EVALUATION OF AUSTIN COMMUNITY COLLEGE'S STRENGTHENING INSTITUTIONS PROGRAM GRANT

ANNUAL OUTCOMES AND IMPACTS REPORT 2020

RAY MARSHALL CENTER FOR THE STUDY OF HUMAN RESOURCES

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TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF CHARTS

INTRODUCTION

OVERVIEW

Austin Community College (ACC) received a $1.7 million Strengthening Institutions Program (SIP) grant from the U.S. Department of Education (DOE) in 2015 to develop programs to help students understand smart money management and college financing. The grant, "Achieving Student Success through Financial Aid Education and Financial Literacy", funded initiatives to teach students about money management and to help the ACC community understand the connection between students' academic and financial goals. The target population for ACC's initiatives for the SIP grant was all first-time in college (FTIC) credential seeking students.

Through this grant, ACC established the Student Money Management Office (SMMO) whose mission is to support Austin Community College student success by providing accessible and relevant money management education, enabling students to make informed financial decisions. SMMO's activities included text message alerts about financial aid requirements and deadlines, financial literacy workshops for students, professional development for faculty and staff, outreach and awareness campaigns for students, creation of an online presence using various social media platforms, and enhancements to the online Degree Map planning tool to provide personalized real-time financial aid information.

ACC hoped to demonstrate that the activities of SMMO were linked to improvements in measures of student success such as retention rates, credential attainment rates, and cohort loan default rates. ACC partnered with the Ray Marshall Center (RMC), an organized research unit in the LBJ School of Public Affairs at The University of Texas, to perform an impact evaluation of the effectiveness of SMMO's activities on the student outcome measures of interest, as well as an implementation evaluation.

EVALUATION DESIGN

Outcomes analysis

The ACC SIP grant was expected to lead to several significant and measurable outcomes. The Ray Marshall Center documented and analyzed these outcomes by assembling data on key outcomes over the evaluation period. The goal was to provide actionable information about the success of the

intervention while each successive cohort of recipients was in the process of receiving services, allowing for relatively rapid reflection and program modification as needed by ACC staff.

Impact analysis

The impact analysis was designed to address the question: what impact did grant-funded activities have on key student outcomes? The main goal of the impact analysis was attribution – isolating the effect of the grant-funded activities from other factors and potential selection bias. The main challenge of any impact analysis is to determine what would have happened to program participants if the program had not existed (i.e. the counterfactual). While a program's impact can truly be assessed only by comparing the actual and counterfactual outcomes, the counterfactual is not observed. Without information on the counterfactual, the next best alternative is to compare outcomes of program participants with those of a comparison group of non-participants. Successful impact analyses hinge on finding a good comparison group (Khandker et al., 2010).

The Ray Marshall Center used a quasi-experimental evaluation methodology to estimate the impacts of the ACC SIP grant on key outcomes. A quasi-experimental design was appropriate since the program did not lend itself to a random assignment evaluation. Recent research has demonstrated that, when carried out under the right conditions, quasi-experimental estimation produces impact estimates that are similar in direction and magnitude to those resulting from more expensive and intrusive experimental (random assignment) evaluation methods. Using this methodology, outcomes for the treatment group that received the intervention were compared to the outcomes for the comparison group that did not receive the intervention. Differences in outcomes between the two groups can be understood as the effect of the treatment. The evaluation team also used propensity score matching (PSM) to identify statistically similar matches from the comparison group pool for the treatment group.

REPORT ORGANIZATION

This report examines the outcomes and impacts of grant-funded activities throughout the four-year grant period. The following chapter of the report describes the participants served by the grant and examines participation patterns. The next chapter presents findings from the outcomes analysis, followed by a chapter outlining the impact analysis approach and impact findings. The report concludes with a chapter summarizing key findings and recommendations.

PROGRAM DESCRIPTION

TEXT MESSAGING INTERVENTIONS

Background

Text messaging campaigns were the central component of SMMO's strategy to support students to be successful at ACC. Low-cost, technological solutions such as text-based outreach have shown promise for supporting students in overcoming barriers that hinder college enrollment, persistence, and completion (Castleman & Page, 2015; Barr et al., 2016; Castleman & Page 2016; Bird et al., 2017). Castleman & Page found that college-intending high school graduates who were randomly assigned to receive text message reminders about important college and financial aid tasks required for successful matriculation were substantially more likely to enroll in college than students who did not receive the text messages (Castleman & Page, 2015). Castleman & Page also found large and positive effects of a financial aid text message campaign on the continued college persistence of first-year students at community colleges - students who were initially enrolled in a community college and who received the text messages were nearly 12 percentage points more likely to persist into the fall of their sophomore year of college compared to community college freshmen who did not receive the texts (Castleman & Page, 2016). Barr, Bird & Castleman found that a text messaging campaign that prompted loan applicants at a large community college to make informed and active borrowing decisions led students to reduce their unsubsidized loan borrowing (Barr et al., 2016). SMMO adopted best practices from this prior research to implement text messaging interventions using Signal Vine's two-way text messaging platform.

Implementation

2016-17 school year

SMMO began implementing its text messaging intervention with two pilots in the 2016-2017 school year. Students were recruited to participate via presentations made in Area of Study (AOS) sessions. The Area of Study sessions were required of all incoming students with fewer than 12 college-credit hours. In-person sessions were conducted by ACC academic advisors and virtual sessions were available for students unable to come to campus. The AOS information sessions introduced students to advisors and representatives from their area of study who presented an overview of programs and information relevant to the students' chosen area. At the in-person sessions, advisors were asked to give

students the opportunity to opt-in to receiving text messages by signing a one-page paper consent form. The consent form collected the students' names, cell phone number, institutional identification number, and their consent to receive text messages. AOS sessions occurred before registration and could occur as early as July for the following fall semester, resulting in a significant lag time between the time the student consented to receive texts and the time the student received the first text. Some students who attend an AOS session may also have failed to later register.

The first text message sent to each student asked each student to confirm their interest in receiving the text messages. This process eliminated inactive numbers and established the students' continued interest in receiving the messages. In the 2016-2017 school year, students received approximately one text per week throughout the semester. Text messages included reminders about payment deadlines, registration reminders, notices of job fairs, and general tips for managing finances.

2017-18 school year

The system for rolling out the 2017-2018 school year's text messaging campaign began with reconfirming student interest. Returning students from the Spring 2017 pilot groups were contacted to confirm consent to receiving text messages in the fall. New incoming students were again recruited through the AOS sessions. Students who opted-in received up to 18 messages covering nine topics relevant to financial wellbeing: tuition payment and financial aid deadlines, scholarship opportunities, when class registration opened, ACC's job board, a financial education program platform for tracking student loans, applications for the peer money mentor program, a link to an instructional video on completing the application for financial aid, and workshops on transferring to a four-year college or university.

During the Fall 2017 semester, SMMO implemented A/B testing of messages to determine what message characteristics result in greater student responses. The first A/B test evaluated different times for sending messages and determined that future messages should be sent between 10 a.m. and 8 p.m. The time frame for the Signal Vine system to distribute the text messaging for a large group is four hours and staff discovered that students had no concerns with receiving text messages from school up to 11:30 p.m. SMMO staff also tracked student clicks on web links provided in text messages and found that enhancements such as including the student name, sender name, providing a link to something specific (such as a specific grant rather than a general information site), and adding a picture all received more clicks on the identified link than those that did not include these enhancements.

Additional efforts to gain insight into student preferences regarding text messages from their college included a student survey and in-depth interviews of randomly selected ACC students. The survey presented three variations of each potential text message and asked students to identify the text message style to which they would be most likely to respond. Students were most likely to respond to text messages that included a salutation, such as, "Hey [Name]" and messages that identified the sender, such as, "It's Karen from ACC." Also, the majority of respondents preferred text messages that used formal language instead of text slang and preferred links to information sites over referrals to support services. The in-depth interviews of randomly selected ACC students reinforced the findings that students preferred the recipient's name, sender's name, and institution to be included in text messages to establish "trustworthiness and familiarity." Students also preferred the use of an exclamation point to a period at the end of a sentence and expressed annoyance at the use of slang or abbreviations in professional text messages. Most students approved of embedded hyperlinks in text messages (Taylor & Serna, 2020).

2018-19 school year

In Spring 2019, a new ACC Administrative Rule was institutionalized that allowed departments interested in sending text messages to students to use the ACC Colleague student information data management system to access student phone numbers to text students without receiving prior written consent. The Rule required that the initial text must include a clear opt-out option and alleviated the demands of seeking paper consent forms. Eliminating the demands of manual data entry, the Rule lowered the risk of error in transcribing phone numbers into the system, eliminated the lag between the time students sign consent forms, and the time students receive their first texts.

Students who opted-in received a series of messages from February 12 through May 14. A key innovation to this series of text messages was the introduction of a follow-up text sent the day after the initial opt-in text messages were sent. SMMO reported that the follow-up text increased the overall response rate by 40 percent.

2019-20 school year

Recruitment and content remained the same as the 2018-19 year with minor changes following campus closures in Spring 2020 due to COVID-19. All changes were related to students being unable to access on-campus services.

PARTICIPANT CHARACTERISTICS

TARGET POPULATION

Grant implementation began in 2016; thus, the target population comprised of FTIC credential seeking students who entered ACC in Fall 2016 or later. RMC received data for the Fall 2016, Fall 2017, Fall 2018, and Fall 2019 cohorts. Demographic characteristics for the students in these cohorts are presented in Figure 1. The target population had an equal number of males and females. Nearly half of the target population were Hispanic, while over a third were White, and less than a tenth were Black. Less than half were attending college full-time. More than a third were required to take one or more developmental education classes. Nearly half were Pell-eligible. Over the four-year grant period, the proportion of students required to take one or more developmental education classes has decreased from 40 percent in 2016 to 33 percent in 2019.

