



# *Not Just Faster:*

EQUITY & LEARNING CENTERED  
DEVELOPMENTAL EDUCATION STRATEGIES

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MSI Consortium for Innovation and Change  
2016



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*“The current push in higher education to make college level, credit-bearing courses more accessible to all students, but especially students of color and low-income college students, is the single most significant action being taken to dismantle structural inequality in higher education.”*

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## Acknowledgements

The Southern Education Foundation would like to thank the Andrew W. Mellon Foundation and the Texas Guarantee (TG) for their generous support for the “MSI Consortium for Innovation and Change: Developmental Education Initiative.” We would also like to thank the five Minority-Serving Institutions that participated, California State University San Bernardino, Claflin University, Morgan State University, Texas Southmost College, and the University of the Incarnate Word. We appreciate your willingness to share your time, resources, and experiences, without which this initiative would not have been possible.

### **Suggestion Citation for this Report**

Jones, T., & Assalone, A. (2016). *Not Just Faster: Equity and Learning Centered Developmental Education Strategies*. Atlanta, GA: Southern Education Foundation.

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Printed in the United States of America.

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## Executive Summary

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**T**he Southern Education Foundation's Minority-Serving Institution (MSI) Consortium for Innovation and Change was instituted in 2011 to advance creative and promising initiatives that enhance institutional practice and student outcomes. In keeping with the SEF mission, these innovations specifically address educational barriers that disproportionately affect the degree seeking low-income and student of color populations operating under the purview of higher education. Our commitment to giving good ideas a fair test leads this work in hopes of identifying a set of best practices that may be cultivated within the education community as a comprehensive set of interventions to best serve those who inspire our work and need it most.

With such a vision in mind, this project was devised to target the persistent problem that developmental education (DE) poses for many, as both an impediment to degree attainment as well as an issue that disproportionately impacts low-income students and students of color. SEF engaged five Minority-Serving Institutions along with the Technical Review and Support Team (TRST) to launch an eclectic set of DE innovations. These five campuses represented both two-year and four-year, and public and private colleges and universities across the southeastern and southwestern United States. Additionally, the campuses included Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs) creating a window into a space that is often understudied but is home to a significant number of our target population. All involved eagerly engaged in this work to answer the pressing question of what can be done to mitigate the barriers to degree attainment for those who currently require DE.

The activities of the MSI Consortium for Innovation and Change impacted nearly 1,000 students who participated in the initiatives. Further, this experience of the pilot projects offered significant lessons learned and serious implications for the nearly 40,000 students currently attending the participating campuses, and unknown indirect benefits to countless future students. Armed with financial support and technical assistance, the campuses were empowered to implement a new DE strategy as well as a rigorous evaluation process that included experimental and quasi-experimental research methods. The participating MSIs utilized models that either accelerated or eliminated the semester-long DE course for first-year students, or focused on curricular redesign and faculty development. Promising models for change were observed in this first cohort of MSIs that both enhanced the academic achievement (i.e. course completion and performance) and diminished the time to credit-bearing courses for the participants who tested into DE.

This report includes a summary of the DE interventions, evaluation strategies, and program outcomes performed at the participating institutions. Additionally, it offers descriptions of the evidence-based models that have been effective for DE at the MSIs. The report goes on to highlight effective strategies utilized by the campuses in an effort to scale the initiatives and lessons to consider for scaling such models. Finally, it concludes with recommendations for advancing developmental reform efforts to improve teaching and learning while simultaneously addressing equity issues.

# Introduction

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**D**enise, somewhat groggy, wakes up extremely early from a night of tossing and turning in eager anticipation of her first day of college. Today, she will arrive on campus expecting to select her favorite classes and to learn to navigate her way around campus. However, when she arrives at the advising office, rather than discuss what she hopes to study and why, she is told that she must complete a placement test to determine which courses she can enroll in. This exam will determine whether Denise is officially dubbed “ready for college courses” despite already having been admitted. Thinking her biggest challenge that day would be finding the right building, Denise is startled into the reality that all too many students face. Low-income students and students of color, having beat a number of odds to make it to campus, often find yet another set of barriers slowing their progress toward college completion.

