RESEARCH IN BRIEF

Cutting Through the Clutter: Experimental Evidence on Strategies to Increase Salience of Informational Interventions*

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Summary

Informational interventions abound in public policy. Despite the proliferation of these outreach campaigns; however, the evidence of their impact on individual outcomes is mixed. One reason campaigns may not have affected individual decision making is that they lacked sufficient salience to capture attention and engagement. We use randomized controlled trials and quasi-experimental analyses to (1) investigate the overall impact of a low-cost, large-scale text messaging campaign to inform students across the country about important changes to the process of applying for financial aid for college and (2) test the relative efficacy of different strategies to increase the salience of information we sent to students. Specifically, we tested treatment combinations that varied the temporal, visual and behavioral salience of messages we sent students about changes to the process of applying for financial aid. Figure 1 provides a visual illustration of the treatment combinations to which we assigned students.

The primary focus of the informational interventions was on encouraging students to apply for financial aid for the next year in college; we therefore expect primary impacts to be on enrollment or persistence into the 2017-2018 academic year of college, as well as on financial aid students receive for college. In this brief, we present early results suggesting that the campaigns led to increases in the volume of students’ college applications and the quality of institutions to which they apply, and led to modest increases in enrollment or persistence into the next semester in college. Among a national sample of students who used the Common Application to apply to college, texted students were 5.7 percentage points more likely to submit any college application and applied to institutions with modestly higher average graduation rates than similar students who did not receive text messages. The treatment combination that provided both embedded visual infographics (visual salience) and behaviorally-informed content (behavioral salience) appears to have had the largest impact on whether students submitted any application, while the treatment that provided text message content without embedded visuals or behavioral framing had a more pronounced impact on whether students applied to institutions with higher average graduation rates. Among a statewide sample of rising current college students as well as students who were not enrolled in college but who had attempted substantial credit in Texas, texted students (pooling across treatment conditions) were modestly more likely than control students who did not receive any text messages to enroll in or persist in community colleges. The size of the increased community college attendance effects varies, but was 0.8 percentage points for students who were enrolled at community colleges, 0.8 percentage points for recent leavers.

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**Introduction**

Over the last decade, researchers have designed and evaluated numerous outreach campaigns at the local, state, and national level to inform people about beneficial resources and programs and provide support in accessing benefits. Several federal governments have begun to implement insights from behavioral economics, including the White House Social and Behavioral Science team from 2015–2017, the Behavioural Insights Team in the United Kingdom, and others. Moreover, researchers have used outreach campaigns to support individuals to make active and informed decisions in policy domains ranging from tax benefit take-up and retirement participation to public health and education.

Despite the proliferation of these outreach campaigns, the evidence of their impact on individual outcomes is mixed. In education, for instance, several studies suggest that information-only campaigns about college and financial aid options can improve student outcomes (Bird et al., 2017; Hoxby & Turner, 2013) while other studies show that information does not improve students' postsecondary educational outcomes (Bergman, Denning, & Manoli, 2016; Bettinger et al., 2012). We currently lack compelling evidence about what makes one intervention successful while another is not; prior interventions vary in terms of the population they targeted, their method of communication, the information conveyed, and the actions students needed to take in response to the information.

One reason these campaigns may not have affected student decision making is that they lacked sufficient salience to capture students’ attention and engagement. An extensive body of research documents that individuals have limited attention to allocate to important and complex decisions. (Chetty et al., 2009; Dellavigna & Pollet, 2009; Karlan et al., 2010) Limited attention is likely exacerbated among adolescents given their stage of cognitive development and the sheer volume of information adolescents process on a daily basis through technology and social media engagement (Casey, Jones, & Somerville, 2011; Steinberg, 2008, 2009).

**Intervention Details**

During the Fall of 2016, we partnered with the Common Application and the Texas Higher Education Coordinating Board (THECB) to send approximately 370,000 students a series of text messages about changes to federal financial aid policy. The messages explained that the policy change allowing students to submit financial aid applications in October of the year before college enrollment (rather than January, as had been the case in prior years) and to use income tax returns their families had already filed in the financial aid application process. We began messaging in September 2016 and messaged students once approximately every two weeks through mid-January 2017. We randomly varied several dimensions of these text messages to improve the salience of messages and increase the efficacy of the outreach campaign:

- **Visual salience**: In both the Texas and Common Application samples, we varied whether the messages included embedded visual infographics that described important steps in the financial aid application process and resources students could access for assistance. We wanted to investigate whether visual presentation of information more effectively captured students’ attention and engagement with message content than text-only messaging.

