

TEACH ME: Technology Enhanced Academic Communication to Help in Math and English

Abstract

Goals: The overarching goal of TEACH ME is to rigorously investigate the extent to which integrating personalized, course-specific chatbot communication into gateway postsecondary math and English courses improves students' academic performance, sense of belonging, retention, and completion at scale. Specifically, it aims to assess the impact of text-message-based chatbots on student outcomes in these critical courses across diverse institutional contexts and for underserved student populations.

Background: Prior experimental studies conducted by the Teach ME research team found that similar chatbot outreach improved college students' completion of administrative tasks and performance in introductory courses by providing timely information and personalized nudges. However, these studies were limited to single institutions and content-focused courses. As foundational gateway courses, math and English play an outsized role in students' ability to progress in college. Across the study sites, 20-50% of students have earned Ds or Fs in or withdrawn from these courses, rates common at other IHEs. Thus, improving outcomes via a cost-effective, scalable intervention has potential for broad benefits nationally.

Research Questions and Study Design: TEACH ME will address several research questions using a rigorous mixed methods design. Cluster randomized controlled trials across five terms will provide precise estimates of the chatbot's impact on student academic outcomes and variation by subgroups. Faculty and student surveys, interviews, focus groups, and text analysis will offer critical insights into implementation variation as well as student and faculty experience and engagement. Finally, a detailed cost analysis will examine the cost effectiveness of course-specific chatbots as a communication, course management, and teaching tool.

Study Sites and Participants: The project will involve over 21,000 students in first-year math and English courses across four demographically diverse sites: a community college, a PBI, an HBCU, and an HSI, all of which will administer RCTs on their campuses. Many of the undergraduate students on these campuses come from traditionally underserved groups, namely low-income, minority, and first-generation students.

Expected Outcomes and Contributions: TEACH ME will produce critical insights regarding the effectiveness of course-specific chatbots to improve course performance, retention, and completion. The mixed methods design of TEACH ME will also carefully document implementation processes and costs to inform potential scaling. A Mid-Phase project addressing absolute priority 2 and the competitive preference priority, TEACH ME is supported by (a) strong evidence from three randomized controlled trials that leveraged similar technology and (b) moderate evidence from WWC Practice Guides regarding the use of technology to support postsecondary student outcomes. The study promises to advance knowledge regarding the use of chatbots and AI to improve student success.

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