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Financial Aid Nudges:
A National Experiment with Informational Interventions

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Executive Summary

High college prices are a substantial barrier to college completion. Even after initially applying for financial aid, many students do not re-file the Free Application for Federal Student Aid (FAFSA), or file late, harming their prospects for continued financial support. Prior evidence suggests that low-cost technological interventions delivering personalized information and/or financial advising can help mitigate informational and behavioral barriers to FAFSA refiling and generate improved college outcomes for students. But the utility of such interventions for increasing FAFSA renewal rates at scale is uncertain.

This study examines the efficacy of a set of informational interventions using text-message communication delivered across a variety of institutions and geographic areas with a national sample of undergraduates derived from the National Postsecondary Student Aid Study of 2016. The intervention's short-term goal was to improve rates of FAFSA refiling, with the downstream goal of improving college persistence and completion.

This study extends prior work by considering several treatment variants relative to each other and to a control group. Nearly 10,000 students were divided at random into five groups. The first group was assigned to a business-as-usual condition while three other groups were randomly assigned to information and nudge-only treatments and received: (1) information about FAFSA refiling and financial aid; (2) information about the importance of maintaining satisfactory academic progress to maintain financial aid eligibility; and (3) reminders to refile the FAFSA and complete other stages of the financial aid process in advance of state- and institution-specific priority filing deadlines. Message frames varied across groups: one used social pressure, another a commitment device, and the third offered information in a straightforward manner. The final group was offered information, nudges, and assistance. In addition to the information just described, those students were also offered the opportunity to engage with an advisor, via text, for individualized assistance.

Impacts are reported for FAFSA re-filing, federal financial aid receipt, and continued enrollment and degree completion over one year using several national databases. Students assigned to treatment refiled the FAFSA somewhat earlier, but gains in FAFSA filing during the active intervention period were not sustained after the intervention concluded. Among students who had not already filed FAFSA pre-treatment, there were some positive impacts. But this did not translate into additional federal financial aid or academic improvements. Thus, in this national experiment informational and remote advising interventions delivered at scale did not offer sufficient support to boost federal financial aid or academic outcomes. Potential reasons for this lack of impact are discussed.

Background

College prices are growing rapidly and are a substantial barrier to college completion for both middle- and lower-income students. Financial aid is the main mechanism for increasing college affordability among students, but it is distributed using a complex system that includes a lengthy application (the Free Application for Federal Student Aid, or FAFSA) and numerous rules for continued receipt (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012; Goldrick-Rab, Kelchen, Harris, & Benson, 2016; Kelly & Goldrick-Rab, 2014; St. John, Hu, & Tuttle, 2000).

This administrative complexity appears to reduce the effectiveness of financial aid programs (Dynarski & Wiederspan, 2012; Goldrick-Rab, 2016; Page, Castleman & Meyer, 2018). In particular, challenges with completing the application, filing, and verification lead eligible students with financial need to leave at least $5 billion dollars on the table each year as they do not meet requirements. Evidence from the nationally representative Beginning Postsecondary Students study of 2004/09 suggests that, each year, 15 to 20 percent of rising second year students who were Pell-eligible in the previous year do not refile a FAFSA (Bird & Castleman, 2016). These students are much less likely to persist than peers of similar backgrounds who file the FAFSA (Novack & McKinney, 2011; Bird & Castleman, 2016). This differential is not surprising, since without a FAFSA students do not have access to nearly all federal, state, and institutional aid, including grants as well as loans and work-study dollars.

Money is also foregone when students do not refile FAFSA on time. State and institutional aid is limited and often runs out; filing early is the only way to ensure that eligible students receive those funds (McKinney & Novak, 2015). March 1 is the priority-filing deadline in many states, but only 33 percent of black undergraduates and 37 percent of low socioeconomic status undergraduates file FAFSA by that date (Castleman & Page, 2015a).

In addition, maintaining financial aid eligibility requires students to maintain Satisfactory Academic Progress (SAP). SAP requirements define minimum grade point average and progress toward degree benchmarks that students must achieve to continue receiving aid after their first year of college. Despite the strong incentives that SAP would seem to create, as many as 40 percent of first year community college students are at risk of losing aid eligibility due to their failure to meet SAP (Schudde & Scott-Clayton, 2016). A survey of more than 1,000 first-year Pell recipients attending public and private 4-year and 2-year colleges revealed that more than one in four students were unaware of SAP requirements, putting them at risk of losing their financial aid (Wisconsin HOPE Lab, 2015).

Why do so many economically vulnerable students attend colleges without the financial aid for which they qualify? How might colleges and universities improve degree completion rates by helping students retain their financial aid? A better understanding of this challenge and the identification of an effective, low-cost intervention might improve college attainment.

A growing body of research suggests timely, personalized reminders hold promise for increasing the rate at which people successfully follow through on their intentions or pursue programs and opportunities that lead to improved outcomes for them or their families (Thaler & Sunstein, 2009). In educational settings, nudges appear to be a cost-effective strategy for improving certain educational outcomes. More specifically, some studies (described in more detail below) have incorporated

nudges on FAFSA filing into randomized interventions intended to increase college retention (Cannon & Goldrick-Rab, 2015; Castleman & Page, 2016). The first study, which took place at a 4-year public university, identified positive effects of phone-based outreach from a call center on rates of on-time FAFSA re-filing for continuing students, somewhat increasing the amount of aid (primarily state aid) that students received. But the increase in aid did not result in increased retention to the next year of college (Cannon & Goldrick-Rab, 2015). In contrast, the second study found positive effects of text-message nudges on persistence to the second year of college among community college students, but no impacts among first-year students at 4-year institutions for whom rates of persistence into the second year were already high (Castleman & Page, 2016).[1]

On the other hand, a recent larger study found that nudging at scale may be less effective than previously thought. Specifically, Kellie Bird and her colleagues examined national- and state-level FAFSA completion messaging campaigns that reached nearly 800,000 students, and estimated precise null impacts both overall and across a variety of treatment variations (Bird et al. 2019).

Given the popularity of nudging and other informational interventions, the vast size of the American higher education system, and constrained institutional resources, it is important to understand whether text-message based nudging is an effective way to help students retain financial aid and increase efficiency in the existing financial aid system. To shed additional light on this important issue, this study leverages a first-of-its-kind opportunity provided by the U.S. Department of Education's National Center for Education Statistics, in which a nationally representative sample from the National Postsecondary Student Aid Study of 2016 (NPSAS: 2016) was made available for intervention and experimentation under the guidelines of a special call for proposals from the Institute for Education Sciences. This provides for an examination of the impacts of informational interventions aimed at increasing continued receipt of financial aid and continued enrollment in college with a national sample of students. Several types of informational interventions are considered examine the relative effectiveness of information presented with different types of framing as well as the effectiveness of nudges coupled with the offer of individual assistance.

[1] While the authors measure students' persistence in college, they do not measure impacts of the intervention on FAFSA refiling and financial aid receipt.

Methodology

Intervention

With the goal of helping students continue to receive financial aid and remain enrolled in college, two types of informational interventions were distributed with the support of Signal Vine's messaging platform. For one type of intervention, three variants were tested. The two types are (a) simplified information and prompts delivered via text message "nudges" and (b) text messages coupled with the offer to interact with a remote advisor available via text message. Differentiated language in the text messages was employed to try and ascertain why prior work suggested that this approach can increase FAFSA filing and college persistence (Castleman and Page 2016). In particular, two prominent theories—social pressure and commitment device—were considered. The text message outreach came in three flavors: (1) a basic reminder and information version; (2) a social-pressure version that added to the basic version cues about average peer behavior in accomplishing the task, and (3) a commitment-device version that instead prompted recipients to commit to a particular day to accomplish the task (see the Appendix for the specific messages and style of delivery).

The social pressure approach operates under the theory that individual behavior can be influenced (both positively and negatively) by knowledge or perceptions of peers' behavior. Dozens of studies have documented that students will adopt positive behaviors if they see or believe their peers are engaged in the behavior. For example, Sacerdote (2001) and Stinebrickner and Stinebrickner (2006) find that being assigned dorm-mates or roommates who are academically inclined improves students' own grades and study habits. Many attempts to curb binge drinking among college students seek to reduce students' perception of how much their peers drink in a typical weekend evening (Johnston and White, 2003; Perkins 2002). As a component of their Expanding College Opportunity intervention, Hoxby and Turner (2013) informed low-income, high-achieving students of the broad range and number of college applications that their peers submitted.

In this study, the social pressure texts emphasized the rates at which other students are filing the FAFSA or taking advantage of campus resources. In addition to informing students of campus resources like the financial aid office, the texts also added social cues such as the following message: "Many of your peers rely on campus resources to help them succeed. Have you found helpful supports to turn to for any academic challenges?"

Alternatively, students may benefit from a commitment device. Completing a FAFSA is a costly and relatively unpleasant task. Faced with a distant deadline and an even farther off reward, students may continue to procrastinate and never actually complete the application (Ashraf, Karlan & Yin, 2006; DellaVigna & Malmendier, 2006). DellaVigna (2009) and Bryan et al (2010) summarize a deep literature in psychology and economics on this topic.

The commitment device texts asked students to pick a particular day to work on their FAFSA or complete another task (e.g., Monday, Wednesday, or Friday of the following week). When that day arrived, the system sent a follow-up message to remind students of their commitment.

In addition to the framing of the messaging, the study considers whether there is additional benefit to providing students with the opportunity to connect with an advisor who is knowledgeable about FAFSA filing as well as other college-going processes. College Possible, a non-profit organization headquartered in Saint Paul, Minnesota, focused on mitigating barriers to college access and success, offered this support.[2] Specifically, College Possible identified, trained and supervised advisors to staff and respond to messages incoming from treatment students invited to engage with via text.

Each of the active intervention groups is compared to each other as well as to a control group of students who received no intervention. To summarize, through the structure of an experimental study, outcomes for students in one of five different groups are contrasted:

- Control condition—no intervention
- College Possible—basic text messaging plus the offer to interact with an advisor
- Texting with basic language
- Texting with social pressure language
- Texting with commitment device language

The intervention was meant to begin in January 2017 and last 15 weeks. However, several external factors delayed the start date, including challenges with obtaining required Office of Management and Budget clearances for the work. The intervention began on February 7, 2017 and continued through May 16, 2017.

In addition to the delayed timeline, two other external occurrences may have affected this study. First, starting in fall 2016 the Department of Education implemented "prior-prior year," allowing students to file FAFSA starting in October rather than in January by using their tax filings from two years rather than one year earlier. The prior-prior year policy change may have led to a greater-than-expected share of this student sample to have already completed the FAFSA by the start of the intervention, consistent with trends nationally. In addition, during spring 2017, the IRS Data Retrieval Tool that allows students to import IRS tax data into the FAFSA, thus simplifying the application process, went down. The effect is unknown.

Table 1 presents the schedule and topical focus of each set of messages distributed. To increase the odds that the text messages would offer useful information to students, perhaps even to those who had already filed their FAFSA by the time the intervention began, some supplemental information was added to the message content. Specifically, additional messages included (a) academic requirements for retaining financial aid, and (b) information about eligibility for two other social benefits for which our study participants may have been eligible: the Supplemental Nutrition Assistance Program (SNAP) and the Earned Income Tax Credit (EITC), and (c) what to do while the Data Retrieval Tool was down.

[2] For more information on College Possible, see www.collegepossible.org.

Table 1. Text Message Distribution Schedule and Topic

Date	Content
Tuesday, February 7, 2017	Introduction
Thursday, February 9, 2017	FAFSA completion
Monday, February 13, 2017	FAFSA completion
Thursday, February 16, 2017	FAFSA completion
Tuesday, February 21, 2017	Staying on track academically and campus resources to support student success
Thursday, February 23, 2017	FAFSA completion
Monday, February 27, 2017	FAFSA completion
Monday, March 13, 2017	FAFSA completion
Tuesday, March 14, 2017	Supplemental Forms (e.g., CSS Profile) that the student's campus also requires for financial aid
Thursday, March 16, 2017	Extra message: Information on the IRS data retrieval tool being unavailable
Tuesday, March 28, 2017	Satisfactory Academic Progress requirements for maintain financial aid
Tuesday, April 11, 2017	Earned Income Tax Credit
Thursday, April 20, 2017	Supplemental Assistance Nutrition Program
Tuesday, May 2, 2017	Preparing for final exams
Tuesday, May 09, 2017	FAFSA completion
Thursday, May 11, 2017	Supplemental Assistance Nutrition Program
Tuesday, May 16, 2017	Summer jobs and internship

Sample

The full study sample includes 9,881 students. Sampling was done with the assistance of RTI, as the sample is a subset of those included in the NPSAS:2016. To be included in the study sample, students had to agree when they took the NPSAS survey (between January and November 2016) to future communication via text message (information about the specific intervention was not provided). The sample is stratified by three student characteristics: intensity of enrollment (full-time, part-time, unknown); institutional level (four-year, two-year, less than two-year), and whether the student had filed the FAFSA for the 2016-17 academic year (yes, no). This resulted in 18 distinct groups within which students were randomized to experimental conditions. Some students assigned to the control group also served as controls for a separate NPSAS-related experiment being conducted simultaneously.

Table 2 provides information on the study samples and all subsamples. In the full sample, 19 percent of students had filed the FAFSA for the upcoming (2017-18) academic year prior to the start of the intervention. In addition, approximately half of the students were not enrolled in college during the term prior to intervention.[4] Thus, treatment impacts are estimated for three groups: (1) the full sample (N=9,881), (2) students who did not file a FAFSA pre-treatment (N= 8,004), and (3) students who did not file a FAFSA and were enrolled in the semester pre-treatment (N= 4,014). Heterogeneous impacts by institution type (2-year vs. 4-year) and sector (public vs. private) are considered.

Table 2. Sample and Subsample Definitions and Sizes

Treatment Group	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7
			FAFSA not filed & enrolled in college pre-treatment				
	Full sample	**FAFSA not filed pre-treatment**	**All**	**Two-year enrollees**	**Four-year enrollees**	**Four-year public enrollees**	**Four-year private enrollees**
Control	2,152	1,746	860	258	602	407	195
Texting, basic	1,601	1,291	654	177	477	346	131
Texting, social pressure	1,590	1,300	627	139	488	316	172
Texting, commitment device	1,640	1,326	685	157	528	330	198
Texting, College Possible	2,898	2,341	1,188	280	908	603	305
Total	9,881	8,004	4,014	1,011	3,003	2,002	1,001

[4] Many students were sampled for NPSAS:2016 during the spring term of the 2015-16 academic year, but the semester prior to intervention was the fall term of the 2016-17 academic year. A drawback of this sampling approach, therefore, is the sizeable time lag between study recruitment and intervention implementation. During this time lag, many students included in the sample appear to have stopped out of college. Nonetheless, the intervention may have been salient if they wished to return.

Baseline Equivalence

Randomization was successful in producing a sample that is well balanced on a host of baseline covariates at both the institutional and student levels. Table 3 assesses baseline equivalence for the full sample (Appendix Tables A1 and A2 assess this for the two subsamples). The instances of statistically significant differences in baseline measures are scattered and occur at a rate consistent with chance.

