



GUIDING DEVELOPMENTAL MATH STUDENTS TO CAMPUS SERVICES

An Impact Evaluation of
the Beacon Program at
South Texas College

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Overview

This report presents results from a rigorous evaluation of the Beacon Mentoring program, designed and implemented by South Texas College, in McAllen, Texas. As part of their participation in the Achieving the Dream initiative, college leaders developed an innovative intervention targeting students enrolled in lower-level math courses that have high rates of failure. The program was based on three simple ideas: that students who need services often do not access them even when they are available and free; that a mechanism is needed to alert student services staff when students start to fail in class; and that students need a “go to” person on campus who knows them and to whom they can turn for advice, support, and information.

The Beacon Mentoring program was a “light touch” intervention, designed to serve large numbers of students at minimal cost. Mentors were college employees who were recruited and trained to make several short classroom presentations about services available on campus and to work with the faculty to identify struggling students and offer them help early on. During spring 2008, the Beacon program targeted over 2,000 students enrolled in 83 sections of either a developmental (remedial) math course or a college-level algebra course. Mentors were randomly assigned to half of the sections. The impact of the program was assessed by comparing the outcomes of students in the mentored classes with the outcomes of students in the classes that were not assigned a mentor.

The program had no effect on passing the math class or on persistence. However, evidence suggests that the program had a modest and positive impact on other outcomes for the full sample of students and resulted in additional or more pronounced benefits for two subgroups of students most at risk of failure: students enrolled in developmental math and students who attended college part time. Analyses in this report show that:

- **The program succeeded in increasing the number of students who used the Center for Learning Excellence, a campus resource that provided tutoring and other forms of academic support.**
- **The program led to a statistically significant decrease in the likelihood of students in mentored classes withdrawing from their math course before the end of the semester.**
- **Part-time students were less likely to withdraw from and more likely to pass the math class, earned more credits, and, at least in the developmental math classes, scored higher on the final exam. The program also resulted in enhanced benefits for students enrolled in developmental math classes.**

Preface

South Texas College is one of 102 colleges participating in Achieving the Dream: Community Colleges Count, a national initiative funded by Lumina Foundation for Education. Its aim is to help community colleges develop evidence-based interventions to improve the chances of success for students who are most at risk of failure.

Like many community colleges, South Texas College enrolls large numbers of students who are academically underprepared. Many were failing the lower-level math courses required for advancement toward a degree or certificate — both developmental (or remedial) classes and large “gatekeeper” college-level courses — and ultimately leaving college without earning a credential.

With a “light-touch” intervention in mind, using resources and staff already available on campus, the college designed a program in which college employees, “Beacon mentors,” visited both developmental classes and lower college-level algebra classes. They provided information about available academic support services, served as a personal contact for students, and worked with the instructors to identify struggling students and offer timely help.

MDRC’s evaluation found that while the program did not improve students’ math class pass rates or persistence in college, it did have modest results on other outcomes for the full sample. What was particularly interesting was that the program proved to be more helpful for the two subgroups who are at the highest risk of failure — part-time students and those enrolled in developmental math. Programs that connect such students with services, especially when they are integrated into classroom instruction, are promising and worthy of further investigation. MDRC is continuing to evaluate the Achieving the Dream initiative, and we will be releasing additional reports later this year.

Gordon L. Berlin
President

Acknowledgments

The authors would like to express their appreciation and gratitude to the many individuals who helped to make this project and report possible. First on the list are the impressive people of South Texas College who had the vision and fortitude to create and implement the highly innovative Beacon Mentoring program, but also the courage to subject it to a rigorous evaluation. It is precisely this spirit that Lumina Foundation's Achieving the Dream Initiative inspires and encourages in all of its member colleges. Luzelma Canales, William Serrata, Paul Hernandez, Jr., Brenda Cole, and Kim McKay all deserve special recognition for their support and hard work, and we are deeply grateful for the opportunity to collaborate with these gifted administrators. We would also like to thank Dr. Shirley Reed, President of South Texas College, whose dedication to helping students succeed through institutional change helped make the study a success. Finally, the study could not have been successful without the efforts of all the hard-working advisers and counselors of South Texas College's Student Affairs and Enrollment Management Division, student support services staff, institutional research staff, leaders and members of the math faculty, and most of all, the men and women who volunteered to serve as mentors in the study.