Figure 1. Demographic characteristics of the target population
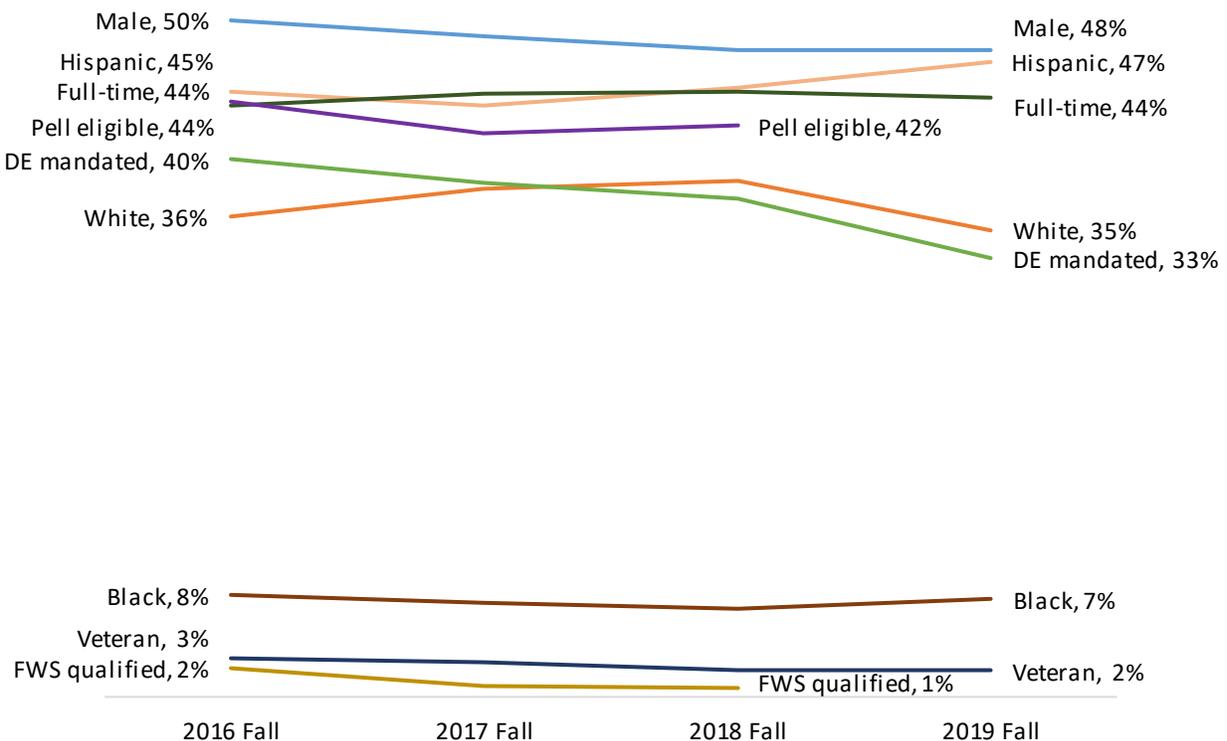
Note: DE mandated indicates students required to take developmental education. FWS qualified indicates student qualified for Federal Work Study funds.

TEXT MESSAGING PARTICIPATION PATTERNS

Overall, SMMO has seen a steady increase in the number of FTIC students served by the text messaging intervention. In the first year of the SIP grant, the 2016-2017 school year, SMMO piloted text messaging interventions and served 1,094 FTIC students (21 percent of the 2016 FTIC cohort). By the final year of the SIP grant, the 2019-2020 school year, SMMO had doubled that number, serving 1,972 students (39 percent of the 2019 cohort).

Figure 2. Students served by the SMMMO text messaging intervention

| 2016 FTIC cohort | 2017 FTIC cohort | 2018 FTIC cohort | 2019 FTIC cohort |
| 1094 | 1270 | 1460 | 1972 |
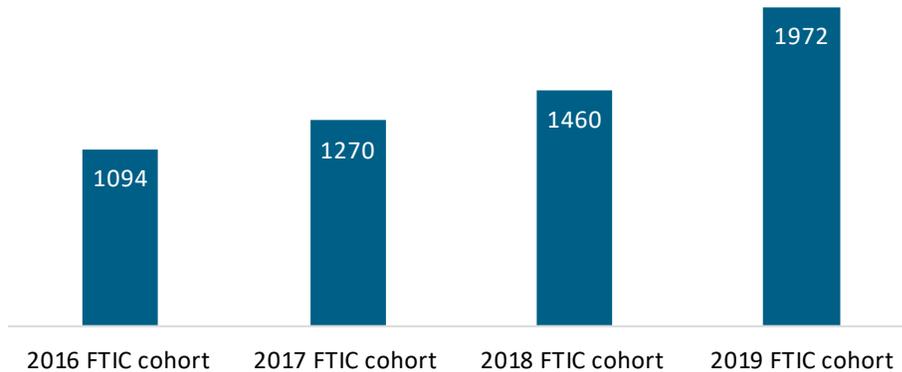
Recruitment

Beginning with the pilot in the Fall 2016 semester and continuing through the Fall 2017 semester, student consent to receive text messages was primarily collected through the area of study sessions. Using these recruitment methods, about a third of students in the 2016 and 2017 cohorts were invited to participate in the text messaging intervention. In Fall 2018, area of study sessions were more frequently offered online. The opportunity to receive texts from SMMO was still offered to students in the online sessions, but very few students returned consent forms. Because so few sessions were in person, SMMO stopped training advisors on recruiting students to participate. As a result, only 12 percent of the 2018 cohort was invited to participate in the text messaging intervention in the Fall 2018 semester. However, this diminished outreach was not a concern as SMMO was anticipating expanded access to students in the following Spring semester due to the new Administrative Rule.

In Spring 2019, the new ACC Administrative Rule was institutionalized that allowed departments interested in sending text messages to use the ACC Colleague student information data management system to access student phone numbers to text students without receiving prior written consent. As a result, SMMO was able to invite nearly two-thirds (65 percent) of the 2018 cohort to participate in the

text messaging intervention in Spring 2019. The following year, 57 percent of the 2019 cohort were invited to participate in the text messaging intervention in Fall 2019. Overall, SMMO doubled the number of students contacted.

Figure 3. Proportion of students recruited for the SMMMO text messaging intervention

	2016 FTIC cohort	2017 FTIC cohort	2018 FTIC cohort - Fall 2018 semester	2018 FTIC cohort - Spring 2019 semester	2019 FTIC cohort
Did not receive texts	66%	67%	88%	35%	43%
Received texts	34%	33%	12%	65%	57%

■ Received texts ■ Did not receive texts
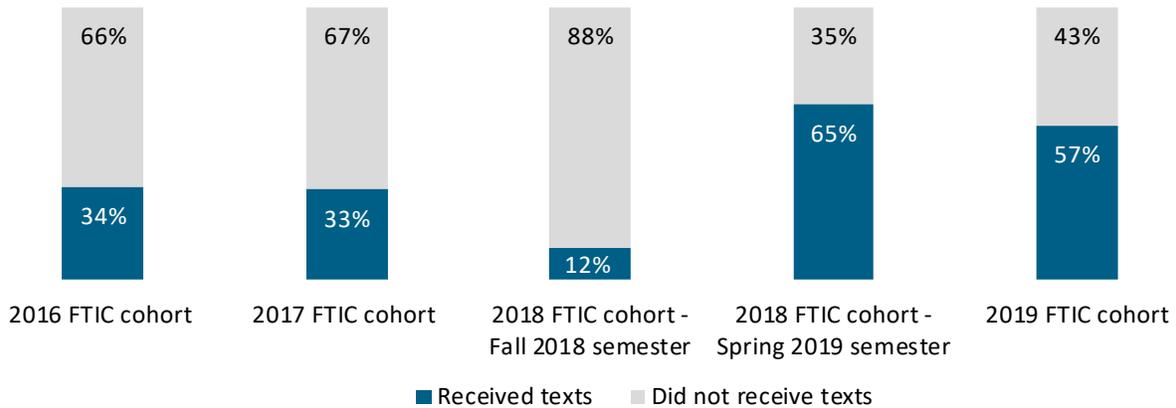
Figure 4. Number of students recruited for the SMMMO text messaging intervention

2016 FTIC cohort	2017 FTIC cohort	2018 FTIC cohort - Fall 2018 semester	2018 FTIC cohort - Spring 2019 semester	2019 FTIC cohort
1,768	1,624	600	2,594	2,976
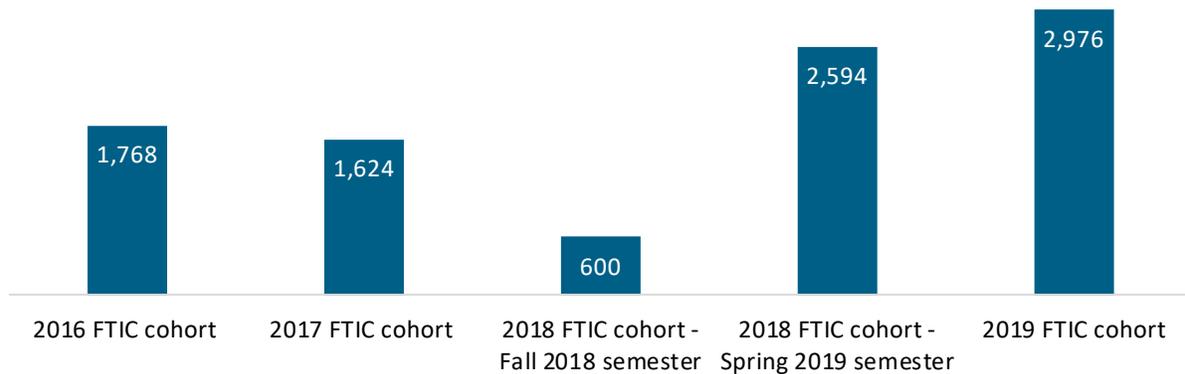
Opt-out rates

In the first year of implementation, opt-out rates were high. Of the 1,768 students in the 2016 cohort who were invited to participate, 38 percent opted out. Reasons for the high opt-out rate included errors in transcribing phone numbers into the text messaging system as well as the lag between the time students signed consent forms and the time students received their first texts. Over the next year, SMMO implemented multiple strategies aimed at reducing the opt-out rates, with some success. Of the 1,624 students in the 2017 cohort who were invited to participate, only 22 percent opted out.

