



## Working Paper:

# Enhancing Engagement with Faculty and Staff to Facilitate Student Success: An Evaluation of a Parent Intervention

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Many low-income and first-generation students who enroll in college experience less desirable outcomes during their first year. Researchers have increasingly investigated the important role of college knowledge and engagement with faculty and staff for student success. Through a randomized controlled trial intervention, this study leverages the relationship between parents and students to encourage student engagement with faculty and staff during the first year of college. Results of a survey administered to treatment and control students show positive effects of this low-cost, light-touch intervention on parent-student discussions, student attitudes, behaviors, and intent to persist into the second year of college. Importantly, the effects are stronger for the most disadvantaged groups, indicating that this parent intervention could reduce inequality in higher education.

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*Updated October 2017*

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*Acknowledgements:* I would like to thank Josipa Roksa for her vital feedback and support of this research. I also thank Sarah Mosseri, Ben Castleman, Dan Player, and Paul Kingston for their insightful comments. This research is supported by the NSF- Social and Economic Sciences Doctoral Dissertation Research program (Grant No. 1602743), as well as the Institute of Education Sciences, U.S. Department of Education, through Grant #R305B090002 to the University of Virginia. The opinions expressed are those of the author and do not represent views of the institute or the U.S. Department of Education. Funding was also provided by the University of Virginia Quantitative Collaborative through the Bynum Grant.

EdPolicyWorks Working Paper Series No. 59. October 2017.

Available at <http://curry.virginia.edu/edpolicyworks/wp>

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## INTRODUCTION

While the share of first-generation and low-income students enrolled in higher education has increased over time, they continue to experience less desirable outcomes than their more advantaged peers (Bailey and Dynarski 2011; Bowen, Chingos, and McPherson 2009). Ample literature investigates the role of academic preparation and financial supports in socioeconomic inequality (e.g., Cabrera, Nora, and Casteneda 1992; Bound, Lovenheim, and Turner 2010; see also a review by Grodsky and Jackson 2009). These factors, however, do not entirely account for the socioeconomic gap in student experiences and college success (Carnevale and Strohl 2010; Bowen, et al. 2009; Roderick, Coca, and Nagaoka 2011).

Studies of higher education have identified interaction with faculty and staff as important contributors to postsecondary success (Angrist, Lang, and Oreopoulos 2009; MacDonald, Malatest, Assels, Baroud, and Gong 2009), in part because students develop vital college knowledge through these relationships (Collier and Morgan 2008). However, socioeconomically disadvantaged students are less likely to talk with faculty and staff in part because they are uncomfortable or unfamiliar with the expectations of the middle-class college context (Collier and Morgan 2008; Lareau and Weininger 2008; Jack 2016). While prior interventions have tried to provide information directly to students, and encourage their greater engagement with faculty and staff, I shift the focus to consider whether parents from disadvantaged backgrounds can encourage students to engage with institutional agents (i.e., faculty and staff).

While parents are the most significant source of students' knowledge of the college system, and communicate frequently with students when they are in college (NSSE 2007), most research on higher education has failed to consider parental influence. Research in K-12 education, however, shows that parents are attentive to education-related information while their

children are in high school (Daniel et al. 2009), and that they use this information to make decisions, more so than students themselves (Bettinger, Long and Oreopoulos, and Sanbonmatsu 2012; Loeb and Valant 2014). Moreover, parents also use this information to change student behavior (Bergman 2013; Kraft and Dougherty 2013; Kraft and Rogers 2014). The question remains whether parents can help to facilitate student engagement in college.

I developed and evaluated an intervention that targets parents' conversations with students, enlisting parents to prompt students to contact faculty/staff during college. The sample (N=617) was approximately evenly split between experimental and control groups. Results based on student surveys indicate that this low-cost, light-touch, parent text-message intervention had an effect on parent-student discussions, how important students believe it is to engage with faculty and staff, student interaction with faculty and staff, and intent to persist into the second year of college. Importantly, the effects are strongest for students from the least educated families. These results both document how parents who have little or no experience with college themselves can influence college knowledge and encourage their students to engage with faculty and staff during college and have significant policy implications for future interventions intended to reduce inequality.

## **LITERATURE REVIEW**

### **The Role of Parents**

Research on K-12 education demonstrates the integral role parents play in student academic success (Dumais 2006; Greenman, Bodovski, and Reed 2011; Jaeger 2011; Potter and Roksa 2013). Parental involvement in school partially explains socioeconomic and racial/ethnic gaps in academic achievement (Cheadle 2008; Lareau 2011; McNeal 1999). Similarly, research

on the transition into college highlights the important role of parental information and resources in college choice and enrollment (Deutschlander 2017; Grodsky and Jones 2007; Lareau and Weininger 2008; Roksa and Deutschlander forthcoming). Yet, once students enter higher education, few studies examine the role of parents in fostering academic success (for recent exceptions, see Auerbach 2007; Hamilton 2016; Roksa, Deutschlander, and Whitley 2016).

Parents may be an untapped resource to improve student success in college. Seventy percent of students communicate “very often” with at least one parent (NSSE 2007), even as much as thirteen times per week, with both students and parents initiating contact (Hofer 2011). Students often report feeling less stressed after communicating with family members (Gemmill and Peterson 2006; Wolf, Sax, and Harper 2009). Significantly, parents are an especially important source of support for students who are not in the demographic majority on campus (Guiffrida 2006; Melendez and Melendez 2010).

In addition to serving as a source of emotional support for students, parents also seem to be more attentive to education-related information and use this information to make decisions, more so than students themselves. For example, one postsecondary institution that sent fliers to both parents and students found parents were more likely than students to remember the information they received (Daniel et al. 2009). Parents are also more likely than students to use new information to make decisions (Bettinger et al. 2012; Loeb and Valant 2014). Since parents are more likely to retain and use helpful information, they can play an important role in helping students navigate postsecondary institutions.