- **Behavioral salience**: In both samples, we also varied whether the message content included evidence-based strategies to maximize individual responsiveness and engagement, such as loss frames and concrete implementation prompts. We wanted to investigate whether behaviorally-informed content framing increased the efficacy of the campaign relative to messages that did not incorporate such “nudge” characteristics.
Further, within the Texas student sample, we varied:

- **Temporal salience**: In our Texas sample, we varied whether we began messaging to students several weeks in advance of when they could start applying for financial aid (“early texting”), versus having messaging start on October 1 (“on-time texting”), when students could begin submitting their applications. We wanted to investigate whether priming students about financial aid applications several weeks in advance would make the task more salient and increase the share of students who were ready to apply beginning on October 1.

In Figure 1 below, we provide a visual summary of the various treatment conditions to which we randomly assigned students in the Texas and Common Application samples. In Figure 2, we provide screenshots of the message variations that students received for one of our financial aid text messages.

**Empirical Methods**

**Samples**
Our Texas sample consists of rising or current students at Texas public institutions who used the ApplyTexas application portal. This application portal is the state-sponsored college application portal in Texas and can be used to apply to all public universities in the state as well as many community colleges and private universities. We targeted three groups of students:

1) High school seniors who graduated in 2016 and applied to colleges covered by ApplyTexas for Fall 2016 (hereafter Rising Freshman)
2) Students enrolled in Texas public colleges or universities in the 2015-2016 school year who had used the ApplyTexas portal. (hereafter Enrolled students)
3) Students who had previously enrolled at Texas public community colleges or universities who had attempted substantial credits (75 percent of the required for a degree) but who were not enrolled as of Spring 2016. (hereafter Recent Leavers)

Our Common Application sample consists of high school seniors who registered with the Common Application by mid-October 2016 and either qualified for an application fee waiver or identified as being the first in their family to go to college. Students living outside the U.S. or Texas were excluded from the Common Application sample, as well as students who did not provide mobile phone numbers.

**Data**
Our Texas data consists of administrative enrollment data collected by the THECB. The THECB collects data from all public universities and community colleges in Texas. They also collect information on enrollment intensity, GPA, financial aid receipt, and graduation, which we will examine as the data become available for the cohorts we targeted.

Our Common Application data consists of basic baseline information (high school attended, gender, fee waiver and first generation statuses, entrance exam scores and high school GPA if provided by the student), as well as application outcomes. Specifically, we observe which institutions a student applies to through the Common Application; we then link this data to measures of institutional quality and affordability (e.g. graduate rates, net price) provided by College Scorecard.

**Randomization**
Rising freshman in Texas were stratified by whether they applied to a four year, two year school, or both and were randomly assigned to treatment and control. Current enrollees were stratified by college and classification.
freshman, sophomore, etc.) and then randomized into treatment and control. Control group students did not receive any text-based outreach from THECB about financial aid.

Common Application registrants identified for our sample were stratified by high school and then randomly assigned to one of four experimental conditions corresponding to four different message variations. Unlike the Texas campaign, we did not have an experimental control group against which to compare the overall impact of the Common Application campaign. Therefore, we use a quasi-experimental strategy—difference in differences—in which we compare college application outcomes between students who received the campaign messages and students who did not because they did not identify as first generation or fee-waiver eligible or did not provide a mobile phone number upon registering for the Common Application**.

Both the Texas and Common Application experimental samples were well-balanced on student-level characteristics at baseline

**Texas Results

Currently-enrolled students at Texas higher education institutions

- **Impacts**: For students enrolled at community colleges, the texting campaign increased enrollment (persistence) at community colleges in the spring 2017 term by 0.8 percentage points relative to the no-text control. There was no effect for enrollment in the spring for students enrolled at universities.
- **Treatment Variations**: Effects appear do not vary systematically by treatment variations.

Rising first year students at Texas higher education institutions

- **Impacts**: The text-only messages increased enrollment at community colleges in the spring of 2017 term by 0.7 percentage points over a baseline of 25.3 percentage points for students who received no texts. The media text messages did not affect enrollment. We consider spring enrollment rather than Fall 2016 enrollment because the text message campaign did not begin until after students had enrolled for the fall term.
- **Treatment Variations**: This effect was driven by students who received the text-only messages (i.e. they did not receive embedded visuals designed to increase visual salience); students who received embedded visuals were no more likely to enroll than the control group. Our next stage of analyses will include a more robust analysis of the text message interaction data; we will investigate whether there are any trends or patterns in students’ responses that suggest why the text-only interactions were more effective for rising first year students.

Recent leaver students at Texas higher education institutions

- **Impacts**: Among students who had last been enrolled at a community college, text messages increased the probability of enrolling in community college by .8 percentage points over a baseline of 13.1 percentage points for the control group. For students last enrolled at universities, there was no effect.
- **Treatment Variations**: The effects were strongest for students who received the media-based text messages.

We will follow students longitudinally to investigate whether the overall intervention affected students’ ongoing persistence in college, and/or whether additional differences between treatment variations emerge over time.