Due to the institutionalization of the new ACC Administrative Rule in Spring 2019, SMMO was

able to contact students directly without seeking paper consent forms. While this rule had the significant benefit of doubling the number of students that SMMO could contact, the rule also contributed to a higher opt-out rate since students were being essentially "cold-called". SMMO staff reported that since students were not primed to receive the texts, many students questioned the validity of the texting campaign, responding with questions and comments such as "*If you're from ACC, tell me where your office is*". These concerns about the legitimacy of the text messages likely impacted the opt-out rate. Of the 2,594 students in the 2018 cohort who were invited to participate in Spring 2019, 44 percent opted out.

SMMO staff made a small but significant change to their recruitment campaign for the next cohort. SMMO out an email to students on the same day as the initial text; the email alerted the students that they would be receiving a text from SMMO and assured students that the text was legitimate. Notably, the opt-out rate fell significantly - of the 2,976 students in the 2019 cohort who were invited to participate in the Fall 2019 semester, only a third opted out.

Figure 5. Opt-out rates

| 2016 FTIC cohort | 2017 FTIC cohort | 2018 FTIC cohort | 2019 FTIC cohort |

■ Opted in ■ Opted out
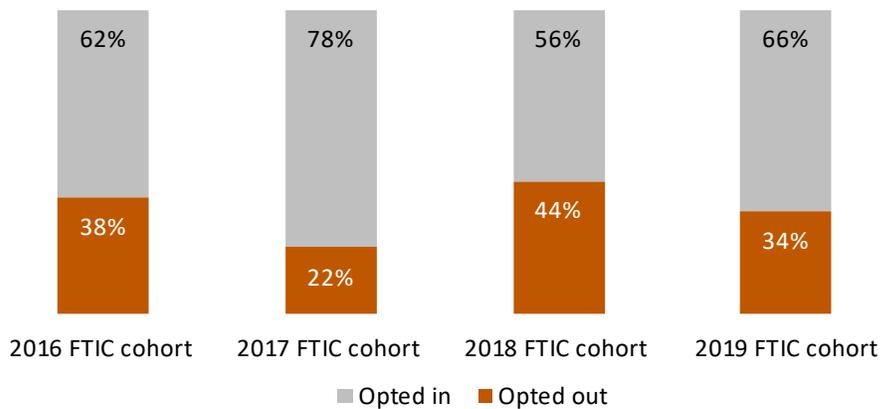
In the Spring 2018 semester, SMMO also reached out to students who had received texts in the Fall 2017 semester and asked them to opt in to receiving texts in the Spring semester. The opt-in rate for the Spring semester was very high (92 percent), suggesting that students appreciated the texts they received in their Fall semester and were agreeable to receiving texts in the Spring semester.

PROGRAM OUTCOMES

Key outcomes for the grant are retention rates, graduation rates, time to completion, and cohort loan default rates. In each section below, we begin (where feasible) by examining the trends in outcomes over the last decade. Next, we focus only on FTIC credential seeking students who entered ACC in Fall 2016, Fall 2017, Fall 2018, and Fall 2019. Students in these cohorts were the target population for the text messaging interventions implemented by SMMO through the ACC-SIP grant. Students who opted in and received the text messages are included in the treatment group. We compare outcomes for these students to the outcomes for our comparison group of students who did not receive the texts. Each cohort is analyzed separately since the text messaging intervention and recruitment methods evolved over the years.

GPA

Data suggests that students who received text messages from SMMO had first-semester (i.e. Fall semester) GPAs and first-year GPAs very similar to students who did not receive the text messages.[1]

Table 1. GPA, by intervention status

Fall GPA	Comparison group	Treatment Group
2016 FTIC cohort	n/a	n/a
2017 FTIC cohort	2.7	2.8
2018 FTIC cohort	n/a	n/a
2019 FTIC cohort	2.8	2.7
First-year GPA	Comparison group	Treatment Group
2016 FTIC cohort	2.8	2.7
2017 FTIC cohort	2.7	2.7
2018 FTIC cohort	2.8	2.7
2019 FTIC cohort	n/a	n/a

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[1] We do not examine Fall GPA for the 2016 and 2018 cohorts since they received the text messaging interventions in the spring semesters. We are unable to examine first-year GPA for the 2019 cohort due to the lag in data available to us.

FALL-TO-SPRING RETENTION RATES

First-semester i.e. fall-to-spring retention rates for FTIC credential seeking students at ACC have steadily increased over the last decade: 79 percent of students who entered ACC in Fall 2018 returned to ACC the following spring, compared to 76 percent of students who entered in Fall 2015 and only 72 percent of students who entered in Fall 2011, a seven percentage point increase over seven years. Fulltime students consistently have higher fall-to-spring retention rates than part-time students. Data suggests that students in the 2017 cohort who received text messages from SMMO in their first fall semester returned to ACC the following spring at slightly higher rates than students who did not receive the text messages.[2]

Figure 6. First-semester retention rates
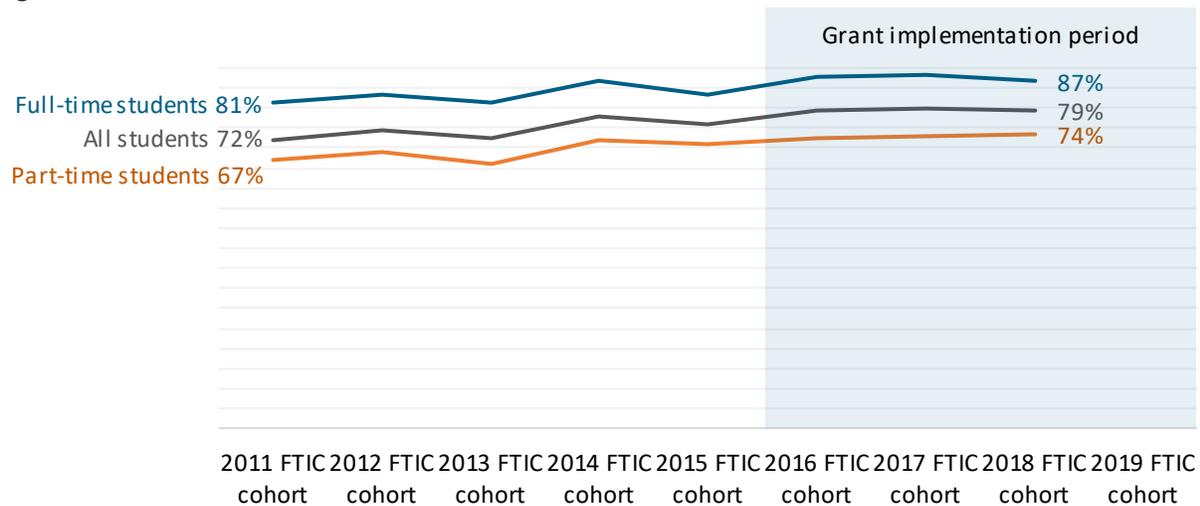
Table 2. Fall-to-spring retention rates, by intervention status

Fall-to-spring retention for all students	Comparison group	Treatment Group
2016 FTIC cohort	n/a	n/a
2017 FTIC cohort	78%	84%
2018 FTIC cohort	n/a	n/a
2019 FTIC cohort	n/a	n/a

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[2] We do not examine fall-to-spring retention rates for the 2016 and 2018 cohorts since they received the text messaging interventions in the spring semesters. We are unable to examine fall-to-spring retention rates for the 2019 cohort due to the lag in data available to us.

FALL-TO-FALL RETENTION RATES

In the baseline report, we noted that first-year i.e. fall-to-fall retention rates for FTIC credential seeking students at ACC had steadily increased from Fall 2011 to Fall 2014 (Patnaik 2017). We find that this trend has continued: 56 percent of students who entered ACC in Fall 2018 returned to ACC the following fall, compared to 51 percent of students who entered in Fall 2014 and only 47 percent of students who entered in Fall 2011, a nine percentage point increase over seven years. Fulltime students consistently have higher fall-to-fall retention rates than part-time students.

Figure 7. First-year retention rates
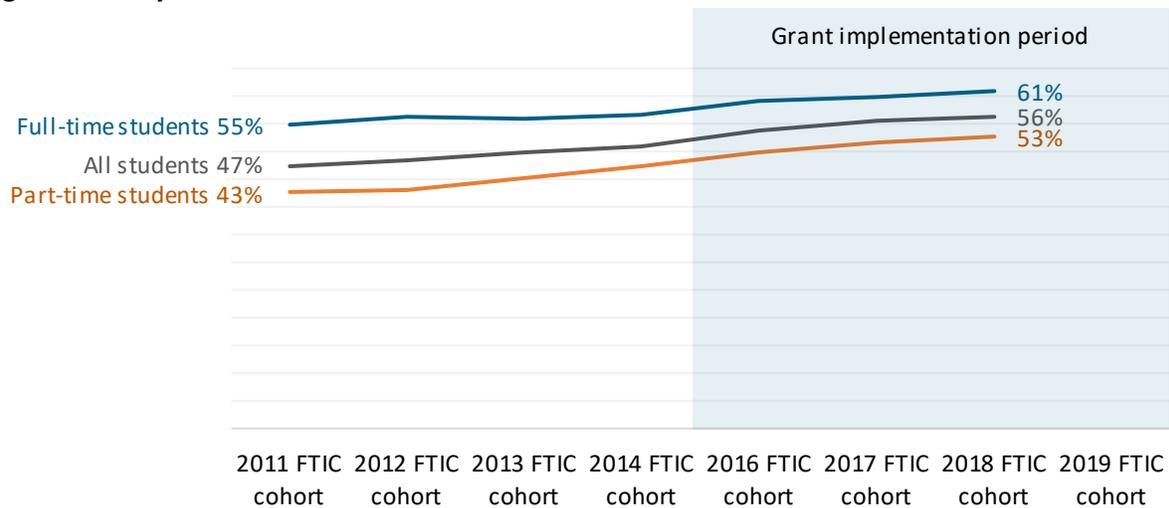
Data suggests that a little less than two-thirds of students in the 2017 cohort who received text messages from SMMO in their first fall semester returned to ACC the following fall, compared to about half of students who did not receive the text messages. Nearly three-quarters of students in the 2016 and 2018 cohorts who received text messages from SMMO in their first spring semester returned to ACC the following fall, compared to less than two-thirds of students who did not receive the text messages. The higher retention rates for both the treatment and the comparison groups in the 2016 and 2018 cohorts are to be expected since the text messaging interventions were implemented in the spring semesters and students enrolled in the spring semester have already demonstrated a commitment to staying in college.[3]

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[3] We are unable to examine fall-to-fall retention rates for the 2019 cohort due to the lag in data available to us.