Generally, students whose test scores or grades suggest that they require additional academic development before they can be successful in college-level courses are required to take remedial or developmental education (DE) courses. DE courses have generally been offered to improve skills and competencies required to help students become “college ready,” or ready to “succeed in entry-level, credit-bearing college courses without the need for remedial or developmental coursework” (Conley, 2012). Far too often students like Denise, not only are faced with the surprising factor that the same college that assessed them as “ready” enough to be accepted, have deemed them not “ready” for college courses. This is an unexpected conundrum for most and serves as a discouraging introduction into the college experience for far too many. In 2006, more than 50% of students at two-year institutions, and nearly 20% at four-year institutions, were enrolled in DE courses (Complete College America, 2012; Sparks & Malkus, 2013).

As if that isn’t startling enough, the developmental level courses that students like Denise must complete to be admitted to the college level, credit-barring courses, often create a number of obstacles before they start. Fewer than half of these students actually pass these classes and successfully move on to credit-bearing courses that count towards a degree. Among those who do pass, far too many do not successfully complete the entry-level course that follows (Radford & Horn, 2012). DE courses cost the same as any other three-credit course but typically do not count toward a degree program. Thus, the problem of low DE and subsequent college-level course completion rates are inextricably linked to retention and degree completion, especially among low-income students and students of color who already have thin margins of error financially. Taking DE courses can mean that students are paying for courses that will not count towards graduation, which can explain why students enrolled in these courses often have fewer credits earned and lower retention and completion rates compared to their peers that are not required to complete DE courses (Complete College America, 2012). Further, DE courses are often instructed by faculty who are given the least support in way of salary, professional development, and on-campus resources such as office space. As a result there is often high turnover among DE faculty (Bickerstaff & Cormier, 2015; Boyer, Butner, & Smith, 2007).

These challenges with DE as a barrier to college access and success are exacerbated for students who already face the greatest barriers, low-income students and students of color. For example, 56% of African American students, 45% of Hispanic students, and 55% of Pell grant recipients require DE courses (Complete College America, 2016). It is important to note that this issue is persistent across institutional type; therefore, students of color and low-income students are

overrepresented in DE courses, not only at institutions that primarily serve these populations like community colleges and MSIs, but also four-year, Predominately White Institutions (PWIs). Nearly 100% of two-year institutions and 80% of four-year institutions offer and enroll students in DE courses (Bettinger, Boatman, & Long, 2013; NCES, 2003; Sparks & Malkus, 2013; Pretlow, & Wathington, 2011). For four-year PWIs, DE remains a contributor to persistent equity gaps in completion by race and income (Eberle-Sudre, Welch, & Nichols, 2015). The student level challenges of accessing high quality instructional experiences, limited financial resources, and delays to completion are compounded for the institutions with limited resources and concentrated populations of these students, MSIs and community colleges. These students who test into DE courses are largely concentrated at campuses like community colleges and MSIs that often have admissions policies aimed at providing opportunity, but due to budget constraints, can be challenged by the need to simultaneously offer developmental and advanced credit-bearing courses (Bustillos, 2012). These factors contribute to the context at MSIs where on average 70% of students require at least one DE course and less than 50% of students complete a bachelor's degree within six-years (Bustillos, 2012; Li & Carrol, 2007; Sparks & Malkum, 2013).

Therefore, reforming DE is one of higher education's most critical equity imperatives across institutional type. Consequently, the current push in higher education to make college level, credit-bearing courses more accessible to all students, but especially students of color and low-income college students, is the single most significant action being taken to dismantle structural inequality in higher education. While there are several other issues that are critical to college access and success for low-income students and students of color, there lacks a similar momentum from philanthropic, state and federal policy, and campus communities to support experimentation, innovation, and reform. In the past decade, there has been a plethora of initiatives and studies focused on DE at community colleges. These efforts were essential in informing the field that:

1. Students are more likely to complete college if they are engaged in work that counts toward a degree or credential in their academic or career area of interest.
2. Students at all levels of preparation need support with college-level courses and co-requisite models can provide a variety of modified types of support to students.
3. Gateway courses that include mandatory support benefit students more than the traditional course models.
4. Improved partnerships between college-preparatory and postsecondary programs benefit students entering college and limit the need for extra support.