Table 3. Assessment of Baseline Equivalence, Full Sample

	Control	College Possible	Texting, basic	Texting, social pressure	Texting, commit device
Pre-intervention: Filed FAFSA 16/17	0.5846 (0.4929)	0.6204 (0.4854)	0.609 (0.4881)	0.6019 (0.4897)	0.6116 (0.4875)
Outcome measure: Filed FAFSA 17/18	0.4191 (0.4935)	0.4317 (0.4954)	0.4447 (0.4971)	0.4214 (0.4939)	0.4226 (0.4941)
Institutional characteristics					
75th Pctl Verbal SAT	583.8118 (60.1735)	585.5033 (61.5866)	587.008 (59.958)	588.1584 (65.2747)	587.3313 (64.3826)
75th Pctl ACT	26.4004 (3.7574)	26.337 (3.7236)	26.3252 (3.6647)	26.3518 (3.8975)	26.4957 (3.926)
Admission rate	0.66 (0.1926)	0.6667 (.205)	0.6656 (0.1983)	0.6587 (0.1919)	0.6558 (0.2027)
Public	0.6059 (0.4888)	0.5462 (0.4979)	0.574 (0.4946)	0.5465 (0.498)	0.5427 (0.4983)
Non-profit	0.138 (0.345)	0.1563 (0.3632)	0.1343 (0.3411)	0.1566 (0.3635)	0.1634 (0.3699)
For-profit	0.256 (0.4365)	0.2974 (0.4572)	0.2917 (0.4547)	0.2969 (0.457)	0.2939 (0.4557)
Student characteristics					
Age	27.112 (9.461)	26.3861 (9.2329)	29.0912 (8.9663)	26.2553 (9.0248)	26.1049 (8.7491)
Female	0.5933 (0.4913)	0.6008 (0.4891)	0.6046 (0.4891)	0.5986 (0.4903)	0.5878 (0.4924)
Class year	2.2212 (1.1866)	2.215 (1.1936)	2.2286 (1.1954)	2.3013 (1.2414)	2.3073 (1.2393)
First generation	0.4449 (0.4971)	0.4508 (0.4977)	0.4254 (0.4946)	0.4523 (0.4979)	0.4244 (0.4944)
White	0.4635 (0.4988)	0.4668 (0.499)	0.4712 (0.4993)	0.4357 (0.496)	0.4573 (0.4983)
Black	0.2113 (0.4083)	0.2176 (0.4127)	0.1963 (0.3973)	0.2257 (0.4182)	0.2118 (0.4087)

Table 3. Assessment of Baseline Equivalence, Full Sample (continued)

	Control	College Possible	Texting, basic	Texting, social pressure	Texting, commit device
Hispanic	0.2154 (0.4112)	0.2145 (0.4106)	0.2181 (0.4131)	0.2125 (0.4092)	0.2161 (0.4117)
Asian	0.0409 (0.1982)	0.0343 (0.1982)	0.0431 (0.2032)	0.0536 (0.2253)	0.0452 (0.2078)
Multiracial	0.0591 (0.2359)	0.0606 (0.2386)	0.0600 (0.2376)	0.0624 (0.242)	0.0635 (0.2439)
SAT Verbal	532.96 (109.3722)	539.6334 (106.3068)	535.587 (98.259)	534.1366 (105.166)	536.3504 (102.0206)
SAT Math	537.6285 (111.7923)	535.9954 (104.6599)	544.2231 (102.0103)	530.2609 (106.9911)	539.6017 (108.3742)
ACT	22.6559 (4.8069)	23.2166 (5.1165)	22.9549 (4.6297)	22.7169 (4.7673)	23.9315 (4.6304)
HS GPA	2.5547 (1.2357)	2.5038 (1.2215)	2.4576 (1.1881)	2.5383 (1.2259)	2.5124 (1.2029)
GPA	2.772 (1.0031)	2.8864 (.9503)	2.7646 (1.0359)	2.7809 (.9849)	2.7985 (1.0171)
EFC	13638.41 (40311.52)	14523.83 (38374.62)	13761.15 (34618.15)	12205.97 (18439.55)	14409.37 (26538.16)
N prior FAFSAs	3.5042 (3.0271)	3.2988 (2.8245)	3.2342 (2.8245)	3.2937 (2.8935)	3.3305 (2.8069)
Observations	**2,152**	**2,898**	**1,601**	**1,590**	**1,640**

Models for assessing treatment impacts all take the following general form, here expressed for the impact of any treatment (e.g., with all treatments pooled together):

$$Y_{ij} = \alpha_j + \beta\ \mathrm{TREAT}_{ij} + X\gamma + \epsilon_{ij} \qquad (1)$$

In equation (1) i indexes student and j indexes the groups within which we randomized students to interventions. These groups are defined by a cross-tabulation of the following measures taken at the time of study recruitment: institution type (four-year, two-year, less than two year), FAFSA filing status for the 2016-17 academic year, and intensity of enrollment (full-time, part-time, less than part time). To handle the structure of randomization, fixed effects are included, α_j, for each of these groups. TREAT_{ij} is an indicator equal to 1 if the student is assigned to receive text outreach, and otherwise zero. For models that consider effects for the specific interventions, this term is replaced by a set of four dummy variables with corresponding regression coefficients. X represent baseline student- and institution-level covariates included to improve the precision of estimates. Baseline covariates at the individual level include age, sex, class year, first-generation status, race / ethnicity, SAT / ACT, performance, high

school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Robust standard errors are reported.[4]

In equation 1, the coefficient β represents the effect of being assigned to receive the text-message outreach, i.e., the intent-to-treat effect, rather than the effect of receiving the outreach, necessarily. As noted above, a substantial share of students opted out at some point during the intervention, with the majority (approximately 20 percent of all treatment-assigned students) opting out upon receiving the introductory text. Students who opted out immediately may not have receive any meaningful component of the intervention and could have a treatment effect of zero. As such, some analyses, employ an instrumental variables approach to estimate the effect of intervention participation on FAFSA filing outcomes by using treatment assignment as an instrument for participation. In these analyses, all students who did not opt out immediately are treated as having participated in the intervention, and participation is measured with a binary indicator equal to 1 for all treatment-assigned students who did not opt out immediately after the introductory message.

Program Implementation

Did students receive the informational interventions as intended? Table 4 assesses the level of student engagement in the intervention. The top panel describes engagement results for the overall sample, and the next two panels describes results for the main two subsamples (this information is provided for all remaining subsamples in Table A3 in the Appendix). Nearly all students assigned to one of the treatment arms received text outreach. The average number of text messages received is higher in the text-only groups, compared to the College Possible group, because the message content in the text-only groups included some multi-part messages and options to trigger automated message responses. In contrast, in the College Possible group, students needed to respond to an initial prompt to receive follow-up from a College Possible advisor. The average student in the College Possible group received nearly 15 messages during the intervention, whereas the average number of messages in the text-only groups ranged from nearly 18 to just over 19.

More than one-quarter of students indicated that they wanted to opt-out of messaging at some point during the intervention. This opt-out rate was similar whether or not a College Possible advisor was offered. Most students (around 20%) opted out at the very start of the intervention. These rates of initial and overall opt out are substantially higher than seen in prior text-based interventions. For example, Castleman and Page (2015, 2016) report opt-out rates on the order of five to six percent in text interventions targeting students who are transitioning to college for the first time, as well as interventions targeting students during their first year of college.

[4] The probability of assignment to the treatment condition varied somewhat across randomization groups. This was to accommodate sample sharing between this project and other NPSAS-related experimental study. To handle this variation, weights are assigned according to the inverse probability of assignment to the given experimental condition within each randomization group. NPSAS sample weights (designed to create national representativeness) are interacted with the other study weights. In practice, these weights make little difference in the estimates, although the experimental results presented are based on models that incorporate these weights.

Table 4. Fidelity of Implementation

Variable	Messages Received (Y/N)	Opt Out (Y/N)	Opt Out immediately (Y/N)	Restart (Y/N)	N Messages Total	N Messages Sent by Student	N Messages Received by Student
Sample 1: Full Sample (N=9,881)							
College Possible	0.998***	0.294***	0.222***	0.001	14.875***	2.009***	12.866***
Texting, basic	0.998***	0.271***	0.200***	0.000	17.897***	0.867***	17.030***
Texting, social	0.998***	0.263***	0.172***	0.000	19.117***	0.795***	18.322***
Texting, commitment device	0.999***	0.299***	0.209***	0.001	18.239***	0.827***	17.412***
Control	-	-	-	-	-	-	-
R^2	0.997	0.174	0.122	0.001	0.676	0.16	0.696
Sample 2: FAFSA not filed pre-treatment (N=8,004)							
College Possible	0.998***	0.303***	0.227***	0.001	14.441***	1.833***	12.607***
Texting, basic	0.998***	0.281***	0.211***	0.000	17.572***	0.779***	16.793***
Texting, social	0.999***	0.270***	0.181***	0.000	18.844***	0.719***	18.125***
Texting, commitment device	0.999***	0.303***	0.213***	0.000	18.1555***	0.796***	17.360***
Control	-	-	-	-	-	-	-
R^2	0.997	0.181	0.126	0.001	0.671	0.152	0.688
Sample 3: FAFSA not filed & enrolled in college pre-treatment (N=4,014)							
College Possible	0.998***	0.289***	0.223***	0.001	15.073***	2.077***	12.997***
Texting, basic	0.999***	0.303***	0.303***	0.000	17.267***	0.819***	16.447***
Texting, social	1.000***	0.276***	0.276***	0.000	19.011***	0.832***	18.179***
Texting, commitment device	1.000***	0.311***	0.311***	0.000	18.138***	0.822***	17.316***
Control	-	-	-	-	-	-	-
R^2	0.998	0.189	0.137	0.002	0.667	0.171	0.688

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection.

Several factors may contribute to the high opt-out rate. The intervention may not have been salient if they had already filed FAFSA or were no longer enrolled but opt-out rates are similar whether or not they had filed FAFSA pre-treatment, and whether or not they were enrolled pre-treatment. Alternatively, students may not be interested in text support in general and/or text support from an individual they do not recognize or from an organization with which they had no affiliation. The initial intervention message began "Hi this is ____ from College Possible. When you did the NPSAS survey, you signed up for text messages about college-related topics." They may not have recognized the NPSAS acronym or the College Possible name or may have forgotten that they previously consented to contact. NPSAS16 survey administration began in January 2016. Therefore, for some students the intervention began a year after they first consented. Here is a sample exchange with a student:

Outgoing: hi, it's paul! [Your college] may require additional financial aid forms. want to work together on finalizing your aid renewal?

Student: what

Outgoing: have you completed your FAFSA yet?

Student: who is this

Outgoing: this is Paul, a financial aid and academic adviser based out of the twin cities, mn. i'm here to help you. Do you need help with your aid renewal?

Student: who are u looking for

Outgoing: i'm looking for [name]

Student: wrong number

Although participants had the opportunity to restart messaging after opting out, very few did. Most students who received text messages did not respond (e.g., they were not highly likely to send messages to trigger automated, follow up content), though students who were offered a College Possible advisor sent an average of two messages.

Treatment Impacts

Impacts on FASFA filing are estimated two ways. First, treatment groups are pooled to consider the impact of any version of the intervention week-by-week as the intervention period progressed. Second, the intervention groups are examined separately to see whether specific types of texting or texting plus advising outperformed others.

Tables 5-7 pertain to the main subsample and two subsamples. There are no clear impacts on FAFSA filing either during or after the period of active intervention for the full sample (Table 5). However, when the sample is restricted to students who had not already filed FAFSA pre-treatment, there are modest, statistically significant impacts on FAFSA filing during the timeframe of active

intervention. During weeks 1-12 (the intervention ended in week 14), effects are on the order of 1 to 2 percentage points and are a bit larger (2-4 percentage points) for students who had not yet done the FAFSA and were enrolled pre-treatment. This is the sample for which the intervention might be most relevant. However, those modest effects quickly attenuated after the active intervention period. Thirty-four weeks after the intervention began, approximately 43 percent of students had filed the FAFSA, regardless of experimental condition (Table 5). This attenuation of effects was similar across all analytic subsamples.

There is no evidence that one messaging variant—social pressure, commitment device, or basic—was more or less effective than the others. If anything, point estimates are often larger for the basic form of the intervention, but these effects are not precisely enough estimated to be statistically distinguishable.

Tables 5 through 7 also report the IV (treatment on treated) impact of intervention participation on week-by-week FAFSA filing. As anticipated, these treatment effects are somewhat larger than the ITT effects. For example, in the smaller sample of enrolled students who had not filed FAFSA pre-treatment, impacts on FAFSA filing range from 3 to 5 percentage points during the active intervention period. Nevertheless, as with the ITT effects, these treatment effects quickly attenuated to zero following the intervention period.

Finally, there is some evidence that impacts on FAFSA filing varied by the type or sector of the college where the student was enrolled. Note that these analyses pertain only to students who had not filed the FAFSA and were enrolled in college prior to the intervention.

For those students, by the end of week 10 of the intervention FAFSA filing was nearly 7 percentage points higher for those enrolled in two-year institutions (Table A4) and nearly 5 percentage points higher for those enrolled in four-year private institutions (Table A7). In contrast, there are null effects for those enrolled in four-year public institutions (Table A6). However, none of the groups seem to have lasting benefits of the intervention.

Table 5. Impact on FAFSA Filing, Full Sample

		ITT					IV
Week	**Control mean**	**Any treatment**	**College Possible**	**Texting, basic**	**Texting, social pressure**	**Texting, committment device**	**Any treatment**
1	0.200	0.003	0.001	0.009	0.002	0.005	0.004
2	0.208	0.005	0.002	0.012	0.003	0.008	0.007
3	0.223	0.005	0.001	0.010	0.004	0.008	0.006
4	0.239	0.007	-0.002	0.017	0.006	0.012	0.008
5	0.244	0.009	0.002	0.019	0.006	0.015	0.012
6	0.251	0.009	0.005	0.016	0.006	0.013	0.012
7	0.259	0.008	0.004	0.014	0.003	0.012	0.010
8	0.266	0.013	0.006	0.023	0.011	0.019	0.016
9	0.274	0.013	0.008	0.025*	0.008	0.016	0.016
10	0.285	0.011	0.006	0.021	0.006	0.014	0.014

Table 5. Impact on FAFSA Filing, Full Sample (continued)

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committment device	Any treatment
11	0.290	0.015	0.012	0.023	0.013	0.014	0.019
12	0.299	0.014	0.011	0.020	0.013	0.013	0.017
13	0.310	0.010	0.007	0.019	0.009	0.008	0.013
14	0.319	0.007	0.003	0.017	0.005	0.005	0.009
15	0.326	0.006	0.004	0.018	0.002	0.004	0.008
16	0.332	0.006	0.005	0.016	0.001	0.004	0.008
17	0.342	0.003	0.003	0.014	-0.003	-0.001	0.004
18	0.347	0.004	0.002	0.013	0.001	0.003	0.005
19	0.353	0.004	0.002	0.014	0.001	0.001	0.005
20	0.358	0.007	0.006	0.016	0.001	0.004	0.008
21	0.369	0.002	0.002	0.012	-0.006	-0.001	0.002
22	0.380	-0.003	-0.004	0.006	-0.010	-0.007	-0.004
23	0.390	-0.006	-0.008	0.003	-0.010	-0.009	-0.008
24	0.394	-0.004	-0.007	0.006	-0.008	-0.007	-0.005
25	0.400	-0.002	-0.004	0.012	-0.005	-0.006	-0.002
26	0.408	-0.002	-0.005	0.013	-0.006	-0.006	-0.002
27	0.413	0.000	-0.004	0.013	-0.002	-0.003	0.000
28	0.417	0.000	-0.005	0.011	-0.001	-0.001	0.000
29	0.422	0.000	-0.006	0.009	0.001	-0.002	0.000
30	0.424	0.000	-0.006	0.011	0.000	0.001	0.000
31	0.426	0.000	-0.006	0.012	0.000	-0.001	0.000
32	0.428	0.000	-0.005	0.013	0.000	-0.001	0.000
33	0.428	0.003	-0.003	0.015	0.002	0.001	0.003
34	0.428	0.000	-0.002	0.015	0.002	0.001	0.004

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first-generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.