Figure 8. First-year retention rates, by intervention status

2016 FTIC cohort, 62% ⬤ ⬤ 69%

2017 FTIC cohort, 53% ⬤ ⬤ 62%

2018 FTIC cohort, 62% ⬤ ⬤ 73%

⬤ Comparison group   ⬤ Treatment Group
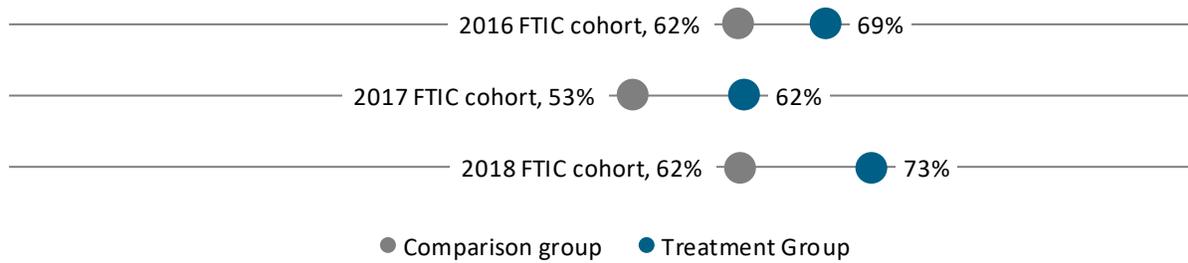
FAFSA REFILING RATES

We examined FAFSA refiling rates for all returning sophomores who had filed a FAFSA in their freshman year. At ACC, approximately 1,800 students in each cohort filed a FAFSA in their freshman year and returned to ACC in their sophomore year. FAFSA refiling rates for returning sophomores at ACC have remained fairly steady over the past several years, with about three-quarters of returning sophomores refiling their FAFSA.

Figure 9. FAFSA refiling rates for returning sophomores

Grant implementation period

All students 78%   74%

2011 FTIC cohort | 2012 FTIC cohort | 2013 FTIC cohort | 2014 FTIC cohort | 2016 FTIC cohort | 2017 FTIC cohort | 2018 FTIC cohort | 2019 FTIC cohort
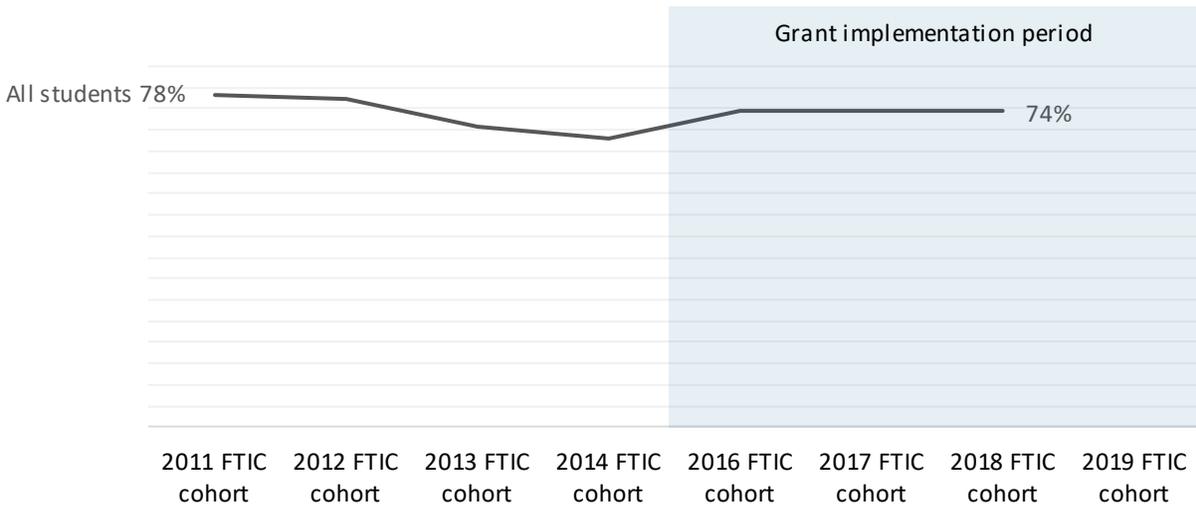
Data suggests that returning sophomores who received text messages from SMMO refiled FAFSA at slightly higher rates than returning sophomores who did not receive the text messages.[4]

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[4] We are unable to examine FAFSA refiling rates for the 2019 cohort due to the lag in data available to us.

Figure 10. FAFSA refiling rates for returning sophomores, by intervention status

2016 FTIC cohort, 75% ● ● 78%

2017 FTIC cohort, 74% ● ● 76%

2018 FTIC cohort, 73% ● ● 78%

● Comparison group   ● Treatment Group
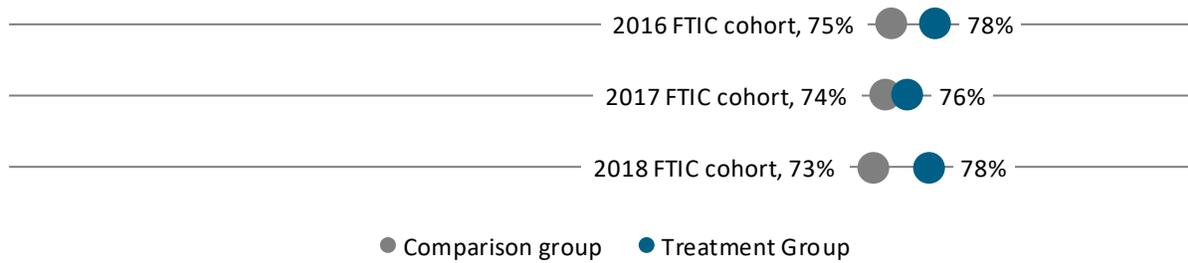
We also examined new FAFSA filing rates for all returning sophomores who did not file a FAFSA in their freshman year. At ACC, approximately 900 students in each cohort did not file a FAFSA in their freshman year and returned to ACC in their sophomore year. New FAFSA filing rates for returning sophomores at ACC have remained fairly steady over the past several years, with about a tenth of returning sophomores filing their FAFSA for the first time.

Figure 11. New FAFSA filing rates for returning sophomores

Grant implementation period

All students 12%   10%

| 2011 FTIC cohort | 2012 FTIC cohort | 2013 FTIC cohort | 2014 FTIC cohort | 2016 FTIC cohort | 2017 FTIC cohort | 2018 FTIC cohort | 2019 FTIC cohort |
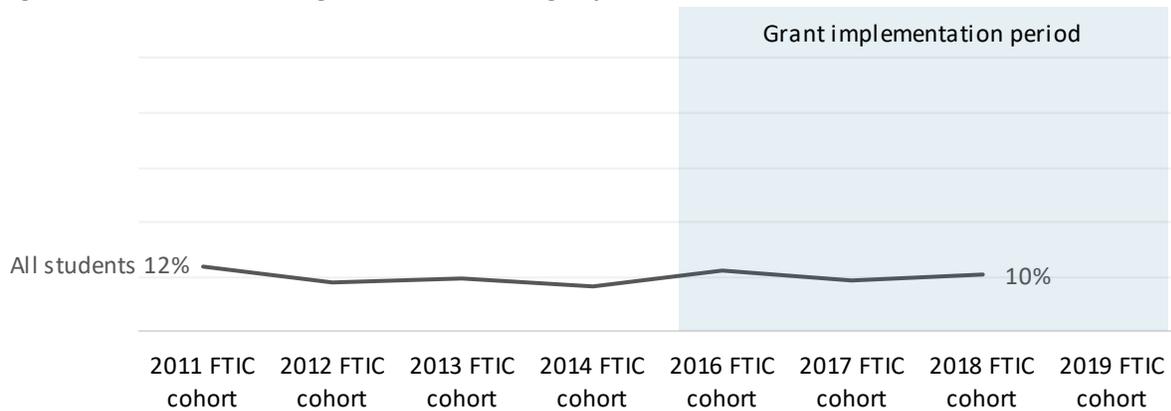
Data suggests little to no difference in new FAFSA filing rates by intervention status for returning students who returning sophomores who did not file a FAFSA in their freshman year.

Figure 12. New FAFSA filing rates for returning sophomores, by intervention status

11% ● ● 2016 FTIC cohort, 13%

8% ● ● 2017 FTIC cohort, 10%

9% ●

● Comparison group   ● Treatment Group
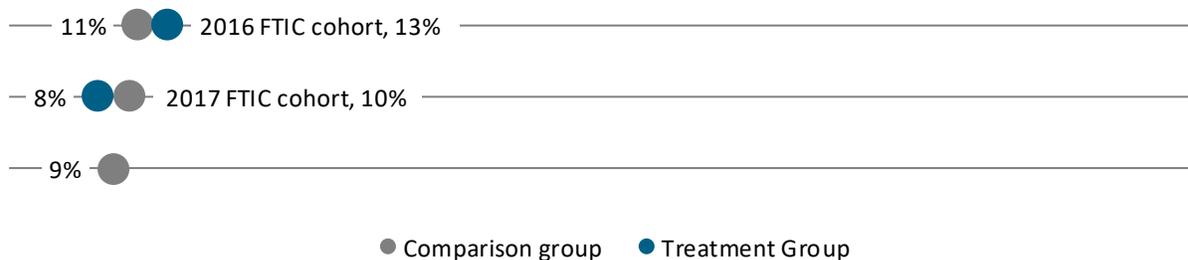
CREDENTIAL ATTAINMENT

In the baseline report, we noted that 3-year credential attainment rates for FTIC credential seeking students at ACC had steadily increased from Fall 2011 to Fall 2013 (Patnaik 2017). With the inclusion of credential attainment data through the Spring 2019 semester, we find that this trend has continued: 8 percent of students who entered ACC in Fall 2016 had earned a credential within 3 years, compared to 4 percent of students who entered in Fall 2015 and only 2 percent of students who entered in Fall 2011, a six percentage point increase over six years. Note that credential attainment reported for the Fall 2017 cohort is likely a slight under-estimate as we do not yet have access to data on credentials earned in the Summer 2020 semester.

