

EVALUATION OF AUSTIN COMMUNITY COLLEGE'S STRENGTHENING INSTITUTIONS PROGRAM GRANT

ANNUAL OUTCOMES AND IMPACT REPORT 2019



RAY MARSHALL CENTER FOR THE STUDY OF HUMAN
RESOURCES

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ANNUAL OUTCOMES AND IMPACT REPORT

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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 target population for ACC's initiatives for the SIP grant is all first-time in college (FTIC) credential seeking students. Through this grant, ACC established the Student Money Management Office (ACC-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 activities include 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, and enhancements to the Degree Map online tool to provide personalized real-time financial aid information. ACC hopes to demonstrate that the activities of ACC-SMMO will be linked to improvements in measures of student success such as: retention rates, graduation rates, time to completion, 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 both formative and summative evaluations on the effectiveness of SMMO program efforts on the student outcome measures of interest. This summative report focuses primarily on SMMO's text messaging interventions.

Texting intervention

SMMO has been using Signal Vine's text messaging software to implement a comprehensive texting intervention. The primary venues for ACC students to consent to participating in the SMMO interventions are the Area of Study sessions and the student success courses. The first text message sent to each student asks each student to confirm their interest in receiving the text messages. This process eliminates 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. In the 2017-2018 school year, students in the texting intervention 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.

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 and Page 2015, Barr, Bird et al. 2016, Castleman and Page 2016, Bird, Castleman 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 and 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 and 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, Bird et al. 2016).

EVALUATION DESIGN

The Ray Marshall Center (RMC), an organized research unit in the LBJ School of Public Affairs at The University of Texas, is conducting both formative and summative evaluations of all of ACC's initiatives for the SIP grant. The summative evaluation conducted by the Ray Marshall Center includes both an outcomes analysis and an impact analysis.

Outcomes analysis

The ACC SIP grant is expected to lead to a number of significant and measurable outcomes. The Ray Marshall Center is documenting and analyzing the outcomes by assembling data on key outcomes such as retention rates, graduation rates, time to completion, and cohort loan default rates over the evaluation period. The goal is to provide actionable information about the success of the intervention while each successive cohort of recipients is in the process of receiving services, allowing for relatively rapid reflection and program modification as needed by ACC staff.

Impact analysis

The impact analysis is designed to address the question: what impact did the SIP program have on key student outcomes? The main goal of the impact analysis is attribution – isolating the effect of the SIP program 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, Koolwal et al. 2010).

The Ray Marshall Center is using a quasi-experimental evaluation methodology to estimate the impacts of the ACC SIP grant on key outcomes such as retention rates, graduation rates, time to completion, and cohort loan default rates. A quasi-experimental design is appropriate since the program does not easily 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 will be 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 will also use propensity score matching (PSM) to identify statistically similar matches from the comparison group for the SIP program participants.

REPORT ORGANIZATION

This report summarizes preliminary findings from the impact evaluation. Findings are based on analyses of comprehensive data on the treatment and comparison groups, made available from the institutional research data system at ACC. 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 early impact findings. The report concludes with a chapter summarizing key early findings and outlining next steps.

PARTICIPANT CHARACTERISTICS

Grant implementation began in 2016; thus, the target population comprises of FTIC credential seeking students who entered ACC in Fall 2016 or later. RMC has received data for the Fall 2016 and Fall 2017 cohorts and demographic characteristics for the 10,384 students in these cohorts are presented in Table 1. The target population had an equal number of males and females. Nearly half of the target population were Hispanic (44 percent), while over a third were White (37 percent). Over half were attending college part-time (55 percent). More than a third were required to take one or more developmental education classes (38 percent). More than a third were Pell-eligible (38 percent).

Table 1. Demographic characteristics of the target population

Demographic characteristics		Fall 2016 FTIC Cohort N=5,310	Fall 2017 FTIC Cohort N=5,074	Total N=10,384
Gender	Male	50%	49%	49%
Race	White	36%	38%	37%
	Black	7%	7%	7%
	Hispanic	44%	44%	44%
	Other	12%	12%	12%
Full-time status	Part-time	56%	55%	55%
	Full-time	44%	45%	45%
Developmental education mandated		39%	37%	38%
Pell-eligible		35%	41%	38%

Table 2 presents demographic characteristics for students who received the comprehensive texting intervention. Compared to students who did not receive texts, students who received texts in the comprehensive texting intervention were more likely to be Hispanic, more likely to have developmental education mandated, and more likely to be Pell-eligible.