**(CORE PRINCIPLES, 2015)**

Missing from this work on DE reform is an emphasis on four-year colleges and universities and two-year and four-year MSIs. DE programs are too expensive for students and too costly for institutions to know so little about which program models actually work in these critical contexts. As a result, in 2011, the Southern Education Foundation (SEF) created the Minority-Serving Institution Consortium for Innovation and Change to support creative and promising initiatives that improve institutional practices and student outcomes. This project coalesced and supported a group of MSIs intensely focused on the development of solutions to a common and persistent problem that impedes degree completion and DE. The participating MSIs utilized models that either accelerated or eliminated the semester-long, DE courses for first-year students, or focused on curricular redesign and faculty development. Found in this first cohort of MSIs were promising models that increased the academic achievement and decreased the time to credit-bearing courses for the participants who tested into DE.

# Evidence-Based Models for DE Success at MSIs

## Overview

**A**lthough slightly different, each campus participating in the MSI Consortium for Innovation and Change executed a plan for supporting the academic success of first-year students whose level of academic preparation suggests they would benefit from additional academic support in order to be successful in college-level courses. More specifically, each model employs a strategy aimed at increasing the success of these students in their first-year college-level math and/or English courses by providing them with condensed DE courses through summer bridge programs or academic support via structured labs as they enroll in college-level courses. These strategies represent evidence-based approaches to course acceleration, with research suggesting that these approaches significantly decrease the time spent in DE courses without threatening success in credit-bearing courses, consequently reducing the time it takes for these students to complete a college degree (Jaggars, Edgecombe, & Stacey, 2014).

In the Fall 2013 semester, the campuses collaborated with SEF and the technical review and support team to launch various DE innovations. Once concluded, they continued tracking participant outcomes through 2014. Each campus was provided with an initial grant of \$25,000 to support the launch of the innovation and its subsequent study. Upon successful implementation of the innovation and cooperative participation in the consortium they were provided with a second \$25,000 grant. The campuses used summer bridge programs, fast-track course models, extended instructional time, cross-course curricula integration, supplemental instruction, and mainstreaming as approaches to increase the success of students testing into DE courses. The program activities are described in greater detail in Figure 1 below.

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*“The findings from this group of pilot studies and the data from DE reform across the nation suggest that students who were previously labeled as “underprepared” or “not college ready” can be successful in college level, credit-bearing courses, without traditional DE courses”*

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FIGURE I. DEVELOPMENTAL EDUCATION INNOVATIONS

Campus	Innovation
 <p>California State University-San Bernardino (CSUSB)</p>	<p><b>Intensive Math Program (IMP)</b> (created in 2001) allows participating students who require one or two DE math courses the opportunity to finish their DE course requirements prior to their first semester by completing the five-week summer bridge program. Students receive instruction and intensive, directed tutoring. With support from SEF, CSUSB was able to increase enrollment and evaluate the program for improvement and development.</p>
 <p>Claflin University</p>	<p>Claflin's "<b>Extended Course</b>" model (created in 2010) which combined former DE courses with credit-bearing courses in mathematics and English, are taught five days per week and include tutorial support and computer lab time for mathematics. "Extended" English instructors collaborate with the Writing Center to strengthen instruction and address skill deficiencies in composition. With support from SEF, Claflin was able to design and incorporate performance based academic assessment strategies into the courses, and formalized academic support strategies that involved the writing center and associated tutors.</p>
 <p>Morgan State University (MSU)</p>	<p>With support from SEF, MSU created a <b>Developmental Humanities Initiative</b> which includes hands-on interdisciplinary projects across the disciplines of Reading, English and History. Faculty members, including non-tenure track, engaged in course re-design to create the interdisciplinary syllabi across DE and non-DE courses. The syllabi were also designed to increase student engagement and academic identity development by incorporating culturally relevant content.</p>
 <p>Texas Southmost College (TSC)</p>	<p>With support from SEF, TSC developed an <b>accelerated developmental math course</b> which combines Introductory and Intermediate Algebra courses into two consecutive 8-week sessions, rather than the traditional format of two consecutive 16-week sessions. Students were provided with a lab hour attached to each course, where they received support from the instructors and tutors and completed online assessments.</p>
 <p>University of the Incarnate Word (UIW)</p>	<p>With support from SEF, UIW created a <b>Co-Requisite model</b> of college-level College Algebra course with a mandatory lab for students requiring DE. The additional hour gave the instructor the opportunity to remediate based on specific deficiencies indicated by the placement exam while still meeting college-level learning outcomes. Participating students were described as "bubble students" who just missed the college-level math cutoff score.</p>