Notably, research on educational interventions in K-12 education suggests that parents can use information they receive to influence student behavior in school. For example, one intervention with secondary school students sent weekly messages from teachers to parents.

Students of parents who received a message indicating what their child could improve were less likely to drop out of the summer remediation program (Kraft and Rogers 2014). Similarly, Kraft and Dougherty (2013) found that frequent teacher-parent phone calls increased student engagement as measured by homework completion, in-class behavior, and in-class participation during a summer school program. Bergman (2013) also found that sending parents text messages when their child was missing assignments resulted in significant gains in GPA, tests scores, and measures of student engagement. The question remains whether these types of interventions could be effective in the higher education context.

### **Cultural Capital in College**

Building on Bourdieu's conception of cultural capital, which includes knowledge, norms, and practices that facilitate successful interaction with dominant social institutions (1973; Bourdieu and Passeron 1977), recent studies of students' experiences in college indicate that cultural capital may contribute to socioeconomic inequality (Lareau and Weininger 2008; Stephan and Rosenbaum 2009). Complex information and skills are necessary to navigate the higher education system and meet expectations of faculty and staff (Armstrong and Hamilton 2013; Collier and Morgan 2008; Deil-Amen and Rosenbaum 2003; Jack 2016; Lareau and Weininger 2008; Rosenbaum, Deil-Amen, and Person 2006; Scott-Clayton 2015; Stephens, Hamedani, and Destin 2014). For example, confusing choices, and student-initiated guidance hamper less advantaged students' progress in college. Moreover, institutions presuppose, recognize, and reward the possession of cultural capital, but do not explicitly teach it (Bourdieu and Passeron 1977).

Although higher education institutions largely presume that students enter with certain skills and knowledge, research suggests that colleges and universities can also be a place where students engage with others to gain valuable cultural capital. For example, when students seek out peers, professors, and institutional support staff during college, they develop social ties with individuals who may have valuable skills and information (Chambliss and Takacs 2014).

Students from less advantaged backgrounds, however, are less likely to interact with faculty and other institutional agents compared to their more socioeconomically advantaged peers (Collier and Morgan 2008; Kim and Sax 2009). Students' college engagement strategies vary by SES in part due to a lack of knowledge and feelings of discomfort. Students with limited knowledge of higher education often do not recognize they need help, and once they do, they are unfamiliar with where to obtain it. Low SES students less frequently seek out and find help while in college, in part because they do not know what is available and how to access resources when necessary (Lareau 2011; Stuber 2011). For example, Lareau (2011) describes one student who could not afford a course textbook. Instead of discussing her problem with the professor, she stopped attending class. Unaware that she should withdraw from the class, she received a failing grade. One relatively minor financial problem turned into a larger problem that needlessly tainted her academic record with a failing grade, not because of academic struggles or directly because of financial problems, but because of lack of knowledge of postsecondary education.

Prior research also suggests that knowledge is not the only reason students do not make connections with faculty or staff on campus. Low-SES students often display a pattern of independence and hesitancy when interacting with institutional agents (Aires and Seider 2005; Jack 2016; Lareau 2011; Stanton-Salazar 2001; Stephan and Rosenbaum 2009; Stuber 2009). This occurs in part because less advantaged students often do not feel entitled to ask for help or

may see a request for help as a sign of weakness (Lareau 2015; Jack 2016). A low-SES student at an elite institution identified a class divide in entitlement to seek help from faculty and staff, “[middle-class students] have that sense of entitlement instilled in [them]. I didn’t know that I could complain and get something done . . . didn’t know the school had a duty to me. I still feel bad about seeking help” (Jack 2016).

### **Previous Student Engagement Interventions**

To aid less advantaged students on their journeys through higher education, a number of studies have investigated the effects of engagement with academic services. Experimental studies that investigate the effect of increased availability of academic services on grades and graduation rates have shown mixed results, mainly because of variation in student engagement with faculty and staff. These studies suggest that informing students of available services is not sufficient to encourage engagement. For example, Angrist and colleagues (2009) found that students who were given access to support services paired with a scholarship increased their grades relative to students who received nothing. However, students who were made aware of support services and staff help, but not provided with a financial incentive to seek them out did not improve their grades, suggesting that students need additional motivation to seek out these types of services. Similarly, Scrivener, Sommo, and Collado (2009) found that the offer of academic services did not meaningfully affect student academic outcomes unless students were required to visit academic services. Another intervention that encouraged student interaction with advisors, via email and phone outreach, had no effect on student persistence (Schwebel, Walburn, Klyce, and Jerrolds 2012). The authors argue that the limited amount of increased interaction with advisors

was not substantial enough to affect student outcomes (Schwebel et al. 2012). These college success interventions have been marked by poor engagement with institutional agents.

Students who actually interact with faculty and staff through advising, academic support, etc. show improved postsecondary success, such as higher grades and persistence (MacDonald et al. 2009; Scrivener and Weiss 2009). Scrivener and Weiss (2009) showed that students who received 150 dollars per semester for meeting with a guidance counselor had small but significant improvements in grades and persistence. MacDonald et al. (2009) found that at-risk students (who needed a developmental English course; were concerned about integrating into college life, or were uncertain about their academic program/career options) generally do not take advantage of mentoring, tutoring, workshops or other services. However, when students participated in tutoring, mentoring or other services, they were twice as likely to graduate. Notably, additional services benefited low-income, ESL, and less academically prepared students the most.

In this study, I consider whether parents can provide an impetus for students to engage with higher education institutions. This research fills two gaps in the field. First, it attempts to improve low levels of student engagement that has contributed to the mixed results in previous college student interventions. Second, despite the significant role that parents play in student cultural capital development, there is a dearth of research on how parents from low-SES backgrounds can support their students during college. To address this, I develop and evaluate an intervention that targets parents' conversations with students—enlisting parents to prompt students to engage with faculty and staff during college, helping students form relationships that can help them develop cultural capital in college.

