

Education as a collective accomplishment: how personal, peer, and parent expectations interact to promote degree attainment

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Abstract University enrollment rates have increased substantially both in the U.S. and internationally over the past 40 years. Unfortunately, university completion rates have not kept pace, causing scholars to project that international labor markets may face a deficit in qualified (i.e., bachelors-degree or equivalent) workers. In the U.S., this could begin as early as 2018. With this deficit looming, efforts to understand the factors that contribute to degree attainment have redoubled. This article is a piece of that effort. By analyzing data from 3279 individuals who participated in the Longitudinal Study of American Youth, this study examines the relative importance of personal, peer, and parent educational expectations in the degree attainment of students 15 years after high school graduation. Results suggest that all three of these factors are indeed predictive of educational outcomes, even when controlling for student background characteristics and high school achievement levels. However the relative importance of these variables varies across demographic groups. Implications of results will be discussed in terms of educational policy and practice.

Keywords Educational outcomes · Degree attainment · Social encouragement · Educational expectations

1 Introduction

Changes in the U.S. economy and labor market have magnified the importance of college completion for American workers. Whereas only 28 % of the U.S. workforce in 1973 was comprised of workers with more than a high school diploma, by 2007 that percentage had increased to 59 % (Carnevale et al. 2012). The

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education level of the workforce grew, in part, as a result of decreases in the compensation provided to less educated workers. For example, research from the Economic Policy Institute (Mishel and Bernstein 1992) found that male high school graduates earned 26.5 % more in 1979 than their similarly educated counterparts did in 1991. Since the 1990s compensation for workers who stopped their education after high school have continued falling (U.S. Department of Education 2013), resulting in significant wage gaps across education levels. On average, workers with bachelor's degrees earn 54 % more annually than high school graduates (U.S. Census Bureau 2012), which adds up to a more than two million dollar wage gap between these two groups over their lifetimes (Carnevale et al. 2012).

Even beyond wages, bachelor's degree attainment has become essential for job security. In 2012, the unemployment rate for high school graduates in the U.S. was nearly double the rate for bachelor's degree holders (Bureau of Labor Statistics 2012). Given the rising educational demands in the labor market, the relationship between education and employment is only expected to strengthen. For example, recent data from the Brookings Institute found that approximately 43 % of job openings in metropolitan areas in the U.S. require a bachelor's degree or higher (Rothwell 2012). Projections into the future suggest that of the 46.8 million jobs that will be created by 2018, 33 % (15.8 million) will require at least a bachelor's degree (Carnevale et al. 2012).

Data such as these are not exclusive to the U.S. As Matheson et al. (1996) demonstrated in an analysis of data from twenty countries, similar relationships between education and employment are also seen in other industrialized countries as well. For example, in all countries comprised in the analysis, which included the G7 as well as thirteen other more economically developed nations, labor market participation was significantly positively related to education level. For all of these countries unemployment rates were lowest for individuals with the highest levels of education. Education was also shown to predict higher earnings in all countries, with university credentials increasing average annual earnings across all countries by 59.4 % for women and 56.1 % for men.

Despite increasing demands in the labor market for highly educated workers, rates of university completion in some countries, including the U.S., have not kept pace. According to the U.S. Department of Education (2012), although U.S. college enrollment rates have risen from just 49 % in 1975 to 70 % in 2009, rates of college completion have not made similar gains, increasing less than three percentage points to only 53 % in the same time period. Similar trends have been observed in European Union (EU) nations as well. Although the Europe 2020 benchmark of higher education sets as a goal that 40 % of all 30–34 year olds in the EU will have completed “tertiary or equivalent education by 2020” (Quinn 2013, p. 55), completion rates have lagged behind in many countries. For example, a report published on behalf of the Network of Experts on Social Aspects of Education and Training (NESET), noted that “too many students in the EU drop out before the end of their higher education course” (Quinn 2013, p. 9). In particular, the report noted that about 50 % of students in Hungary, Italy, and Sweden drop out before completing tertiary programs and that, even in the most successful countries in the EU, completion rates rarely exceed 80 % (OECD 2008, 2013). Based on these rates,

scholars have predicted that in the coming years some industrialized nations may face an educational deficit (Rothwell 2012), with the U.S. alone having graduated three million less students than are required to fill job openings that require at least a bachelor's degree (Carnevale et al. 2012).