Table 6. Impact on FAFSA filing: FAFSA not filed pre-treatment sample

		ITT					IV
Week	**Control Mean**	**Any Treatment**	**College Possible**	**Texting, Basic**	**Texting, Social Pressure**	**Texting, Committment Device**	**Any Treatment**
1	0.010	0.006**	0.005	0.010**	0.006	0.006	0.008**
2	0.021	0.009**	0.006	0.014**	0.008	0.009	0.011**
3	0.038	0.008	0.005	0.011	0.009	0.009	0.010
4	0.058	0.011	0.002	0.021**	0.012	0.015	0.014
5	0.065	0.014**	0.006	0.024**	0.012	0.020**	0.018**
6	0.073	0.014*	0.010	0.020**	0.012	0.017*	0.018*
7	0.084	0.012	0.010	0.018*	0.009	0.016	0.016
8	0.091	0.019**	0.011	0.028**	0.018	0.024**	0.024**
9	0.102	0.018**	0.013	0.030**	0.014	0.021*	0.023**
10	0.115	0.016*	0.011	0.027**	0.012	0.019	0.020*
11	0.122	0.021**	0.019*	0.029**	0.020*	0.019	0.027**
12	0.132	0.020**	0.016	0.025**	0.021*	0.018	0.025**
13	0.146	0.016	0.013	0.024*	0.016	0.013	0.020
14	0.157	0.011	0.008	0.021	0.011	0.009	0.014
15	0.166	0.011	0.008	0.023*	0.007	0.007	0.014
16	0.173	0.010	0.009	0.021	0.006	0.007	0.013
17	0.186	0.007	0.007	0.018	0.001	0.001	0.009
18	0.192	0.008	0.005	0.016	0.006	0.007	0.010
19	0.200	0.008	0.005	0.017	0.006	0.004	0.009
20	0.206	0.011	0.011	0.02	0.007	0.008	0.014
21	0.220	0.005	0.005	0.016	-0.001	0.002	0.007
22	0.234	-0.001	-0.002	0.009	-0.006	-0.005	-0.001
23	0.245	-0.005	-0.007	0.004	-0.006	-0.008	-0.006
24	0.250	-0.002	-0.006	0.008	-0.004	-0.004	-0.003
25	0.258	0.001	-0.003	0.015	0.000	-0.004	0.001
26	0.267	0.001	-0.004	0.016	-0.001	-0.003	0.001
27	0.274	0.003	-0.003	0.016	0.004	0.000	0.004
28	0.279	0.003	-0.004	0.014	0.004	0.003	0.004
29	0.285	0.002	-0.005	0.012	0.007	0.002	0.003

Table 6. Impact on FAFSA filing: FAFSA not filed pre-treatment sample (continued)

		ITT					IV
Week	**Control Mean**	**Any Treatment**	**College Possible**	**Texting, Basic**	**Texting, Social Pressure**	**Texting, Committment Device**	**Any Treatment**
30	0.288	0.003	-0.005	0.014	0.006	0.005	0.004
31	0.291	0.003	-0.005	0.016	0.006	0.003	0.004
32	0.292	0.004	-0.005	0.016	0.006	0.003	0.005
33	0.292	0.007	-0.001	0.019	0.009	0.006	0.008
34	0.292	0.007	0.000	0.019	0.009	0.006	0.006

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.

Table 7. Impact on FAFSA filing: FAFSA not filed & enrolled in college pre-treatment sample

		ITT					IV
Week	**Control Mean**	**Any Treatment**	**College Possible**	**Texting, Basic**	**Texting, Social Pressure**	**Texting, Committment Device**	**Any Treatment**
1	0.016	0.007	0.005	0.012	0.010	0.004	0.009
2	0.034	0.007	0.005	0.010	0.004	0.009	0.009
3	0.060	0.007	0.005	0.011	0.003	0.011	0.009
4	0.089	0.015	0.003	0.030*	0.013	0.025	0.020
5	0.100	0.018	0.009	0.030*	0.009	0.032**	0.023
6	0.112	0.021*	0.018	0.028	0.012	0.028*	0.027*
7	0.125	0.021	0.021	0.024	0.010	0.027	0.027
8	0.134	0.035**	0.029*	0.042**	0.025	0.047**	0.044**
9	0.149	0.033**	0.028*	0.044**	0.024	0.039**	0.042**
10	0.169	0.028*	0.026	0.027*	0.022	0.030	0.036*
11	0.176	0.037**	0.040**	0.041**	0.030	0.034*	0.047**
12	0.193	0.034**	0.035*	0.031	0.033	0.035*	0.043**
13	0.214	0.028*	0.028	0.029	0.025	0.028	0.035*
14	0.232	0.020	0.018	0.024	0.017	0.021	0.025
15	0.243	0.020	0.021	0.022	0.011	0.023	0.025
16	0.252	0.022	0.025	0.022	0.014	0.024	0.028

Table 7. Impact on FAFSA filing: FAFSA not filed & enrolled in college pre-treatment sample (continued)

		ITT					IV
Week	**Control Mean**	**Any Treatment**	**College Possible**	**Texting, Basic**	**Texting, Social Pressure**	**Texting, Committment Device**	**Any Treatment**
17	0.272	0.014	0.021	0.014	0.001	0.013	0.018
18	0.277	0.019	0.023	0.020	0.010	0.022	0.025
19	0.290	0.016	0.020	0.016	0.013	0.013	0.021
20	0.298	0.021	0.029	0.020	0.012	0.017	0.027
21	0.321	0.009	0.020	0.005	-0.004	0.003	0.011
22	0.334	0.005	0.017	-0.005	-0.007	0.002	0.006
23	0.353	-0.002	0.008	-0.010	-0.009	-0.004	-0.002
24	0.359	0.003	0.009	-0.001	-0.003	-0.001	0.003
25	0.369	0.007	0.011	0.006	0.008	0.002	0.010
26	0.385	0.003	0.004	0.005	0.002	0.000	0.004
27	0.392	0.006	0.007	0.005	0.014	0.001	0.008
28	0.398	0.007	0.006	0.003	0.017	0.003	0.009
29	0.406	0.006	0.004	0.001	0.018	0.002	0.008
30	0.411	0.003	0.001	-0.001	0.012	-0.001	0.003
31	0.414	0.003	0.002	0.000	0.016	-0.002	0.004
32	0.416	0.003	0.002	-0.003	0.016	-0.003	0.004
33	0.416	0.005	0.004	-0.002	0.022	-0.001	0.007
34	0.416	0.006	0.005	0.000	0.022	-0.001	0.008

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.

Table 8 presents intent-to-treat estimates of treatment impact on receipt of federal financial aid for all seven samples described in Table 2. Financial aid includes the Pell grants, subsidized and unsubsidized Stafford loans, Perkins loans, and Parent PLUS loans.

Despite the text outreach creating modest boosts in FAFSA filing during the intervention period, it produced no statistically significant impacts on federal financial aid receipt. Given that the control group FAFSA filing rate caught up with that of the treatment groups, perhaps the lack of difference in access to federal financial aid is unsurprising. It may be that the generosity of other sources of aid (e.g., institutional aid and/or state-based aid) was affected by the differences in FAFSA timing that the outreach caused (as suggested by Page, Castleman & Meyer 2018), but these types of aid are unavailable in the dataset for this study.

Table 8. Impact of outreach on receipt of any federal financial aid, by subsample

Sample	Full Sample	No FAFSA pre-treatment	No FAFSA & enrolled pre-treatment (all)	No FAFSA & enrolled (2-year)	No FAFSA & enrolled (4-year)	No FAFSA & enrolled (4-year public)	No FAFSA & enrolled (4-year private)
Control Mean	0.354	0.256	0.376	0.333	0.389	0.381	0.402
Any Treatment	0.008 (0.011)	0.006 (0.011)	-0.002 (0.017)	-0.009 (0.031)	-0.002 (0.020)	0.001 (0.024)	-0.002 (0.038)
College Possible	0.004 (0.012)	-0.001 (0.013)	-0.009 (0.020)	-0.023 (0.038)	-0.007 (0.023)	-0.002 (0.028)	-0.014 (0.043)
Texting, basic	0.013 (0.014)	0.013 (0.015)	0.008 (0.023)	0.012 (0.043)	0.012 (0.027)	0.003 (0.032)	0.049 (0.054)
Texting, social pressure	0.015 (0.014)	0.015 (0.015)	0.012 (0.024)	-0.008 (0.044)	0.015 (0.028)	0.011 (0.034)	0.034 (0.049)
Texture, commitment device	0.003 (0.014)	0.002 (0.015)	-0.013 (0.023)	-0.007 (0.046)	-0.023 (0.026)	-0.006 (0.031)	-0.05 (0.049)
N	9,881	8,004	4,014	1,011	3,003	2,002	1,001

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.

Tables 9-11 presents estimated impacts on persistence (measured as months of enrollment) and graduation (completion of certificate, associates, bachelor's degrees) for the full sample and the secondary subsamples. All of the estimated treatment effects are small and statistically non-significant across samples. Overall, the results show no intervention impacts on enrollment or degree attainment.

Table 9: Impacts on Total Months Enrolled and Graduation: Full sample

	Total Months Enrolled	Total Months Enrolled	Graduation	Graduation
Any Intervention	0.344 (0.732)		0.0167 (0.0119)	
College Possible group		0.816 (0.872)		0.0204 (0.0135)
Texting, basic		0.640 (0.965)		0.0141 (0.0150)
Texting, social pressure		-0.792 (0.854)		-0.00164 (0.0150)
Texting commitment device		0.330 (0.855)		0.0305* (0.0159)
Constant	9.044 (6.558)	9.170 (6.573)	-0.319** (0.138)	-0.315** (0.138)
Observations	9,881	9,881	9,881	9,881
R-squared	0.362	0.363	0.167	0.167

*p<0.10, **P<0.05, ***p<0.001
Notes: Robust standard errors in parentheses

Table 10: Impacts on Total Months Enrolled and Graduation Treatment: FAFSA not filed pre-treatment sample

VARIABLES	Total Months Enrollment	Total Months Enrollment	Graduation	Graduation
Any intervention	0.122 (0.847)		0.00343 (0.0131)	
College Possible group		0.474 (1.010)		0.000449 (0.0148)
Texting, basic		0.597 (1.128)		-0.00165 (0.0163)
Texting, social pressure		-0.936 (0.975)		-0.00463 (0.0162)
Texting, commitment device		0.0942 (0.982)		0.0218 (0.0173)
Constant	7.738 (7.964)	7.773 (7.979)	-0.429*** (0.155)	-0.426*** (0.156)
Observations	8,004	8,004	8,004	8,004
R-squared	0.358	0.358	0.176	0.177

***p<0.01, **p<0.05, *p<0.10
Notes: Robust standard errors in parentheses

Table 11. Impact on Overall FAFSA Filing Rates, Total Months Enrolled, Graduate Post Treatment: Students Who Had Not Filed FAFSA And Who Were Enrolled in Semester Prior to Intervention

VARIABLES	Total Months Enrollment	Total Months Enrollment	Graduation	Graduation
Any intervention	0.434 (1.084)		-0.00849 (0.0216)	
College Possible group		1.434 (1.431)		-0.0141 (0.0250)
Texting, basic		-0.449 (1.211)		-0.0313 (0.0275)
Texting, social pressure		-0.649 (1.249)		-0.00817 (0.0288)
Texting, commitment device		0.550 (1.265)		0.0221 (0.0290)
Constant	18.66** (8.396)	18.79** (8.391)	-0.152 (0.220)	-0.148 (0.221)
Observations	4,014	4,014	4,014	4,014
R-squared	0.302	0.303	0.131	0.132

*p<0.10, **p<0.05, ***p<0.01
Notes: Robust standard errors in parentheses

Cost Analysis

The intervention was facilitated by Signal Vine, which implemented the text messaging, and College Possible, which provided advisers to interact with students on an as-needed basis. Signal Vine hosted messaging to 7,737 students at a per-student cost of $7.13. This reflects the costs of both one-way texting for nudge-only students ($1.00), and two-way texting for nudge plus advising students ($1.50). In total, texting via Signal Vine cost $55,100.

College Possible served about 2,900 students at a per-student cost of $125.95 per student (this is higher than the costs for this work in other interventions). Those costs included eight College Possible advisers, each of whom had an advising load of roughly 360 students, and each of whom cost $45,000 for the seven-month period. In total, offering students advising via College Possible cost $365,000. In theory, it might be possible to find a different provider or train advisers to carry a higher advising load. For example, in another intervention (Avery et al, 2019), full-time text-based advisors carried caseloads of a few thousand students, although these students received approximately one outreach message per month rather than one per week. An advisee load of 360 students is large, but only 40% of students sent a message to their College Possible adviser and only 53% received a personalized message from an advisor. It might be possible to cut the cost of such personalized advising substantially if it were conducted by university or other staff members who are already engaged in advising for the focal students. In addition, as discussed above, the intervention might be better targeted.

The per-student costs might be justified on a cost-benefit basis if the intervention generated at least a 4.1 percentage point increase in FAFSA filing and a 4.25 percentage point increase in college persistence. However, such impacts do not appear for this study.

Discussion

Do informational interventions delivered at arm's length and at scale effectively nudge students to complete financial aid applications, improving their financial security in college and promoting academic success? The results in this study are not promising.

While the intervention somewhat accelerated the timing of FAFSA filing for some students, slightly increasing the odds that they filed during the spring when they were being nudged to do so, it did not boost overall rates of FAFSA filing. Moreover, students neither received additional federal financial aid as a result of the intervention nor incurred positive benefits in terms of continued enrollment or graduation. Estimated impacts of this intervention are consistent with another recent study on financial aid nudging (Bird et al., 2019) but are considerably smaller than those seen in other interventions including Bettinger et al (2012), Cannon and Goldrick-Rab (2015) and Castleman and Page (2016).

One key limitation of this analysis is the inability to examine whether the positive impacts of FAFSA filing during spring term impacted the amount of state and/or institutional aid students received. This might have been especially beneficial for students at private 4-year colleges and universities with substantial institutional aid, or those living in states with robust state financial aid programs. But it is far less likely for students in the public sector and those living in the vast majority of states where state grant programs run short of funds every year.

As noted above, a lack of credibility and/or name recognition on the part of the messenger may have reduced efficacy of the supports. It may have also been beneficial to extend the period of support. Especially given the relatively large effects on FAFSA filing for those enrolled in two-year institutions (consistent with the findings from Castleman & Page, 2016), the intervention may have yielded better outcomes if the outreach continued through the summer of 2017 rather than ending in the spring.

