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Title: Guiding Math Students to Campus Services: An Impact Evaluation of the Beacon Program at South Texas College

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Abstract Body

Limit 5 pages single spaced.

Background / Context:

Many community college students do not persist in college. Among students who intend to earn a credential or to transfer to a four-year institution, only half meet that goal within six years. Many community college students are referred to developmental education due to inadequate preparation for college-level work. For those students referred to developmental math, completing the required developmental math sequence often poses a significant barrier, as does passing even the lowest level of college-level math, which is often a requirement for proceeding toward a degree. Many colleges a trying different methods to improve the success rate in math. This study is a rigorous evaluation of a low-cost intervention aimed at improving students' performance in developmental math and the lowest level of college math.

Purpose / Objective / Research Question / Focus of Study:

Description of the focus of the research.

This research rigorously evaluates whether a low-cost intervention can improve students' performance in developmental math. The "Beacon Mentoring Program" was developed at South Texas College by professors, administrators, and staff at the college. Surveys of students revealed that many did not have someone on campus whom they felt they could turn to for answers to questions. Further, although the college provided many services, like a tutoring center, many students said they had never visited. The "Beacon Mentoring" program was constructed to bring critical information to students about how to manage college, and, thus, to improve college outcomes.

Setting:

Description of the research location.

South Texas College is located in McAllen, Texas, near the border with Mexico. It serves over 27,000 students, ninety-five percent of whom are Hispanic. South Texas College was on of the first community colleges to be chosen to participate in the Lumina Foundation's Achieving the Dream Initiative. Under the auspices of Achieving the Dream, it chose to focus on improving performance in developmental math and other gatekeeper courses.

Population / Participants / Subjects:

Description of the participants in the study: who, how many, key features or characteristics.

Study participants were students enrolled in either developmental math or the first level of college math (pre-algebra, a gatekeeper course). There were 2,165 students in the study, over 95% of whom are Hispanic. Fifty-seven percent of the students are female. About 70 percent are younger than 25 years old. Forty-six percent received some form of financial aid. Finally, 47.3 percent were enrolled in school part-time.

Intervention / Program / Practice:

The Beacon Mentoring program had three simple components: a) deliver information about on-campus services directly to students in the classroom, rather than waiting for students to seek out such information; b) provide students with a "go to" person on campus who knows who they are and can "broker" assistance, and c) improve communication between faculty and student services professionals to help students before they get into academic trouble. Mentors met with their assigned math class 3 or 4 times during the semester for 5 to 10 minutes. They encouraged students to email or meet with them in person if they had questions or problems. Finally, they collaborated with instructors to contact students at risk of failing the course.

Research Design:

Description of research design (e.g., qualitative case study, quasi-experimental design, secondary analysis, analytic essay, randomized field trial).

This study is randomized controlled trail of the Beacon Mentoring program. However, randomization is at the level of the classroom, not the student level. In January 2008, over 2,000 students enrolled as they normally would in 83 sections of three math courses (two developmental, and one college-level). The faculty assigned to teach these sections had agreed to participate in the study and understood that each section they taught had about a 50 percent chance of being assigned a Mentor. During the first week of class, MDRC randomly assigned these 83 sections o either the program group (where the section was assigned a Mentor) or the control group (where no Mentor was assigned).

This research design has advantages over random assignment at the individual level in that it is easier to implement than typical student level random assignment. Multiple sections taught by the same instructor were evenly divided between the program and control groups in order to control for teacher effects; day and evening classes were also evenly divided between program and control groups. Analysis of the data show that the random assignment led to program and control groups that are balanced in terms of observable characteristics (Table 1).

Data Collection and Analysis:

Description of the methods for collecting and analyzing data.

Most of the data analysis uses student level administrative records on transcripts and use of campus services. Survey data and qualitative focus group data were also collected from students and Mentors. The administrative records contain information on all courses taken, grades and withdrawals, total credits attempted and earned (and which classes these were), student persistence past the program semester, and the number of times students accessed student services.

Regression analysis is used to calculate the program impacts on performance in math classes, overall college performance, persistence, and use of on-campus services. The regression analysis controls for random assignment pool fixed effects, and student characteristics. Controlling for student characteristics does not change the estimated impact, as expected since the program and control groups are balanced in terms of observable characteristics, but does improve the precision of the estimates. Standard errors are clustered at the math section level.

Findings / Results:
Description of the main findings with specific details

Overall, the Beacon Mentoring program significantly increased the fraction of students who accessed the on-campus tutoring center. There was also a statistically significant decrease in withdrawal rates from math classes. However, the program had no statistically significant impact on math class pass rates, credits earned, nor on persistence in college. (Table 2, Table 3)

However, turning to two important subgroups, part-time students and those enrolled in developmental math, the study finds statistically significant impacts on math class performance. For part-time students, the percent of students passing their math class increases by 6.6 percentage points for program students over controls. Final exam scores for part-time students in developmental math also increase. Credits earned are also significantly higher for part-time students in the Beacon program (Table 4). For students enrolled in developmental math, the probability of withdrawing from math class declines, and total credits earned rises for program students over controls (Table 5).