## Outcomes

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SEF and the technical review and support team worked closely with the campuses to examine the effectiveness of the innovations, with two campuses executing random assignment and three utilizing comparative analyses. The findings demonstrate that on average the students who would otherwise be required to complete a traditional DE course sequence, instead participated in the innovations, and had either similar or better course outcomes than similar students who require DE, but did not participate in the innovations. In some cases, the students participating in the innovations had similar to better outcomes than even those students who did not require DE. For example, at the University of the Incarnate Word, students who would have otherwise been placed in a traditional DE course but were enrolled in a college-level math course with an additional math lab, had similar final course grades and slightly lower final test scores than students who did not test into DE courses. At Morgan State University, students who participated in the integrated courses had higher attendance, course completion rates, grades, and final test scores than similar students who did not participate in the integrated course model. See Figure 2 for outcomes summary.

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*“In some cases, the students participating in the interventions had similar to better outcomes than even those students who did not require DE.”*

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FIGURE 2. PROGRAM OUTCOMES

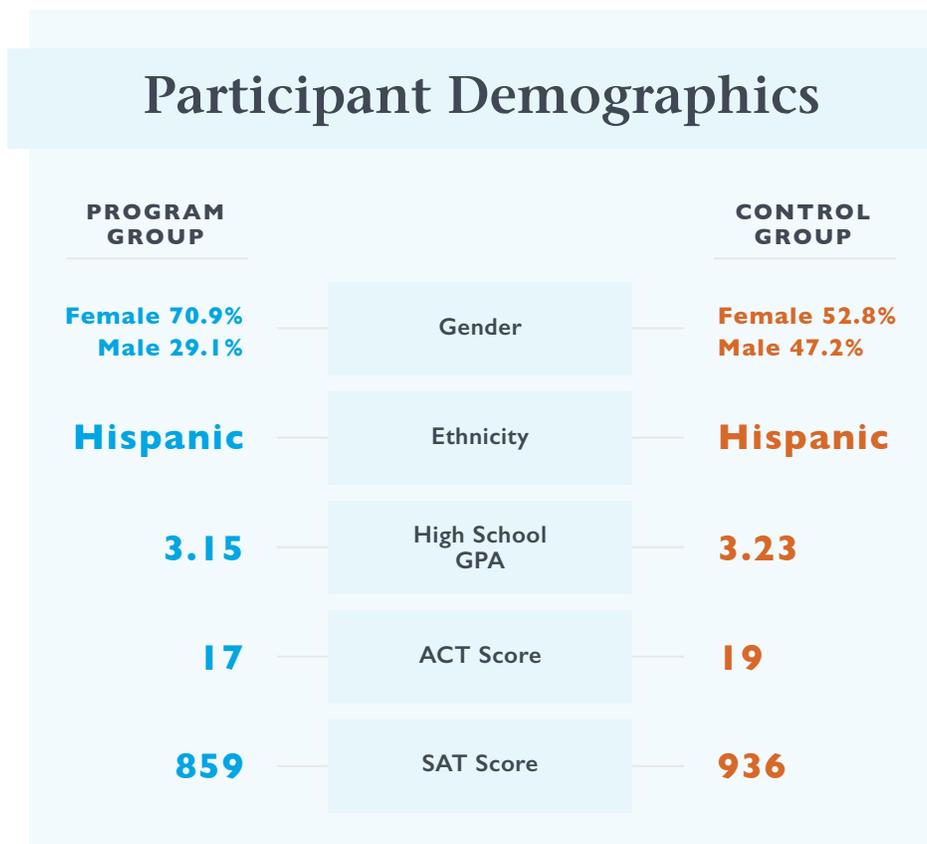
Campus	Innovation
 <p>California State University-San Bernardino</p>	<p>98.7% of the students were able to successfully test out of the required DE course after completing the summer math program. After the program, the academic performance (grades) of the participating students in college-level math was on par with their “college ready” peers. The findings suggest that the summer bridge program was an adequate replacement for the traditional DE math course.</p>
 <p>Clafin University</p>	<p>Students in the program enrolled in the extended English 101 course had a lower passing rate than the control group of similar students participating in the traditional English 101 course (88% vs. 99.3%). However, for those students who did pass and go on to the next course, English 102, students in the program had higher course completion rates (79% vs. 67%) and grades than the students who participated in the control group during the previous semester.</p>