Population differences may also explain differences in impact between prior studies and this one. Previous studies that have revealed positive effects of such text-based outreach on FAFSA filing and other college-going outcomes (e.g., Castleman & Page 2015b, 2016) focused on samples that were made up entirely of recent high school graduates and / or traditionally-aged, first-time college students. It may be that students in this study responded differently from students in prior studies because they are older. Indeed, in our study sample, the average student is 27 years old. If older students are less receptive to communication on topics like FAFSA through informal channels like text messaging, this would help to explain the modest nature of our effect. On the other hand, other studies have identified impacts of nudges for students in their late 20s/early 30s.

These hypotheses and questions should be the target of further investigation to better understand the conditions under which nudging, such as the text-based FAFSA outreach implemented here, may be successful at improving college student outcomes at scale.

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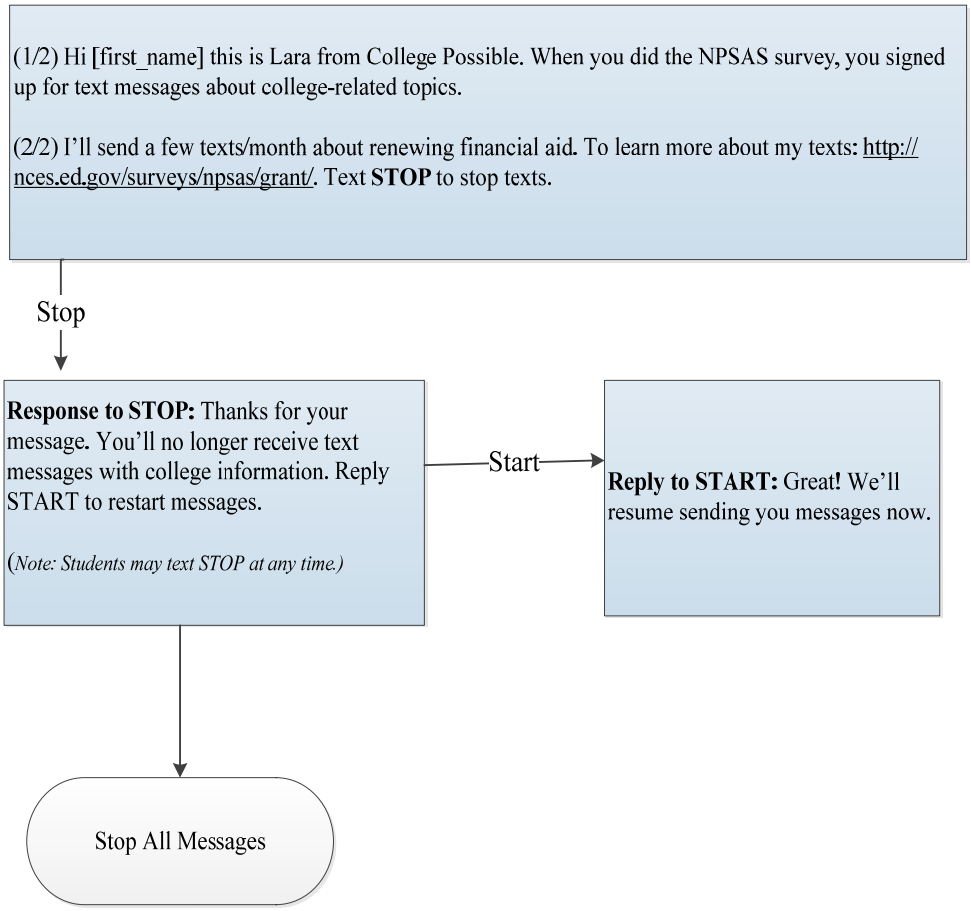
Appendix
Intervention Text Messages

GROUP 1A: BASIC – Introduction

Information and Nudges Only Group ***(Responses Delivered by Texting Application)***



NOTE: Students can reply "STOP" at any point. If a student does not reply to a text message that requires a reply, then they will not receive the follow-up text message.

Response to inbound message from info-only groups.

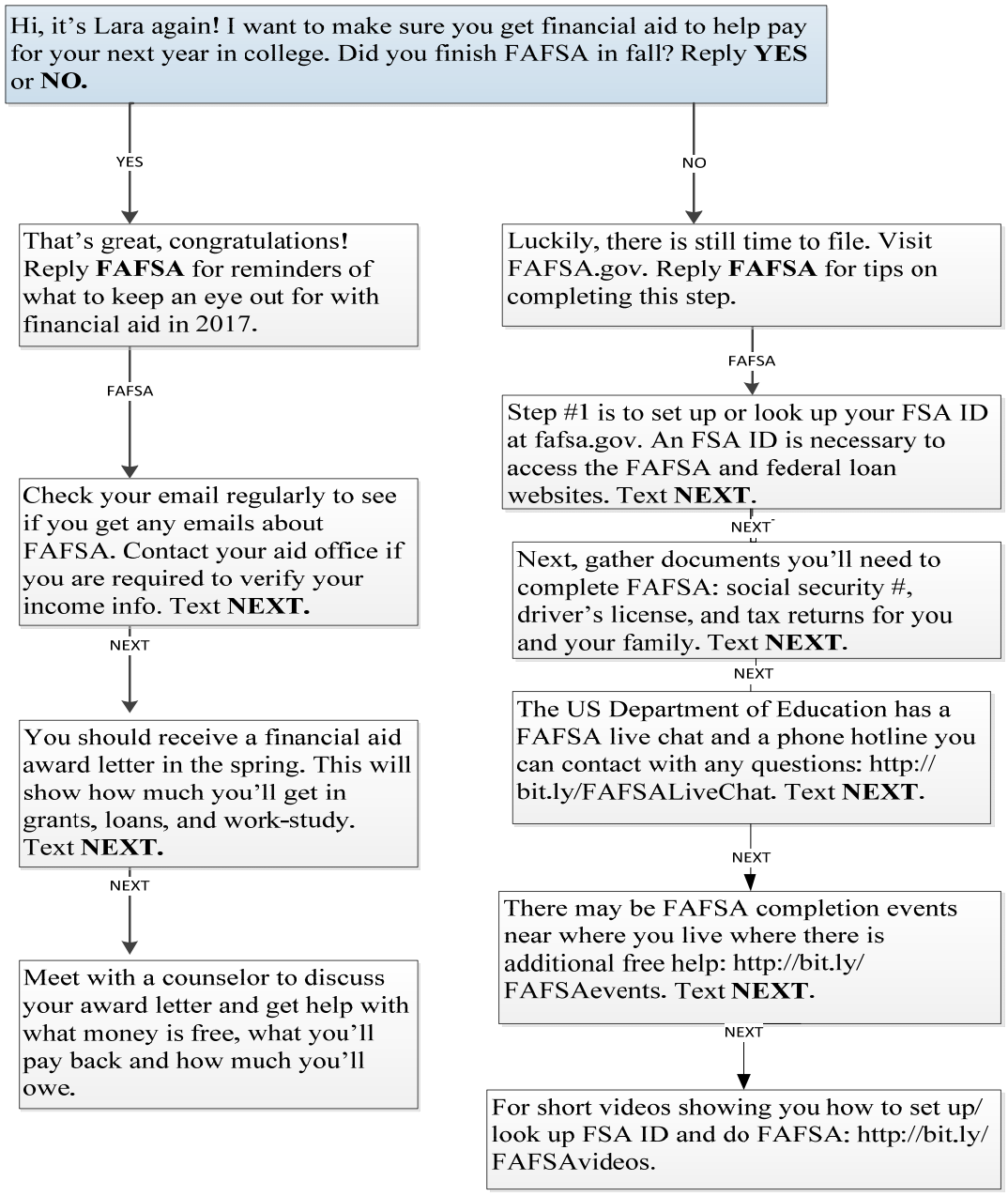
Thanks for writing! We're texting 1000s of students so can't respond to individual messages. Visit http://nces.ed.gov/surveys/npsas/grant/ for more info.

(Note: This is necessary for student who reply to an info only message)

GROUP 1A: BASIC – Contact 1

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

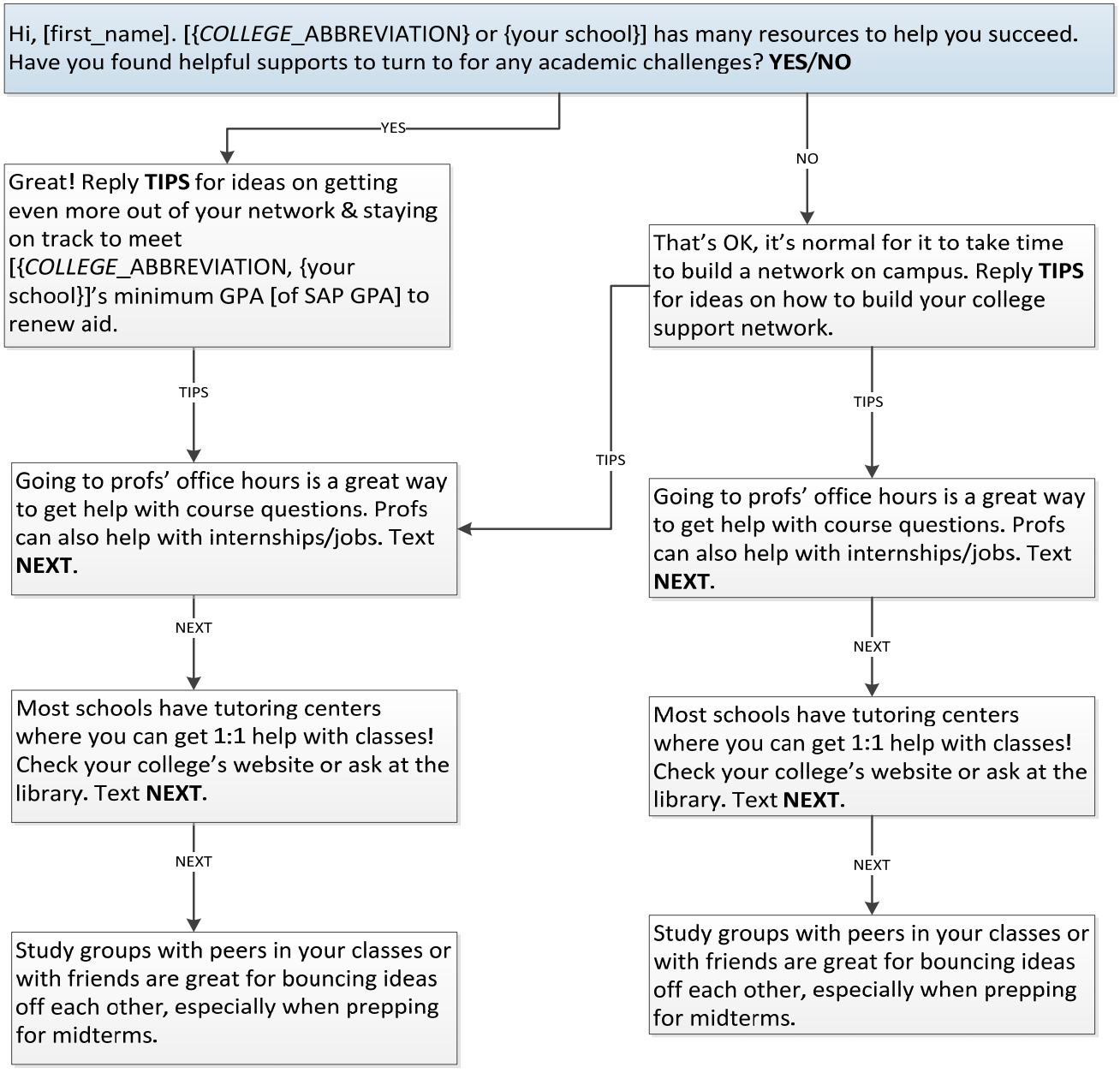
(Contact 1 Occurs One Week After Introduction)



GROUP 1A: BASIC – Contact 2

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Occurs Approximately 2 Weeks After Contact 1)



GROUP 1A: BASIC – Contact 3

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Occurs Approximately 3 Weeks After Contact Or 1 Week After Contact 2)

If hadn't filed or didn't respond to first FAFSA message:

We know FAFSA can be a challenge. But just like you've handled academic challenges, you can handle this! Have you started FAFSA yet? Reply **YES** or **NO.**

YES

Way to go! You just took a major step to maximizing how much financial aid you'll receive for your next year in college! [GIF: http://giphy.com/gifs/Y8QPqeawH0NFu]

NO

Doing FAFSA early can earn you more money. Check out this graphic for a list of free FAFSA help online/where you live:

Non-Responder (after 1 week)

In case you haven't started the FAFSA yet, we wanted to share with you a few steps you can take to get started.

Step #1 is to set up or look up your FSA ID at fafsa.gov. An FSA ID is necessary to access the FAFSA and federal loan websites. Text **NEXT**

NEXT

Next, gather documents you'll need to complete FAFSA: social security #, driver's license, and tax returns for you and your family. Text **NEXT.**

NEXT

The US Department of Education has a FAFSA live chat and a phone hotline you can contact with any questions: http://bit.ly?FAFSALiveChat.. Text **NEXT.**

NEXT

For short videos showing you how to set up/look up FSA ID and do FAFSA: http://bit.ly/FAFSAvideos

If had filed:

Hi, it's Lara. Did you receive an email confirmation for your FAFSA? You should receive your Student Aid Report (SAR) from Federal Student Aid. Reply **YES/NO.**

YES

Way to go! Be sure to keep an eye on email in case there are additional steps you need to take to finalize your aid application.

NO

OK check for that email to be sure FAFSA has been accepted. If you don't have it, check in with your financial aid office.

GROUP 1A: BASIC – Contact 4-7

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Each Contact Occurs Approximately 2 Weeks Apart)

Contact 4

For students who attend institutions with supplemental forms to complete.

(1/2) Hi! In addition to FAFSA, some colleges require additional financial aid forms. If your college requires these, get them in ASAP to maximize your aid.

(2/2) Contact your financial aid office if you have questions about what to submit to successfully renew your aid[: financial aid office phone number].

Contact 5

(1/2) Hi! To receive federal financial aid you need to make Satisfactory Academic Progress (SAP). At [{*COLLEGE*_ABBREVIATION} or {your school}] this means earning a [{*SAP* GPA}or {minimum}] GPA & other requirements.

(2/2) Contact your financial aid office if you have questions about SAP and resources to help you succeed academically[: financial aid office phone number].

Contact 6

This should only go to students who are over 25 years of age and have incomes that put them below the EITC phaseouts lists in this table: We should estimate the amount for the person using their NPSAS info. These should be sent the first week of April, around tax time.

Filing Status	Qualifying Children Claimed			
	Zero	One	Two	Three or more
Single, Head of Household or Surviving Spouse	$14,820	$39,131	$44,454	$47,747
Married Filing Jointly	$20,330	$44,651	$49,974	$53,267

(1/2) Hi! Based on info you shared in NPSAS you may qualify for the Earned Income Tax Credit of up to [EITC_max]. This could lower your tax bill or lead to a refund!

(2/2) If eligible you would receive this as part of a Federal Tax Refund when you file. For more info: http://bit.ly/EITCrefund

Contact 7

(1/2) Hi! We've heard that some students have to skip meals or cut the size of meals because they didn't have enough money for food.

(2/2) You may be eligible for monthly SNAP (food assistance) benefits. To learn more or to apply go to [State_SNAP]

GROUP 1A: BASIC – Contact 8 and 9

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Each Contact Occurs Approximately 2 Weeks Apart)

Contact 8

(1/2) Hey, Lara here. A couple tips to help you do your best on your finals: Study in a quiet place when you are well rested.