## PRESENT STUDY

### **The Intervention: A Parent Text-Message Program**

While there has been a proliferation of advising programs intended to guide students through college, there are few programs that explicitly recognize and engage parents. The intervention reported here provided parents with an introductory letter at the beginning of students' first year of college that called upon them, as a vital source of comfort and support, to help their students engage with faculty/staff. Research suggests that whether or not parents intervene is closely tied to their habitus and cultural capital (Lareau 2011). Habitus shapes what parents think their role is and what they are *supposed* to do in relation to their student's education. Parents' cultural capital is related to having information and knowledge about education system that facilitates their fulfilling the perceived role. The introductory letter aims to indicate to parents that part of their role is to talk to their students about college and the task they are asked to complete is simple enough that they can successfully complete it.

Following, parents received information via text about specific topics and issues they could discuss with their children throughout the year. A set of three texts, sent bi-weekly, (in either English or Spanish) from August 2016 to May 2017, targeted the content of parents' conversations with students by identifying particular college engagement strategies. Following York and Loeb's (2014) three-message model, each text-set contained: (1) an initial message providing parents with specific information about the importance of certain school-related behaviors; (2) a second message encouraging parents—through a short, specific, and manageable task—to talk with students about the given topic; and (3) a final message reinforcing the value of discussing the suggested topic. Overall, fifteen text-sets were sent bi-weekly throughout the 2016-2017 academic year and covered a range of student engagement strategies. For example,

texts described initial faculty and staff outreach, the role of faculty outside of the classroom, how to reach out to faculty and staff for discrete pieces of information, and the importance of building faculty mentoring relationships, among other topics. Text topics were re-introduced throughout the year for reinforcement. An example text set on the topic of professor engagement is italicized below:

- 1. Information Text:** *Professors can be intimidating to students, but building close relationships with professors can help students do better in their classes.*
- 2. Engagement Text:** *Ask your student who their favorite professor is and whether they've gone to talk to them outside of class.*
- 3. Encouragement Text:** *By acknowledging that students talk to professors outside of class, you're helping your student adjust to professor expectations.*

### **Sample and Institutional Partner**

A non-profit organization serving low-income, first-generation, and Latino students in a southern state, referred to as All Can Achieve (ACA, a pseudonym), executed the parent intervention during the 2016-2017 academic year. ACA works with high school students who apply for the program during their junior year of high school. To participate in ACA's college access program students must apply by completing a simple application and essay in the 11<sup>th</sup> grade of high school. Students must have a GPA that puts them in the top sixty percent of their high school class and either a) qualify for the national school lunch program or b) be a first-generation student (i.e. neither parent holds a bachelor's degree, although their siblings may have enrolled in college or completed a degree).

Given the application requirement to participate in ACA, the families participating in this study are likely not representative of the nationwide population of low-income and/or first-generation families since either parent or student initiative was necessary to join the high school program. Also, while ACA targets low-income and first-generation students, their geographic

location means that many of the participants are Latino students. While the number of Latino students in this study may be disproportionate to the nation as a whole, Latinos are the largest and fastest growing minority group in the United States (Fry 2013). The share of Latino high school graduates enrolled in college immediately after high school reached 49 percent in 2012, surpassing that of whites (Fry and Taylor 2013). Importantly, the proportion of Latino students who are first-generation students is also higher than any other group—approximately 50 percent (U.S. Department of Education 2010). Moreover, this population of college students has particularly low college completion rates, with only 36 percent of first-time, full-time Latino students earning a degree within six years, compared with 49 percent of whites (U.S. Department of Education 2011).

Table 1 shows that approximately 70 percent of students in the sample are Latino, while 8 percent are white, and approximately 18 percent are African American. Also, nearly one quarter reported that their parents' preferred language was Spanish. A majority of students come from less educated backgrounds—over 65 percent would be the first in their family to earn a bachelor's degree. Nearly 75 percent of students qualified for free/reduced price lunch in high school. As expected, based on ACA's application requirements, these students reported an average GPA of 3.0 (the majority falling between 2.5 and 3.5), with over 90 percent in the top 60 percent of their graduating class in their junior year of high school. The majority of students are female (nearly 65 percent).

*[Table 1 about here]*

The experimental sample consists of 617 families from the ACA class of 2016 cohort. In mid-August of 2016, ACA families were randomly assigned to treatment or control conditions (control  $n = 309$ , treatment  $n = 308$ ). Subsequently, ACA reached out to and implemented the

intervention with 308 treatment group parents and guardians of the 2016 cohort. Initial letters went out to 306 families (addresses were unavailable for 2 families). Text messages were sent to 256 families—37 families did not have parent cell information and 15 students did not have a parent on file. Accurate contact information is often difficult to collect among less advantaged groups, therefore this amount of missing data is not surprising. For 57 percent of the families receiving text messages, ACA had contact information for, and sent messages to, two parents. Over the course of the academic year, 44 parents opted out of text messages. Of these, approximately half still had a spouse receiving messages. As a result, only 17 out of 256 families receiving text messages left the study completely – an opt-out rate of less than 7 percent. Of the 308 families in the sample, 235 received the full intervention (letters and text messages) throughout the year. The analytic sample is based on a subset of this experimental sample—students surveyed in spring 2017.

### **Analytical Strategy**

In order to evaluate the impact of the parent intervention, I randomly assigned students, and their families, to treatment and control conditions and tested for baseline equivalence on student characteristics before the start of the intervention. Table 2 presents the results of regression analyses predicting student baseline covariates with an indicator reflecting assignment to treatment. There is no statistically significant imbalance on observable characteristics between treatment and control groups.