Table 2. Demographic characteristics for the comprehensive texting intervention

Demographic characteristics		Fall 2016 Cohort (N=5,310)		Fall 2017 Cohort (N=5,074)	
		Did not receive texts (N=3,348)	Received texts (N=1,962)	Did not receive texts (N=3,063)	Received texts (N=2,011)
Gender	Male	52%	47%	51%	51%
Race	White	39%	30%	40%	35%
	Black	8%	7%	7%	6%
	Hispanic	39%	53%	40%	49%
	Other	14%	10%	13%	10%
Full-time status	Part-time	54%	58%	54%	54%
	Full-time	46%	42%	42%	44%
Developmental education mandated		34%	47%	35%	41%
Pell-eligible		28%	46%	39%	45%

Student engagement

We examined level of engagement in the comprehensive texting intervention. Overall, more than a third of the 10,384 students in the Fall 2016 and Fall 2017 cohorts received texts (38 percent). Of the 3,973 students who received texts, more than half (60 percent) actively opted in to continue receiving texts, while a little less than a fifth actively opted out of receiving texts (16 percent) and about a quarter passively opted out by not responding (24 percent)¹. Of the 2,366 students who opted in to receiving texts, 44 percent showed high engagement, measured in proxy by looking at the proportion of students who replied 5 or more times.

Engagement for the Fall 2017 cohort appeared notably improved over the Fall 2016 cohort. Active opt-in rates for the Fall 2017 cohort was 64 percent, an improvement of 9 percentage points over the active opt in rate of 55 percent for the Fall 2016 cohort. This improvement was largely driven by a 7 percentage point drop in the active opt out rate as the passive opt out rate stayed about the same for both cohorts.

¹ Individuals who responded to the initial text and chose to opt out are considered to have actively dropped out. Individuals who did not respond to the initial text are considered to have passively dropped out.

Table 3. Engagement levels for the comprehensive texting intervention

	Fall 2016 cohort (N=5,310)	Fall 2017 cohort (N=5,074)	All Treatment (N=10,384)
Total	5,310	5,074	10,384
Did not receive texts	3,348	3,063	6,411
Received texts	1,962	2,011	3,973
Received texts and opted out	391	261	652
Received texts and passively opted out	488	467	955
Received texts and opted in	1,083	1,283	2,366
Received texts and opted in & replied <5	819	512	1,331
Received texts and opted in & replied >=5	263	771	1,034
	Fall 2016 cohort (N=5,310)	Fall 2017 cohort (N=5,074)	All Treatment (N=10,384)
Did not receive texts	63%	60%	62%
Received texts	37%	40%	38%
Received texts and actively opted out	20%	13%	16%
Received texts and passively opted out	25%	23%	24%
Received texts and actively opted in	55%	64%	60%
Received texts and opted in & replied <5	76%	40%	56%
Received texts and opted in & replied >=5	24%	60%	44%

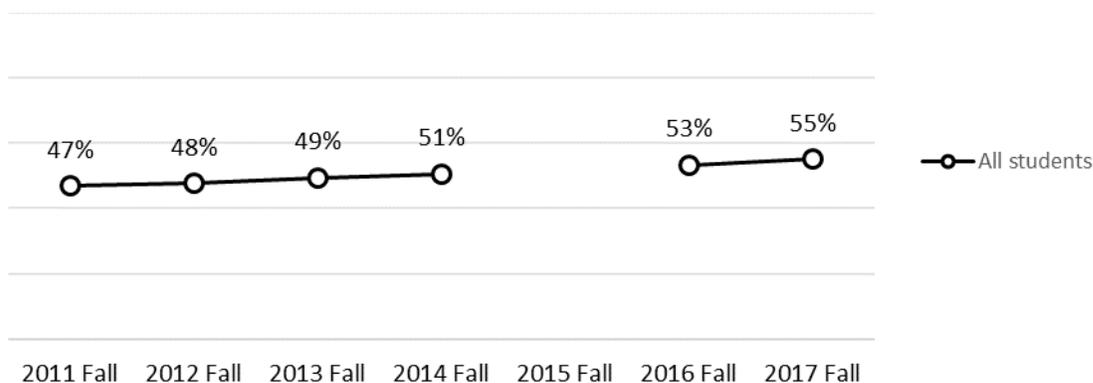
EARLY PROGRAM OUTCOMES

Key outcomes for the grant are retention rates, graduation rates, time to completion, and cohort loan default rates. The treatment group comprises of FTIC credential seeking students who entered ACC in Fall 2016 or later. RMC has received data for the Fall 2016 and Fall 2017 treatment cohorts, but the short follow-up time means that we can only examine trends in retention rates for the treatment group; graduation rates, time to completion and loan default rates will be examined in later reports.