Figure 13. Credential attainment rates for all students
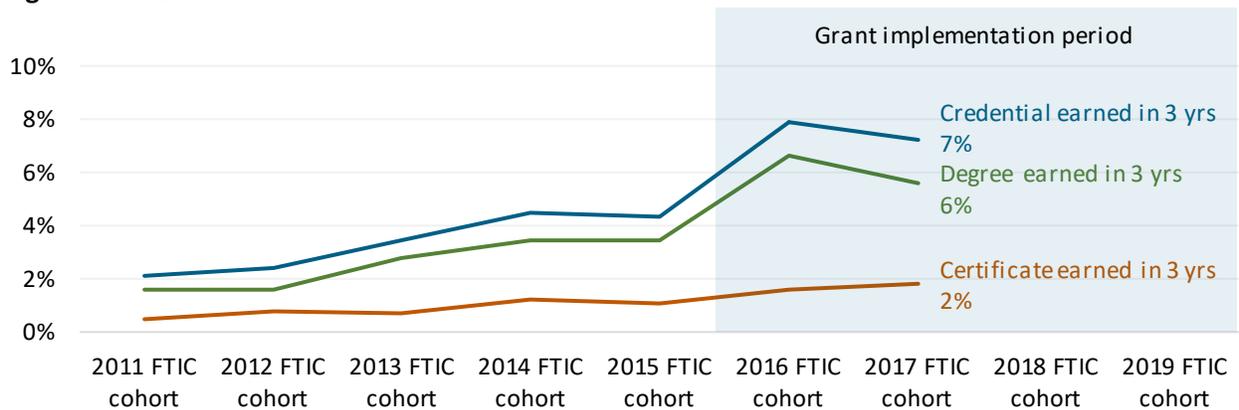
Data suggests that students who received text messages from SMMO had an average 3-year credential attainment rate that was very similar to students who did not receive the text messages.

Figure 14. Credential attainment rates, by intervention status
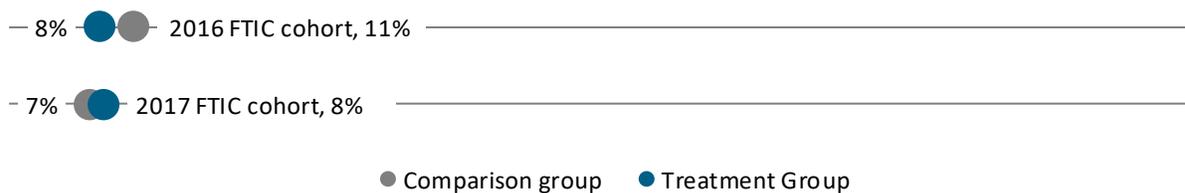
EARLY PROGRAM IMPACTS

IMPACT ANALYSIS DESIGN

To estimate the impacts of the text messaging intervention, RMC implemented a **contemporaneous cohort analysis combined with propensity score matching**. Outcomes for the treatment group that received the intervention were compared to the outcomes for a comparison group that did not receive the intervention. Differences in outcomes between the two groups can be understood as the effect of the treatment. The treatment group comprised of FTIC credential seeking students who entered ACC in Fall, received texts from SMMO, and opted in to continue receiving texts. The comparison group comprised of FTIC credential seeking students who entered ACC in Fall and either did not receive texts from SMMO or received texts from SMMO but passively opted out. The evaluation team also used propensity score matching (PSM) to identify matches from the comparison group. Each year's cohort was analyzed separately since the text messaging intervention and recruitment methods evolved over the years.

Table 3. Intervention and Consent Characteristics

Cohort	Semester in which students received texts	Method of requesting consent
Fall 2016*	Spring 2017	AOS Info Session
Fall 2017	Fall 2017	AOS Info Session
Fall 2018	Spring 2019	Text via Directory
Fall 2019	Fall 2019	Text via Directory

Due to the lag in data available to us, we were unable to examine some outcomes for the most recent cohort – the FTIC 2019 cohort. In interpreting results, several factors need to be considered:

1. Although we report program impacts for the 2016 cohort, results should be interpreted cautiously as this cohort served as the pilot and several improvements were made to the text messaging intervention for the following cohorts.

2. The treatment groups in the Fall 2017 and Fall 2019 cohorts received text messages in their first fall semester; thus the comparison groups for these cohorts were drawn from students who entered ACC in the Fall 2017 and Fall 2019 semesters but did not receive texts. The treatment groups in the Fall 2016 and Fall 2018 cohorts received text messages in the Spring 2020 semester; thus the

comparison groups for these cohorts were drawn from students who entered ACC in the Fall semesters and returned to ACC in the following spring semesters but did not receive texts.

3. As discussed earlier, the treatment groups in the Fall 2016 and Fall 2017 cohort were recruited at Area of Study Information sessions – students actively opted in to be contacted by SMMO. The treatment groups in Fall 2018 and Fall 2019 cohorts were recruited by SMMO "cold-calling" students by texting their phone numbers listed in the student directory.

IMPACT FINDINGS

Impacts on Fall GPA

First, we examined program impacts on Fall GPA.[5] Table 4 indicates the propensity score matching estimates of the differences in GPA between the treatment group and the matched comparison group. Highlighted cells indicate statistically significant impacts. PSM models found that the text messaging intervention had a small but significant positive impact on Fall GPA for the 2017 cohort - students who received the texts had an average GPA that was 0.1 points higher than students who did not receive the texts. No significant program impacts were observed for the 2019 cohort.

Table 4. Text messaging impact on Fall GPA

Impacts on fall GPA (%)	2016 FTIC cohort	2017 FTIC cohort	2018 FTIC cohort	2019 FTIC cohort
All students	n/a	**0.08**	n/a	-0.03
Male students	n/a	0.04	n/a	-0.07
Female students	n/a	**0.11**	n/a	-0.01
Part-time students	n/a	**0.09**	n/a	0.01
Full-time students	n/a	0.06	n/a	-0.07
Hispanic students	n/a	**0.12**	n/a	0.00
White students	n/a	0.04	n/a	-0.07
DE-mandated students	n/a	**0.12**	n/a	0.02
Pell-eligible students	n/a	0.08	n/a	n/a

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[5] We do not examine Fall GPA for the 2016 and 2018 cohorts since they received the intervention in the spring semesters.

While these impacts are small, they do benefit disadvantaged sub-groups. Part-time students, Hispanic students and DE mandated students have traditionally had lower GPAs than their peers; the text messaging intervention appears to be successful at bring the GPA of these sub-groups closer to that of the overall student population.

Figure 15. Average Fall GPA for the 2017 cohort

Group	Comparison group	Treatment Group
All *	2.7	2.8
Male	2.6	2.7
Female *	2.8	2.9
Part-time *	2.6	2.7
Full-time	2.8	2.9
Hispanic *	2.6	2.7
White	2.9	2.9
DE-mandated *	2.5	2.7
Pell-eligible	2.6	2.7

● Comparison group   ● Treatment Group
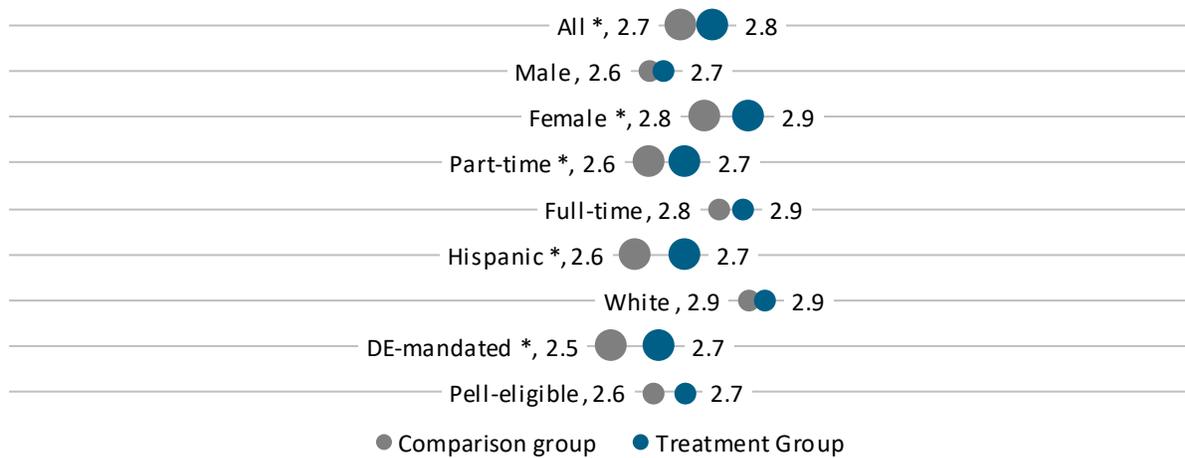
*Note: * notation and larger-sized markers indicate significant differences.*

Impacts on first-year GPA

Next, we examined program impacts on first-year GPA (see Table 5). PSM models did not find any significant impacts of the text messaging intervention on first-year GPA overall. However, subgroup analyses found small but significant positive impacts for female students, Hispanic students, and DE mandated students in the 2017 cohort. [6] Again, while these impacts are small, they do help raise the GPA of disadvantaged sub-groups closer to that of the overall student population.