*[Table 2 about here]*

I use straightforward Ordinary Least Squares regression techniques to estimate the intent-to-treat (ITT) effects of the intervention on students' outcomes.<sup>1</sup> ITT analyses compare mean

outcomes of groups as randomized. This type of analysis is appropriate given that in most cases it is not possible to know whether the parents actually received, read, or discussed the text messages with their children. The analytic model is specified as follows:

$$Y_i = \beta_0 + \beta_1 TREATMENT_i + \gamma X_i + \varepsilon_i$$

where  $Y_i$  is a vector of the various outcomes incorporated into this analysis, such as student persistence, for student  $i$ ;  $TREATMENT_i$  is a binary indicator for whether students' parents have been randomly assigned to participate in the parent intervention or to the control group;  $X_i$  is a vector of student-level demographic, socioeconomic, and academic baseline covariates collected from the ACA application, for both treatment and control students; and  $\varepsilon_i$  is a residual error term. In this model  $\beta_1$  provides an unbiased causal estimate of the impact of the offer to participate in the intervention on students' college outcomes.<sup>2</sup>

In addition to estimating main effects, I also test for heterogeneous effects to determine whether or not the parent intervention had a differential effect for particular families. Given that parental education level is linked to student engagement in college (Collier and Morgan 2008; Jack 2016), and students in the sample come from varying educational backgrounds, students may experience differential effects based on family educational background. Given concerns of power, I do not test for the possibility of other heterogeneous treatment effects. To test for the effect parental education, I add interactions terms to the fully specified models. For example, to test whether or not the parent intervention had a stronger effect on students from families with different educational backgrounds, I estimate the following model:

$$Y_i = \beta_0 + \beta_1 TREATMENT_i + Ed_i + \beta_2 TREATMENT_i * Ed_i + \gamma X_i + \varepsilon_i$$

where  $Y_i$  is a vector of the various outcomes incorporated into this analysis for student  $i$ ;  $TREATMENT_i$  is the binary indicator for parent treatment status;  $Ed_i$  is a categorical variable

representing parental education level;  $TREATMENT_i * Ed_i$  is an interaction of treatment status and parental education;  $X_i$  is a vector of student-level demographic, socioeconomic, and academic baseline covariates; and  $\varepsilon_i$  is a residual error term. In this model  $\beta_1$  provides an unbiased causal estimate of the impact of the offer to participate in the intervention on students' college outcomes. Given the statistical power of this study, I combine parental education levels into four categories AA degree or BA degree (0), some college (1), high school diploma (2), and some high school or less (3).

### **Survey Attrition, Data, and Measures**

To investigate the effects of the parent intervention, this study employs survey data from both treatment and control students collected during their first and second semesters in college (collected in November 2016 and March 2017, respectively). The survey data from March 2017 will be the focus of this paper. The survey yielded a response rate of 51 percent,<sup>3</sup> resulting in a survey sample of approximately 300 students. With a study like this, which relies on survey data for analysis, the difference in the share of students included in the experimental sample and survey samples represents attrition from the experiment. Attrition can lead to biased estimates of impact if the types of treatment group students who attrited (did not respond to the survey) are systematically different than the type of control group students who attrited in a way that is related to survey measures outcomes.

To analyze attrition in the student survey data, I test whether survey response differs by treatment status. Specifically, I regress a binary variable that equals 1 if a student responded to the survey and 0 if not on treatment status. I find no evidence that the rate of attrition (survey

response) differs between the treatment and control groups (Table 3; see the Appendix for further attrition analyses).

There are two reasons the survey response rate and potential attrition should not affect treatment effects. First, the intervention is not likely to affect who decides to complete the survey because most students were unaware that their parents received messages from ACA. Interviews with a subsample of treatment parents suggest that many parents worked the topics of text messages into regular conversations and did not tell students that these were suggested by ACA. Correspondingly, treatment assignment does not predict whether or not students report that their parents received messages from ACA during the academic year. Since most students are unaware of their treatment status, they are unlikely to feel more or less compelled to complete the survey. Second, if higher academic achievers are more likely to complete the survey and treatment status affects academic success in college, then any effects would be understated. This is because poorer performers and students less engaged with ACA are less likely to be engaged with faculty and staff in college. If they were less likely to complete the survey then they would not bring the control group average down as might be expected. As a result, the sample from the survey is not likely to bias results in a way that would artificially inflate treatment estimates.

Survey respondents differ from non-respondents on important demographic characteristics, which limits generalizability of the survey sample to the overall experimental sample. As Table 3 indicates, compared to non-respondents, survey respondents are disproportionately female, younger, higher academic achievers, and four-year college attendees. Across the experimental sample and survey sample the proportion of students from various racial/ethnic groups is similar.

*[Table 3 about here]*

Table 3 also shows that survey respondents were split between treatment and control group students, with 53.5 percent of the survey sample from the control group and 46.5 percent from the treatment group. Also, the characteristics of the respondents are similar across treatment and control groups, which supports the internal validity of survey measures. There is only one statistically significant difference between treatment and control responders on baseline characteristics—treatment responders had higher rates of ACA attendance in high schools (attending 60.9 percent of classes instead of 53.7 percent in the control group).

Survey respondents answered questions that investigate whether the intervention impacted the content of parent-student conversations, as well as students' attitudes and behaviors related to faculty and staff engagement. Students were asked how often they communicate with their parents and how often they discuss the following college topics: professors, academic advisors, meetings with advisors, relationships with professors outside of class, course assignments, etc. Parental discussions were measured on a five-point Likert scale from *never - always*. Students also reported their attitudes toward engagement, measured on a Likert scale indicating how important it is to talk with and meet with faculty and teaching assistants during college. Students also reported their actual engagement with faculty and staff, measured through how many times students talked to professors, academic advisors, visited the writing center, etc.