OVERALL RETENTION RATES

In the baseline report, we noted that first-to-second year retention rates for FTIC credential seeking students at ACC had steadily increased from Fall 2011 to Fall 2014 (Patnaik 2017). Here, we find that this upward trend has continued: 55 percent of students who entered ACC in Fall 2017 returned to ACC the following fall, compared to 51 percent of students who entered ACC in Fall 2014 and only 47 percent of students who entered ACC in Fall 2011, an eight percentage point increase over six years.

Figure 1. Retention rates²

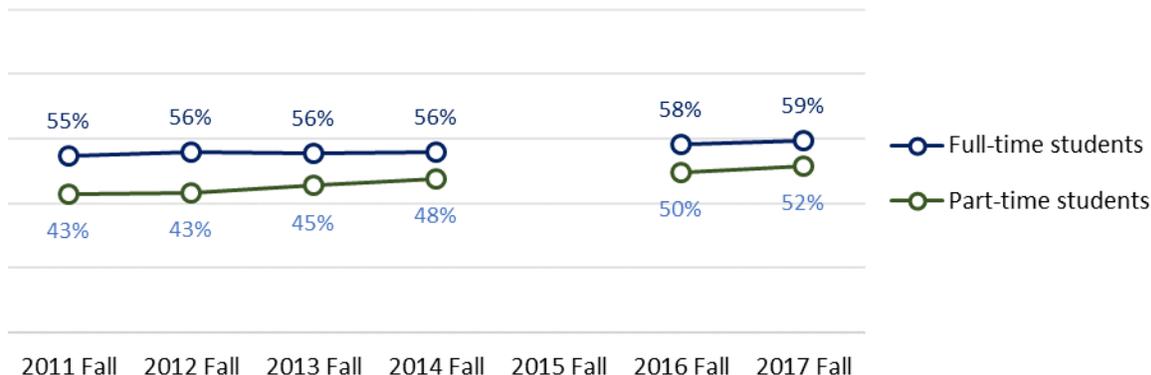


This upward trend in the retention rate is observed for both part-time students and full-time students. But the increase appears to be higher for part-time students: 52 percent of part-time students who entered ACC in Fall 2017 returned to ACC the following fall, compared to 48 percent of part-time students who entered ACC in Fall 2014 and only 43 percent of part-time students who entered ACC in Fall 2011, a nine percentage point increase over six years. In contrast, 59 percent of full-time students

² RMC has not received Fall 2016 enrollment data for the Fall 2015 Cohort; hence, first-to-second year retention rate for the Fall 2015 Cohort cannot be reported at this time.

who entered ACC in Fall 2017 returned to ACC the following fall, compared to 56 percent of full-time students who entered ACC in Fall 2014 and 55 percent of full-time students who entered ACC in Fall 2011, a four percentage point increase over six years.

Figure 2. Retention rates by full-time status



RETENTION RATES BY TEXTING INTERVENTIONS

In the following sections, we focus only on FTIC credential seeking students who entered ACC in Fall 2016 and Fall 2017. Students in these cohorts were the target population for the texting interventions implemented by SMMO through the ACC-SIP grant. Students who received texts from SMMO and opted in to continue receiving texts are included in the texting intervention group for analysis. We compare outcomes for these students to the outcomes for our comparison group of students who did not receive any texts. Outcomes for students who received a text from SMMO and actively or passively opted out are noted in Appendix 1.

Comprehensive texting intervention

Our analysis found that two-thirds (65 percent) of students who received a text from SMMO and opted-in to continue receiving texts returned to ACC the following fall, compared to only 51 percent of students who did not receive a text, a fourteen percentage point difference. These findings were true for part-time students as well as full-time students: 62 percent of part-time students who received a text and opted-in to continue receiving texts returned to ACC the following fall, compared to only 46 percent of part-time students who did not receive a text, a sixteen percentage point difference. Two thirds (69 percent) of full-time students who received a text returned to ACC the following fall, compared to only 56 percent of students who did not receive a text, a thirteen percentage point difference.