In addition, we would like to thank Dan Cullinan for managing and analyzing the data, Emily Schneider for her expert help in pulling the report together, and the following colleagues at MDRC who provided valuable comments on earlier drafts: Thomas Brock, Howard Bloom, Lashawn Richburg-Hayes, John Hutchins, Fred Doolittle, and Elizabeth Zachry.

Executive Summary

This report presents results from a rigorous evaluation of the Beacon Mentoring program, an intervention that was designed and implemented by South Texas College, in McAllen, Texas. College leaders, alarmed by the high failure rates of students enrolled in lower-level math courses required for advancement toward a degree or certificate, combined several elements in an innovative intervention targeting students enrolled in these large, high-failure courses. The college named its program “Beacon Mentoring” to symbolize the idea that when community college students become overwhelmed by the complexity of college life, feel isolated, or struggle with academic material, they need proactive guidance to the services they need to succeed, most of which already exist on campus. Despite its name, the program was not a traditional mentoring program involving deliberate matching of mentors with mentees, intensive relationships, or other features commonly associated with mentoring programs. The Beacon program was designed instead to be a “light touch” intervention involving minimal contact between students and the college employees who served as mentors.

The Beacon program targeted over 2,000 students enrolled during one semester in either a developmental (remedial) math course or a college-level algebra course. The “theory of change” underlying the program was based on three simple ideas: that students who need services often do not access them even when they are available and free; that a mechanism is needed to alert student services staff when students start to fail in class; and that students need a “go to” person on campus who knows them and to whom they can turn for advice, support, and information.

Community colleges face a formidable challenge as students who are underprepared academically continue to flood through the open doors of these accessible, affordable institutions in pursuit of their dream of a college education. Those dreams are often cut short early when students who score low on math placement tests are relegated to a sequence of developmental courses that must be completed as a prerequisite to earning a degree or transferring to a four-year institution. While in these courses, students risk depleting financial aid and other resources before gaining access to the college-level, credit-granting courses they need to earn a degree. South Texas College designed the Beacon program to give students taking developmental courses the assistance they need to succeed and move on to college-level classes.

South Texas College and the Achieving the Dream Initiative

South Texas College is one of 102 community colleges in 22 states participating in Achieving the Dream: Community Colleges Count, a national initiative to improve student outcomes funded by Lumina Foundation for Education. Achieving the Dream is designed to

encourage colleges to undertake an intensive, institutional, data-driven improvement process to develop priorities for increasing student success, with a special focus on the needs of students in developmental education and other at-risk student populations. The initiative also expects colleges to evaluate their progress in improving student achievement and develop institutional practices and policies that are based on this evidence. One of the first 27 colleges to join the initiative in 2004, South Texas College designed the Beacon program as one of its data-driven strategies to address the problem of student failure, especially in developmental math courses.

College leaders readily agreed to subject the program to a rigorous evaluation that was developed and managed by MDRC. The evaluation used a random assignment research design, in which 83 sections of three math courses, including two developmental math courses and one college-level algebra course, each with 25 to 30 students, were randomly assigned to a program group or a control group. Each of the 41 math classes in the program group was assigned a mentor. The program operated for a single semester in spring 2008. The impact of the program was assessed by comparing the outcomes of students in the mentored classes with the outcomes of students in the classes that were not assigned a mentor.

The Student Sample

A total of 2,165 students were enrolled in the 83 math classes that were part of the study. Due to random assignment, there were no statistically significant differences in the characteristics of those students enrolled in mentored classes (the program group) and those enrolled in nonmentored classes (the control group). Nearly all (95 percent) of the students were Latino but other than this, their characteristics were similar to those of community college students nationwide: Slightly more than half (57 percent) were women, nearly three-quarters (70 percent) were under age 24, and about half (52 percent) were enrolled full time (12 or more credits).

The Beacon Program: Key Elements and Expected Outcomes

The Beacon program was the brainchild of leaders in the student affairs division at South Texas College and evolved over several semesters as they fine-tuned the model, resulting in the version that was evaluated in 2008. Before the semester began, college leaders enlisted college employees who agreed to volunteer as mentors in addition to carrying out their normal job duties. Mentors were trained before the semester started and received further support during the course of the semester. Each mentor was assigned to one math class.

Mentors played three essential roles in delivering the key elements of the Beacon program:

1. Mentors delivered information directly to students in classrooms about services such as academic support services, advising and counseling services, financial aid, and Priority Registration (early registration for the following semester available to a target group of students, including those in the Beacon program).
2. Mentors acted as a “go to” person on campus for students in their class when students had a question or just needed someone to talk to.
3. Mentors and math instructors communicated with each other to identify struggling students and offer them help before they failed or dropped out of the class.