Within this context, now more than ever research and policy is being directed at understanding the factors that contribute to degree attainment for all students. Such scholarship is not new. For the past 50 years, theories of college persistence and completion have addressed myriad factors, including the influence of family background, psychosocial factors, academic preparation, and school context. This scholarship has substantially increased understanding of student persistence and preparation, which has been applied to policy and programming. However, the benefits of this work have not been manifest in substantial increases in rates of college completion, prompting continued investigations into the individual and contextual factors that affect long-term educational outcomes. The purpose of this study is to continue this expanded line of research by examining the relative contributions of personal, peer, and parent educational expectations on educational attainment 15 years after high school graduation. In doing so the current study seeks to outline suggestions for educational policy and programming that might more effectively ameliorate predicted workforce deficits.

1.1 Theories of college completion

Research on college completion has resulted in numerous explanatory theories about the factors that affect persistence and degree attainment. These theories can be categorized into two groups: those that seek to identify factors essential to student preparation for university and those that promote persistence to degree. Perhaps the most well known of the persistence theories are Tinto's (1975, 1993) theory of student integration and Bean's (1980, 1985) student attrition model. In both of these theories, student background factors such as race, socioeconomic status, and high school performance are posited to affect students' abilities to integrate academically and socially into their institutions, ultimately leading to persistence to degree. According to Tinto, persistence is dependent on students' *perception* of university integration. As such, his theory attends to how students experience institutional opportunities such as informal and formal peer- and faculty- interactions and additional out-of-class activities. Bean's theory, on the other hand, prioritizes *student behavior*. From his perspective, student attrition can be linked to behavioral demonstrations of disengagement such as time spent away from campus, limited contact with faculty members, and lack of connection with other students (Bean and Metzner 1985; Robbins et al. 2004). Promoting persistence to degree, according to Bean, requires supporting student behaviors that represent university integration and engagement.

Over the years the components that underlie these two theories have received considerable support. For example, numerous studies have found significant relationships between students' perceived and behavioral integration with their universities and persistence (Berger and Milem 2000; Berger 2001; Gloria and Ho 2003; Gloria et al. 1999; Gloria and Robinson Kurpius 2001; Gonzalez 2002;

Hurtado and Carter 1997; Palmer et al. 2011; Pascarella and Terenzini 2005). Based on these findings, many colleges and universities have instituted policies and programming aimed at promoting student integration and engagement, including helping students connect academically and socially to their future colleges and universities. However, aside from encouraging institutional integration, these theories have been less instructive about the ways that students can be better prepared for success before matriculation. As a result, parallel research has been conducted to identify the factors that can be developed in students prior to college or university to promote long-term educational attainment.

Traditional conceptualizations of student preparation for university have focused almost exclusively on academic preparation. From these perspectives, student persistence to degree is dependent upon students' abilities to meet the academic demands of post-secondary education. As such, these conceptualizations suggest that for students to be prepared for college, they must be exposed to more and more rigorous high school curriculum, including Advanced Placement (AP) courses and advanced mathematics. Certainly, support has been garnered for the connection between high school academic preparation and university completion, with many scholars finding academic preparation to be one of the strongest single predictors of degree attainment (Adelman 1999; Warburton et al. 2001). However, results vary considerably across studies and student background characteristics, leading scholars to conclude that degree attainment may be less dependent upon academics and more influenced by other competencies such as non-cognitive or psychosocial factors (Robbins et al. 2004; Sedlacek 1993, 2004), motivational goals and expectancies (c.f., Covington 2000; Dweck 2000; Eccles and Wigfield 2002), self-efficacy (Bean and Eaton 2000; Bordes-Edgar et al. 2011; Dweck 2000), and self-regulatory abilities (Crede and Kuncel 2008; Kuhl 2000; Le et al. 2005), to name a few.

One additional area that has received widespread attention over the past several decades is the role of educational aspirations and expectations in degree attainment. As Jacob and Wilder (2010) remark, although early scholarship conceptualized educational expectations as the same as educational aspirations, more recent scholarship has differentiated the two constructs. Whereas aspirations refer to the educational "desires and aims of young people" (Rothon et al. 2011, p. 212), educational expectations couple these aspirations with students' self-perceived abilities to attain that level of education. Said differently, whereas aspirations "refer to what [students] *hope* will happen," expectations "refer to what [students] *think* will happen" (Jacob and Wilder, p. 2, emphasis in original).