Student intent to persist is measured with a question indicating how likely students are to return to college in the fall 2017. Closely related to persistence, student goal and institutional commitment are captured with measures that ask whether students agree or disagree with the statement that they are pleased with their decision to attend college and in particular their current institution. Finally, select models include seven sociodemographic controls: indicator variables

for female students, Latino students, and two-year college attendance, as well as a categorical measure of parental education level and a continuous measure of students' high school GPA.

## **FINDINGS**

Analyses of a fall 2016 survey suggest that while parent-student discussions of academic topics increased for treatment students, student engagement with faculty and staff<sup>4</sup>, and persistence were not affected. This is not surprising given the limited duration of the intervention at the point of the fall survey distribution. At the time of the fall survey, the intervention had been in the field for two to three months. Parents had received an introductory letter and between 4-6 text-sets. Because of these limited effects in the fall, the results presented here focus on the spring 2017 survey, which was administered after the intervention was in the field for more than six months.

To test the fidelity of implementation of the intervention, I first investigate parental discussions with students. Table 4 reports the difference between treatment and control group students' survey responses. As expected, students report that on average they communicate with parents multiple times a day, with most students communicating with their parents between 2-5 times a day. Survey responses show that students in the treatment group are not more likely to talk to their parents than control students, but rather their topics of conversation differ. On average, students in the control group reported they *rarely* discussed their academic advisor, their professors, or relationships with their professors outside of class. Treatment group students reported an increased likelihood of having these conversations with parents. Treatment students show a 13 percent increase in conversations about their academic advisors and a 14 percent increase in conversations about professors and relationships with professors outside of class. The

results are muted, but similar in Model 2, which incorporates academic and demographic covariates. Overall, this intervention generated awareness of important elements of postsecondary institutions among families and students.

[Table 4 about here]

To investigate whether student attitudes toward faculty engagement changed, students were asked about the importance of various types of engagement. The analyses presented in Table 4 show that on average control students think it is *important* to reach out to faculty and teaching assistants. Despite a high degree of agreement with the importance of engagement among the control group, treatment students were still significantly more likely than control students (a 7 percent increase) to report that talking with professors and teaching assistants about academic performance in class is important. Also, while not statistically significant, all other coefficients representing the importance of interacting with faculty are positive, but too small to be statistically significant with this size sample.

The intervention also appears to have had a measureable effect on student behavior. Control group students reported that they interacted with staff 1-2 times during the spring semester. Treatment group students reported approximately 2-3 interactions with staff (a 13 percent increase from the control student average). Finally, treatment students are significantly more likely to report that they plan to attend college in the Fall 2017. This is especially noteworthy given that the control group already reports a high likelihood of persistence—4.6 on a five-point scale (in other words, treatment students experienced a 4 percent increase in persistence above control students who reported they were between *somewhat likely* and *very likely* to persist).

### **Heterogeneous Effects**

The parent intervention also had differential effects on family discussions and student attitudes and behaviors depending on the parental education level of students in the treatment group. More specifically, Table 5 shows that the treatment effects on parental discussions are strongest among treatment students from families with parents who have some college or less than a high school diploma. Students whose parents have some college are approximately one unit more likely to discuss their academic advisor, classes, and professors than students whose parents have a degree (either an AA or BA). For example, among students whose parents have a college degree there is no difference between treatment and control students' discussions about academic advisors, but treatment students from families with some college show a 70 percent increase in discussion about their academic advisor compared to control students. This suggests that while treatment and control students from college educated families discuss these academic topics about *half the time* they talk, control students from some college families report that they discuss these topics slightly more frequently than *rarely* and treatment students discuss these *most of the time* they talk with parents. This pattern is similar among the least advantaged students in the sample (from families with some high school or less). In other words, treatment students from families with less than a high school diploma experience a greater benefit of the treatment than students from families with an AA or BA degree, indicating that this intervention may close gaps in cultural capital between less and more educated families. These interaction analyses suggest that the intervention had the most significant affect on parent-student discussions among treatment families with less experience with higher education.

[Table 5 about here]

Treatment students from the least educated families were also significantly more likely to change their attitudes about faculty engagement than other treatment students. They were more likely than students from families with an AA or BA to report that going to office hours, asking professors and teaching assistants for advice, and developing a relationship with professors, teaching assistants, or staff members is important. More specifically, while treatment students from college educated families reported no change, students from families with less than a high school diploma reported a 10-15 percent increase in how important they rated these various engagement strategies. The treatment also had the largest effect on behavior among students whose parents had some experience with college, who report that they talked to a professor or teaching assistant outside of class 1-2 more times than treatment students whose parents have an AA or BA degree.

Finally, the treatment had a larger effect on institutional commitment, how satisfied students are with their specific college choice, for students whose parents have less than a high school diploma. This is important since institutional commitment often contributes to student persistence. While the interaction coefficients for persistence are larger for students from families with a high school degree or less, they are not statistically significant.

## **DISCUSSION**

While the share of first-generation and low-income students enrolled in higher education has increased over time, they continue to graduate at lower rates and are more likely to leave after the first year than their more advantaged peers (Bowen et al. 2009). Studies of higher education have thus increasingly investigated the knowledge and practices that facilitate successful interaction with social institutions, specifically engagement with faculty and staff—as

a contributor to socioeconomic inequality (often referred to as cultural capital, Lareau 2011). Importantly, students with less college knowledge, often the first in their family to go to college, are less likely to interact with faculty and staff (Jack 2016). In order to encourage socioeconomically disadvantaged students to engage with faculty and staff during college, I developed and evaluated an intervention that targets parents' conversations with students, enlisting parents to prompt and remind students to contact faculty and staff.

The intervention significantly increased the number of conversations between parents and students about college throughout the year, changed student attitudes and induced students to more actively engage with staff in their second semester of college, and positively influenced their intent to persist into their second year of college. This suggests not only that parent-student conversations during college matter, but also that they can have a causal effect on student behavior. This is remarkable given the light-touch character of the intervention, which was administered through letters and text-messages to parents during students' first year of college.