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Conclusions:
Description of conclusions, recommendations, and limitations based on findings.

For students overall, the program impacts are few and modest. However, when part-time students and students in the two lowest level math classes are considered, there are statistically significant program impacts. Given that the intervention was "light touch" and low-cost, any impact is important.

There are three important conclusions from this study. First, whole-class random assignment in college settings is both feasible and efficient. Second, linking services to the classroom is potentially a powerful way to ensure that students know the services that are available to them. Finally, since the program was very successful at increasing students' use of on-campus academic supports (tutoring), and yet performance did not increase for students overall, it suggests that the type and quality of academic support offered in student success centers should be better understood.

Appendices

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Appendix A. References

References are to be in APA version 6 format.

Appendix B. Tables and Figures
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Table 1: Program Control Differences in Characteristics

	Program Group	Control Group	Difference	Standard Error
% Female	57.5	57.6	0.0	2.1
% Under 24 Years	70.3	71.1	-0.8	2.0
% Evening	16.6	17.9	-1.3	1.6
GPA in H.S. [1]	0.8	0.8	0.0	0.0
Math Placement Test:				
Top 25% [2]	23.3	26.0	-2.7	1.9
Bottom 25%[2]	24.8	24.1	0.8	1.0

Table 2: Overall Sample

Outcome	Program Group	Control Group	Difference		Standard Error
Math course pass rate (%)	54.81	53.38	1.43		1.86
Final exam score [a]	*51.70*	*50.50*	*1.21*		*1.31*
Percent days absent [a] *(%)*	*19.09*	*21.89*	*-2.81*	*	*1.50*
Number of days attended˜	20.27	19.86	0.41		0.63
Withdraw from math course (%)	15.38	18.20	-2.82	*	1.52
Credits attempted	10.37	10.53	-0.16	**	0.07
Credits earned	6.56	6.49	0.07		0.16
GPA	*1.97*	*2.01*	*-0.03*		*0.04*
Postprogram persistence (%)					
Registered spring 2008 and fall 2008	58.31	59.01	-0.70		2.02
Sample size (total students = 2165)	1067	1098			
Sections represented (total = 83)	41	42			

Table 3

Percentage Who Ever Visited the Center for Learning Excellence, by Subgroup

Ever Visited Center (%)	Sample Size	Program Group	Control Group	Difference	Standard Error	Difference Between Subgroups
All students	2,165	25.5	19.8	5.7 ***	2.0	NA
Full time (12 + credits)	1,140	25.6	20.2	5.4 **	2.7	
Part time (less than 12)	1,025	25.3	19.3	6.0 **	2.4	
Enrolled in developmental math	1,249	21.5	17.2	4.3 *	2.2	
Enrolled in college-level math	916	31.0	23.2	7.8 **	3.5	
Sample size (total students = 2,165)		1,067	1,098			
Sections represented (total = 83)		41	42			

Table 4: Program Impacts for Part-time Students

Outcome	Part-time (less than 12 hours) Program Group	Control Group	Difference	Standard Error
Math course pass rate (%)	57.62	51.07	6.55 **	2.55
Final exam score [a]	*54.23*	*50.87*	*3.37 **	*1.93*
Percent days absent [a] *(%)*	*18.62*	*22.54*	*-3.92*	*2.56*
Number of days attended [a]	20.31	19.69	0.61	0.81
Withdraw from math course (%)	14.11	20.43	-6.32 ***	2.23
Credits attempted	7.68	7.91	-0.23 *	0.13
Credits earned	4.92	4.61	0.31 *	0.18
GPA	2.00	1.96	0.04	0.06
Postprogram persistence (%)				
Registered spring 2008 and fall 2008	54.10	54.94	-0.84	2.96
Students	497	528		
Sections represented (total = 83)	41	42		

Table 5: Program Impacts for Developmental Math Students

	Students in Developmental Classes			
Outcome	Program Group	Control Group	Difference	Standard Error
Math course pass rate (%)	50.70	47.62	3.09	2.61
Withdraw from math course (%)	11.79	17.99	-6.21 ***	2.10
Credits attempted	9.88	9.99	-0.11	0.09
Credits earned	6.09	5.55	0.54 ***	0.20
GPA	*1.83*	*1.78*	*0.05*	*0.05*
Postprogram persistence (%)				
Registered spring 2008 and fall 2008	56.98	55.91	1.06	2.67
Students	624	625		
Sections	26	26		