(2/2) Test yourself by going through practice questions or exams. For more tips: http://bit.ly/MyFinalsTips

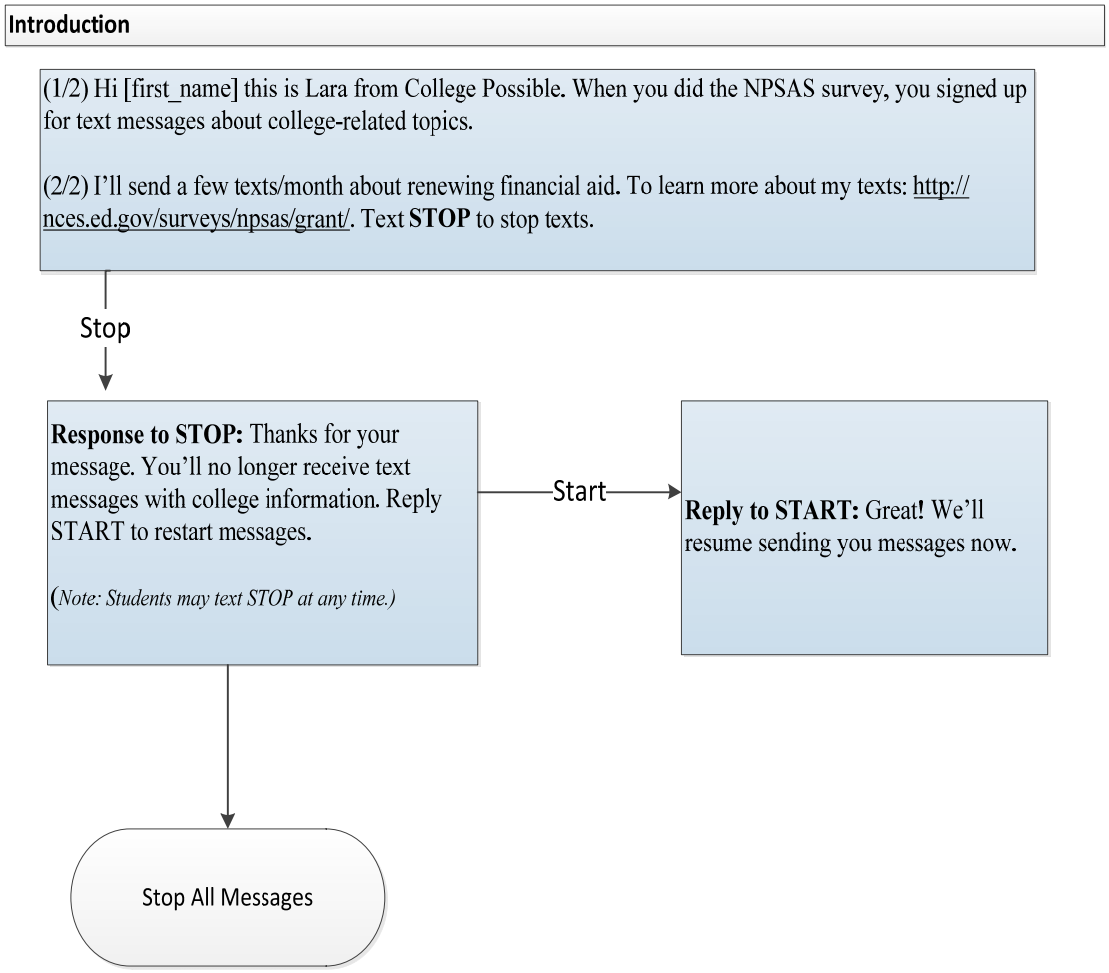
Contact 9

(1/2) Hi, it's Lara. Now's a good time to think about summer internships that can help you earn money and learn more about possible careers.

(2/2) Contact [{*COLLEGE*_ABBREVIATION} or {your school}]'s career center for help finding internships[: career center URL].

GROUP 1B: SOCIAL PRESSURE – Introduction

Information and Nudges Only Group ***(Responses Delivered by Texting Application)***



NOTE: Students can reply "STOP" at any point. If a student does not reply to a text message that requires a reply, then they will not receive the follow-up text message.

Response to inbound message from info-only groups.

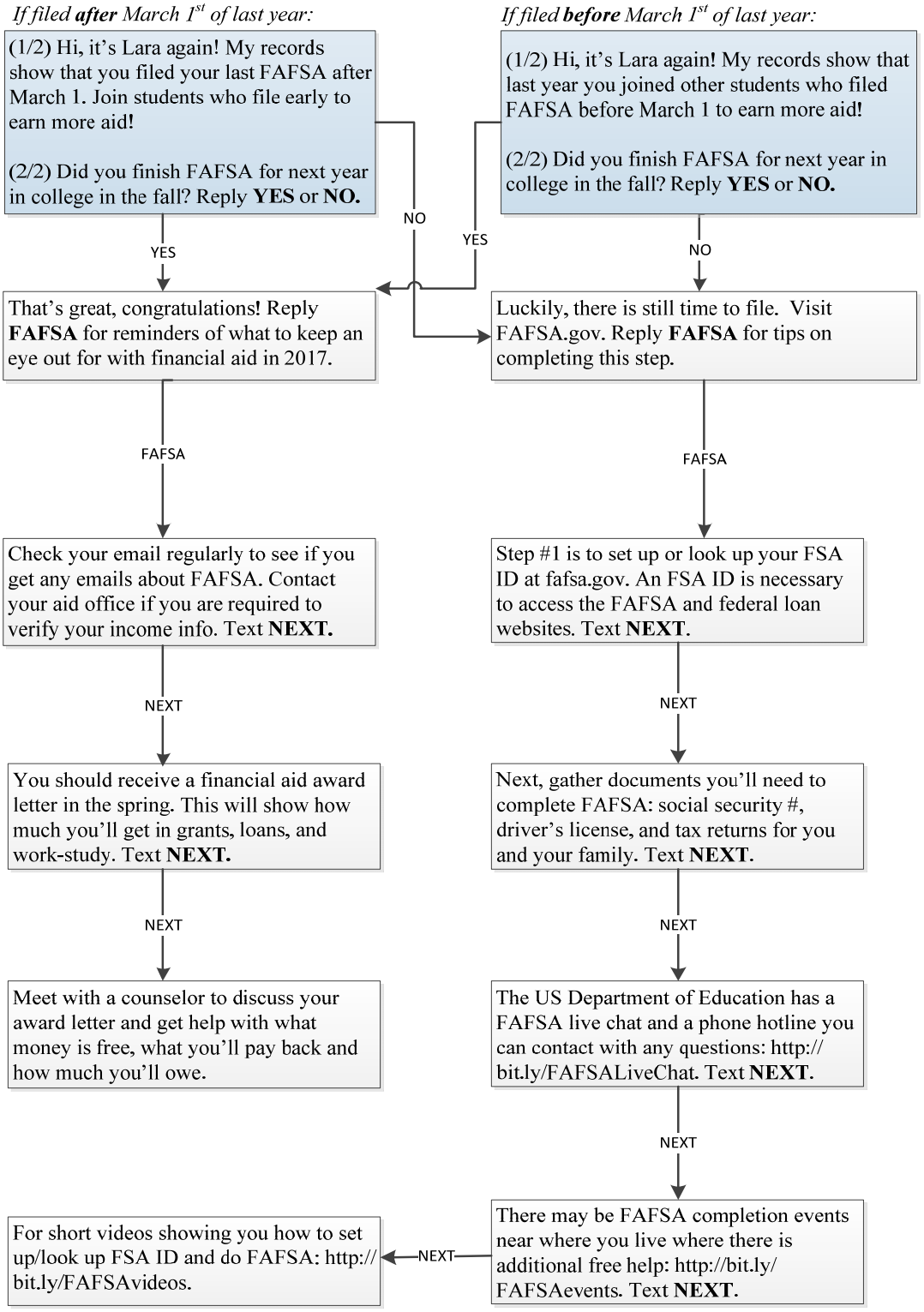
Thanks for writing! We're texting 1000s of students so can't respond to individual messages. Visit http://nces.ed.gov/surveys/npsas/grant/ for more info.

(Note: This is necessary for student who reply to an info only message)

GROUP 1B: SOCIAL PRESSURE – Contact 1

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

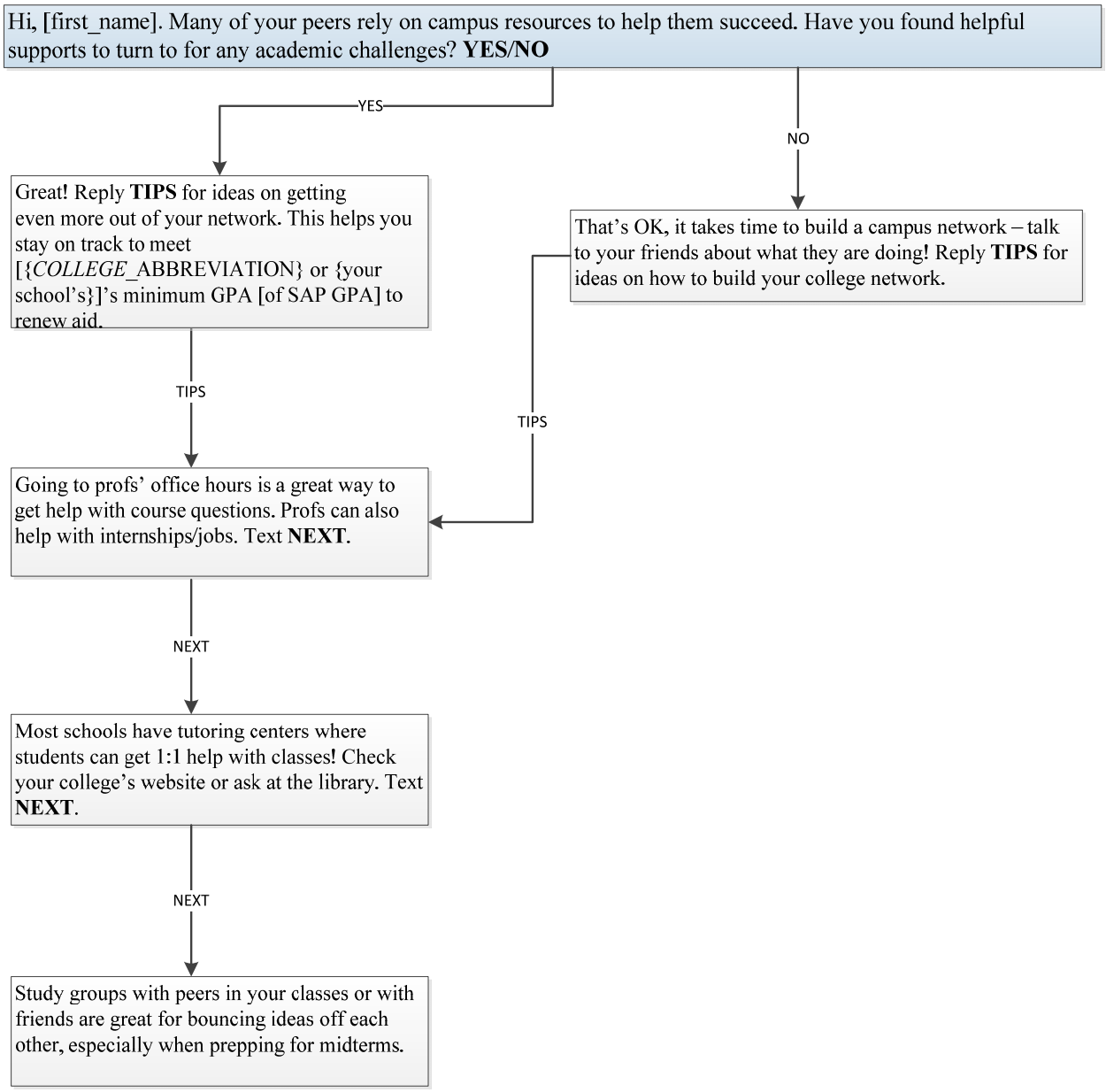
(Contact 1 Occurs One Week After Introduction)



GROUP 1B: SOCIAL PRESSURE – Contact 2

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Occurs Approximately 2 Weeks After Contact 1)



GROUP 1B: Social Pressure – Contact 3

Information and Nudges Only Group ***(Responses Delivered by Texting Application)***

(Occurs Approximately 3 Weeks After Contact Or 1 Week After Contact 2)

If hadn't filed or didn't respond to first FAFSA message:

(1/2) Hi, it's Lara. Just checking in about FAFSA. About 70 percent of college students have completed their FAFSA by this time of year.
(2/2) Have you finished FAFSA yet? Reply **YES** or **NO.**

YES

Way to go! You just took a major step to maximizing how much financial aid you'll receive for your next year in college! [GIF: http://giphy.com/gifs/Y8QPqeawH0NFu]

NO

Doing FAFSA early can earn you more money. Check out this graphic for a list of free FAFSA help online/where you live:

Non-Responder (After 1 Week)

In case you haven't started the FAFSA yet, we wanted to share with you a few steps you can take to get started.

Step #1 is to set up or look up your FSA ID at fafsa.gov. An FSA ID is necessary to access the FAFSA and federal loan websites. Text **NEXT**

NEXT

Next, gather documents you'll need to complete FAFSA: social security #, driver's license, and tax returns for you and your family. Text **NEXT**.

NEXT

The US Department of Education has a FAFSA live chat and a pone hotline you can contact with any questions: http://bit.ly/FAFSALiveChat. Text **NEXT.**

NEXT

For short videos showing you how to set up/look up FSA ID and do FAFSA: http://bit.ly/FAFSAvideos

If had filed:

Hi, it's Lara. Did you receive an email confirmation for your FAFSA? You should receive your Student Aid Report (SAR) from Federal Student Aid. Reply **YES/NO**.

YES

Way to go! Be sure to keep an eye on email in case there are additional steps you need to take to finalize your aid application.

NO

OK check for that email to be sure your FAFSA has been accepted. If you don't have it, check in with your financial aid office.

GROUP 1B: SOCIAL PRESSURE – Contact 4-7

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Each Contact Occurs Approximately 2 Weeks Apart)

Contact 4

For students who attend institutions with supplemental forms to complete.

(1/2) Hi! In addition to FAFSA, some colleges require additional financial aid forms. If your college does, join other students who are getting them in ASAP.

(2/2) Contact your financial aid office if you have questions about what to submit to successfully renew your aid[: financial aid office phone number].

Contact 5

(1/2) Hi! To receive federal financial aid you need to make Satisfactory Academic Progress (SAP). At [{*COLLEGE*_ABBREVIATION}or {your school}] this means earning a [{*SAP* GPA} or {minimum}] GPA & other requirements.

(2/2) Contact your aid office with questions about SAP & resources to help you succeed[: financial aid office phone number]. Encourage a friend to do so too!

Contact 6

This should only go to students who are over 25 years of age and have incomes that put them below the EITC phaseouts lists in this table: We should estimate the amount for the person using their NPSAS info. These should be sent the first week of April, around tax time.

Filing Status	Qualifying Children Claimed			
	Zero	One	Two	Three or more
Single, Head of Household or Surviving Spouse	$14,820	$39,131	$44,454	$47,747
Married Filing Jointly	$20,330	$44,651	$49,974	$53,267

(1/2) Hi! Based on info you shared in NPSAS you may qualify for the Earned Income Tax Credit of up to [EITC_max]. Most people like you who qualify claim the credit.