The results of this parent intervention have important implications for practitioners, researchers, and policy-makers interested in student engagement and reducing inequality in college persistence. First, the longer-term assessment of the intervention, provided by the spring 2017 survey, was crucial to understanding the effect this intervention had on first-year college students. The lack of significant changes in student behaviors and persistence in the fall of 2016 and significant changes in the spring of 2017, indicate that this type of intervention may need more than one semester to make an impact. Changing student engagement is likely a longer process.

Second, the positive effects are most pronounced among ACA students whose parents do not have an AA or a BA. Since students whose parents have less experience with higher

education benefit the most it is essential to target these groups in future interventions. These effects are also noteworthy since there appears to be a significantly smaller effect among students from more educated family backgrounds. This type of intervention may serve to partially close the gap between first-generation and continuing generation student engagement.

Especially noteworthy for future intervention research, this study suggests that parents can influence college students' behavior despite their own limited experience with college. While previous research suggested that parents could change high school students' behavior (Bergman 2013; Kraft and Dougherty 2013; Kraft and Rogers 2014), it was unclear to what degree parents could change college students' behavior. The effects reported here are especially surprising given the low-cost, light-touch nature of this intervention. The cost of a year-long parent intervention is approximately \$9,250, which breaks down to nearly \$30 per family. This per-family rate would decrease for larger scale interventions, as texting costs would decline for longer-term and larger-sample programs. This type of intervention could be paired with interventions more common in the higher education context—in which institutions increase outreach to students to raise awareness of available academic services or provide additional academic resources to target groups. For example, the significant increase in parent-student conversations and second-semester effects on faculty/staff engagement, might suggest that persistent, continual prodding is necessary to change student behavior. This could be more effective than previous interventions that use intermittent email and phone prompts to encourage student action (Schwebel et al. 2012). Since the effect of academic support and service interventions is often limited by student engagement with faculty and staff, this parent intervention could provide help at a crucial intervening step. Additional ways to amplify the effects shown here could be to extend the duration of the intervention or add a concrete

component to the intervention. For example, an intervention that combines parental encouragement with models for how students might engage with faculty and staff via email or in-person meetings would likely be more powerful.

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**Table 1: Experimental Sample Summary Statistics**

<b>VARIABLES</b>	<b>Mean</b>	<b>Std. Dev.</b>
Female	0.635	
Age	18.034	0.427
<b>Race</b>		
Latino	0.689	
White	0.077	
African American	0.180	
Other	0.054	
<b>High School Performance</b>		
Junior GPA	3.157	0.526
Class Rank	132.451	95.212
Top 60% of class	0.913	
ACA Attendance <sup>^</sup>	0.534	0.233
<b>Family Background</b>		
First Generation	0.664	
Free/Reduced Price Lunch	0.742	
Language: Parents Prefer English	0.292	
Language: Parents Prefer Spanish	0.256	
<b>College Type</b>		
2-year College	0.308	
4-year College	0.461	
College (not specified)	0.208	

N 617

<sup>^</sup> Rate of attendance at ACA's afterschool college-access classes.

**Table 2: Balance Tests**

<b>VARIABLES</b>	<b>Control Mean</b>	<b>Treatment*</b>
Female	0.645	-0.020
Age	18.020	0.037
<b>Race</b>		
Latino	0.691	-0.005
White	0.084	0.095
African American	0.158	0.045
Other	0.067	-0.027
<b>High School Performance</b>		
Junior GPA	3.174	-0.031
Class Rank	131.800	1.380
Top 60% of class	0.917	-0.009
ACA Attendance <sup>^</sup>	0.522	0.025
<b>Family Background</b>		
First Generation	0.651	0.025
Free/Reduced Price Lunch	0.730	0.023
Language: Parents Prefer English	0.317	-0.050
Language: Parents Prefer Spanish	0.239	0.034
<b>College Type</b>		
2-year College	0.285	0.045
4-year College	0.470	-0.018
College (not specified)	0.228	-0.040
N	309	308

\* The effect of treatment status on pre-treatment covariates. Statistical significance levels: <sup>^</sup>p<.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

<sup>^</sup> Rate of attendance at ACA's afterschool classes.

**Table 3: Survey Attrition, Samples, and Descriptive Statistics**

Test of Differential Attrition	<u>Non-respondents</u>	<u>Respondents</u>		
	0.516	-0.063		
<b>VARIABLES</b>			<b>Respondents</b>	
			<u>Control</u>	<u>Treatment</u>
Female	0.594	0.085*	0.675	0.008
Age	18.100	-0.127***	17.970	0.002
<b>Race</b>				
Latino	0.707	-0.038	0.677	-0.018
White	0.078	-0.002	0.090	-0.030
African American	0.176	0.009	0.161	0.051
Other	0.039	0.031	0.071	-0.003
<b>High School</b>				
Junior GPA	3.010	0.284***	3.246	0.087
Class Rank	159.800	-51.396***	111.700	-7.431
Top 60% of Class	0.890	0.045^	0.929	0.013
ACA Attendance^	0.500	0.070***	0.537	0.072**
<b>Family Background</b>				
First Generation	0.640	0.047	0.688	-0.004
Free/Reduced Price Lunch	0.717	0.049	0.766	-0.002
Language: Parents Prefer English	0.261	0.064^	0.352	-0.057
Language: Parents Prefer Spanish	0.233	0.049	0.264	0.038
<b>College Type</b>				
2-year College	0.332	-0.049	0.285	-0.004
4-year College	0.365	0.194***	0.544	0.031
College not specified	0.266	-0.118***	0.165	-0.035
N	318	299	160	139
Response Rate		50.94%		

Notes: The test of differential attrition was calculated by regressing a binary variable equal to one if a student responded to the survey on treatment status, to determine if treatment assignment could predict survey response. Column 2 of the test of differential attrition shows the proportion of non-respondents who are in the treatment group. Column 3 shows the difference difference between survey non-respondents and respondents.