 <p>Morgan State University</p>	<p>Students in the program group had higher pre and post-test scores and higher attendance than the control group. Attendance was also shown to be correlated with grades. The program participants also self-reported higher levels of satisfaction with the courses than the control group students participating in the traditional model. The findings suggest, the integrated course model has positive impacts on student engagement, which could help explain some differences in test scores. However, because the control group had higher pre-test scores, the understanding of the impact of the program on post-test scores is limited.</p>
 <p>Texas Southmost College</p>	<p>The students in the accelerated math program had higher retention, course completion rates, and grades, than the students in the traditional course model. However, the college-level math course completion rates are slightly lower for the students who participated in the accelerated model. The findings suggest, higher short term benefits of the program.</p>
 <p>University of the Incarnate Word</p>	<p>Students who would have otherwise been placed in a traditional DE course but were enrolled in a traditional college-level math course with an additional math lab had similar final course grades and slightly lower final test scores than students who did not test into DE courses. Findings suggest the college-level math course with additional support was an adequate substitute for the traditional DE math course.</p>

## Model 1: Summer Bridge Program

The first model, a summer bridge program at California State University San Bernardino (CSUSB), is a supplemental program, aimed to enhance students' academic content knowledge and the other cognitive and non-cognitive skills needed for academic success like study skills, time management, and social adjustment (Rutschow & Schneider, 2011). CSUSB is a public four-year Hispanic Serving Institution (HSI) with a population of 16,743 undergraduate students. Over 70% of CSUSB students are Pell grant eligible and first-generation college students, and over half are Latino or Hispanic. On an annual basis, 69% of first-time, full-time freshmen at CSUSB require DE courses. For over a decade, CSUSB has offered students the opportunity to complete their DE course requirements prior to their first semester by engaging in the summer bridge program and successfully testing out of the DE course.