The goal of the Beacon program was to improve student success by increasing:

- Student use of campus services such as tutoring and advising
- Pass rates in large, high-failure math courses
- Credits earned
- Semester-to-semester persistence

Key Findings on Program Implementation

Overall, the Beacon program was implemented with a reasonable degree of fidelity to its design, although one element — contact between students and their mentors outside of class — occurred less often than anticipated.

- Almost all the mentors reported that they conducted at least three in-class presentations about campus services and academic support in their assigned math courses.
- About half the students in mentored classes reported having some contact with their mentors outside of class, primarily by phone or e-mail.
- Many of the math instructors and Beacon mentors reported that they communicated with each other about particular students, upcoming exams, and other matters. But some pairs struggled to understand each others’ roles and fell short of developing an effective partnership.
- Students in mentored classes were more likely than those in nonmentored classes to report that there was someone they could turn to on campus for help and that they knew where to go on campus to get help with math.

Key Findings on Program Impacts

As shown in Table ES.1, the program had no effect on students' passing the math class or on their persistence in college. However, the evidence suggests that the program had a modest and positive impact on other outcomes.

- **The program succeeded in increasing the number of students who used the Center for Learning Excellence, a campus resource that provided tutoring and other forms of academic support.**

The evidence shows that the students in mentored classes were much more likely to visit the Center for Learning Excellence. Program students were 6 percentage points more likely to visit the center during the study semester, which is about a 30 percent increase relative to the control group.

- **The program led to a statistically significant decrease in the likelihood of students in mentored classes withdrawing from their math course before the end of the semester. However, there was no statistically significant impact of the program on the percentage of students who passed the math course.**

Students at South Texas, as in postsecondary institutions in general, are allowed to withdraw from a class for any reason at any time up to a certain date (known as the “census” date). After that date, if they do drop out they receive a “W” on their transcript and no credit for the course. Students who do not withdraw may receive a letter grade, an ungraded pass/no pass, or an incomplete. The evaluation found that students in the mentored classes were less likely to withdraw from their math class by almost 3 percentage points compared with the control group. This finding is consistent with reports in the implementation research that some mentors may have encouraged students to stay in the math course even if they were earning a low grade, in the hope that the students would have a better chance of eventually passing the class if they stuck with it longer. However, the study found no significant differences in pass rates (or failure rates) for mentored and nonmentored students. This implies that among those students who stayed in the math class due to the program, some passed the course, some failed the course, and some received incompletes, but the program had no statistically significant impact on these outcomes.

- **The program did not increase the percentage of students who went on to enroll in college the following semester — for students as a whole.**

The study found no evidence that having a mentor improved the likelihood of reenrolling in the fall semester, despite the focus of mentors' communications on how to register for classes in the fall.

Achieving the Dream: South Texas College

Table ES.1

Key Findings on Program Impacts

Outcome	Program Group	Control Group	Difference	Standard Error
Used Center for Learning Excellence	25.5	19.8	5.7	*** 2.0
Math course pass rate (%)	54.81	53.38	1.43	1.86
Part-time students (attempting less than 12 credits)	57.62	51.07	6.55	** 2.55
Enrolled in developmental math	50.70	47.62	3.09	2.61
<i>Final exam score^a</i>	<i>51.70</i>	<i>50.50</i>	<i>1.21</i>	<i>1.31</i>
<i>Part-time students (attempting less than 12 credits)</i>	<i>54.23</i>	<i>50.87</i>	<i>3.37</i>	<i>* 1.93</i>
Postprogram persistence (%)				
Registered spring 2008 and fall 2008	58.31	59.01	-0.70	2.02
Withdrew from math course (%)	15.38	18.20	-2.82	* 1.52
Part-time students (attempting less than 12 credits)	14.11	20.43	-6.32	*** 2.23
Enrolled in developmental math	11.79	17.99	-6.21	*** 2.10
Credits attempted	10.37	10.53	-0.16	** 0.07
Credits earned	6.56	6.49	0.07	0.16
Developmental credits earned	1.92	1.72	0.20	** 0.08
Sample size (total students = 2,165)	1,067	1,098		
Sections represented (total = 83)	41	42		

SOURCE: MDRC calculations from South Texas College transcript and final exam data.

NOTES: Rounding may cause slight discrepancies in sums and differences.

A two-tailed t-test was applied to differences between research groups. Statistical significance levels are indicated as: *** = 1 percent; ** = 5 percent; * = 10 percent.