Research has supported relationships between educational outcomes and both aspirations (Beal and Crockett 2010, 2013; Kao and Tienda 1998; Mello 2008) and expectations (Liu et al. 2009; Sanders et al. 2001). For example, analysis of data from a 44-year longitudinal study of high school graduates in Wisconsin found that educational aspirations strongly predicted future educational attainment 7 years after high school graduation even after student background factors and ability indicators were controlled for (Sewell et al. 2001). Similar findings have resulted from analyses of longitudinal data sets in Australia (Marjoribanks 2002) and Great Britain (Croll 2008), both of which found that even after controlling for family background variables and individual characteristics, aspirations were the largest

predictors of young adults' educational attainment. Similarly, student educational expectations have been associated with educational attainment even after controlling for previous academic performance (Bui 2007; Hao, and Bonstead-Bruns 1998; Kao and Tienda 1998; Trusty et al. 2003). These results have been found not only in samples from the U.S. and other developed countries, but also in samples from developing nations. Despite the seemingly similar influence of aspirations and expectations on educational outcomes, these constructs are not interchangeable. For whereas aspirations attempt to describe students' educational desires as separate from past educational successes or failures, educational expectations integrate previous experience. As such, educational expectations may be a more accurate estimate of students' plans for the future and more predictive of actual attainment.

Given the important role that expectations have been found to play in educational outcomes, researchers have also examined the process through which expectations are established, resulting in multiple theories of expectation formation. These theories vary, ranging from rational action theory (Breen and Goldthorpe 1997; Goldthorpe 2000) and economic models (Leslie and Drinkwater 1999) of expectation development that consider expectations to be formed as a result of available opportunities, to vocational theories like that of Super (1953, 1969), which attribute expectations to self-concept. Underlying all of these theories, however, is the understanding that expectations are not formed in isolation, but rather are shaped through interactions with significant others, particularly parents and peers (Garg et al. 2002).

Across numerous studies, parent expectations for their children's education have been found to be significantly predictive of students' academic self-concept (Bronstein et al. 2005), academic achievement (Scott-Jones 1995; Spera et al. 2009), and enrollment in college (Horn and Chen 1998; Hossler and Stage 1992). Similarly, associating with peers who themselves have high educational expectations has also been shown to result in students having higher academic achievement (Crosnoe et al. 2003; Kindermann 2007; Lynch et al. 2013; Riegle-Crumb et al. 2006), high school graduation rates (Chen and Kaufman 1997), and college enrollment (Fletcher 2011; Horn and Chen 1998) and success (Fletcher and Tienda 2009; Sacerdote 2001; Zimmerman 2003).

However, despite the fact that consistent support has been found for the role of parents and peers in establishing expectations, limited studies have examined how the expectations of parents and peers predict long-term educational outcomes. As such, the relative importance of personal educational expectations versus peer and parent expectations in the actual degree attainment of all students remains cloudy. The current study seeks to address this gap and answer three questions:

1. What is the relationship between background factors, high school achievement, and personal, peer, and parent educational expectations?
2. Controlling for background factors and high school achievement, what is the predictive power of personal, peer, and parent educational expectations in explaining educational attainment 15 years after high school graduation?
3. Do personal, peer, and parent educational expectations predict educational attainment differently across demographic groups?

2 Methods

2.1 Participants

Participants included 3279 individuals from the Longitudinal Study of American Youth (LSAY) who had provided complete information on all of the variables being examined in the current study. Fifty-three percent of the participants were female and the majority identified as White (80.8 %) with an additional 7.3 % identifying as Hispanic, 7.8 % as Black, 3.0 % as Asian, and 1.1 % as Native American. The greatest proportion of participants (47.1 %) grew up in households in which at least one parent had earned a high school diploma. The remaining participants were raised in households in which neither parent had earned a high school diploma (5.4 %), at least one parent had completed some college (13.5 %), at least one parent had completed a 4-year college degree (18.3 %), or at least one parent had completed an advanced degree (15.7 %).

2.2 Data set

The LSAY is the longest running study of its kind, tracking two cohorts of geographically stratified students from across the U.S. Cohort I consisted of approximately 3000 students who, in 1987, were enrolled in the 10th grade in public high schools across the U.S. Cohort II consisted of an additional 3000 students who were enrolled in the 7th grade at public schools that served as feeder schools to the same high schools where Cohort I students were enrolled (Miller and Kimmel 2010).

With initial funding from the NSF in 1985 (NSFMDR-8550085), LSAY designers collected data from, or about, each student over an initial period of 7 years. Data included family and background information, student attitudes, educational experiences and achievement, post-high school plans, out of school activities, and support for educational interests and persistence from teachers, peers, and parents, among other variables.