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[6] We do not examine first-year GPA for the 2016 and 2018 cohorts since they received the text messaging interventions in the spring semesters. We are unable to examine first-year GPA for the 2019 cohort due to the lag in data available to us.

Table 5. Text messaging impact on first-year GPA

Impacts on first year GPA (%)	2016 FTIC cohort	2017 FTIC cohort	2018 FTIC cohort	2019 FTIC cohort
All students	n/a	0.06	n/a	n/a
Male students	n/a	0.03	n/a	n/a
Female students	n/a	**0.08**	n/a	n/a
Part-time students	n/a	0.07	n/a	n/a
Full-time students	n/a	0.04	n/a	n/a
Hispanic students	n/a	**0.10**	n/a	n/a
White students	n/a	0.04	n/a	n/a
DE-mandated students	n/a	**0.10**	n/a	n/a
Pell-eligible students	n/a	0.07	n/a	n/a

Figure 16. Average first-year GPA for the 2017 cohort
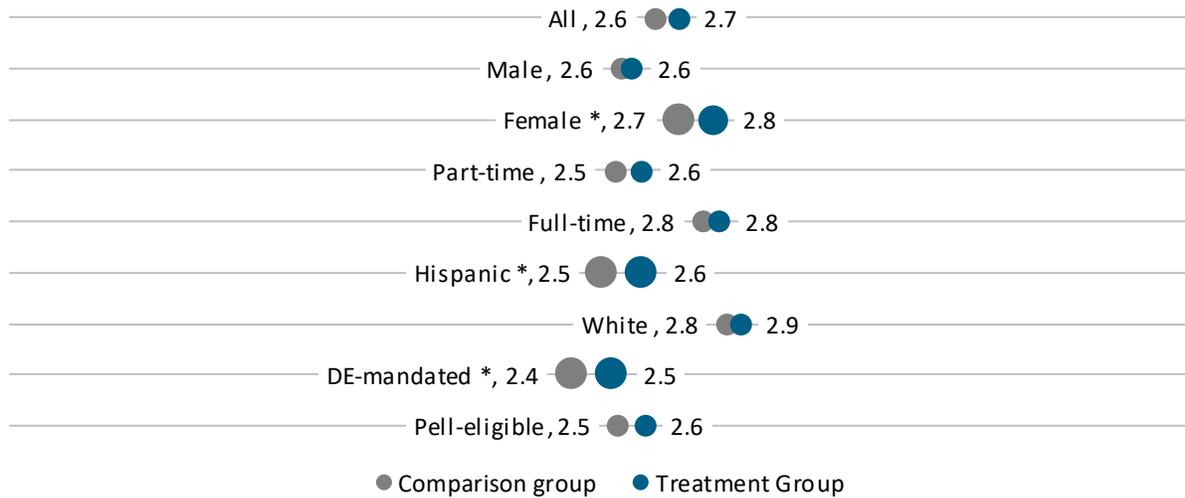
All , 2.6 — 2.7
Male , 2.6 — 2.6
Female *, 2.7 — 2.8
Part-time , 2.5 — 2.6
Full-time , 2.8 — 2.8
Hispanic *, 2.5 — 2.6
White , 2.8 — 2.9
DE-mandated *, 2.4 — 2.5
Pell-eligible , 2.5 — 2.6

● Comparison group   ● Treatment Group

*Note: * notation and larger-sized markers indicate significant differences.*

Impacts on fall-to-spring retention

Next, we examined program impacts on fall-to-spring retention. PSM models found that the text messaging intervention had a significant positive impact on fall-to-spring retention for the 2017 cohort.[7]

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[7] We do not examine fall-to-spring retention rates for the 2016 and 2018 cohorts since they received the text messaging

Students in the 2017 cohort who received the texts were 5 percentage points more likely to enroll the following spring than students who did not receive the texts.

Table 6. Text messaging impact on fall-to-spring retention

Impacts on fall-to-spring retention (%)	2016 FTIC cohort	2017 FTIC cohort	2018 FTIC cohort	2019 FTIC cohort
All students	n/a	**4.8%**	n/a	n/a
Male students	n/a	3.4%	n/a	n/a
Female students	n/a	**6.2%**	n/a	n/a
Part-time students	n/a	**7.0%**	n/a	n/a
Full-time students	n/a	1.8%	n/a	n/a
Hispanic students	n/a	**5.6%**	n/a	n/a
White students	n/a	**4.5%**	n/a	n/a
DE-mandated students	n/a	**7.5%**	n/a	n/a
Pell-eligible students	n/a	**5.0%**	n/a	n/a

Notably, subgroup analyses found strong positive impacts for female students but no significant impacts for male students. Female students have traditionally had higher retention rates; the text messaging intervention increased their retention rates even further. The intervention also had a strong positive impact for part-time students who traditionally have had low fall-to-spring retention rates: 79 percent of students who received texts returned in the spring, compared to only 72 percent of part-time students who did not receive texts.

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interventions in the spring semesters. We are unable to examine fall-to-spring retention rates for the 2019 cohort due to the lag in data available to us.

Figure 17. Average fall-to-spring retention rates for the 2017 cohort
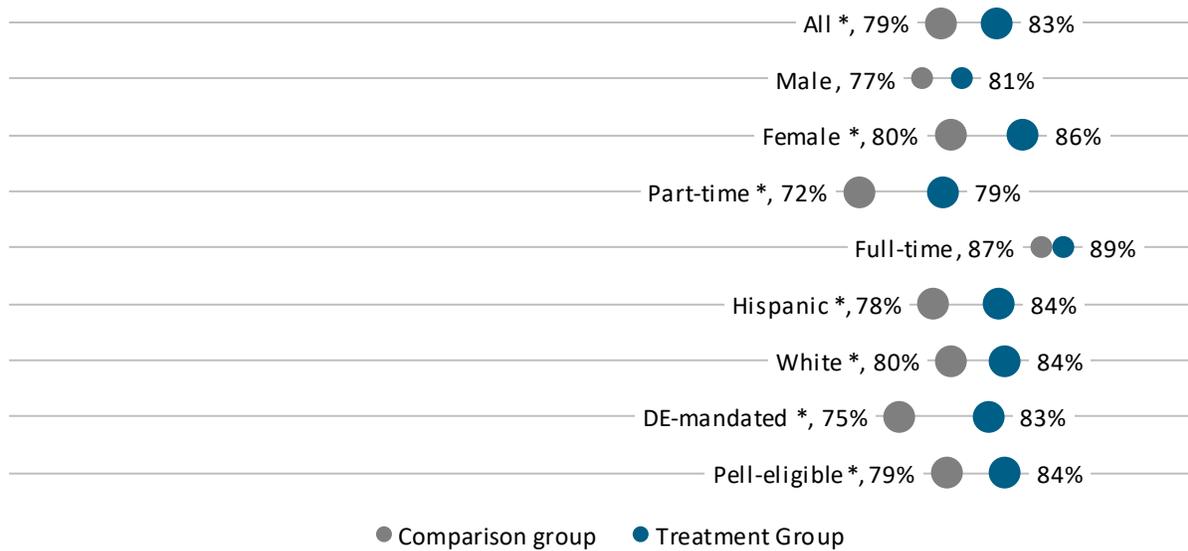
All *, 79% ● 83%
Male, 77% ● 81%
Female *, 80% ● 86%
Part-time *, 72% ● 79%
Full-time, 87% ● 89%
Hispanic *, 78% ● 84%
White *, 80% ● 84%
DE-mandated *, 75% ● 83%
Pell-eligible *, 79% ● 84%

● Comparison group ● Treatment Group

*Note: * notation and larger-sized markers indicate significant differences.*

Impacts on fall-to-fall retention

Next, we examined program impacts on fall-to-fall retention. Overall, impacts were very similar across all cohorts. PSM models found that the text messaging intervention had a significant positive impact on fall-to-fall retention - students who received the texts were about 10 percentage points more likely to enroll in the fall of their sophomore year than students who did not receive the texts.

In our previous reports, we found a slightly higher positive program impact on fall-to-fall retention for the 2016 and 2017 cohorts (13 percent). This report does not dispute those results, which researchers still consider valid. However, in our previous analyses, we utilized only the students who were *not contacted by SMMO* as the comparison group pool. Researchers selected this group as potential comparison group members because *individuals initially contacted by SMMO who chose not to participate*, though not recipients of the full intervention, still received information relating the importance of managing finances while in college knew of the existence of ACC's SMMO, so may have accessed additional online resources through their website and social media.

However, the implementation of a new administrative rule in Spring 2019 allowed SMMO to change their recruitment methods, allowing them to reach out to students directly through large-scale texts maintained as part of ACC's student directory rather than through classroom presentations. This new Rule greatly increased the number of individuals who chose to participate and receive information

and supports from SMMO and also increased the awareness of SMMO in general. This approach, likely benefiting more ACC students, meant that too few students not contacted by SMMO were available to use as potential control group members, making researchers' initial, methodologically sound decision, unsuitable for these revised circumstances. Instead, we used a comparison group pool that comprised both students who were not contacted by SMMO and students who were contacted by SMMO and passively opted out by not responding. We also refined our methods for identifying opt-ins and opt-outs. Researchers include outcomes from all cohorts in this report using the revised comparison group so that year-to-year differences reflect intervention effects changes rather than reflecting shifts in methodology.

Table 7. Text messaging impact on fall-to-fall retention

Impacts on fall-to-fall retention (%)	2016 FTIC cohort	2017 FTIC cohort	2018 FTIC cohort	2019 FTIC cohort
All students	**5.3%**	**8.7%**	**9.6%**	n/a
Male students	3.6%	**8.6%**	**8.2%**	n/a
Female students	**6.9%**	**9.1%**	**10.8%**	n/a
Part-time students	**6.4%**	**8.2%**	**9.6%**	n/a
Full-time students	3.8%	**9.4%**	**9.5%**	n/a
Hispanic students	2.6%	**9.7%**	**7.5%**	n/a
White students	**13.5%**	**9.0%**	**13.2%**	n/a
DE-mandated students	1.2%	**8.5%**	**8.2%**	n/a
Pell-eligible students	1.6%	**5.8%**	**8.4%**	n/a

Disaggregated results indicate that the text messaging campaign had a slightly higher impact on female students compared to male students. Figure 17 and Figure 18 illustrate the average retention rates for the treatment and the matched comparison group from the 2017 and 2018 cohorts, broken out by demographic characteristics. White students had lower retention rates than Hispanic students in 2018. The text messaging intervention had a greater impact on retention for White students in the 2018 cohort; thus, the retention rate for White students in the treatment group is much closer to Hispanic students.