Figure 3. Retention rates by intervention status and full-time status

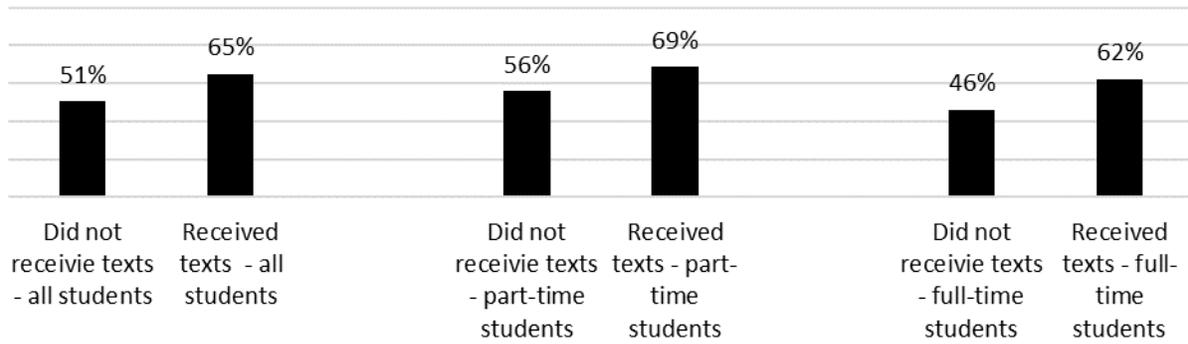
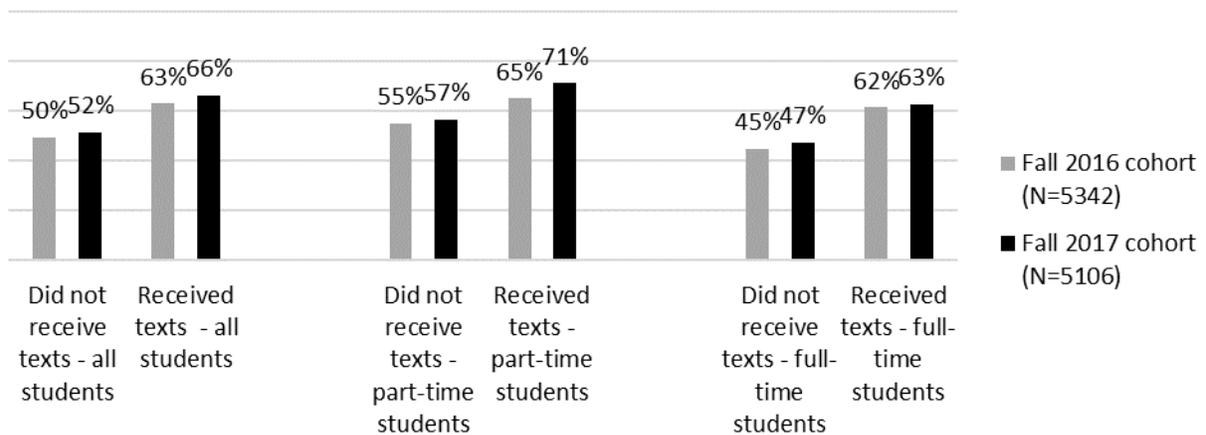


Figure 4 notes differences by the year of implementation. There was a slight increase in the retention rate for the comparison group in Fall 2017 compared to Fall 2016 - this is not surprising as our baseline report and prior annual report has documented that ACC has seen a steady increase in retention rates over time.

Figure 4. Retention rates by intervention status and cohort



In both implementation years, full-time students who received texts had retention rates 15 to 17 percentage points higher than full-time students who did not receive texts. However, part-time students in the Fall 2017 cohort who received texts had retention rates 15 percentage points higher than part-time students who did not receive texts - this is a 5 percentage point improvement over the 10 percentage point difference for the Fall 2016 cohort.