Standard errors are clustered by Math 0080, 0085, and 1414 section.

Estimates are adjusted by indicators for developmental class, evening class, teacher effect, top and bottom math placement test quartiles, age less than 24, gender, and full-time status.

The italicized row – final exam score – is nonexperimental. It is calculated only for people who were still attending at the end of the course.

^aFinal exam score represents developmental math (Math 0080 and 0085) sections only.

- **Students in mentored classes attempted slightly fewer credits than students in nonmentored classes.**

Students in mentored math classes appear to have attempted fewer credits on average than students in nonmentored classes. Mentors may have encouraged students to concentrate on passing their math class and suggested a strategy to drop one of their nonmath courses to improve their chances. There is also evidence that students in mentored classes earned slightly more developmental credits, probably because the help they received from the mentor and support services gave them the boost they needed to pass developmental English.

- **The Beacon program resulted in additional benefits for two subgroups most at risk of failure: students who attended college part time (less than 12 credits) and students enrolled in developmental math (as opposed to college-level math).**

Part-time students in the program group seemed to benefit more from the mentoring experience than their counterparts in the control group. They were less likely to withdraw from and more likely to pass the math class, earned more credits, and, at least in the developmental math classes, scored higher on the final exam. This result was in line with the expectations of the college's leaders, who felt that the program would be particularly helpful to students who were less connected to the campus and its available resources. The program also resulted in enhanced benefits for students enrolled in developmental math classes. The developmental math students in the program group were less likely to withdraw from math class than students in the control group, and they earned significantly more credits in their nonmath developmental courses. Their increased use of the Center for Learning Excellence and other support services may have had an effect on their performance in other classes.

Conclusions

Colleges want to know what they can do as institutions to help more academically underprepared students succeed in achieving their postsecondary education goals. Effective interventions that require relatively little investment of time and resources but can still reach a large portion of students are particularly appealing, especially during these economically challenging times. The evidence presented here suggests that interventions such as the Beacon program may offer one such answer, although potential impacts are not likely to be larger than those reported here unless more interactions between mentors and students and between faculty and mentors occur. "Light touch" programs such as this one should be expected to result in modest impacts. The findings also suggest that more than increased access to services is probably needed to significantly boost achievement in math, one of the greatest stumbling

blocks for community college students as they pursue their postsecondary education and career goals.

This study joins a handful of other evaluations of community college interventions that use random assignment to test interventions in the community college setting. Random assignment of whole classes was shown in this study to be both feasible and considerably less difficult than assigning individuals. With a rigorous research design such as random assignment, whether it involves randomly assigning individuals or whole classes, community colleges can trust that the results are worth building upon, whether by strengthening implementation, trying more intense variations of the Beacon model, or investing scarce resources in other interventions.

About MDRC

MDRC is a nonprofit, nonpartisan social and education policy research organization dedicated to learning what works to improve the well-being of low-income people. Through its research and the active communication of its findings, MDRC seeks to enhance the effectiveness of social and education policies and programs.

Founded in 1974 and located in New York City and Oakland, California, MDRC is best known for mounting rigorous, large-scale, real-world tests of new and existing policies and programs. Its projects are a mix of demonstrations (field tests of promising new program approaches) and evaluations of ongoing government and community initiatives. MDRC's staff bring an unusual combination of research and organizational experience to their work, providing expertise on the latest in qualitative and quantitative methods and on program design, development, implementation, and management. MDRC seeks to learn not just whether a program is effective but also how and why the program's effects occur. In addition, it tries to place each project's findings in the broader context of related research — in order to build knowledge about what works across the social and education policy fields. MDRC's findings, lessons, and best practices are proactively shared with a broad audience in the policy and practitioner community as well as with the general public and the media.

Over the years, MDRC has brought its unique approach to an ever-growing range of policy areas and target populations. Once known primarily for evaluations of state welfare-to-work programs, today MDRC is also studying public school reforms, employment programs for ex-offenders and people with disabilities, and programs to help low-income students succeed in college. MDRC's projects are organized into five areas:

- Promoting Family Well-Being and Children's Development
- Improving Public Education
- Raising Academic Achievement and Persistence in College
- Supporting Low-Wage Workers and Communities
- Overcoming Barriers to Employment

Working in almost every state, all of the nation's largest cities, and Canada and the United Kingdom, MDRC conducts its projects in partnership with national, state, and local governments, public school systems, community organizations, and numerous private philanthropies.