The response rate was calculated based on the available contact information for the experimental sample during survey outreach (N=587).

Individual regression analyses omit students who are missing data.

Statistical significance levels: ^p<.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

**Table 4: Effect of Treatment Assignment on Parent-Student Discussions, Student Attitudes, & Behaviors**

	Control Mean	Treatment Effects	
		Model 1	Model 2
<b>Parent-Student Discussions</b>			
How frequently do you communicate with your parents via text, phone, email, etc.? <i>Scale from 1-8: Not at all (1), A few times a month (2), Once a week (3), A few times a week (4), Once a day (5), 2-3 times a day (6), 4-5 times a day (7), Every 2hrs or more (8).</i>	5.447	0.045	0.059
How often do you talk about: <i>Scale from 1-5: Never (1), Rarely (2), About half the time (3), Most of the time (4), Always (5).</i>			
Academic services (e.g., tutoring/writing center)	2.182	0.241	0.221
Your academic advisor	2.047	0.260 <sup>^</sup>	0.272 <sup>^</sup>
Meetings with your academic advisor	2.159	0.187	0.167
Your classes	3.418	0.067	0.026
Studying/preparing for class	3.200	0.154	0.112
Class assignments	2.929	0.155	0.115
Your professors	2.347	0.322 <sup>*</sup>	0.288 <sup>^</sup>
Your relationships with professors outside of class	1.970	0.284 <sup>*</sup>	0.244 <sup>^</sup>
<b>Student Attitudes</b>			
While in college, how important is it that students do the following? <i>Scale from 1-5: Not at all important (1), Not very important (2), Somewhat important (3), Important (4), Very important (5).</i>			
Talk with prof./TAs during class.	3.771	0.122	0.114
Talk with prof./TAs about academic performance in class.	3.906	0.257 <sup>*</sup>	0.248 <sup>*</sup>
Talk with prof./TAs one-on-one outside of class.	3.853	0.124	0.112
Go to a prof./TAs office hours.	3.947	0.169	0.136
Ask professors, TAs, or staff for advice.	4.047	0.085	0.080
Develop a relationship with a prof., TA, or staff member.	3.924	0.123	0.087
<b>Student Behaviors</b>			
In college this semester (Spring 2017), how many times have you: <i>0, 1, 2-3 times (2), 4-5 times(3), 6 or more (4).</i>			
Talked to a professor or TA outside of class?	1.918	0.152	0.150
Talked to an academic advisor?	1.965	-0.042	-0.036
Talked to other staff?	1.659	0.218	0.220 <sup>^</sup>
Visited the academic support center?	1.339	0.161	0.134
Visited the writing center?	0.906	-0.162	-0.151
<b>Student Intent to Persist</b>			
I will attend college next Fall 2017.†	4.647	0.199 <sup>*</sup>	0.178 <sup>*</sup>
I am pleased with decision to go to college.††	5.324	0.092	0.082
I am pleased with decision to go to <i>this</i> college. ††	5.024	0.015	0.002
<b>Model Inclusions:</b>			
Controls			<b>YES</b>
<b>Sample Size</b>	300	300	300

Controls: female, indicator for Latino, parental education level, student high school GPA, indicator for 2-yr college attendance.

Notes: The coefficient terms come from separate regressions. I estimated a different model for each survey outcome of interest.

Statistical significance levels: <sup>^</sup>p<.10; <sup>\*</sup>p<0.05; <sup>\*\*</sup>p<0.01; <sup>\*\*\*</sup>p<0.001

† Scale from 1-5: Very unlikely (1), Somewhat unlikely (2), Undecided (3), Somewhat likely (4), Very likely (5).

†† Scale from 1-6: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Somewhat agree (4), Agree (5), Strongly agree (6).

**Table 5: Heterogeneity of Treatment Effects**

	<b>Interaction Effect Estimates</b>		
	<i>Treatment X Parental Education (ref: AA or more)</i>		
	Some College	HS Diploma	HS or Less
<b>Parent-Student Discussions</b>			
How frequently do you communicate with your parents via text, phone, email, etc.? <i>Scale 1-8: Not at all (1), A few times a month (2), Once a week (3), A few times a week (4), Once a day (5), 2-3 times a day (6), 4-5 times a day (7), Every 2hrs or more</i>	0.114	-0.330	0.356
How often do you talk about:			
<i>Scale 1-5: Never (1), Rarely (2), About half the time (3), Most of the time (4), Always (5).</i>			
Academic services (e.g., tutoring/writing center)	0.615	0.226	0.242
Your academic advisor	1.301***	0.434	0.439
Meetings with your academic advisor	0.816**	0.351	0.257
Your classes	0.928**	0.078	0.972**
Studying/preparing for class	1.064**	0.641	1.046**
Class assignments	0.816*	0.170	1.070***
Your professors	0.931**	0.483	1.074**
Your relationships with professors outside of class	1.122**	0.354	0.371
<b>Student Attitudes</b>			
While in college, how important is it that students do the following?			
<i>Scale 1-5: Not at all important (1), Not very important (2), Somewhat important (3), Important (4), Very important (5).</i>			
Talk with prof./TAs during class.	-0.644	0.019	0.353
Talk with prof./TAs about academic performance in class.	0.306	0.185	0.323
Talk with prof./TAs one-on-one outside of class.	0.371	0.530	0.444
Go to a prof./TAs office hours.	0.279	0.315	0.692**
Ask professors, TAs, or staff for advice.	-0.283	0.191	0.609**
Develop a relationship with a prof., TA, or staff member.	0.583	-0.068	0.594*
<b>Student Behaviors</b>			
In college this semester (Spring 2017), how many times have you:			
<i>0, 1, 2-3 times (2), 4-5 times(3), 6 or more (4).</i>			
Talked to a professor or TA outside of class?	1.258***	0.728	0.425
Talked to an academic advisor?	0.489	0.120	-0.370
Talked to other staff?	0.736	0.007	0.421
Visited the academic support center?	0.539	0.116	0.262
Visited the writing center?	0.227	-0.232	-0.363
<b>Student Intent to Persist</b>			
I will attend college next Fall 2017. †	-0.469	0.233	0.240
I am pleased with decision to go to college. ††	-0.018	0.333	0.302
I am pleased with decision to go to <i>this</i> college. ††	0.175	0.340	0.557*
<b>Model Inclusions:</b>			
Controls	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>Sample Size</b>	259	259	259

Controls: female, indicator for Latino, parental education level, student high school GPA, indicator for 2-yr college attendance.