Figure 18. Average fall-to-fall retention rates for the 2017 cohort

	Comparison group	Treatment Group
All *	53%	62%
Male *	53%	61%
Female *	54%	63%
Part-time *	50%	59%
Full-time *	57%	67%
Hispanic *	54%	64%
White *	51%	60%
DE-mandated *	51%	60%
Pell-eligible *	54%	60%

● Comparison group   ● Treatment Group
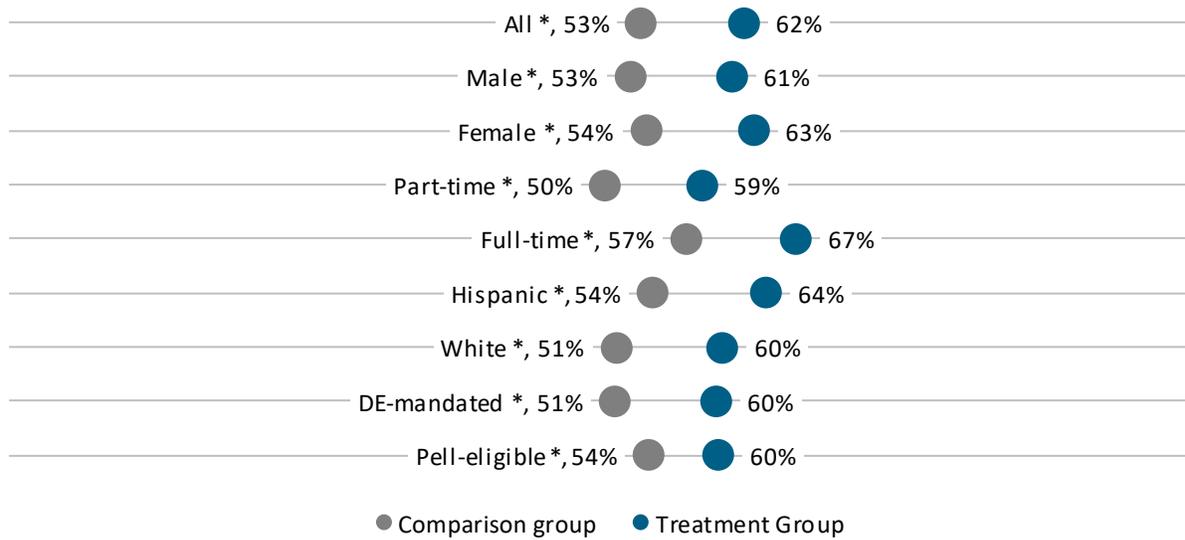
*Note: * notation and larger-sized markers indicate significant differences.*

Figure 19. Average fall-to-fall retention rates for the 2018 cohort

	Comparison group	Treatment Group
All *	63%	73%
Male *	63%	71%
Female *	64%	75%
Part-time *	62%	72%
Full-time *	65%	74%
Hispanic *	66%	74%
White *	59%	72%
DE-mandated *	63%	71%
Pell-eligible *	63%	72%

● Comparison group   ● Treatment Group
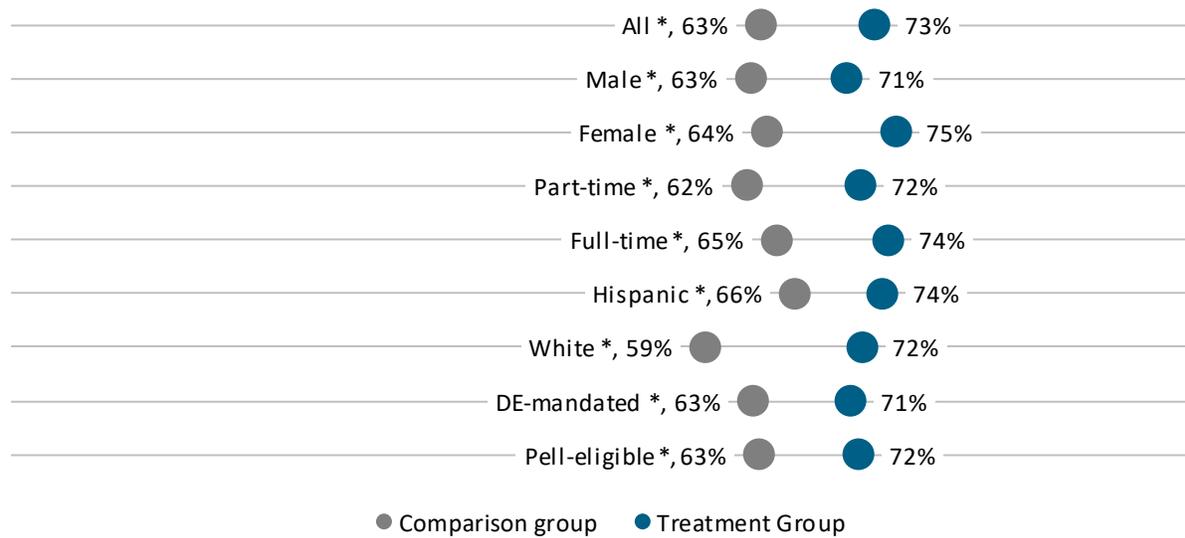
*Note: * notation and larger-sized markers indicate significant differences.*

Impacts on FAFSA refiling rates

We also examined the impacts of the text messaging intervention on FAFSA refiling rates for returning sophomores who had filed a FAFSA in their freshman year. PSM models found that the ACC SIP text messaging intervention had no significant impacts on FAFSA refiling rates overall for the 2016, 2017,

and 2018 cohorts. However, subgroup analysis revealed a significant positive impact on FAFSA refiling rates for white students in the 2017 cohort - students who received the texts were about 9 percentage points more likely to have refiled FAFSA in their sophomore year than students who did not receive the texts. Historical trends suggest that White students have had lower FAFSA refiling rates than their Hispanic & Black peers; the text messaging intervention appears to be successful at bringing FAFSA refiling rates for White students up to the same level as their peers.

Figure 20. Average FAFSA refiling rates for the 2017 cohort

	Comparison group	Treatment Group
All	74%	76%
Male	73%	74%
Female	74%	78%
Part-time	72%	74%
Full-time	76%	78%
Hispanic	75%	76%
White *	67%	76%
DE-mandated	74%	77%
Pell-eligible	88%	90%
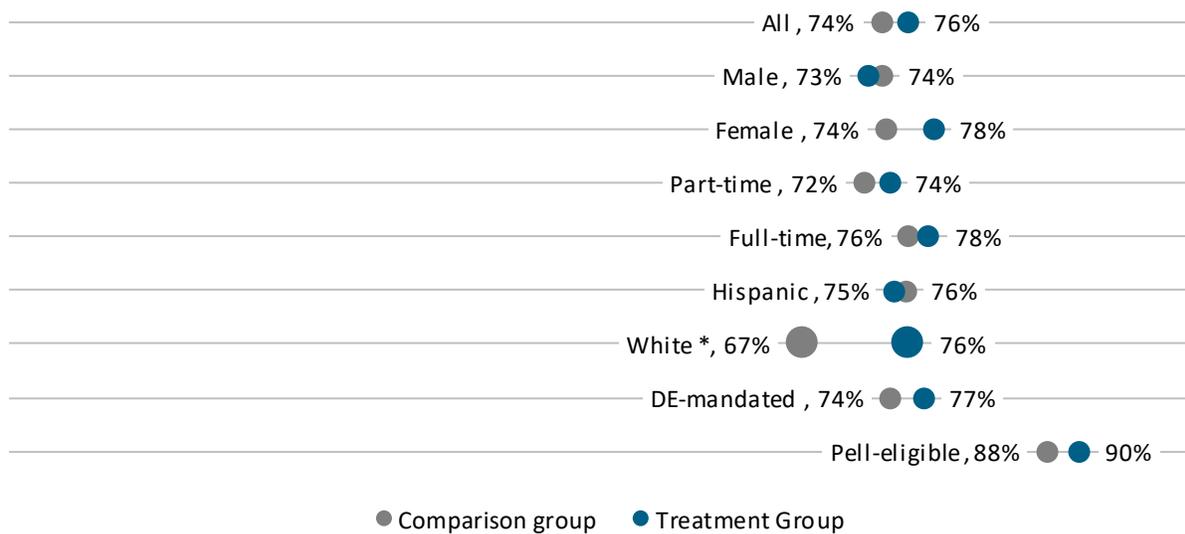
*Note: * notation and larger-sized markers indicate significant differences.*

We also examined the impacts of the text messaging intervention on new FAFSA filing rates for returning sophomores who had not filed a FAFSA in their freshman year. PSM models found that the ACC SIP text messaging intervention had no significant impacts on new FAFSA filing rates overall. Due to small sample sizes, subgroup analyses could not be conducted.

Impacts on credential attainment

We also examined the impacts of the text messaging intervention on three-year credential attainment rates. PSM models found that the ACC SIP text messaging intervention had no significant impacts on 3-year credential attainment for the 2017 cohort. Subgroup analysis revealed significant positive impacts on 3-year credential attainment rates for full-time students and white students - students who received the texts were about 3 percentage points more likely to have earned a credential

in three years than students who did not receive the texts.