EARLY PROGRAM IMPACTS

IMPACT ANALYSIS DESIGN

To estimate the impacts of the ACC SIP grant as a whole, RMC is implementing a **retrospective cohort analysis combined with propensity score matching**. Outcomes for the treatment group that received the intervention during the program implementation period (i.e. FTIC credential seeking students who entered ACC in Fall 2016 and Fall 2017) are compared to the outcomes for a comparison group that did not receive the intervention from a time period prior to the program implementation period (i.e. FTIC credential seeking students who entered ACC in Fall 2014³). Differences in outcomes between the two groups can be understood as the effect of the treatment. The evaluation team is also using propensity score matching (PSM) to identify matches from the comparison group.

Table 4. Impact Analysis Design

Outcome	Comparison Group Pool	Treatment Group
Impact of the grant	FTIC credential seeking students who entered ACC in Fall 2016	FTIC credential seeking students who entered ACC in Fall 2016
Impact of texting	FTIC credential seeking students who entered ACC in Fall 2016 and did not receive texts from SMMO	FTIC credential seeking students who entered ACC in Fall 2016 and received texts from SMMO and opted in to continue receiving texts

To estimate the impacts of the texting intervention specifically, RMC is implementing a **contemporaneous cohort analysis combined with propensity score matching**. Outcomes for the treatment group that received the intervention (i.e. FTIC credential seeking students who entered ACC in Fall 2016 and Fall 2017, received texts from SMMO, and opted in to continue receiving texts) are compared to the outcomes for a comparison group that did not receive the intervention (i.e. FTIC credential seeking students who entered ACC in Fall 2016 and Fall 2017 and did not receive texts from SMMO). Differences in outcomes between the two groups can be understood as the effect of the treatment. The evaluation team is also using propensity score matching (PSM) to identify matches from the comparison group.

³ This is the most recent cohort for whom retentions rates are available.

PRELIMINARY IMPACT FINDINGS

Impact of the SIP grant

We first estimated the potential impacts of the ACC SIP grant activities on retention (see Table 5). For this analysis, the treatment group was comprised of all FTIC credential seeking students who entered ACC in Fall 2016 and Fall 2017. The comparison group pool comprised of FTIC credential seeking students who entered ACC in Fall 2014. After matching, the evaluation team estimated the impacts on retention (see Table 5). Column 4 of Table 5 indicates the propensity score matching estimates of the differences in retention outcomes between the treatment group and the matched comparison group. PSM models found that students who entered ACC in Fall 2016 and Fall 2017 were more likely to be retained in their first year than students who entered ACC in Fall 2014 (a statistically significant difference of 2.5 percent).

Table 5. Overall grant impact on retention

Impacts on first-year retention (%)	Fall 2016 only	Fall 2017 only	Fall 2016 & Fall 2017
All students	1.6%	3.3% **	2.5% **

*Significance levels: * <0.05, ** <0.01, *** <0.001*

Examining findings by program implementation year we found that although first year retention for students who entered ACC in Fall 2016 was higher than matched students who entered ACC in Fall 2014, the difference was not statistically significant. However, first year retention for students who entered ACC in Fall 2017 were significantly higher than matched students who entered ACC in Fall 2014. Although a very positive development, this increase in retention cannot be attributed to the SIP grant alone. As documented in our baseline report and annual reports, ACC has seen a steady increase in retention rates over time and this increasing retention rate predates the SIP grant. This is indicative of system-wide efforts focused on increasing retention, including policies and efforts that pre-date the SIP grant.

Impact of the comprehensive texting intervention

We next estimated the impacts of participation in SMMO' comprehensive texting intervention. For this analysis, the treatment group was comprised of FTIC credential seeking students who entered ACC in Fall 2016 and Fall 2017, received texts from SMMO, and opted in to continue receiving texts. The

comparison group pool comprised of FTIC credential seeking students who entered ACC in Fall 2016 and Fall 2017 and did not receive texts from SMMO.

Impacts on retention

First, we examine program impacts on retention. Table 6 indicates the propensity score matching estimates of the differences in retention outcomes between the treatment group and the matched comparison group. Detailed statistical results can be found in Appendix 2. PSM models found that the ACC SIP texting intervention had a significant positive impact on retention - students who received the texts were 13 percentage points more likely to enroll in the fall of their sophomore year than students who did not receive the texts.

Disaggregated results indicate that the impacts were slightly higher for the Fall 2017 cohort than the Fall 2016 cohort. We found that the text messaging campaign had a higher impact on female students compared to male students in Fall 2016. However, the text messaging campaign had similar impacts on persistence for both male and female students in Fall 2017.