(2/2) If eligible you would receive this as part of a Federal Tax Refund when you file. For more info: http://bit.ly/EITCrefund

Contact 7

(1/2) Hi! We've heard that some students have to skip meals or cut the size of meals because they didn't have enough money for food.

(2/2) Like millions of Americans, you may be eligible for monthly SNAP (food assistance) benefits. To learn more or to apply go to [State_SNAP]

GROUP 1B: SOCIAL PRESSURE – Contact 8 and 9

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Each Contact Occurs Approximately 2 Weeks Apart)

Contact 8

(1/2) Hey, Lara here. We hear a lot from successful students that good study habits were key to their success. Here's what they suggest:

(2/2) Study in a quiet place when you are well rested. Test yourself by going through practice questions or exams. For more tips: http://bit.ly/MyFinalsTips

Contact 9

(1/2) Hi, it's Lara. Many students your age are starting to look for summer jobs and internships. Internships can pay and help you learn about possible careers.

(2/2) Contact [{*COLLEGE*_ABBREVIATION} or {your school}]'s career center for help finding internships[: career center URL].

GROUP 1C: COMMITMENT DEVICE - Introduction

Information and Nudges Only Group ***(Responses Delivered by Texting Application)***

Introduction

(1/2) Hi [first_name] this is Lara from College Possible. When you did the NPSAS survey, you signed up for text messages about college-related topics.

(2/2) I'll send a few texts/month about renewing financial aid. To learn more about my texts: http://nces.ed.gov/surveys/npsas/grant/. Text **STOP** to stop texts.

Stop

Response to STOP: Thanks for your message. You'll no longer receive text messages with college information. Reply START to restart messages.

(*Note: Students may text STOP at any time.)*

Start

Reply to START: Great! We'll resume sending you messages now.

Stop All Messages

NOTE: Students can reply "STOP" at any point. If a student does not reply to a text message that requires a reply, then they will not receive the follow-up text message.

Response to inbound message from info-only groups.

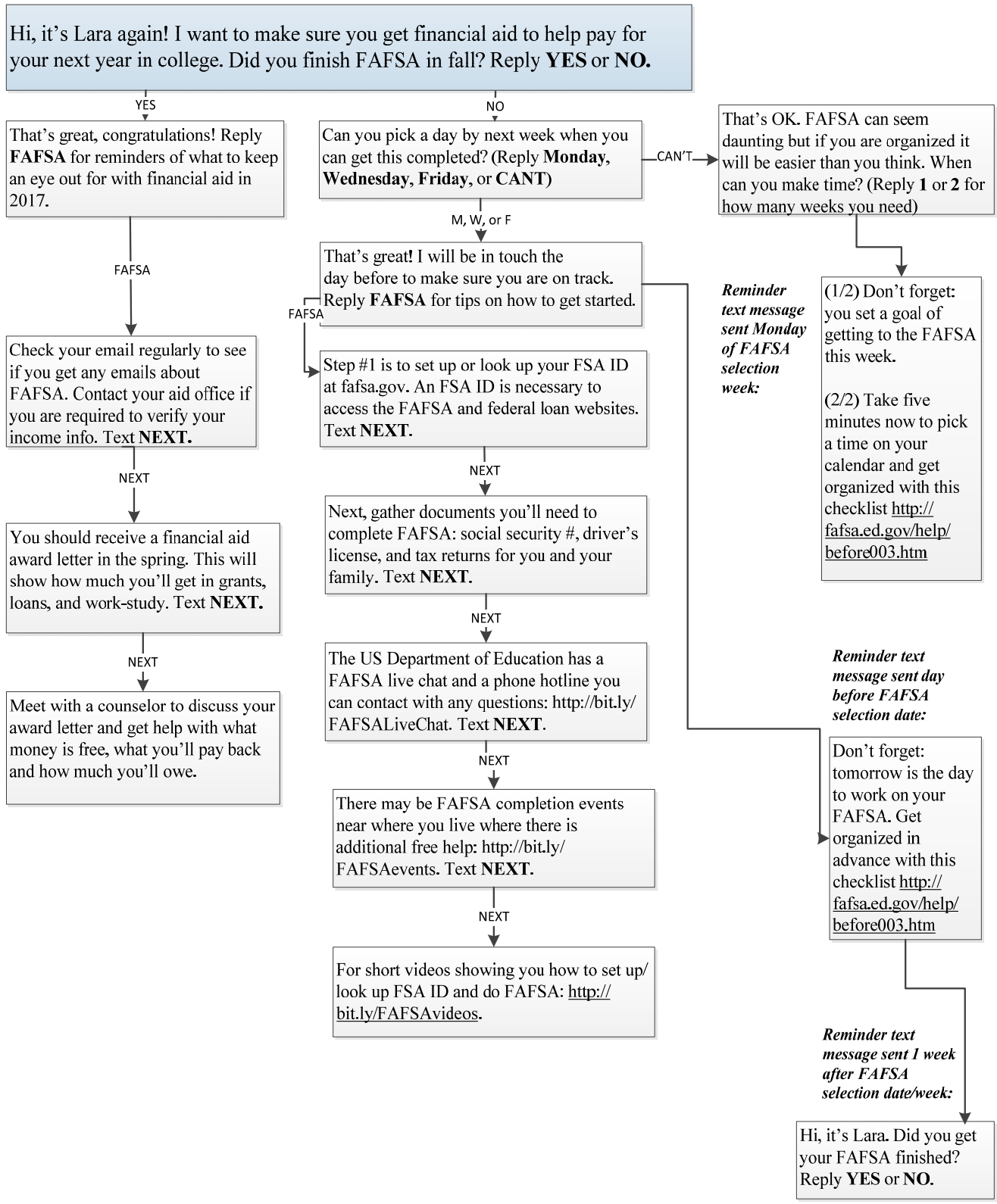
Thanks for writing! We're texting 1000s of students so can't respond to individual messages. Visit http://nces.ed.gov/surveys/npsas/grant/ for more info.

(Note: This is necessary for student who reply to an info only message)

GROUP 1C: COMMITMENT DEVICE – Contact 1

Information and Nudges Only Group ***(Responses Delivered by Texting Application)***

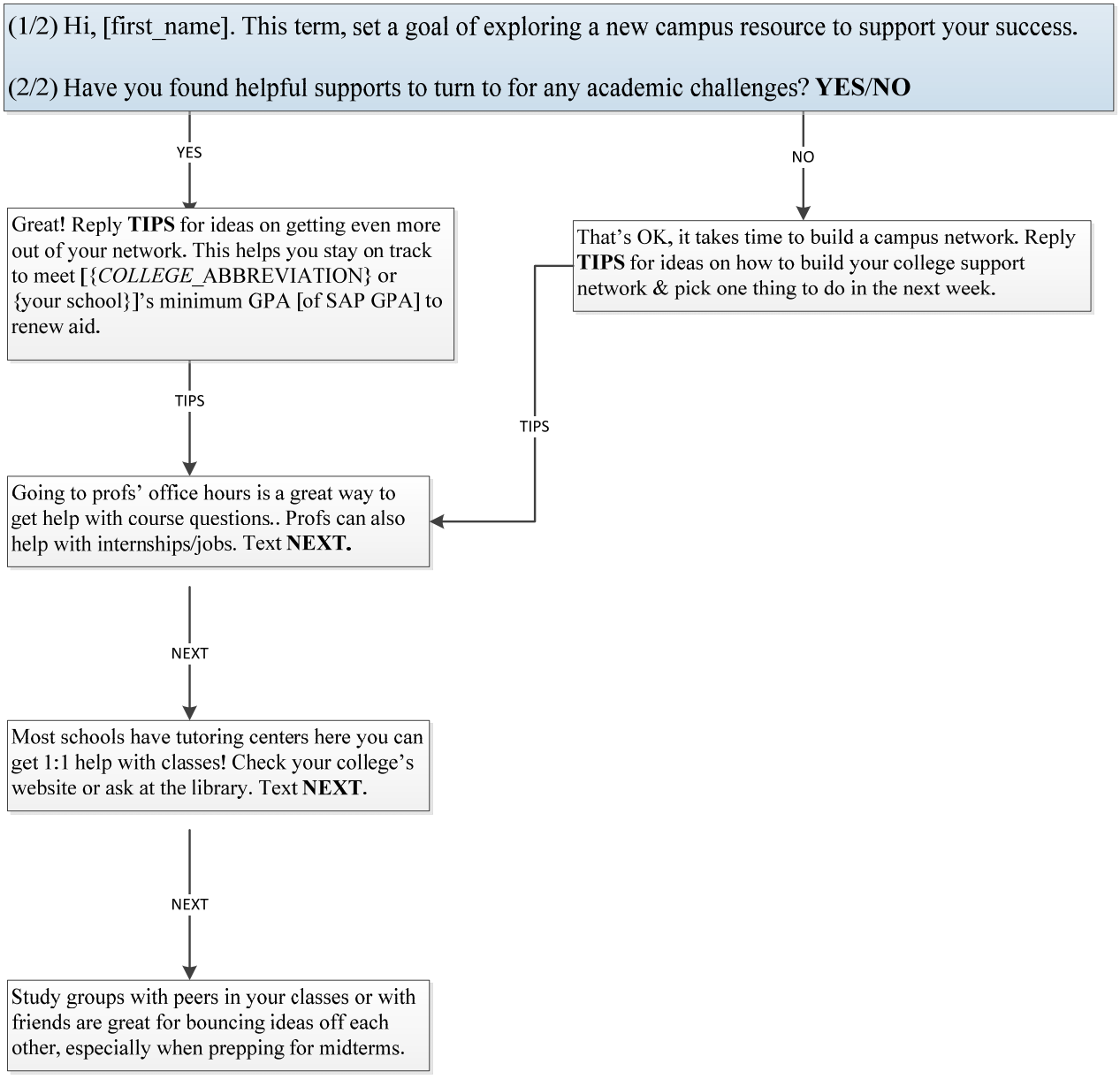
(Contact 1 Occurs One Week After Introduction)



GROUP 1C: COMMITMENT DEVICE – Contact 2

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Occurs Approximately 2 Weeks After Contact 1)



GROUP 1C: Commitment Device – Contact 3

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

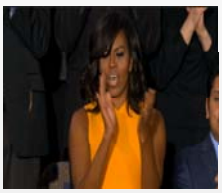
(Occurs Approximately 3 Weeks After Contact Or 1 Week After Contact 2)

If hadn't filed or didn't respond to first FAFSA message:

We know FAFSA can be a challenge. But just like you've handled academic challenges, you can handle this! Have you started FAFSA yet? Reply **YES** or **NO**.

YES

Way to go! You just took a major step to maximizing how much financial aid you'll receive for your next year in college! [GIF: http://giphy.com/gifs/Y8QPqeawH0NFu]



NO

How about finishing FAFSA this week? Check out this graphic for a list of free FAFSA help online/ where you live and text us which day you'll do FAFSA:

Non-Responder (After 1 Week)

In case you haven't started the FAFSA yet, we wanted to share with you a few steps you can take to get started.

Step #1 is to set up or look up your FSA ID at fafsa.gov. An FSA ID is necessary to access the FAFSA and federal loan websites. Text **NEXT.**

NEXT

Next, gather documents you'll need to complete FAFSA: social security #, driver's license, and tax returns for you and your family. Text **NEXT**.

NEXT

The US Department of Education has a FAFSA live chat and a phone hotline you can contact with any questions: http://bit.ly/FAFSALiceChat. Text **NEXT**.

NEXT

For short videos showing you how to set up/look up FSA ID and do FAFSA: http://bit.ly/FAFSAvideos.

If had filed:

Hi, it's Lara. Did you receive an email confirmation for your FAFSA? You should receive your Student Aid Report (SAR) from Federal Student Aid. Reply **YES/NO**.

YES

Way to go! Be sure to keep an eye on email in case there are additional steps you need to take to finalize your aid application.

NO

OK check for that email to be sure your FAFSA has been accepted. If you don't have it, check in with your financial aid office.

GROUP 1C: COMMITMENT DEVICE – Contacts 4-7

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Each Contact Occurs Approximately 2 Weeks Apart)

Contact 4

For students who attend institutions with supplemental forms to complete.

(1/2) Hi! In addition to FAFSA, some colleges require additional financial aid forms. Get these in too to maximize your aid.

(2/2) Pick a time between classes to contact your financial aid office if you have questions about what to submit to successfully renew your aid[:financial aid office phone number].]

Contact 5

(1/2) Hi! To receive federal financial aid you need to make Satisfactory Academic Progress (SAP). At [{COLLEGE_ABBREVIATION} or {your school}] this means earning a [{SAP GPA} or {minimum}] GPA and other requirements.

(2/2) Questions on SAP or resources to help you succeed academically? Schedule an appointment today with your financial aid office[: financial aid office phone number].

Contact 6

This should only go to students who are over 25 years of age and have incomes that put them below the EITC phaseouts lists in this table: We should estimate the amount for the person using their NPSAS info. These should be sent the first week of April, around tax time.

Filing Status	Qualifying Children Claimed			
	Zero	One	Two	Three or more
Single, Head of Household or Surviving Spouse	$14,820	$39,131	$44,454	$47,747
Married Filing Jointly	$20,330	$44,651	$49,974	$53,267

(1/2) Hi! Based on info you shared in NPSAS you may qualify for the Earned Income Tax Credit of up to [EITC_max]. This could lower your tax bill or lead to a refund!

(2/2) If eligible you would receive this as part of a Federal Tax Refund when you file. Go to http://bit.ly/EITCrefund and make a plan to file today!

Contact 7

(1/2) Hi! We've heard that some students have to skip meals or cut the size of meals because they didn't have enough money for food.

(2/2) You may be eligible for monthly SNAP (food assistance) benefits. Explore this option today by visiting [State_SNAP]

GROUP 1C: COMMITMENT DEVICE – Contacts 8 and 9

Information and Nudges Only Group *(Responses Delivered by Texting Application)*

(Each Contact Occurs Approximately 2 Weeks Apart)

Contact 8

(1/2) Hey, Lara here. A couple tips to help you do your best on your finals: Study in a quiet place when you are well rested. Test yourself on practice questions.

(2/2) Take time today to organize your study schedule. Study at least 2 – 3 hours / day to do your best. For more tips: http://bit.ly/MyFinalsTips

Contact 9

(1/2) Hi, it's Lara! Now is a good time to think about summer internships that can help you earn money and learn more about possible careers.

(2/2) If you need help or ideas, you should make an appointment today with [{COLLEGE ABBREVIATION} or {your school}]'s career center[: career center URL].

GROUP 2 – Introduction

Information, Nudges, and Assistance Group *(Responses Sent By Financial Aid Advisor)*

Introduction

(1/2) Hi [first_name] this is [advisor] from College Possible. When you did the NPSAS survey, you signed up for text messages about college-related topics.

(2/2) I'll send a few texts/month about renewing financial aid. To learn more about my texts: http://nces.ed.gov/surveys/npsas/grant/. Text **STOP** to stop texts.

Stop

Student Response ⇄ Advisor Response

Response to STOP: Thanks for your message. You'll no longer receive text messages with college information. Reply START to restart messages.

(*Note: Students may text STOP at any time.)*

Start

Reply to START: Great! We'll resume sending you messages now

Stop All Messages

NOTE: Students can reply "STOP" at any point. If a student does not reply to a text message that requires a reply, then they will not receive the follow-up text message.