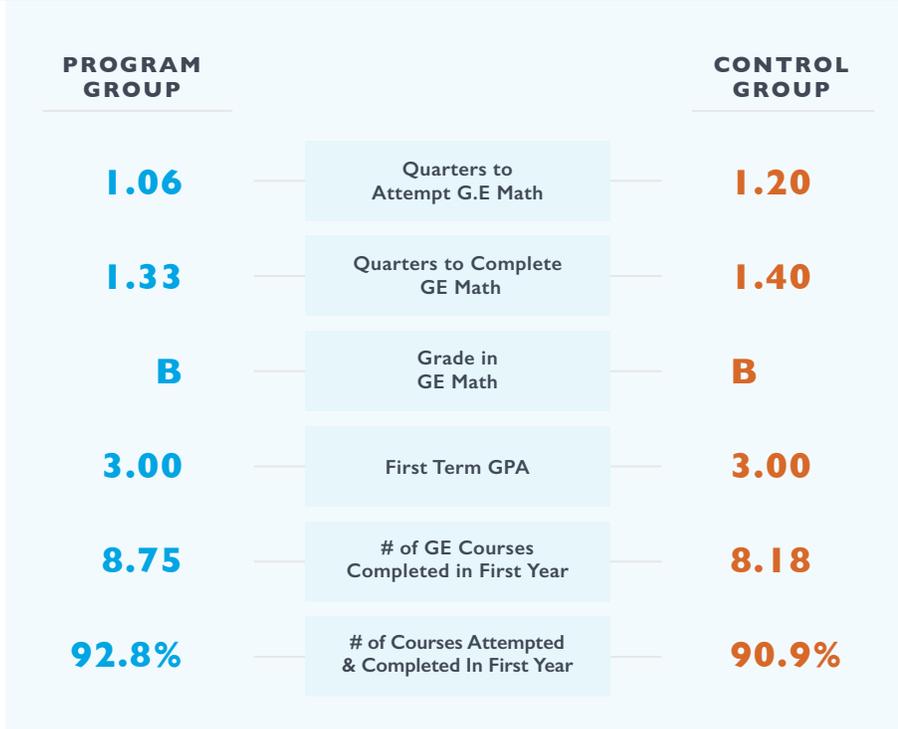
The assessment of program effectiveness revealed that the participating students had similar first-year GPAs and attempted and completed more credits in the first year than demographically similar peers who were exempt from DE math (See Figures 3-5 below). The participating students also took less time to complete their general education math courses than their peers who require DE math and those who do not. Most recently, over 90% of the 755 students who participated in the summer 2015 program successfully tested out of DE math after the completion of the bridge program.

FIGURE 3. CSUSC PARTICIPANT DEMOGRAPHICS



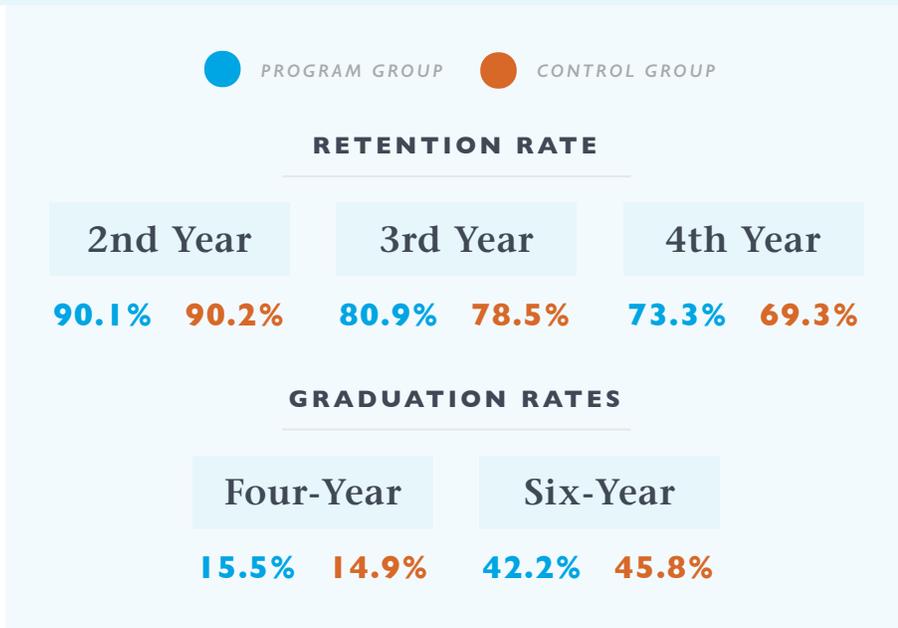
## Participant Course Outcomes

FIGURES 4. CSUSB PARTICIPANT COURSE OUTCOMES



## Retention Rates & Graduation Rates

FIGURE 5. CSUSB PARTICIPANT RETENTION & COMPLETION RATES



## Model 2: Co-Requisite Courses

The second model was a co-requisite model used by the University of the Incarnate Word (UIW). This model allowed DE students who were just a few points short of testing out of DE courses, also known as bubble students, (see Figure 6) to enroll in college-level courses while simultaneously receiving targeted academic support. UIW is a private four-year HSI with a population of 6,496 undergraduate students, over half of whom identify as Hispanic or Latino. Approximately 47% of UIW students are Pell grant recipients. The average GPA for UIW students is 3.47, and the average SAT score is 975.