** This requires the assumption that the effect of having a fee waiver is the same for students who had a mobile phone number and those who did not. This assumption is impossible to test in the data.
Common Application Results

Impacts
Using the quasi-experimental evaluation strategy, along with student-level administrative data on students’ college application behavior, we find that the texting campaign led to substantial increases in the rate and quality of students’ college applications:

- Texted students were 5.7 percentage points more likely to submit any college application compared to non-texted students (89.1 percent vs. 83.4 percent)
- Texted students submitted more total applications than non-texted students (5.44 vs. 5.34)
- Texted students applied to institutions with modestly higher average graduation rates than non-texted students (75.2 percent vs. 75 percent).

Treatment Variations
The combination of embedded visual infographics and behaviorally-informed content had the largest impact on whether students submitted any application (a 6.2 percentage point overall effect), while the text-only message variations had a more pronounced impact on the average graduation rate of colleges to which students applied (an average increase of approximately 0.4 percentage points in the institutional graduation rate of students’ applications).

Figure 1.

Treatment variations to which students were randomly assigned

Students were randomly assigned into one of the following cells, within the Texas and Common Application samples. "C1, C2...C8 refer to the experimental condition to which students were assigned.

<table>
<thead>
<tr>
<th>Texas</th>
<th>Early Texting</th>
<th>On-time Texting</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1: Text-only, basic frame</td>
<td>C5: Text-only, basic frame</td>
<td></td>
</tr>
<tr>
<td>C2: Text-only, behavioral frame</td>
<td>C6: Text-only, behavioral frame</td>
<td></td>
</tr>
<tr>
<td>C3: Infographics, basic frame</td>
<td>C7: Infographics, basic frame</td>
<td></td>
</tr>
<tr>
<td>C4: Infographics, behavioral frame</td>
<td>C8: Infographics, behavioral frame</td>
<td></td>
</tr>
<tr>
<td>Control Group</td>
<td>Control Group</td>
<td></td>
</tr>
</tbody>
</table>

Common Application

C1: Text-only, basic frame
C2: Text-only, behavioral frame
C3: Infographics, basic frame
C4: Infographics, behavioral frame
Figure 2.

Sample message variations for one financial aid message for current students in Texas

C1: Text-only, basic frame

HI FAFSA or TASFA need to be renewed each year to keep your financial aid for next academic year. But there are new and important changes to FAFSA/TASFA...

THIS year, you can start FAFSA or TASFA now and can use the 2015 taxes your family already filed. Ready to start? Reply YES or NO

That’s great! Doing FAFSA/TASFA ASAP can maximize how much $$ you receive. Text FAFSA or TASFA for concrete steps to get started.

Step #1: To sign up or look up your FSA ID at fahs.gov. An FSA ID is necessary to access the FAFSA and federal loan websites. Text NEXT.

Step #2: After you log on to fahs.gov w/ FSA ID, click on “FAFSA Renewal.” This allows you to pull in data you’ve already submitted to FAFSA. Text NEXT

C2: Text-only, behavioral frame

HI FAFSA or TASFA need to be renewed each year to keep your financial aid for next academic year. But there are new and important changes to FAFSA/TASFA...

THIS year, you can start FAFSA or TASFA early (anytime after 10/1) and can use the 2015 taxes your family already filed. Ready to start? Reply YES or NO

We’re glad you’re ready! Doing FAFSA/TASFA ASAP can maximize how much $$ you receive. Text FAFSA or TASFA for concrete steps to get started.

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

Step #2 should save you time: After you log on to fahs.gov click on “FAFSA Renewal” so you can pull in data you’ve already submitted to FAFSA. Text NEXT

C3: Infographics, basic frame

HI FAFSA or TASFA need to be renewed each year to keep your financial aid for next academic year. But there are new and important changes to FAFSA/TASFA...

THIS year, you can start FAFSA or TASFA now and can use the 2015 taxes your family already filed. Ready to start? Reply YES or NO

That’s great! Doing FAFSA/TASFA ASAP can maximize how much $$ you receive. Text FAFSA or TASFA for concrete steps to get started.

Step #1: Set up or look up your FSA ID.
Step #2: Click on “FAFSA renewal,” verify you log on to get all info from your last FAFSA.
Step #3: Gather documents required, like your social security # and 2015 tax return.

For short video on using FAFSA/TASFA Ex: [Link]

C4: Infographics, behavioral frame

HI FAFSA or TASFA need to be renewed each year to keep your financial aid for next academic year. But there are new and important changes to FAFSA/TASFA...

THIS year, you can start FAFSA or TASFA early (anytime after 10/1) and can use the 2015 taxes your family already filed. Ready to start? Reply YES or NO

We’re glad you’re ready! Doing FAFSA/TASFA ASAP can maximize how much $$ you receive. Text FAFSA or TASFA for concrete steps to get started.

Step #1: Set up or look up your FSA ID.
Step #2: Click on “FAFSA renewal,” verify you log on to get all info from your last FAFSA.
Step #3: Gather documents required, like your social security # and 2015 tax return.

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