Figure 21. Average 3-year credential attainment rates for the 2017 cohort

7%	All , 8%
8%	Male , 9%
6%	Female , 7%
4%	Part-time , 4%
10%	Full-time *, 13%
6%	Hispanic , 7%
7%	White *, 11%
3%	DE-mandated , 4%
7%	Pell-eligible , 8%

● Comparison group   ● Treatment Group
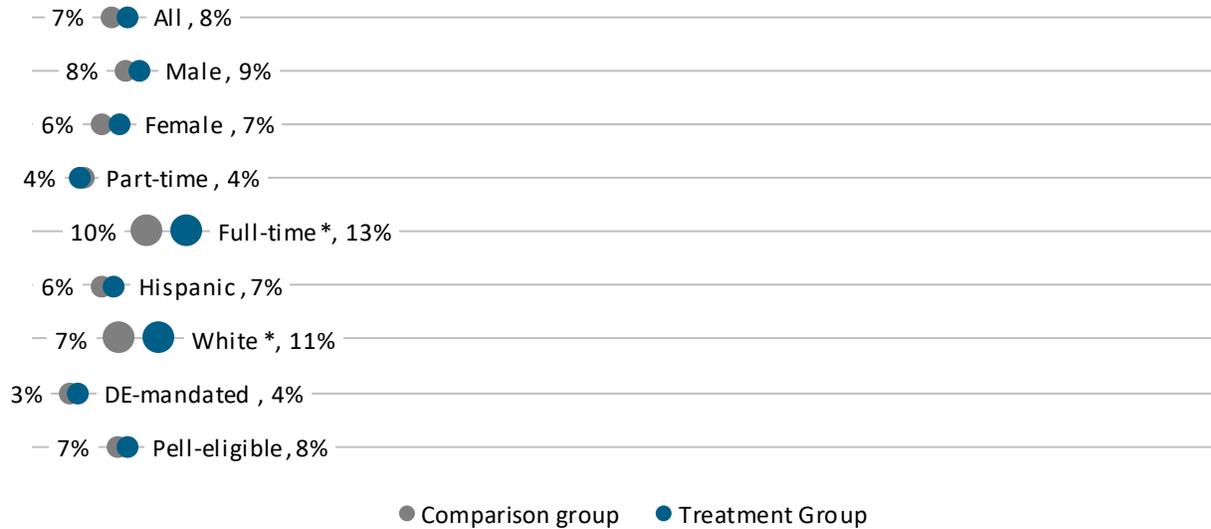
*Note: * notation and larger-sized markers indicate significant differences.*

LIMITATIONS

The impact analysis is limited by its quasi-experimental design. While propensity score matching (PSM) controls for observed differences between the treatment group and the comparison group, it cannot control for selection bias that may be due to unobserved differences between the groups. As with all PSM approaches, the degree to which unmeasured sources of bias affect the comparability of groups is unknown. The evaluation team made efforts to incorporate all available and important characteristics such as age, gender, race, development education mandated status, Pell-eligible status, and enrollment status. However, some important characteristics such as high school GPA, performance on college entrance tests and parental education could not be included in the analysis, since ACC is an open-access college and hence does not collect this information. PSM does not correct for selection bias that might be caused by characteristics not observed or measured; this remains a significant limitation of this study.

DISCUSSION

BACKGROUND

There is extensive evidence that postsecondary education has considerable employment and economic benefits, as well as societal benefits. Individuals with higher levels of education are more likely to have lower unemployment rates, higher earnings, decreased reliance on social support and public assistance programs, better health insurance and pension benefits, and healthier lifestyles (Baum et al., 2013). In 2017, the median earnings of males whose highest level of educational attainment was a bachelor's degree ($71,990) were 70 percent higher than those of males whose highest level of attainment was high school completion ($42,440), while the median earnings of females whose highest level of educational attainment was a bachelor's degree ($52,440) were 63 percent higher than those of females whose highest level of attainment was high school completion ($31,800). In 2018, 86 percent of young adults aged 25 to 34 years old with a bachelor's or higher degree were employed, compared with 72 percent of those who had completed only high school and 59 percent of those who had not completed high school (Snyder et al., 2019).

Although college enrollment rates have continued to rise across all institution types in recent decades, persistence to degree completion remains a concern, particularly at community colleges. The retention rate[8] for full-time first-time degree-seeking students who began at public two-year institutions in Fall 2018 was 62 percent, compared to 81 percent for students who began at public four-year institutions. Only 29 percent of students who began college in Fall 2015 as first-time degree-seeking students at public two-year institutions had graduated within 150% of normal time (National Center for Education Statistics, 2020). Researchers and policymakers agree that improving persistence and completion rates among community college students is a top educational priority (Goldrick-Rab, 2010).

RESULTS AT ACC

Our evaluation of ACC's text message intervention focusing on financial aid outreach found a small but significant positive impact on Fall GPA overall in the 2017 cohort as well as small but significant positive impacts on first-year GPA for female students, Hispanic students, and developmental-education

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[8] Persistence is defined as first-year students returning to *any* institution one year later, while retention is defined as first-year students returning to the *same* institution one year later.

mandated students in the 2017 cohort.

Overall, FAFSA refiling rates for returning students at ACC are high – about three-quarters of returning sophomores who had filed a FSFA in their freshmen year also refile FAFSA in their sophomore year. Although we did not find any significant impacts on FAFSA refiling rates overall, our subgroup analyses found a significant positive impacts for white students in the 2017 cohort.

Our evaluation also found large positive impacts on fall-to-fall retention among first-time in college (FTIC) credential seeking students: students who received the text messages were 10 percentage points more likely to return to ACC in the fall of their second year of college, compared to students who did not receive the text messaging intervention. We also found a significant positive impact on fall-to-spring retention: students who received the text messages in fall were 5 percentage points more likely to return to ACC the following spring, compared to students who did not receive the text message.

These findings contribute to a growing body of research investigating the use of behaviorally-informed strategies, such as text messaging interventions, to help people navigate complex decisions, such as financial aid. Through a randomized controlled trial design, Castleman & Page (2016) found that a personalized text-messaging intervention designed to encourage college freshmen to refile their FAFSA and maintain their financial aid for their sophomore year produced large and positive effects among freshmen at community colleges - text recipients were almost 14 percentage points more likely to remain continuously enrolled through the Spring of their sophomore year. The Nudging to Stem Success initiative, a randomized controlled trial implemented at four community colleges in Virginia and Ohio, also found a 10 percentage point increase in persistence for STEM students compared to a control group. Such interventions may particularly benefit community college students for whom the ability to continue in college likely depends on being able to maintain financial aid (Soricone & Ende, 2019).

ACC's retention rate of 58 percent for full-time first-time degree-seeking students in the Fall 2016 cohort was slightly lower than the overall retention rate of 62 percent nationwide and statewide in Texas for public two-year institutions (National Center for Education Statistics, 2018; National Center for Education Statistics, 2020). ACC's retention rate was also 6 percentage points lower than the retention rate of similar large urban public two-year institutions in Texas (64 percent). Improving retention by sustaining and expanding this texting intervention could thus potentially improve ACC's retention rate for full-time students to the level of similar large urban two-year public institutions in Texas.

Sub-group impacts

Part-time students

Our analyses of program impacts for various sub-groups also sheds light on students for whom such interventions may be most helpful. Although we found that the intervention had significant positive impacts on retention across all sub-groups, our findings also suggested slightly higher impacts for part-time students. These results are particularly salient since part-time students are often juggling work and family obligations and have traditionally had lower retention rates. Nationwide, only 45 percent of part-time first-time degree-seeking students who began at public two-year institutions in Fall 2018 were retained, compared to 62 percent of full-time students (National Center for Education Statistics, 2020). Considering that 56 percent of ACC's FTIC students are classified as part-time, sustaining and expanding this intervention would provide significant benefit to hundreds of part-time students at ACC.

White students

Our evaluation also found a much larger impact on retention for white students in the 2016 and 2018 cohorts, compared to Hispanic students. We also found a significant positive impact on FAFSA refiling rates for white returning sophomores who had filed a FAFSA in their freshman year. This is consistent with findings from a few recent studies. Hurwitz & Smith (2016) studied the U.S. Department's "College Scorecard" and found that students were more likely to send SAT scores to colleges with higher earnings reported on the Scorecard, but that those results were concentrated among White and Asian students and students whose parents had some postsecondary education. Hillman et al. (2017) found that while recent changes to FAFSA filing resulted in more students filing the FAFSA, these changes may not have benefitted the schools enrolling students most likely to benefit from the aid: FAFSA filing rates were lower in schools with larger shares of Black students and students eligible for free- or reduced-price lunch, while higher-income districts and districts with larger shares of White students experienced higher filing rates than in previous cycles. In a study of text messaging-based outreach conducted by the University of Virginia to support applicants from Virginia in completing their financial aid applications on time, Castleman et al. (2017) found that underrepresented minority students were not significantly responsive to the outreach, while their white and Asian peers were more responsive.

Credential attainment

Only 11 percent of full-time first-time degree-seeking undergraduate students in the Fall 2014 cohort at ACC graduated within 150% of normal time to program completion (National Center for Education Statistics, 2018). In contrast, the graduation rate within 150% of normal time for the Fall 2014 cohort at two-year public institutions was 27 percent nationwide and 19 percent statewide in Texas (National Center for Education Statistics, 2020). ACC's graduation rate was also 8 percentage points lower than the graduation rate of similar large urban two-year public institutions in Texas (19 percent).

Our evaluation found that the text messaging intervention did not have any significant impacts on credential attainment overall, but appeared to have small significant impacts on full-time students and white students. These results are unsurprising as the text messaging intervention focused on supporting students soon after they entered college, leaving little time for them to graduate in the timeframe of this study. Research suggests that addressing completion may also require supporting students long after they arrive on campus. Bettinger et al. (2019) studied an experimental intervention that provided students late into college with personalized text messages that prompted them to identify goals associated with finishing their degree, encouraged them to connect with campus-based academic and financial resources, and reminded them of upcoming and important deadlines. Early results indicate that the intervention increased degree completion after one year by 6 percentage points among students at the greatest risk of dropout based on their background and prior enrollment experiences. The study suggests some promise in providing high-risk students within a few semesters of graduating with low-cost support.

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