Notes: Each row represents coefficients from the same regression. Each survey outcome is estimated in an individual regression.

Statistical significance levels: ^p<.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

† Scale 1-5: Very unlikely (1), Somewhat unlikely (2), Undecided (3), Somewhat likely (4), Very likely (5).

†† Scale 1-6: Strongly disagree (1), Disagree (2), Somewhat disagree (3), Somewhat agree (4), Agree (5), Strongly agree (6).

**Appendix: Results of Attrition Analysis**

I found no evidence that the rate of attrition or the characteristics of respondents differed between the treatment and control groups (see Table 3). However, additional interaction analyses in Table 1A suggest modest evidence that the treatment and control group attriters vary systematically. As Table 1A illustrates, more students with high academic performance and high ACA attendance during high school left the treatment group than the control group in the survey data. (In other words, higher academic achievers are over-represented among the control group of survey respondents.)

To assess the direction of potential bias driven by differential attrition in the surveys, I examine whether or not HS GPA or ACA attendance is correlated with survey outcomes. First, I estimate a set of models in which I regress survey outcomes on a continuous variable that represents student HS GPA. I then repeat the process estimating models using a continuous measure of student ACA attendance.

Among all of the outcome measures (see Table 4), I find no relationship between ACA attendance and survey outcomes. There are several outcomes for which there is a significant relationship between HS GPA and survey measures (see Table 2A). Student HS GPA is negatively related to discussions with parents. High school GPA also positively predicts how important students think it is to ask faculty/staff for help or develop a relationship with them, however it is negatively related to whether students visit an academic support center. These results suggest that differential attrition may bias the effects of the parent intervention in the following ways: First, the effect of the treatment on parent-student discussions may be upwardly biased – true effects could be smaller. Second, the treatment effect of student attitudes toward professors may be downwardly biased – true effects could be greater. Third, student discussions

with professors outside of class may be downwardly biased, while student visits to the academic support center and the writing center may be upwardly biased. Finally, there is likely no bias on measures of student intent to persist.<sup>5</sup>

**Table 1 Appendix: Differential Effects of Treatment Status on Attrition****VARIABLES**

Female x Treatment Status	0.045
Age x Treatment Status	-0.003
<b>Race</b>	
Latino x Treatment Status	-0.022
White x Treatment Status	-0.113
African American x Treatment Status	0.012
Other x Treatment Status	0.285
<b>High School</b>	
Junior GPA x Treatment Status	0.180*
Class Rank x Treatment Status	0.000
Top 60% of Class x Treatment Status	0.106
ACA Attendance <sup>^</sup> x Treatment Status	0.391*
<b>Family Background</b>	
First Generation x Treatment Status	-0.074
FRPL x Treatment Status	-0.072
Parents Prefer English x Treatment Status	-0.019
Parents Prefer Spanish x Treatment Status	-0.005
<b>College Type</b>	
2yr College x Treatment Status	-0.102
4yr College x Treatment Status	0.070
College not specified x Treatment Status	0.015

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Statistical significance levels: <sup>^</sup>p<.10; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Table 2 Appendix: Student HS GPA Predicting Survey Outcomes****Parent-Student Discussions**

How frequently do you communicate with your parents via text, phone, email, etc.??*	-0.434^
How often do you talk about:	
Academic services (e.g. tutoring/writing center)	-0.459*
Your academic advisor	-0.386*
Meetings with your academic advisor	-0.277^
Your classes	--
Studying/preparing for class	--
Class assignments	--
Your professors	--
Your relationships with professors outside of class	--

**Student Attitudes**

While in college, how important is it that students do the following?	--
Talk with prof./TAs during class.	--
Talk with prof./TAs about academic performance in class.	--
Talk with prof./TAs one-on-one outside of class.	--
Go to a prof./TAs office hours.	--
Ask professors, TAs, or staff for advice.	0.324*
Develop a relationship with a prof., TA, or staff member.	0.285*

**Student Behaviors**

In college this semester (Spring 2017), how many times have you:	
Talked to a professor or TA outside of class?	0.423*
Talked to an academic advisor?	--
Talked to other staff?	--
Visited the academic support center?	-0.466*
Visited the writing center?	-0.395**

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Note: Dashes indicate insignificant coefficients.

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<sup>1</sup> Since all outcome measures consist of Likert scales, I also estimate logit and multinomial logit models to check the robustness of OLS analyses. Supplemental analyses show similar patterns as the OLS estimates reported here. OLS estimates are presented for ease of interpretation. Multinomial logit analyses are available from author upon request.

<sup>2</sup> Due to the small sample size coefficients that reach a  $p < .10$  indicate significant effects.

<sup>3</sup> This percentage only includes students for whom contact information was available.

<sup>4</sup> The measure of behavior used in the fall survey was relatively coarse. A more nuanced measure was developed for the spring 2017 survey.

<sup>5</sup> If parents in the treatment group shared texts with parents in the control group, then results are likely biased. I am unable to test for experimental contamination; however, this type of contamination would negatively bias estimates, therefore, the estimates reported here can be viewed as lower-bound estimates of the effects of the parent intervention.