

Registry of Efficacy and Effectiveness Studies

Study Title:

Conditions under which college students can be responsive to nudging: An RCT at Perimeter College

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Section I: General Study Information

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Study Start Date:

2020-08-01

Study End Date:

2023-07-31

Intervention Start Date:

2020-09-01

Timing of entry:

Prior to analysis of outcome data

Brief Abstract:

Success in postsecondary education requires students to engage with their institution both academically and administratively. As with the transition to college, administrative requirements students face once enrolled can be substantial. Missteps with required processes can threaten students' ability to persist. During the 2020-21 academic year, Perimeter College at Georgia State University implemented an artificially intelligent text-based chatbot to provide proactive outreach and support to help undergraduates navigate administrative processes and take advantage of campus resources. A team of centralized university administrators orchestrated outreach "campaigns" to support students across three broad domains: (1) academic supports; (2) social and career supports; and (3) administrative processes. We investigate the implementation and effects of the Perimeter College chatbot through an experimental study.

Keywords:

text-based nudging, chatbot, higher education, student persistence, RCT, two-year

Comments:

This implementation is an extension of an intervention run with students enrolled at the Georgia State University's main campus in four-year programs.

Section II starts on the next page.

Section II: Description of Study

Type of Intervention:

Practice

Topic Area of Intervention:

Postsecondary and Adult Education

Number of intervention arms:

1

Target school level:

13-16

Target school type:

Urban

Location of Implementation:

United States: United States : South

Further description of location:

Atlanta, GA

Brief Description of Intervention Condition:

Students enrolled at Perimeter College at Georgia State University received standard university communications in addition to messages from a university chatbot designed to provide timely and targeted messages around (1) academic supports; (2) social and career supports; and (3) administrative processes.

Brief Description of Comparison Condition:

Students enrolled at Perimeter College at Georgia State University received standard university communications.

Comparison condition:

Business-as-usual

Comments:

-

Section III: Research Questions

Confirmatory research questions:

Question 1:

Are students receiving a targeted message (e.g., students in the treatment group who had not yet filed the FAFSA) more likely to take action on the targeted administrative task (e.g., FAFSA filing) than non-targeted students who have a similar task status (e.g., students in the control group who also have not yet filed the FAFSA)?

Question 2:

Are students receiving a targeted message (e.g., students in the treatment group who have not met with an advisor) more likely to take action on the targeted supplemental support service (e.g., visiting an advisor) than non-targeted students who have a similar task status (e.g., students in the control group who also have not met with an advisor)?

Exploratory research questions:

Question 1:

Do students receiving a targeted message (e.g., students in the treatment group who had not yet filed the FAFSA) take action on the highlighted task (e.g., FAFSA filing) sooner than non-targeted students who have a similar task status (e.g., students in the control group who also have not yet filed the FAFSA)?

Question 2:

Among participants, how does engagement with the chatbot messaging platform vary by student characteristics?

Question 3:

Are student enrolled in the campaign treatment arm more likely to have improved academic outcomes than students in the control/non-message group?

Comments:

Exploratory Subgroup Analyses:

- (1) To what extent does the impact of chatbot messaging vary according to participant college level (e.g., freshmen)?
- (2) To what extent does the impact of chatbot messaging vary according to participant gender and race/ethnicity?
- (3) To what extent does the impact of chatbot messaging vary according to participant socioeconomic background (e.g., Pell status, first-generation status)?

Section IV-A: Study Design (Selection)**Study Design:**

Randomized Trial (RT)

Comments:

-

Section IV-B: Study Design (Input)*Study Design: Input***Unit of random assignment of intervention:**

Student

Assignment within sites or blocks:

No

Probability of assignment to treatment:

0.5

Unit outcome data measured:

Student

Intermediate clusters between unit of random assignment and unit of measurement:

No

Comments:

-

Design Classification

Based on the responses above, this study has been classified as:

RT: 1-level

Section V: Sample Characteristics

Approximate number of students in the comparison condition: 5780

Approximate number of students in the intervention condition: 5780

Yes - these students had provided the institution with permission to contact them via text message Yes - those not targeted as describe above were ineligible

Comments:

-

Section VI: Outcomes (Input)