FIGURE 6. UIW BUBBLE STUDENT PROFILE

	SAT	ACT	ACCUPLACER
<b>College Level</b> Students who meet any (1) of the scores	≥ 520	≥ 22	≥ 63
<b>Quick Start</b> “The Bubble Student”	490 - 519	19 - 21	57 - 63
<b>0318/0319 (as directed by requirements for individual major)</b> Students who do not meet any (1) of the scores	< 490	< 19	< 57

The targeted academic support for these bubble students was provided during a required math tutoring lab, which was compulsory for one hour per week. During the math lab the students were expected to complete ALEKS modules and demonstrate mastery of the math course objectives using the ALEKS exit exam. The additional hour of tutoring gave the instructor opportunities to remediate based on specific deficiencies outlined by the Accuplacer results. This was accomplished while still meeting college-level learning outcomes. Non-cognitive issues like self-efficacy, motivation, and study and note-taking skills were also addressed during the tutoring sessions, specifically through the use of guided math challenges. Essentially, students who would have otherwise been placed in a traditional DE course but were enrolled in a traditional college-level math course with an additional math lab (program group) had similar final course grades and slightly lower final test scores than students who did not test into DE courses (control group) (see Figure 7 below).

FIGURE 7 UIW Co-REQUISITE MODEL OUTCOMES

## Accuplacer Scores & Course Grades



	Starting Accuplacer Score	Final Accuplacer Score	Final Course Grades (Mean)
<b>Program Group</b>	60.15	85.38	77.85
<b>Control Group</b>	60.17	71	81.5
<b>Program Group- N=13</b> <b>Control Group N=12</b>			

## Model 3: Interdisciplinary Curricula

The third model is Morgan State University's (MSU) collaborative approach to DE in their Humanities department. MSU is a public four-year Historically Black College and University (HBCU) with a population of 6,302 undergraduate students, over 80% of whom identify as Black or African American. Approximately 60% of first-year students at MSU require DE courses. The MSU Humanities faculty collaborated to integrate the curricula of their developmental level Reading and English, and college-level History courses to enhance student learning and outcomes across the three courses. Faculty, that included tenured and non-tenure track faculty collaborated on curricula redesign with an emphasis on enhancing student engagement through the use of culturally relevant texts and topics. Students were placed into World History and Developmental English and Developmental Reading courses based on their Accuplacer Placement Test results. The team used a non-experimental design in which they compared the outcomes of the students assigned to the revised curriculum courses (the program group) to the group of students that received the traditional curriculum (the control group). Each of the six courses (three program and three control courses) were limited to 25 students each. The findings demonstrate that overall the students who participated in the integrated curricula courses had higher course completion rates, better attendance, and higher grades and post-test scores than their non-participating peers who were enrolled in traditional DE courses. These findings are provided in greater detail in the Figures 8-11 below.



FIGURE 8. MSU FINAL COURSE GRADES

	Developmental Reading		World History		Developmental English	
	Grade	Number of Students w/ Grade	Grade	Number of Students w/ Grade	Grade	Number of Students w/ Grade
<b>Program Group (Integrated Curricula)</b>	<b>A</b>	6	<b>A</b>	4	<b>A</b>	0
	<b>B</b>	10	<b>B</b>	8	<b>B</b>	8
	<b>C</b>	4	<b>C</b>	6	<b>C</b>	11
	<b>D</b>	0	<b>D</b>	2	<b>D</b>	0
	<b>F</b>	0	<b>F</b>	0	<b>F</b>	1
	<b>Withdraw</b>	0	<b>Withdraw</b>	0	<b>Withdraw</b>	0
<b>Control Group (Traditional Curricula)</b>	<b>A</b>	5	<b>A</b>	1	<b>A</b>	0
	<b>B</b>	6	<b>B</b>	5	<b>B</b>	4
	<b>C</b>	5	<b>C</b>	10	<b>C</b>	6
	<b>D</b>	1	<b>D</b>	3	<b>D</b>	4
	<b>F</b>	3	<b>F</b>	1	<b>F</b>	6
	<b>Withdraw</b>	1	<b>Withdraw</b>	1	<b>Withdraw</b>	0