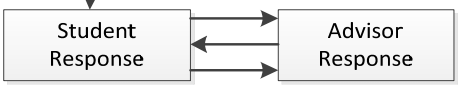
GROUP 2 – Contacts 1-2

Information, Nudges, and Assistance Group *(Responses Sent By Financial Aid Advisor)*

(Contact Occurs Approximately 2 Weeks Apart)

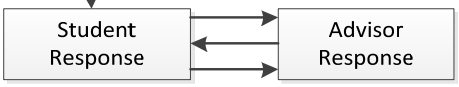
Contact 1

Hi, it's [advisor] again! I want to make sure you get financial aid to help pay for your next year in college. Did you finish FAFSA in fall?



Contact 2

Hi, [first name]. I wanted to check in on how the semester is going academically. Do you feel on track with your courses so far?

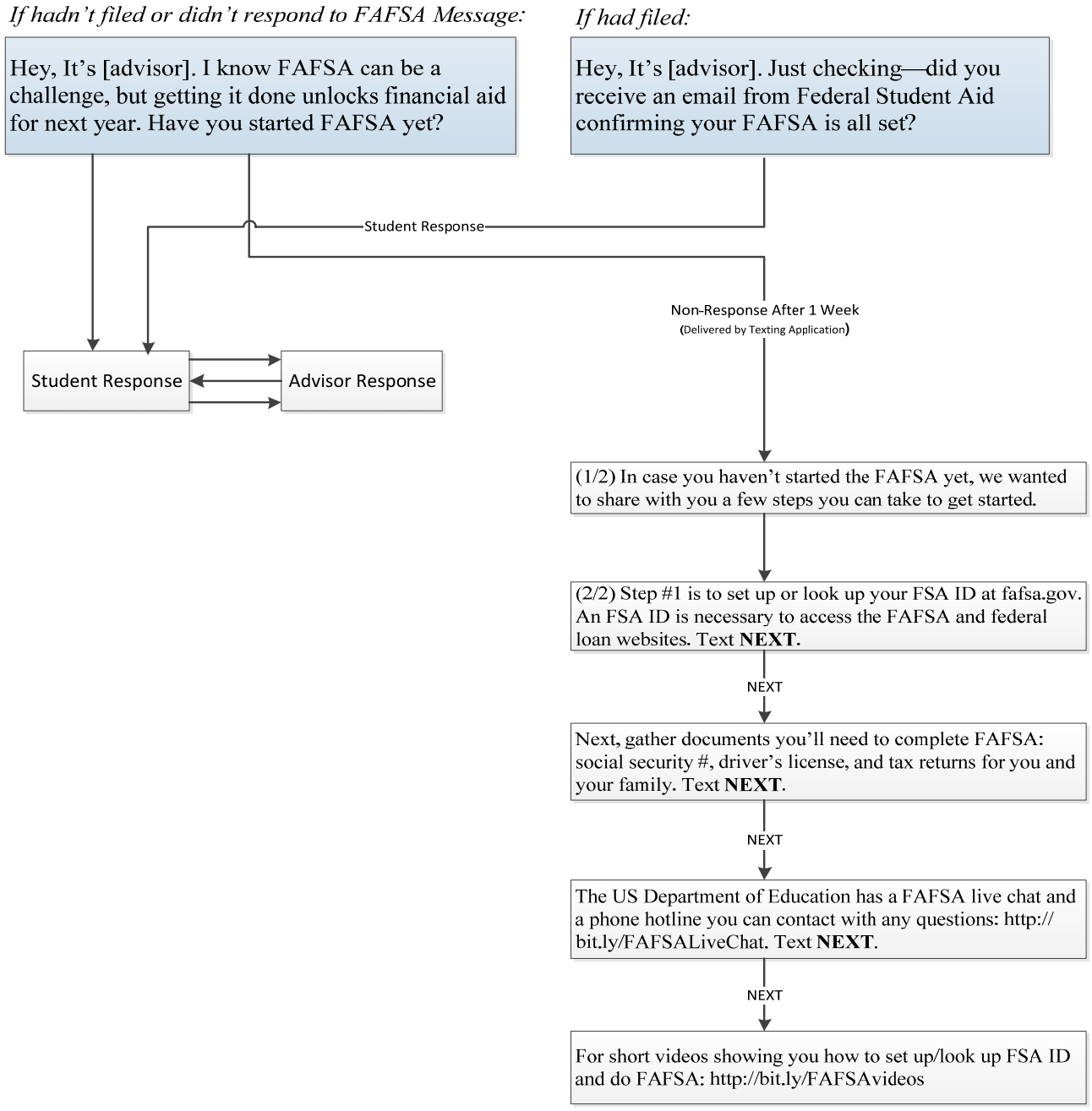


GROUP 2 – Contact 3

Information, Nudges, and Assistance Group *(Responses Sent By Financial Aid Advisor)*

(Contact Occurs Approximately 2 Weeks Apart)

Contact 3



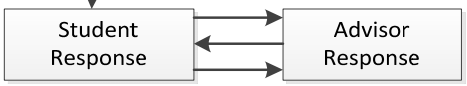
GROUP 2 – Contacts 4-6

Information, Nudges, and Assistance Group *(Responses Sent By Financial Aid Advisor)*

(Contact Occurs Approximately 2 Weeks Apart)

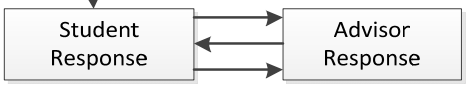
Contact 4

Hi, it's [advisor]! [*COLLEGE*_ABBREVIATION] may require additional financial aid forms. Want to work together on finalizing your aid renewal?



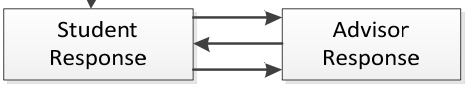
Contact 5

Hi, it's [advisor]! Just checking on how courses are going. Do you feel on track to meet [{*COLLEGE*_ABBREVIATION} or {your school}]'s academic progress requirements[[(including a [*SAP* GPA] GPA)]]?



Contact 6

Hey, it's [advisor]. Based on the info you provided to NPSAS, it looks like you might qualify for a tax break from the federal government. Want to discuss?



GROUP 2 – Contacts 7-9

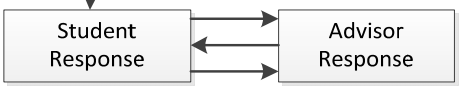
Information, Nudges, and Assistance Group (Responses Sent By Financial Aid Advisor)

(Contact Occurs Approximately 2 Weeks Apart)

Contact 7

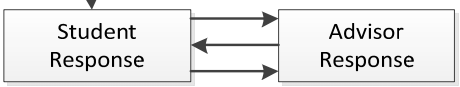
Hey, it's [advisor]. I've heard from some students that they had to skip meals or cut the size of meals because they didn't have enough money for food.

Is this something you've experienced?



Contact 8

Hey, [advisor] here. I imagine you have finals coming up pretty soon. How are you feeling going into your exams and papers?



Contact 9

Hi there! Now is a good time to think about summer internships that can help you earn money & learn more about possible jobs. Want to explore these together?

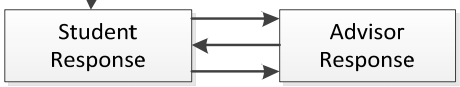


Table A1. Assessment of baseline equivalence, sample of students who had not filed 17-18 FAFSA by start of intervention

VARIABLES	Control	College Possible	Texting, basic	Texting, social pressure	Texting, commit device
Pre-intervention: Filed FAFSA 16/17	0.5132 (0.5)	0.5536 (0.4972)	0.5337 (0.4991)	0.5269 (0.4995)	0.5339 (0.499)
Outcome Measure: Filed FAFSA 17/18	0.2841 (0.4511)	0.2965 (0.4568)	0.3114 (0.4568)	0.2923 (0.455)	0.2858 (0.452)
Institutional characteristics					
75th Pctl Verbal SAT	148.177 (256.7416)	174.2409 (269.5381)	175.5569 (270.9163)	171.8731 (269.8175)	170.4827 (268.2546)
75th Pctl ACT	6.1312 (11.3455)	6.971 (11.7264)	7.031 (11.8236)	7.1823 (11.9212)	7.2157 (11.9467)
Admission Rate	0.2376 (0.3363)	0.2825 (0.3567)	0.271 (0.3507)	0.2745 (0.3461)	0.2672 (0.3476)
Public	0.5939 (0.4912)	0.525 (0.4995)	0.5631 (0.4962)	0.5231 (0.4997)	0.5226 (0.4997)
Non-profit	0.1386 (0.3456)	0.1534 (0.3604)	0.1263 (0.3323)	0.1608 (0.3675)	0.1637 (0.3701)
For-profit	.2675 (.4428)	.3217 (.4672)	0.3106 (0.4629)	0.3162 (0.4652)	0.3137 (0.4642)
Student characteristics					
Age	27.1586 (9.2994)	26.795 (9.3781)	26.4957 (9.2268)	26.2792 (9.0781)	26.4162 (8.9351)
Female	0.5859 (0.4927)	0.5972 (0.4906)	0.5933 (0.4914)	0.6023 (0.4896)	0.5905 (0.4919)
Class Year	2.2486 (1.2075)	2.2546 (1.2178)	2.2603 (1.2259)	2.3231 (1.2667)	2.3544 (1.2606)
First Generation	0.3809 (0.4857)	0.4165 (0.4931)	0.3912 (0.4882)	0.4169 (0.4932)	0.3982 (0.4897)
White	0.4639 (0.4988)	0.466 (0.99)	0.4717 (0.4994)	0.4438 (0.497)	0.4563 (0.4983)
Black	0.2165 (0.412)	0.2187 (0.4135)	0.2029 (0.4023)	0.2115 (0.4086)	0.2074 (0.4056)
Hispanic	0.2113 (0.4084)	0.2144 (0.4105)	0.2153 (0.4112)	0.2138 (0.4102)	0.221 (0.4151)
Asian	0.0407 (0.1976)	0.0325 (0.1773)	0.0426 (0.202)	0.0546 (0.2273)	0.0468 (0.2112)
Multiracial	0.567 (0.2313)	0.0585 (0.2348)	0.055 (0.2281)	0.0638 (0.2446)	0.0618 (0.241)

Table A1. Assessment of baseline equivalence, sample of students who had not filed 17-18 FAFSA by start of intervention (continued)

VARIABLES	Control	College Possible	Texting, basic	Texting, social pressure	Texting, commit device
SAT Verbal	59.4845 (171.736)	77.0278 (193.1001)	78.3036 (193.4401)	74.3608 (189.8313)	73.1946 (188.5524)
SAT Math	59.3986 (171.9737)	77.6087 (193.6209)	80.4338 (197.4935)	75.3 (190.8233)	74.3635 (191.5066)
ACT	2.9387 (7.7621)	2.8785 (7.8354)	3.0043 (7.8429)	3.0292 (7.9209)	2.9472 (8.0399)
HS GPA	1.3219 (1.5627)	1.3383 (1.5498)	1.347 (1.5154)	1.3892 (1.5708)	1.4012 (1.5513)
GPA	2.6327 (1.1316)	2.6866 (1.1535)	2.5772 (1.2274)	2.6035 (1.1575)	2.6304 (1.1819)
EFC	4439.64 (12491.9)	5413.409 (17161.62)	5668.56 (25119.37)	4887.935 (12725.39)	5360.735 (17423.96)
N prior FAFSAs	3.484 (3.0852)	3.3088 (2.8863)	3.1727 (2.7868)	3.2638 (2.9651)	3.3416 (2.8777)
Observations	1,746	2,341	1,291	1,300	1,326

Table A2. Assessment of baseline equivalence, FAFSA not filed & enrolled in college pre-treatment sample

VARIABLES	Control	College Possible	Texting, basic	Texting, social pressure	Texting, commit device
Filed FAFSA 17/18	0.409 (0.492)	0.429 (0.495)	0.427 (0.495)	0.429 (0.495)	0.400 (0.490)
Institution 75th Percentile Verbal SAT	231.4 (290.8)	269.2 (295.5)	274.5 (296.6)	263.6 (296.0)	261.7 (296.0)
Institution 75 Percentile ACT	9.647 (13.06)	10.79 (13.17)	10.76 (13.26)	11.05 (13.25)	11.38 (13.41)
Institution Admission Rate	0.330 (0.351)	0.397 (0.360)	0.366 (0.350)	0.383 (0.354)	0.368 (0.352)
Is Public	0.762 (0.426)	0.711 (0.453)	0.783 (0.413)	0.703 (0.457)	0.699 (0.459)
Is For-profit	0.0744 (0.263)	0.120 (0.325)	0.0979 (0.297)	0.104 (0.305)	0.0920 (0.289)
Age	25.50 (9.072)	24.82 (8.605)	24.21 (7.545)	24.06 (7.449)	24.51 (8.368)
Female	0.553 (0.497)	0.573 (0.495)	0.550 (0.498)	0.544 (0.498)	0.547 (0.498)

Table A2. Assessment of baseline equivalence, FAFSA not filed & enrolled in college pre-treatment sample (continued)

VARIABLES	Control	College Possible	Texting, basic	Texting, social pressure	Texting, commit device
Class Year	2.402 (1.204)	2.417 (1.191)	2.404 (1.183)	2.461 (1.176)	2.507 (1.235)
First Generation	0.323 (0.468)	0.360 (0.480)	0.338 (0.473)	0.354 (0.479)	0.336 (0.473)
White	0.500 (0.500)	0.504 (0.500)	0.531 (0.499)	0.499 (0.500)	0.504 (0.500)
Black	0.173 (0.379)	0.178 (0.383)	0.151 (0.359)	0.156 (0.363)	0.155 (0.362)
Hispanic	0.199 (0.399)	0.211 (0.408)	0.211 (0.408)	0.199 (0.400)	0.213 (0.410)
Asian	0.0581 (0.234)	0.0370 (0.189)	0.0550 (0.228)	0.0766 (0.266)	0.0584 (0.235)
Multiracial	0.0593 (0.236)	0.0606 (0.239)	0.0428 (0.203)	0.0590 (0.236)	0.0657 (0.248)
SAT Verbal	96.62 (212.3)	122.0 (231.9)	132.5 (238.9)	118.7 (229.1)	112.0 (224.9)
SAT Math	96.72 (213.3)	124.0 (233.0)	134.8 (242.1)	120.7 (230.0)	113.0 (229.3)
ACT	4.538 (9.366)	4.457 (9.473)	4.531 (9.267)	4.896 (9.750)	4.818 (9.869)
HS GPA	1.429 (1.467)	1.428 (1.429)	1.537 (1.457)	1.565 (1.517)	1.521 (1.466)
GPA	2.745 (1.050)	2.748 (1.088)	2.721 (1.116)	2.712 (1.031)	2.697 (1.104)
EFC_ncer	6,382 (16,092)	8,186 (22,381)	8,870 (34,432)	7,201 (16,356)	7,813 (20,366)
FAFSA_ncer	2.941 (2.851)	2.903 (2.670)	2.768 (2.544)	2.911 (2.793)	2.870 (2.687)
Observations	**860**	**1,188**	**654**	**627**	**685**