Table 6. Texting impact on retention

Impacts on first-year retention (%)	Fall 2016 only	Fall 2017 only	Fall 2016 & Fall 2017
All students	12.2% ***	14.7% ***	13.3% ***
Male students	10.4% ***	14.8% ***	12.6% ***
Female students	13.4% ***	14.1% ***	13.7% ***
Part-time students	15.1% ***	13.5% ***	14.1% ***
Full-time students	7.6% **	15.3% ***	11.6% ***

*Significance levels: * 0.05, ** 0.01, *** 0.001*

We found that the impacts were particularly large for part-time students in the Fall 2016 cohort. Students who were enrolled part-time and received the texts were 15 percentage points more likely to enroll in the fall of their sophomore year than part-time students who did not receive the texts. Historically, persistence rates have been lower for part-time students compared to full-time students. For example, at ACC, 56 percent of FTIC credential seeking students who enrolled full time in Fall 2014 persisted to the fall of their sophomore year, compared to only 47 percent of similar students who enrolled part-time. However, with the help of the text messaging campaign, this gap was closed and surpassed - part-time students who received the text outreach persisted at much higher rates, even higher than full-time students who did not receive text messages. Notably, we found much lower

program impacts for full-time students compared to part-time students in the Fall 2016 cohort. However, in the Fall 2017 cohort, the impacts for full-time and part-time students were similar.

Impacts on GPA

We also examined the impacts of the texting intervention on GPA. PSM models found that the ACC SIP texting intervention had no significant impacts on GPA. Disaggregated results indicate that the findings were similar across program implementation years and across demographic characteristics.

Table 7. Texting impact on first year GPA

Impacts on first-year GPA	Fall 2016 only	Fall 2017 only	Fall 2016 & Fall 2017
All students	0.08	0.06	0.01
Male students	0.08	0.02	0.04
Female students	0.05	0.04	0.05
Part-time students	0.07	0.05	0.05
Full-time students	-0.04	-0.01	-0.04

*Significance levels: * 0.05, ** 0.01, *** 0.001*

Impacts on credential attainment

Although we have credential attainment data available for the Fall 2016 cohort, we are unable to rigorously estimate program impacts due to the short follow-up time. Only five percent of students in the Fall 2016 cohort earned a credential in the first two years following enrollment. PSM models found that the ACC SIP texting intervention had no significant impacts on two-year credential attainment. Disaggregated results indicate that the findings were similar across program implementation years and across demographic characteristics.

Table 8. Texting impact on two-year credential attainment

Impacts on credential attainment	Fall 2016 only
All students	0.2%
Male students	-0.2%
Female students	0.5%
Part-time students	0.1%
Full-time students	0.2%

*Significance levels: * 0.05, ** 0.01, *** 0.001*

LIMITATIONS

The impact analysis is clearly limited by its non-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, 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

In summary, we find that the ACC SIP comprehensive texting intervention had a significant large positive impact on retention - text recipients were 13 percentage points more likely to persist into the fall of their sophomore year of college compared to freshmen at ACC who did not receive the texting intervention. Disaggregated results indicate that the findings were similar across program implementation years and across demographic characteristics. These findings contribute to a growing body of research that suggests that behaviorally-informed strategies, such as text messaging interventions, can help people navigate complex decisions, such as financial aid. 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.

A crucial next step will be to study the impacts of the texting intervention on college completion and credential attainment. Although community colleges provide easy access to higher education for a wide range of students, the majority of students do not complete a credential. Only a quarter of first-time, full-time degree/certificate-seeking students at 2-year public colleges graduated with a certificate or associate's degree within 150 percent of normal time (Snyder 2018). Only 38 percent of the students who began at a two-year public institution completed a degree within six years (Shapiro, Dundar et al. 2017). A range of policy initiatives have emerged to close this gap between access and completion, including guiding students through the financial aid cycle. Our future work could help researchers and policy-makers better understand if text message interventions that provide personalized outreach about financial aid can help impact college completion. We expect to have 3-year credential attainment data for the Fall 2016 cohort at the time of writing our next Annual Report in 2020.

Our analysis found 13 percent of Fall 2017 students who originally signed up for texts in the comprehensive texting intervention actively opted out of receiving texts. This is a substantial improvement over the 20 percent active opt-out rate for the Fall 2016 cohort. SMMO should continue their strategies to reduce the active opt-out rate. However, we also found that a quarter of students who originally signed up for texts in the comprehensive texting intervention passively opted out of receiving texts (by not replying to the first text) - this passive opt-out rate remained steady over the two years of implementation. SMMO should continue to explore reasons for the high passive opt-out rate and approaches to reduce such opt-outs.

