

Executive Summary

MAY 2019

An Online First-Year Seminar for Students in Developmental Mathematics: Early Findings and Recommendations



Project Overview

There is a need to increase the number of students nationally who earn degrees and certificates. The Texas Higher Education Coordinating Board (THECB) reported the state of Texas will need “approximately 60 percent of 25- to 34-year-olds to hold a quality certificate or degree by 2030” in order to remain globally competitive (THECB, 2015, p. 2). The problem is a high school diploma is not a guarantee that a student will be college-ready (Strong American Schools, 2008). As many as 40% of college and university students nationally (Adams, 2012; Mitchell, 2014) and 77,000 students within the state of Texas (Complete College America, 2013) are placed into developmental courses. Many of these students fail to complete developmental course sequences and persist to graduation (Bailey, Jeong, & Cho, 2010; Levin & Calacagno, 2008). This requires that colleges and universities explore ways to better support students who are academically underprepared for college.

First-year seminars can provide students with academic and social support, which are important components of student retention (Tinto, 1993).

These seminars can also be paired with academic courses to support student learning in the classroom. A concern is that these seminars are not always available in an online format, which is increasingly important given the growth in online courses and degree programs. The purpose of this project was to create a first-year seminar that could be delivered in an online format and paired with developmental mathematics to improve pass rates and completion of gateway courses. This paper summarizes the results from the first year of a multi-year project to develop this online FYE course and assess its effects.

Methodological Approach

This project leveraged curriculum from the Frameworks for Mathematics and Collegiate Learning course. Frameworks is a college-level student success course developed in 2013 by the Charles A. Dana Center at The University of Texas with support from Greater Texas Foundation and Achieving the Dream (Charles A. Dana Center, 2014). Frameworks uses learning theory to support students’ development of the mindset, skills, and behaviors necessary for success in their courses and in their careers.

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Frameworks was reconceived for a digital learning space in this project using instructional designers and faculty development specialists at Sam Houston State University.

In fall 2018, all students placed into a traditional developmental mathematics course were invited to participate in the online Math Frameworks Learning Community. Participants and non-participants were evaluated on completion of a developmental mathematics course and enrollment in a college-level mathematics course the following semester. Students also participated in a qualitative study about how their educational needs were met or unmet by participating in the online course. A constant comparison analysis was used to code data into themes.

Key Findings

Students who co-enrolled in the Math Frameworks Learning Community were more likely than their peers to pass their developmental mathematics course at the end of the fall 2018 semester ($\chi^2 [1] = 4.24, p = .04$). Further, all students in the learning community immediately enrolled in a college-level math course in the following spring semester. This is important because delayed enrollment in college-level mathematics can negatively affect student success. Coded transcripts from student interviews revealed five main themes about how their educational needs were met by taking the course. These themes included (a) university integration and support, (b) personal motivation and challenges, and (c) academic confidence and competency. Students wanted skills that would help them succeed in their courses. Each of the participants discussed personal deficits in subject matter, procrastination, time management, and communication they hoped to address and rectify through the learning community. Participants expressed an increased level of confidence and competency in these areas because of the learning community.

Implications for Policy and Practice Findings from this study reaffirm the value of first-year seminars to support skill development as well as the ability to maintain that value in an online context. The following recommendations are offered for policy and practice.

- Learning communities for students placed into developmental mathematics can support persistence in these courses. This is important given concerns about the retention and degree completion of students placed into developmental education. It is not clear if corequisite models provide the same level of academic support for these students. This needs to be explored, particularly as states revise policies on developmental course placement.
- Online courses, when implemented properly, can create opportunities for academic and social skill development of diverse learners. Online courses are not bound by the same physical space needs and requirements. This may help to support other types of academic partnerships.
- Institutions must carefully consider the feasibility of developing quality online courses. Online courses require more time and effort compared to traditional face-to-face courses (Li & Irby, 2008). Adequate resources to support online learning may not be available at all institutions even when student demand for these courses exists.
- Institutions should consider how they provide academic support for online students. These services must also be available online and during hours that are accessible to students without physical access to campus.

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