In 2006 the NSF provided additional funding (DUE-0525357) to track educational and occupational outcomes. More than 95 % of the original sample of 5945 LSAY students was located. To account for lost participants approximately 5000 new, eligible participants were contacted to also complete the follow-up survey. Since 2007 three surveys have been conducted (in 2007, 2008, and 2009) to assess occupational and educational outcomes. More than 3500 participants have responded to the surveys, resulting in a response rate of slightly more than 70 % (Miller and Kimmel 2010). The data file being used in the current study is the merged data file that contains all information collected to date.

2.3 Variables

2.3.1 Race

Student race was coded based on data gathered during the second round of data collection (Spring 1998). Missing or double-punched responses were corrected via

collateral information gathered through parent interviews. Based on this information, LSAY personnel coded students as belonging to one of five racial groups: Black, Native American or Alaskan Native, Asian or Pacific Islander, Hispanic, or White.

2.3.2 *Gender*

Gender information was gathered during the first year of data collection, based on student responses indicating they were either “female” or “male.” Missing or double-punched responses were corrected by phone calls to the students’ schools or through parent interview data.

2.3.3 *Parent education*

The highest level of education achieved by either parent of a student was coded based on information gathered from one of three sources. Precedence was given to self-report information gathered through parent interviews in 1988, 1989, or 1990, with data being updated with subsequent interviews. If only one parent was in the household or if only one parent was interviewed, then information about parent education was based on spousal/partner reports. If no interviews with parents were conducted, the student’s fall 1987 report of parent education was used and updated, if necessary, by information in the 2008 student questionnaire.

2.3.4 *High school achievement*

Math, science, and reading achievement were assessed each year the participants were in high school using items that were developed by the National Assessment of Educational Progress (NAEP). All items were multiple choice or true–false and were designed to assess student comprehension of grade-level content. LSAY personnel averaged student achievement scores across all 4 years of high school to create a summary achievement score. To establish comparable scores in Cohort I and Cohort II, scores were recalibrated using multiple group item-response theory (IRT; Miller and Kimmel 2010) so that summary scores have a range from 1 to 100 with a mean of 50 and a standard deviation of 10.

2.3.5 *Personal educational expectations*

Student educational expectations were assessed each year of high school by asking students to respond to the question “As things stand now, how far in school do you think you will get?”. Response options included “Less than high school graduation,” “High school graduation only,” “Less than 2 years of vocational, trade or business school,” “2 years or more of vocational, trade or business school,” “Less than 2 years of college,” “Two or more years of college,” “Finish college (4- or 5-year degree),” “Master’s degree or equivalent,” or “Ph.D., M.D., or other advanced degree.” Based on these responses LSAY personnel created a summary measure of student educational expectations across high school.

2.3.6 Peer educational expectations

Peer influence for university was assessed through a dichotomous item asked during the 4 years of high school data collection. The item asked students whether the majority of their peers planned to attend college. LSAY personnel used these data to create a summary measure entitled “peer college push.” Scores range from 0 to 3 with three indicating higher peer educational expectations.

2.3.7 Parent educational expectations

During all 4 years of high school students were surveyed as to whether they believed their parents expected them to complete college. Based on these responses, LSAY personnel created a summary measure of parent expectations for college entitled “parent college push.” Scores range from 0 to 4, with 4 indicating higher parent expectations.

2.3.8 Educational attainment

In the 2007 follow up study, students were asked to indicate their highest level of education achieved to date. Depending on the cohort from which they were drawn, the survey was completed by students either 14 or 16 years after they would have graduated from high school. Response options ranged from “Did not finish high school” to “Earned a doctoral or professional degree.” Responses were coded by LSAY personnel into six categories: “Less than a high school diploma;” “High school diploma or equivalent;” “Associate’s degree or equivalent;” “Bachelor’s degree;” “Master’s degree;” “Doctorate or Professional degree.”

3 Results

3.1 Relationships between background factors, high school achievement, and personal, peer, and parent educational expectations

Preliminary analyses were conducted to examine the relationships between background factors, high school achievement, and personal, peer, and parent educational expectations. Results from independent samples *t* tests (Table 1) indicated significant differences between genders, with females reporting higher personal [$t(3277) = 4.09, p < .001$] and peer [$t(3277) = 9.64, p < .001$] educational expectations than males. No significant differences across genders were found with regard to high school achievement or parent expectations.