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APPENDIX 1. DEMOGRAPHICS AND OUTCOMES FOR OPT-OUTS

	FALL 2016 COHORT			
	Did not receive texts	Received texts & passively opted out	Received texts & actively opted out	Received texts & actively opted in
DEMOGRAPHIC CHARACTERISTICS				
Gender - male	52%	52%	47%	45%
Race - white	39%	27%	37%	28%
Race - black	8%	9%	4%	7%
Race - Hispanic	39%	53%	49%	55%
Part-time	54%	58%	53%	60%
Developmental education mandated	34%	47%	47%	46%
Pell-eligible	28%	46%	36%	50%
OUTCOMES				
Retained in Spring semester	77%	76%	71%	89%
Retained in 2nd year	50%	55%	58%	63%

	FALL 2017 COHORT			
	Did not receive texts	Received texts & passively opted out	Received texts & actively opted out	Received texts & actively opted in
DEMOGRAPHIC CHARACTERISTICS				
Gender - male	51%	52%	49%	43%
Race - white	40%	35%	44%	33%
Race - black	7%	7%	5%	6%
Race - Hispanic	40%	47%	43%	51%
Part-time	46%	45%	50%	43%
Developmental education mandated	35%	40%	38%	42%
Pell-eligible	39%	44%	35%	48%
OUTCOMES				
Retained in Spring semester	79%	76%	75%	85%
Retained in 2nd year	52%	58%	36%	66%

	DIFFERENCE BETWEEN THE COHORTS			
	Did not receive texts	Received texts & passively opted out	Received texts & actively opted out	Received texts & actively opted in
DEMOGRAPHIC CHARACTERISTICS				
Gender - male	-1%	0%	2%	-2%
Race - white	0%	8%	7%	5%
Race - black	0%	-2%	1%	-1%
Race - Hispanic	1%	-6%	-6%	-4%
Part-time	-9%	-13%	-3%	-17%
Developmental education mandated	0%	-7%	-9%	-4%
Pell-eligible	11%	-1%	-1%	-3%
OUTCOMES				
Retained in Spring semester	1%	0%	4%	-4%
Retained in 2nd year	2%	3%	-22%	3%

APPENDIX 2. DETAILED PSM RESULTS

SIP grant's program impacts on retention

First-year retention (%)	Matched Comparison Group Mean	Treatment Group Mean	Difference	Abadie Imbens Robust S.E.	P> z
All students	51.4%	53.9%	2.5%	0.009	0.004
Fall 2016 students	51.4%	53.1%	1.6%	0.010	0.101
Fall 2017 students	51.5%	54.8%	3.3%	0.009	0.001

Texting intervention's program impacts on retention

First-year retention (%)	N	Matched Comparison Group Mean	Treatment Group Mean	Difference	Abadie Imbens Robust S.E.	P> z
All students	2,366	51.6%	64.8%	13.3%	0.012	0.000
Fall 2016 students	1,080	50.9%	63.1%	12.2%	0.018	0.000
Fall 2017 students	1,283	52.0%	66.4%	14.5%	0.017	0.000
Male students	1,037	50.4%	63.1%	12.6%	0.018	0.000
Female students	1,328	52.5%	66.3%	13.7%	0.017	0.000
Fall 2016 Male students	485	49.9%	60.2%	10.4%	0.026	0.000
Fall 2016 female students	595	52.0%	65.4%	13.4%	0.025	0.000
Fall 2017 Male students	552	50.8%	65.6%	14.8%	0.024	0.000
Fall 2017 Female students	731	52.9%	67.0%	14.1%	0.023	0.000
Part-time students	1,376	48.0%	62.1%	14.1%	0.016	0.000
Full-time students	986	57.0%	68.6%	11.6%	0.018	0.000
Fall 2016 Part-time students	646	46.5%	61.6%	15.1%	0.024	0.000
Fall 2016 Full-time students	434	57.6%	65.2%	7.6%	0.028	0.006
Fall 2017 Part-time students	729	49.2%	62.7%	13.5%	0.023	0.000
Fall 2017 Full-time students	552	55.8%	71.1%	15.3%	0.024	0.000