Table A3. Fidelity of implementation: Additional Subsamples

Variable	Messages Received (Y/N)	Opt Out (Y/N)	Opt Out immediately (Y/N)	Restart (Y/N)	N Messages Total	N Messages Sent by Student	N Messages Received by Student
Sample 4: FAFSA not filed propor to start of outreach & enrolled in two-year college in semester prior to outreach (N=1,011)							
College Possible	0.992***	0.221***	0.175***	0.000	15.804***	2.029***	13.775***
Texting, basic	1.000***	0.187***	0.164***	0.000	19.137***	0.689***	18.448***
Texting, social	1.000***	0.196***	0.136***	0.000	20.065***	0.759***	19.306***
Texting, commitment device	1.000***	0.254***	0.201***	0.000	19.466***	0.987***	18.479***
Control	-	-	-	-	-	-	-
R^2	0.994	0.139	0.117	.	0.723	0.18	0.745
Sample 5: FAFSA not filed prior to start of outreach & enrolled in four-year college in semester prior to outreach (N=3,003)							
College Possible	1.000***	0.313***	0.240***	0.001	14.820***	2.098***	12.722***
Texting, basic	0.998***	0.350***	0.266***	0.000	16.503***	0.875***	15.629***
Texting, social	1.000***	0.303***	0.190***	0.000	18.644***	0.858***	17.786***
Texting, commitment device	1,000***	0.331***	0.232***	0.000	17.693***	0.775***	16.918***
Control	-	-	-	-	-	-	-
R^2	0.999	0.207	0.148	0.002	0.65	0.17	0.671
Sample 6: FAFSA not filed prior to start of outreach & enrolled in four-year public college in semester prior to outreach (N=2,002)							
College Possible	1.000***	0.307***	0.245***	0.000	14.696***	2.024***	12.671***
Texting, basic	1.000***	0.360***	0.276***	0.000	16.449***	0.895***	15.554***
Texting, social	1.000***	0.313***	0.191***	0.000	18.388***	0.863***	17.525***
Texting, commitment device	1.000***	0.328***	0.222***	0.000	18.131***	0.818***	17.313***
Control	-	-	-	-	-	-	-
R^2	0.999	0.207	0.153	.	0.66	0.186	0.674

Table A3. Fidelity of implementation: Additional Subsamples (continued)

Variable	Messages Received (Y/N)	Opt Out (Y/N)	Opt Out immediately (Y/N)	Restart (Y/N)	N Messages Total	N Messages Sent by Student	N Messages Received by Student
Sample 7: FAFSA not filed prior to start of outreach & enrolled in four year private college in semester prior to outreach (N=1,001)							
College Possible	1.000***	0.325***	0.230***	0.003	15.048***	2.227***	12.821***
Texting, basic	0.993***	0.326***	0.241***	0.000	16.589***	0.785***	15.803***
Texting, social	1.000***	0.285***	0.189***	0.000	19.084***	0.830***	18.254***
Texting, commitment device	1.000***	0.333***	0.249***	0.000	16.966***	0.689***	16.276***
Control	-	-	-	-	-	-	-
R^2	0.998	0.198	0.139	0.006	0.633	0.155	0.666

*p<0.10; ** p<0.05; *** p<0.01
Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection.

Table A4. Impact on FAFSA filing, FAFSA not filed & enrolled in two-year college pre-treatment

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committ-ment device	Any treatment
1	0.009	0.015*	0.015	0.021*	0.013	0.010	0.018**
2	0.028	0.015	0.017	0.019	0.010	0.005	0.016
3	0.047	0.017	0.009	0.02	0.001	0.040	0.020
4	0.069	0.033	0.009	0.041	0.005	0.090**	0.040*
5	0.078	0.036*	0.016	0.038	0.003	0.100***	0.044*
6	0.087	0.039*	0.026	0.040	0.000	0.096***	0.047*
7	0.086	0.052**	0.048*	0.054*	0.000	0.101***	0.063**
8	0.099	0.061**	0.052*	0.073**	0.024	0.094**	0.073***
9	0.102	0.069***	0.069**	0.072**	0.040	0.092**	0.083***
10	0.109	0.067***	0.069**	0.072**	0.042	0.080**	0.081***
11	0.12	0.076***	0.085***	0.071**	0.054	0.084**	0.091***
12	0.143	0.069***	0.074**	0.055	0.044	0.098**	0.083***
13	0.174	0.056**	0.063*	0.042	0.029	0.083*	0.067**
14	0.198	0.037	0.029	0.04	0.012	0.073	0.045
15	0.217	0.032	0.030	0.022	0.001	0.076*	0.039
16	0.233	0.032	0.034	0.017	-0.010	0.083*	0.039
17	0.267	0.011	0.016	-0.001	-0.029	0.048	0.013
18	0.275	0.015	0.014	0.012	-0.012	0.047	0.019
19	0.287	0.014	0.008	0.022	-0.017	0.041	0.016
20	0.300	0.020	0.026	0.031	-0.020	0.031	0.024
21	0.305	0.022	0.027	0.027	-0.012	0.039	0.027
22	0.322	0.014	0.018	0.007	-0.018	0.042	0.016
23	0.347	0.006	0.007	0.003	-0.014	0.027	0.008
24	0.352	0.010	0.009	0.015	-0.016	0.031	0.012
25	0.378	-0.002	-0.015	0.019	-0.021	0.013	-0.003
26	0.383	0.002	-0.005	0.016	-0.014	0.013	0.003
27	0.385	0.008	0.002	0.013	-0.001	0.021	0.01
28	0.388	0.010	0.005	0.018	-0.003	0.019	0.012
29	0.408	-0.004	-0.01	0.005	-0.012	0.005	-0.005
30	0.408	-0.001	-0.011	0.020	-0.013	0.003	-0.002
31	0.408	0.002	-0.008	0.020	-0.003	0.004	0.003

Table A4. Impact on FAFSA filing, FAFSA not filed & enrolled in two-year college pre-treatment (continued)

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committ-ment device	Any treatment
32	0.408	0.003	-0.009	0.020	-0.004	0.011	0.004
33	0.408	0.006	-0.005	0.020	0.005	0.01	0.007
34	0.408	0.006	-0.005	0.020	0.005	0.01	0.007

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.

Table A5. Impact on FAFSA filing, FAFSA not filed & enrolled in four-year college pre-treatment

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committ-ment device	Any treatment
1	0.019	0.005	0.002	0.010	0.009	0.003	0.007
2	0.035	0.007	0.004	0.011	0.003	0.012	0.009
3	0.063	0.006	0.007	0.011	0.004	0.003	0.008
4	0.094	0.012	0.005	0.032	0.015	0.003	0.016
5	0.106	0.015	0.011	0.034	0.011	0.010	0.020
6	0.119	0.018	0.020	0.030	0.016	0.005	0.023
7	0.136	0.014	0.017	0.020	0.013	0.002	0.018
8	0.144	0.028*	0.025	0.037	0.026	0.030	0.037*
9	0.162	0.025	0.020	0.043**	0.020	0.020	0.032
10	0.186	0.021	0.018	0.035	0.019	0.013	0.027
11	0.192	0.03	0.032	0.042*	0.026	0.019	0.039*
12	0.207	0.027	0.029	0.033	0.032	0.016	0.036
13	0.225	0.024	0.024	0.035	0.026	0.012	0.031
14	0.241	0.018	0.020	0.026	0.020	0.005	0.023
15	0.249	0.019	0.023	0.031	0.015	0.007	0.025
16	0.257	0.023	0.027	0.033	0.023	0.005	0.029
17	0.273	0.019	0.027	0.030	0.011	0.001	0.024
18	0.276	0.024	0.031	0.033	0.018	0.013	0.032
19	0.290	0.02	0.027	0.023	0.021	0.003	0.026

Table A5. Impact on FAFSA filing, FAFSA not filed & enrolled in four-year college pre-treatment

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committ-ment device	Any treatment
20	0.297	0.024	0.033	0.025	0.021	0.010	0.032
21	0.326	0.007	0.021	0.007	-0.003	-0.010	0.009
22	0.337	0.005	0.020	0.002	-0.004	-0.011	0.006
23	0.353	-0.002	0.011	-0.005	-0.011	-0.013	-0.002
24	0.360	0.002	0.012	0.003	-0.003	-0.010	0.003
25	0.365	0.013	0.022	0.012	0.014	0.001	0.018
26	0.383	0.005	0.010	0.010	0.003	-0.004	0.007
27	0.392	0.008	0.011	0.011	0.014	-0.006	0.010
28	0.400	0.007	0.009	0.006	0.017	-0.003	0.010
29	0.403	0.01	0.010	0.007	0.023	0.000	0.013
30	0.411	0.004	0.006	-0.001	0.015	-0.005	0.005
31	0.414	0.004	0.005	0.000	0.016	-0.006	0.005
32	0.417	0.003	0.005	-0.004	0.017	-0.010	0.003
33	0.417	0.005	0.007	-0.002	0.021	-0.007	0.007
34	0.417	0.006	0.009	0.000	0.021	-0.008	0.007

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.

Table A6. Impact on FAFSA filing, FAFSA not filed & enrolled in four-year public college pre-treatment

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committ-ment device	Any treatment
1	0.017	0.011	0.007	0.010	0.023*	0.008	0.014
2	0.038	0.009	0.008	0.005	0.015	0.008	0.011
3	0.069	0.003	0.004	0.003	0.012	-0.005	0.005
4	0.113	-0.002	-0.010	0.009	0.008	-0.011	-0.003
5	0.126	-0.001	-0.002	0.007	0.002	-0.009	-0.001
6	0.14	0.002	0.008	0.007	0.006	-0.018	0.003
7	0.161	-0.003	0.007	-0.006	0.008	-0.026	-0.003
8	0.171	0.010	0.010	0.007	0.017	0.007	0.013

Table A6. Impact on FAFSA filing, FAFSA not filed & enrolled in four-year public college pre-treatment (continued)

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committ-ment device	Any treatment
9	0.186	0.010	0.005	0.022	0.014	0.003	0.013
10	0.206	0.010	0.008	0.009	0.019	0.004	0.013
11	0.212	0.019	0.019	0.018	0.029	0.010	0.025
12	0.221	0.021	0.018	0.015	0.044	0.001	0.027
13	0.236	0.018	0.012	0.026	0.038	0.002	0.023
14	0.245	0.020	0.016	0.025	0.036	0.009	0.027
15	0.252	0.024	0.020	0.036	0.031	0.015	0.032
16	0.257	0.030	0.031	0.036	0.037	0.015	0.039
17	0.277	0.022	0.026	0.027	0.023	0.012	0.029
18	0.277	0.028	0.028	0.027	0.035	0.022	0.036
19	0.292	0.023	0.026	0.016	0.036	0.012	0.030
20	0.300	0.028	0.035	0.018	0.033	0.023	0.037
21	0.331	0.008	0.023	-0.003	0.004	-0.004	0.011
22	0.340	0.008	0.027	-0.008	0.004	-0.004	0.011
23	0.353	0.003	0.018	-0.011	-0.006	-0.001	0.004
24	0.359	0.012	0.022	0.000	0.011	0.005	0.015
25	0.366	0.022	0.030	0.010	0.028	0.012	0.029
26	0.386	0.012	0.019	-0.001	0.016	0.007	0.015
27	0.395	0.013	0.018	0.004	0.023	0.003	0.017
28	0.405	0.010	0.014	-0.003	0.018	0.008	0.013
29	0.407	0.013	0.016	-0.003	0.024	0.012	0.017
30	0.417	0.004	0.010	-0.013	0.013	0.005	0.006
31	0.421	0.002	0.009	-0.018	0.009	0.003	0.002
32	0.423	0.004	0.013	-0.020	0.015	0.002	0.005
33	0.423	0.006	0.014	-0.017	0.015	0.006	0.008
34	0.423	0.007	0.016	-0.015	0.015	0.005	0.009

*p<0.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.

Table A7. Impact on FAFSA filing, FAFSA not filed & enrolled in four-year private college pre-treatment

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committment device	Any treatment
1	0.022	-0.001	-0.004	0.017	-0.009	-0.004	-0.002
2	0.028	0.008	0.001	0.030	-0.009	0.020	0.010
3	0.048	0.018	0.018	0.039	0.001	0.019	0.023
4	0.051	0.050***	0.045*	0.096***	0.044	0.034	0.065***
5	0.061	0.054***	0.045*	0.104***	0.039	0.046*	0.069***
6	0.071	0.055**	0.047*	0.095***	0.046	0.048*	0.071***
7	0.081	0.054**	0.044	0.093**	0.037	0.057*	0.069**
8	0.084	0.074***	0.060**	0.122***	0.054	0.079**	0.095***
9	0.109	0.058**	0.045	0.112***	0.041	0.056	0.075**
10	0.141	0.049*	0.035	0.123***	0.031	0.035	0.063*
11	0.146	0.059**	0.057*	0.125***	0.034	0.042	0.077**
12	0.172	0.045	0.045	0.103**	0.020	0.030	0.059
13	0.197	0.042	0.043	0.085*	0.020	0.033	0.055
14	0.226	0.020	0.023	0.054	0.008	0.002	0.025
15	0.236	0.016	0.025	0.045	0.002	-0.004	0.021
16	0.251	0.015	0.018	0.047	0.011	-0.007	0.019
17	0.259	0.018	0.029	0.059	0.001	-0.012	0.023
18	0.268	0.022	0.035	0.066	-0.013	0.002	0.028
19	0.281	0.018	0.027	0.059	-0.002	-0.007	0.023
20	0.284	0.021	0.030	0.061	0.005	-0.005	0.027
21	0.307	0.008	0.030	0.044	-0.012	-0.015	0.011
22	0.322	-0.001	0.006	0.035	-0.017	-0.021	-0.001
23	0.344	-0.007	0.000	0.022	-0.014	-0.03	-0.009
24	0.354	-0.011	-0.008	0.025	-0.021	-0.03	-0.014
25	0.354	0.002	0.008	0.031	-0.006	-0.015	0.004
26	0.369	-0.001	-0.006	0.049	-0.013	-0.017	-0.001
27	0.379	0.003	-0.001	0.039	0.003	-0.016	0.004
28	0.381	0.009	0.001	0.044	0.022	-0.013	0.011
29	0.386	0.010	-0.001	0.047	0.028	-0.014	0.013
30	0.389	0.009	0.000	0.044	0.024	-0.012	0.012
31	0.389	0.014	0.001	0.058	0.035	-0.012	0.018

Table A7. Impact on FAFSA filing, FAFSA not filed & enrolled in four-year private college pre-treatment (continued)

		ITT					IV
Week	Control mean	Any treatment	College Possible	Texting, basic	Texting, social pressure	Texting, committment device	Any treatment
32	0.396	0.006	-0.007	0.049	0.026	-0.020	0.008
33	0.396	0.010	-0.004	0.048	0.039	-0.022	0.012
34	0.396	0.010	-0.004	0.048	0.039	-0.022	0.012

*p<.10; ** p<0.05; *** p<0.01

Notes: Analyses include fixed effects for randomization group defined by institution type, FAFSA filing in the 2016-17 year, and intensity of enrollment (full-time, part-time, less than part time) at the time of baseline data collection. Baseline covariates at the individual level include age, sex, class year, first generation status, race / ethnicity, SAT / ACT performance, high school GPA, college GPA, expected family contribution and number of FAFSAs previously filed. Baseline covariates at the institutional level include 75th percentile of SAT / ACT performance, sector, and non-profit status. Final FAFSA message in week 13. Horizontal line after 14 weeks demarcates the end of the active intervention period.