Analyses of variance with race as the between-subjects factor (Table 2) indicated significant differences across racial groups in parent education [$F(4, 3274) = 19.80, p < .001$], high school achievement [$F(4, 3274) = 68.21, p < .001$], and personal [$F(4, 3274) = 12.62, p < .001$], peer [$F(4, 3274) = 11.22, p < .001$], and parent

Table 1 High school achievement and personal, peer, and parent expectation means for females and males

Variables	Females (n = 1743)	Males (n = 1536)	<i>t</i>
High school achievement	59.45 (22.77)	60.11 (26.12)	-.77, n.s.
Personal expectations	4.10 (1.30)	3.90 (1.42)	4.08**
Peer expectations	1.89 (1.18)	1.48 (1.25)	9.60**
Parent expectations	2.12 (.96)	2.10 (1.04)	.63, n.s.

** $p < .001$

[$F(4, 3274) = 11.63, p < .001$] educational expectations. Post-hoc analyses using Scheffe's test revealed Asian students came from families with the highest parent education ($M = 3.72, SD = 1.22$) and also had the highest personal educational expectations ($M = 4.72, SD = 1.17$). For both of these variables, Asian students differed significantly from all other racial groups. In regard to achievement, analyses showed no significant differences between White ($M = 62.40, SD = 023.49$) and Asian ($M = 69.37, SD = 23.36$) students on high school achievement and no significant differences between Black ($M = 41.84, SD = 22.18$), Hispanic ($M = 47.56, SD = 24.66$), or Native American ($48.11, SD = 24.39$) students on achievement, but significant differences between these two clusters of students. Finally, in terms of parent and peer variables, Asian students reported the highest levels of peer ($M = 2.21, SD = 1.07$) and parent ($M = 2.54, SD = .89$) educational expectations. However, whereas Asian students reported significantly higher peer expectations than all other racial groups, levels of parent expectations were more distributed across races, with Asian and Black ($M = 2.30, SD = 1.10$) students reporting significantly higher levels of parent expectations than White ($M = 2.10, SD = .98$) and Hispanic ($M = 1.95, SD = 1.09$) students, who reported significantly higher parent expectations for college than Native American ($M = 1.54, SD = 1.15$) students.

Analyses of variance regarding parent education level (Table 2) revealed significant differences in high school achievement [$F(4, 3274) = 77.93, p < .001$], and personal [$F(4, 3274) = 136.05, p < .001$], peer [$F(4, 3274) = 49.12, p < .001$], and parent [$F(4, 3274) = 80.14, p < .001$] educational expectations (Table 2), with parent education level having a linear relationship with all four variables. Post-hoc analyses revealed that students who came from a household where neither parent had earned a high school diploma reported significantly lower levels of achievement ($M = 40.94, SD = 21.18$), and personal ($M = 3.07, SD = 1.37$), peer ($M = 1.07, SD = 1.17$), and parent ($M = 1.49, SD = 1.10$) educational expectations than all other students. Students who had at least one parent who had earned a high school diploma or equivalent or those who had at least one parent who had completed some college differed significantly from students who had at least one parent who completed a 4-year or advanced degree on high school achievement and peer college expectations (see Table 3). Further, students whose parents had completed a 4-year degree or higher had significantly higher levels of achievement and reported greater parent expectations than all other students. Significant positive relationships were

Table 2 High school achievement, personal, peer, and parent educational expectations, and educational attainment means by race and parent education

	High school achievement		Personal expectations		Peer expectations		Parent expectations		Educational attainment	
	M (SD)	F	M (SD)	F	M (SD)	F	M (SD)	F	M (SD)	F
Race		68.21**		12.62**		11.22**		11.62**		114.06**
Hispanic	47.56 (24.66)		3.67 (1.44)		1.39 (1.24)		1.95 (1.09)		2.70 (1.14)	
Black	41.84 (22.18)		3.98 (1.34)		1.57 (1.24)		2.30 (1.10)		2.84 (1.27)	
White	62.40 (23.49)		4.02 (1.35)		1.72 (1.22)		2.10 (.98)		3.24 (1.27)	
Asian	69.37 (23.36)		4.72 (1.17)		2.21 (1.07)		2.54 (.89)		4.24 (1.36)	
Native American	59.76 (24.39)		3.41 (1.42)		1.14 (1.13)		1.54 (1.15)		2.54 (.99)	
Parent education		77.93**		136.05**		49.12**		80.14**		34.82**
Less than high school diploma	40.94 (21.18)		3.07 (1.37)		1.07 (1.17)		1.49 (1.10)		2.37 (.98)	
High school diploma	55.82 (23.33)		3.62 (1.37)		1.51 (1.24)		1.90 (.99)		2.84 (1.14)	
Some college	59.90 (23.32)		4.09 (1.27)		1.69 (1.22)		2.17 (.91)		3.16 (1.27)	
4-year degree	66.47 (24.07)		4.50 (1.08)		1.99 (1.14)		2.40 (.86)		3.68 (1.20)	
Advanced degree	70.16 (23.13)		4.81 (1.06)		2.14 (1.08)		2.56 (.90)		4.01 (1.30)	

df (4, 3274)

