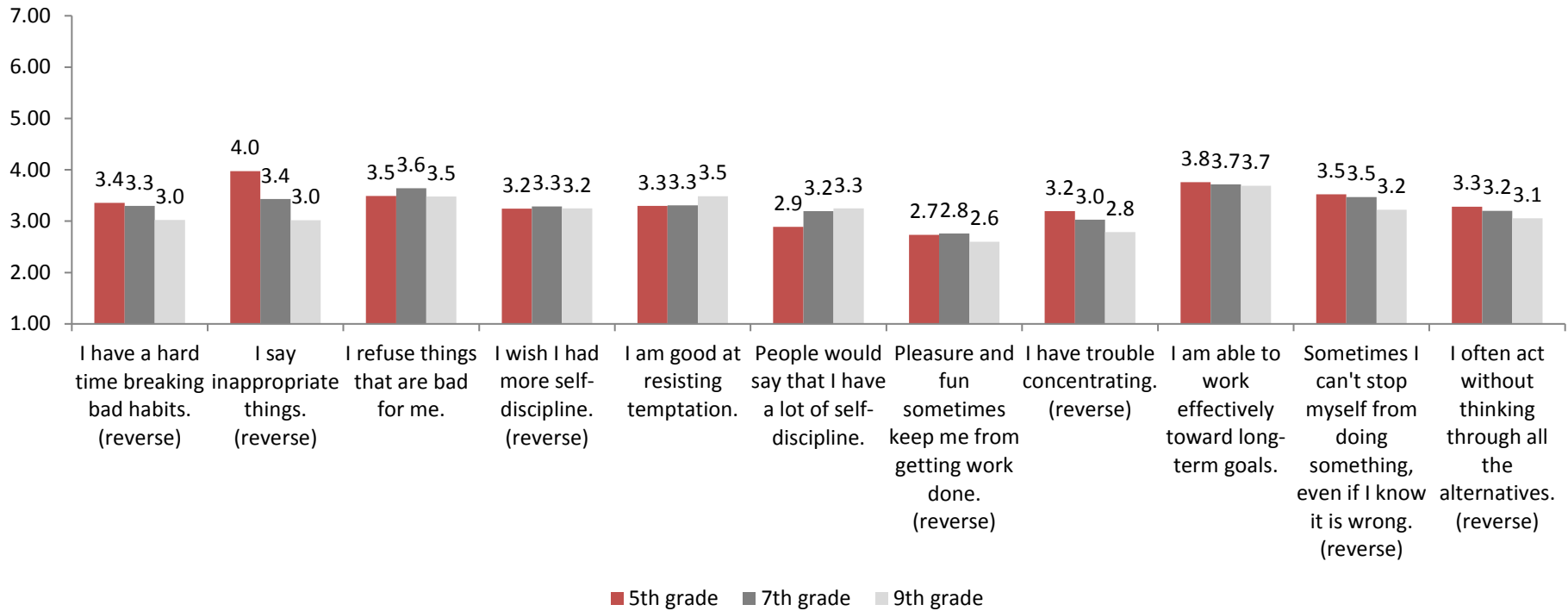

Note. Negative items were reverse coded so that higher scores indicate higher levels of self-control.
Rated on a scale from (1) this is not at all like me to (5) this is a lot like me.

Teachers' Ratings of Students' Non-Cognitive Skills

- Across grade levels, teachers gave moderate ratings to the non-cognitive skills Manor ISD students; some of their highest average ratings were for students' relationships with peers and adults at school.
- Across grade levels and program groups, many of the lowest average ratings were provided by 7th grade teachers.
- At 5th and 7th grade, Breakthrough students were consistently rated higher than were other district students.

Unlike some of the students self-rated measures, non-cognitive ratings from teachers consistently distinguish between Breakthrough and non-program students both before they participate in the program (in 5th grade) and after two years of participation (at the end of 7th grade).