Confirmatory question 1: Outcome Measure 1

Outcome domain: Student Outcome Domain - Administrative task completion

Minimum detectable effect size: 0.05

Outcome measure: Whether student files the FAFSA

Scale of outcome measure: Binary

Normed or state test: No

Test-retest reliability: N/A

Internal consistency: N/A

Inter-rater reliability: N/A

Same outcome measure in treatment and comparison groups: Yes

Confirmatory question 1: Outcome Measure 2

Outcome domain: Student Outcome Domain - Administrative task completion

Minimum detectable effect size: 0.05

Outcome measure: Whether student registers for courses for the next semester

Scale of outcome measure: Binary

Normed or state test: No

Test-retest reliability: N/A

Internal consistency: N/A

Inter-rater reliability: N/A

Same outcome measure in treatment and comparison groups: Yes

Confirmatory question 1: Outcome Measure 3

Outcome domain: Student Outcome Domain - Administrative task completion

Minimum detectable effect size: 0.05

Outcome measure: Whether student pays all holds on account

Scale of outcome measure: Binary

Normed or state test: No

Test-retest reliability: N/A

Internal consistency: N/A

Inter-rater reliability: N/A

Same outcome measure in treatment and comparison groups: Yes

Confirmatory question 2: Outcome Measure 1

Outcome domain: Student Outcome Domain - Student use of advising and academic support services

Minimum detectable effect size: 0.05

Outcome measure: Whether student attends advising sessions

Scale of outcome measure: Binary

Normed or state test: No

Test-retest reliability: N/A

Internal consistency: N/A

Inter-rater reliability: N/A

Same outcome measure in treatment and comparison groups: Yes

Confirmatory question 2: Outcome Measure 2

Outcome domain: Student Outcome Domain - Student use of advising and academic support services

Minimum detectable effect size: 0.05

Outcome measure: Whether student attends academic coaching sessions

Scale of outcome measure: Binary

Normed or state test: No

Test-retest reliability: N/A

Internal consistency: N/A

Inter-rater reliability: N/A

Same outcome measure in treatment and comparison groups: Yes

Confirmatory question 2: Outcome Measure 3

Outcome domain: Student Outcome Domain - Student use of advising and academic support services

Minimum detectable effect size: 0.05

Outcome measure: Whether student attends supplemental instruction sessions

Scale of outcome measure: Binary

Normed or state test: No

Test-retest reliability: N/A

Internal consistency: N/A

Inter-rater reliability: N/A

Same outcome measure in treatment and comparison groups: Yes

Comments:

Because some messages were directed to all students in the treatment group, whereas other messages were targeted only to those students for whom they were relevant, our analytic approach has to account for this differentiation. In these targeted instances, we first condition the sample on whether the message topic is relevant and then estimate the treatment effect within this conditional sample. For example, in the case of a message related to an unpaid bill, we first condition the sample on having an unpaid bill at the time of the campaign (i.e., identifying both treatment and control students with an unpaid bill) and then estimate the effect of assignment to treatment within this subsample. As a result, our sample size for each analysis will vary and will be smaller than the overall randomized sample, affecting our power to detect intervention effects.

Section VII: Analysis Plan

Baseline data collected prior to start of intervention:

Yes

Description of baseline data:

age, gender, race/ethnicity, Pell eligible, first generation, state residency, citizenship, FAFSA status, high school GPA, college GPA, courses completed to date, college level

Covariates you plan to include in the model:

Gender, Race

Analytic model:

To assess the impact of assignment to the treatment on the outcomes we consider, we use regression and linear probability models of the following general form:

$$Y_i = \beta_0 + \beta_1 D_i + \beta_2 X_i + \epsilon_i$$

where for student i , D_i is an indicator equal to 1 if randomized to treatment and zero otherwise, X_i is a vector of baseline covariates, and ϵ_i represents individual error. Our key coefficient of interest, β_1 , is an intent-to-treat effect representing the causal effect of being assigned to the text-communication treatment group on outcome Y_i . In our presentation of results, we include intent-to-treat (ITT) effects estimated with and without baseline covariate controls.

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Plan to handle cases with missing outcome data:

Impute missing outcome data

Process description:

Missing = 0 on the binary outcome

Planned multiple comparisons adjustment, confirmatory question 1 (Student Outcome Domain):

No

Planned multiple comparisons adjustment, confirmatory question 2 :

No

Comments:

-

Section VIII: Additional Information

Links:

No links have been added yet.

Files:

File Name: [power_perimeter.pdf](#)

Description: MDES by sample graph

File Name: [prereg_model.docx](#)

Description: Analytic model and power notes

Comments:

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