** $p < .001$

Table 3 Correlations for high school achievement, personal, peer, and parent expectations, and educational attainment (n = 3279)

Variables	Correlation coefficient				
	1	2	3	4	5
1. High school achievement	–				
2. Personal expectations	.46**	–			
3. Peer expectations	.41**	.51**	–		
4. Parent expectations	.32**	.49**	.36**	–	
5. Educational attainment	.47**	.55**	.44**	.39**	–

** $p < .001$ **Table 4** Hierarchical regression model predicting educational attainment (n = 3279)

Model	Variable	β	R	R ²	R ² Δ
1			.40	.164	.164**
	Race	.11**			
	Gender	-.07**			
	Parent education	.38**			
2			.55	.298	.134**
	Race	.04*			
	Gender	-.07**			
	Parent education	.28**			
	High school achievement	.39**			
3			.64	.412	.114**
	Race	.06**			
	Gender	-.02			
	Parent education	.16**			
	High school achievement	.20**			
	Personal expectations	.27**			
	Peer expectations	.14**			
	Parent expectations	.09**			

* $p < .05$; ** $p < .001$

found between all groups on personal educational expectations, with each level of parent education resulting in significant gains in student expectations.

Results from the correlation analyses (Table 3) indicated significant positive relationships between high school achievement and personal ($r = .46$, $p < .001$), peer ($r = .41$, $p < .001$), and parent ($r = .32$, $p < .001$) educational expectations. Personal educational expectations were also significantly correlated with peer ($r = .50$, $p < .001$) and parent ($r = .49$, $p < .001$) expectations, the latter two of which were also significantly positively correlated ($r = .36$, $p < .001$).

3.2 Personal, peer, and parent educational expectations predicting educational attainment

Hierarchical linear regression analyses were conducted to examine the utility of personal, peer, and parent educational expectations in predicting college attainment (Table 4). Based on results of the preliminary analysis, race, gender, and parent education were controlled for by entering them in step one of the regression. High school achievement was entered in step two to isolate the predictive utility of educational expectations from all three sources.

Results from the hierarchical regression analysis indicated personal, peer, and parent educational expectations all significantly predicted educational outcomes. The final model explained 41.2 % of the total variance in educational outcomes, with personal, peer, and parent expectations accounting for 11.4 % of the variance after controlling for background factors ($R^2 = .16$, $p < .001$) and achievement ($R^2\Delta = .13$, $p < .001$). Personal educational expectations were the greatest predictor of college attainment ($\beta = .27$), followed by peer ($\beta = .14$) and parent ($\beta = .09$) expectations.

3.3 Personal, peer, and parent educational expectations predicting educational attainment across groups

Preliminary analyses revealed significant differences in educational attainment based on gender [$t(3277) = 3.02$, $p < .01$], race [$F(4, 3274) = 34.82$, $p < .001$], and parent education [$F(4, 3274) = 144.06$, $p < .001$] (Table 2). As such, a series of individual regression analyses were conducted to examine differences in the predictive utility of personal, peer, and parent educational expectations on educational attainment based on gender, race, and parent education. Results indicated that although the overall model was significant for all groups, differences were seen in the amount of variance explained by the model and in the predictive utility of variables across student background factors.

Across all racial groups with the exception of Native Americans, personal educational expectations contributed most significantly to the variance in educational attainment (see Table 5). However, whereas the educational attainment of White students was also significantly explained by both peer ($\beta = .15$) and parent ($\beta = .08$) expectations, only peer expectations were significant for Hispanic students ($\beta = .16$) and only parent expectations were significant for Black students ($\beta = .18$). For the Asian students in the sample, neither peer nor parent expectations contributed significantly to educational attainment despite the fact that the model predicted the greatest amount of variance in educational outcomes for these students ($R^2 = .44$, $p < .001$).