Across grade levels, teachers gave higher ratings to the noncognitive skills of Breakthrough students
7th grader Breakthrough students were consistently rated higher than their district peers
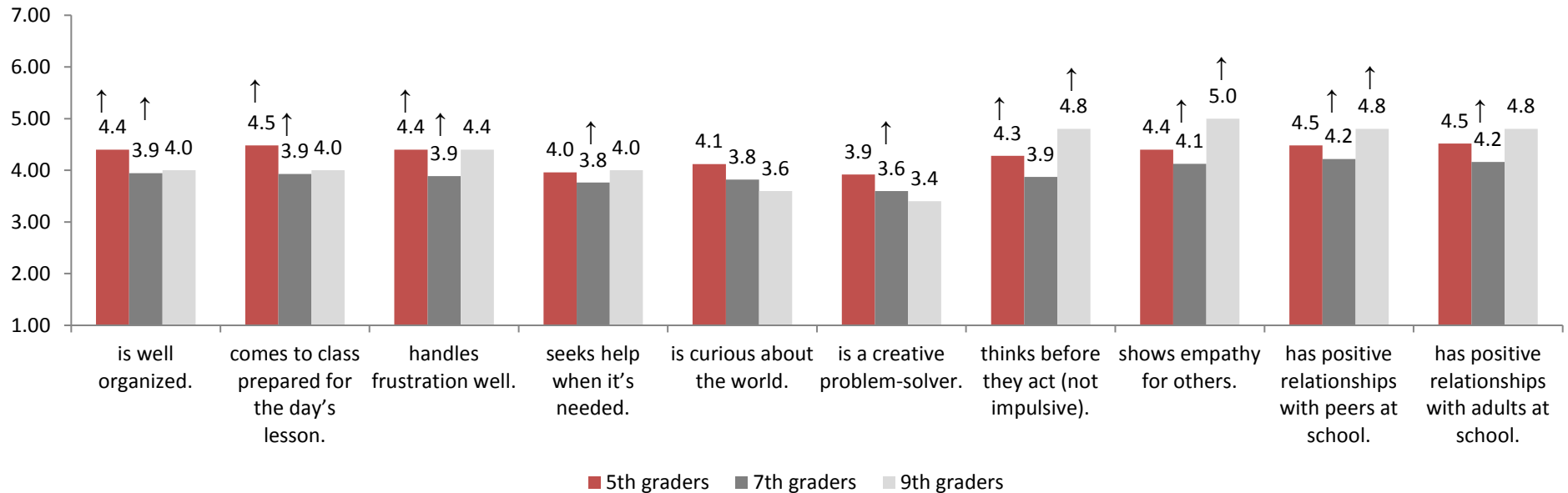
Note. Rated on a scale from (1) rarely to (7) always.

Conclusions

Key findings from the 2013 Results:
- No significant findings were found between participants in performance on math and writing standardized assessments, attendance rates, and behavior.
  - However, this study provides evidence of an association between student participation in the Breakthrough program in 6th and 7th grades and improved reading test scores.
- The study also provides evidence of an association between student program participation and specific non-cognitive factors.
- Most notably, program participants were significantly more likely to report a high likelihood of graduating from college.

 Key findings from 2015 Survey Results:
- The survey results indicate that both Breakthrough and non-program students aspire to high levels of education, but that on average, non-program students consider 2-year and technical programs or working right after high school more likely outcomes.
- The majority of non-program students listed a career goal that required a 4-year degree; however, the proportion of students with these aspirations was lower than among Breakthrough students.
- Breakthrough students also reported a significantly lower likelihood of dropping out of high school and of working full time after high school, which also may indicate a stronger commitment to full-time postsecondary education than among non-program students.
- Student *self-reported* motivations for doing schoolwork, noncognitive skills, and self-control were not consistently different between Breakthrough and non-program students.
- However, *teacher reports* of non-cognitive skills were significantly different for the two groups.
  - Teacher consistently gave Breakthrough students higher ratings with regard to being organized, coming prepared for class, handling frustration well, and having positive relationships with peers and adults.

Initial results from the 2013 and 2015 reports indicate an association between participation in the program and improved academic and noncognitive skills associated with college success. The continuation and expansion of this longitudinal study will allow further examination of the association between   program participation and intended and unintended outcomes, as well as potentially serve as a model for future evaluation studies. Since the program that is the focus of this model works with a new cohort of students each year, from the summer prior to sixth grade through college graduation, this is a unique opportunity to gather and analyze student, program and district data over time.