Similarly, differences were seen in the relative contributions of peer and parent expectations in educational attainment across parent education levels (see Table 6). Whereas the educational outcomes for students who had at least one parent with an advanced degree were only significantly predicted by personal expectations ($\beta = .29$), outcomes for students with parents at all other education levels were also accounted for by peer expectations. Parent expectations predicted educational

Table 5 Hierarchical regression models predicting educational attainment for Hispanic (n = 239), Black (n = 255), White (n = 2650), and Asian (n = 98) students

	Hispanic				Black				White				Asian			
	β	R	R ²	R ² Δ	β	R	R ²	R ² Δ	β	R	R ²	R ² Δ	β	R	R ²	R ² Δ
1		.27	.08	.08**		.18	.03	.03*		.40	.16	.16**		.40	.16	.16**
Gender	-.12				-.05				-.07**				-.04			
Parent education	.25**				.17**				.40**				.39**			
2		.49	.24	.16**		.49	.24	.21**		.54	.29	.13**		.57	.32	.16**
Gender	-.14*				-.05				-.06**				-.09			
Parent education	.16**				.07				.30**				.30**			
High school achievement	.41**				.46**				.37**				.42**			
3		.58	.33	.90**		.59	.35	.11**		.64	.40	.12**		.67	.44	.12**
Gender	-.07				-.02				-.02				-.07			
Parent education	.09				-.01				.18**				.16			
High school achievement	.24**				.30**				.18**				.18			
Personal expectations	.21**				.23**				.28**				.38**			
Peer expectations	.15*				.09				.15**				.13			
Parent expectations	.10				.18**				.08**				.04			

* $p < .05$; ** $p < .01$

Table 6 Hierarchical regression models predicting educational attainment based on parent education level

	Less than HS diploma (n = 178)			HS diploma (n = 1543)			Some college (n = 444)			4-year degree (n = 599)			Advanced degree (n = 515)		
	β	R^2	$R^2\Delta$	β	R^2	$R^2\Delta$	β	R^2	$R^2\Delta$	β	R^2	$R^2\Delta$	β	R^2	$R^2\Delta$
1															
Gender	-.12	.13	.02	-.09**	.11	.01	.01**	-.02	.15	.02	.02**	-.07	.18	.03	.03**
Race	-.04			.06**			.15**	.16**	.47	.22	.20**	.16**	.41	.17	.14**
2															
Gender	-.11	.37	.14	-.08*	.40	.16	.15**	-.02	.59	.34	.12**	-.10**	.56	.32	.15**
Race	-.12			.00			.07	.09*	.46**	.38**	.38**	.09*	.49	.24	.17**
High School Achievement	.36**			.39**			.46**	.46**				.38**			
3															
Gender	-.06	.51	.26	-.02	.56	.32	.15**	.05	.59	.34	.12**	-.04	.56	.32	.15**
Race	-.05			.04			.05	.05	.47	.22	.20**	.12**	.41	.17	.14**
High school achievement	.07*			.18**			.30**	.30**				.19**			
Personal expectations	.19*			.29**			.23**	.23**				.28**			
Peer expectations	.25**			.16**			.18**	.18**				.14**			
Parent expectations	.03			.10**			.07	.07				.15**			

* $p < .05$; ** $p < .01$

attainment only in students from households in which at least one parent had a high school diploma ($\beta = .10$) or a 4-year degree ($\beta = .15$).

Notable differences were not seen across genders in the predictive utility of personal, peer, or parent expectations, all of which contributed significantly to educational attainment. Regression results did suggest, however, that personal expectations may more strongly predict educational attainment in men ($\beta = .28$) versus women ($\beta = .25$) and that parent expectations may be more important in predicting educational outcomes in women ($\beta = .11$) than men ($\beta = .07$).

4 Discussion

This study extends previous research by examining how peer and parent expectations contribute to actual degree attainment 15 years after high school graduation. The results confirm previous scholarship, indicating that personal educational expectations indeed play a significant role in degree attainment. Analyses revealed, for example, that across all racial groups with the exception of Native Americans, students' personal expectations had the strongest impact on outcomes. For certain groups of students, such as Asian students and students from families in which at least one parent had earned an advanced degree, only personal educational expectations predicted college attainment, with neither peer nor parent expectations contributing to the predictive utility of the model. Students from these two groups also had the highest levels of educational attainment 15 years after graduating. This could suggest that if students have strong educational expectations, additional support from parents or peers is unnecessary for them to meet their long-term educational goals. For other groups of students, however, the results additionally confirm that parent and peer expectations play an important role in university success.

Notable in the findings was the importance of peer college expectations, above and beyond parent expectations for college, in outcomes. Across the entire sample, peer expectations were found to contribute significantly to educational outcomes, with those students reporting higher peer expectations also attaining higher levels of education. When the model was tested across groups, however, differences arose. For example, peer expectations were found to significantly predict educational attainment in both Hispanic and White students as well as students who had at least one parent with a 4-year degree or less. However, for Black students, peers did not play a significant role in educational outcomes despite the fact that Black students reported that their peers had comparable levels of college expectations as their White and Hispanic peers.

Amongst Black students, parent expectations played a significant role in outcomes, as they did for White students, though to a notably smaller extent. For Asian and Hispanic students, however, parent expectations did not contribute significantly to the variance in outcomes. These findings could point to an interaction between the amount of parent expectations that students perceive and their personal educational expectations in predicting outcomes. For example, although Black and Hispanic students reported holding comparably moderate levels

of personal educational expectations and perceived similar educational expectations amongst their peers, Black students reported significantly higher parent expectations. Because of this, parent expectations may have played a larger role in their long-term educational attainment.

To fully understand these results, follow-up analyses are required. Through further analysis, the ways in which expectations and support from significant others might mediate the relationship between student background characteristics and educational outcomes could be better understood. Despite the need for continued research, the results of the current study reveal the complex role that educational expectations play in long-term educational attainment. Too often it seems that educational interventions, especially those enacted in the U.S., focus exclusively at the individual level, targeting students without considering the influence of others. One-size-fits-all approaches based in a universality conceptualization of student development, as well, may overlook the differential needs of youth from various backgrounds. The results of the current study, therefore, identify potential points of intervention in educational policy and programming.

5 Implications and conclusions

Given the growing importance of degree completion in job and economic security, understanding the personal and contextual factors that contribute to long-term educational outcomes is more important now than ever. Over the past 30 years, educational policy has prioritized academic preparation through more and more rigorous secondary school curriculum, presuming that with this preparation students will be more likely to obtain a bachelor's degree or beyond. Results from the current study call this presumption into question and provide suggestions for educational programming.

Results from the current study indeed suggest that high school achievement is an important predictor of educational attainment 15 years after high school graduation. However after controlling for high school achievement, personal, peer, and parent educational expectations all emerged as significant predictors of educational outcomes. The importance of personal educational expectations in educational attainment has been documented previously (Beal and Crockett 2010, 2013; Mello 2008). Findings from the current study, therefore, reinforce previous scholarship, highlighting the importance of students' early educational plans in their long-term outcomes. Missing from the previous literature, however, was an understanding of the role that significant others play in educational attainment. As such, study findings indicate both peer and parent expectations may both predict degree attainment and therefore highlight a potentially important point of intervention.

If the expectations of peers and parents contribute to educational outcomes, then educational policy and programming should reflect this. In particular, given the findings that peer expectations were especially predictive of long-term educational attainment, schools should be supported in creating college-going cultures. According to Corwin and Tierney (2007), schools that have college going cultures position higher education as attainable by all students, not just a select few. They do

so by developing relationships with local community colleges and 4-year institutions, ensuring that an adequate college preparatory curriculum is available, providing college counseling services to all students, and most importantly, by establishing a clear college-going mission for the school. By creating an environment in which higher education is an “expectation for all,” rather than an “exception for some,” students will be more likely to be surrounded by peers who hold high college expectations.

Further, given that parent expectations of higher education play an important role in outcomes, parents as well should be supported in establishing high expectations for their children’s educational futures. As results of the study suggest, however, the expectations parents hold for their children may be based on parents’ own education levels. It could be that, if parents themselves did not earn a 4-year degree, they may question the feasibility of higher education for their children. As a result, these parents may end up unintentionally pushing their children away from higher education by failing to hold high expectations for their children. To combat this, all parents—but especially parents with lower education levels—should be provided with resources to develop their own understanding about higher education so that students can look to their parents for encouragement. Schools can certainly play a role in this knowledge acquisition. By hosting parent informational meetings and disseminating resources, schools can promote parent awareness of their role in their students’ educational futures. In addition, broader policy should also be directed towards parent awareness around the need for higher education. Through public awareness campaigns and the promotion of greater transparency in the costs associated with higher education, parents can be supported in believing that their children should and can pursue post-secondary educational opportunities, thereby promoting greater educational attainment.

Across any of these policies must be the recognition that educational attainment is not exclusively an individual accomplishment. Certainly personal expectations for university play a central role in educational attainment, as the results suggest. However what the current study additionally demonstrates is that university success is the product of interacting influences that come together to support educational attainment. As such, results of the study suggest that if we are truly committed to educating our youth and preparing them for the labor market they will enter, then it is concomitant on the significant others and systems that surround youth to believe that higher education is a possibility and to expect students will persist to degree.

Compliance with ethical standards

Conflict of interest The author declares that no conflict of interest exists.

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