FIGURE 9. MSU COURSE COMPLETION

Program Group (Integrated Curricula)	Developmental Reading		World History		Developmental English	
	Number of Students Who Completed the Course Successfully	20/20	Number of Students Who Completed the Course Successfully	20/20	Number of Students Who Completed the Course Successfully	19/20
Control Group (Traditional Curricula)	Number of Students Who Completed the Course Successfully	16/21	Number of Students Who Completed the Course Successfully	19/21	Number of Students Who Completed the Course Successfully	10/20



FIGURE 10. MSU PRE/POST TEST SCORES

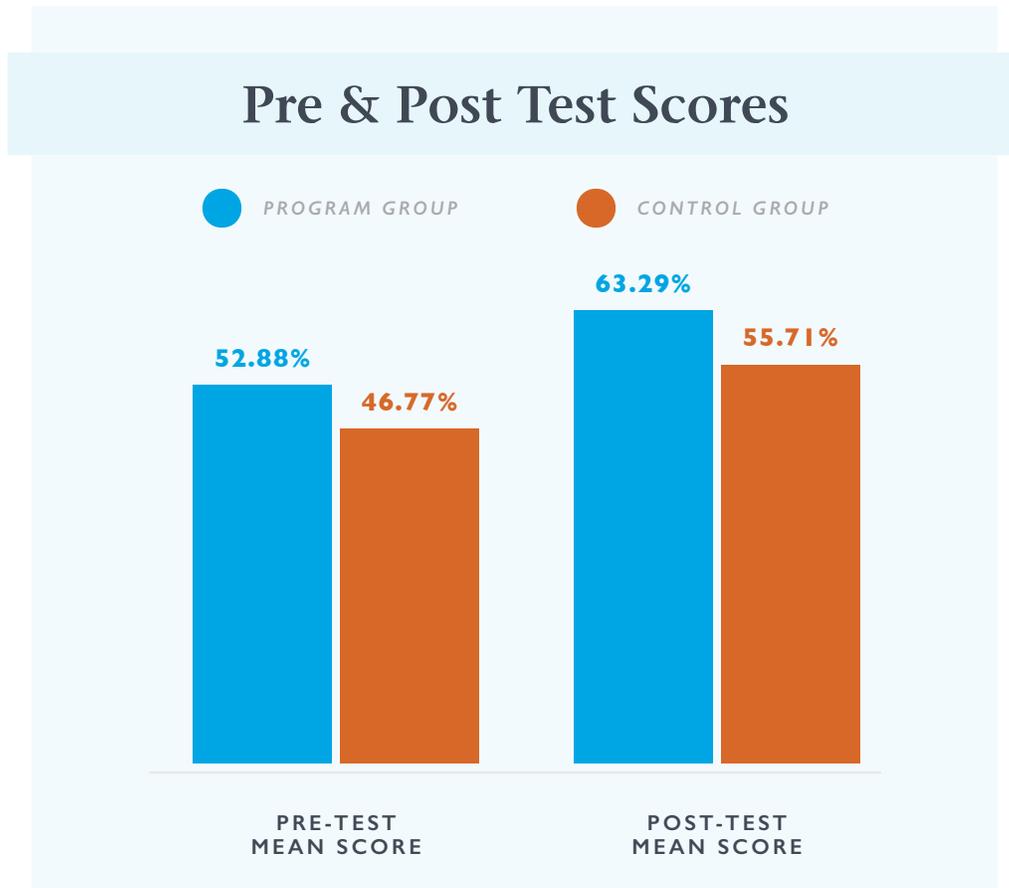
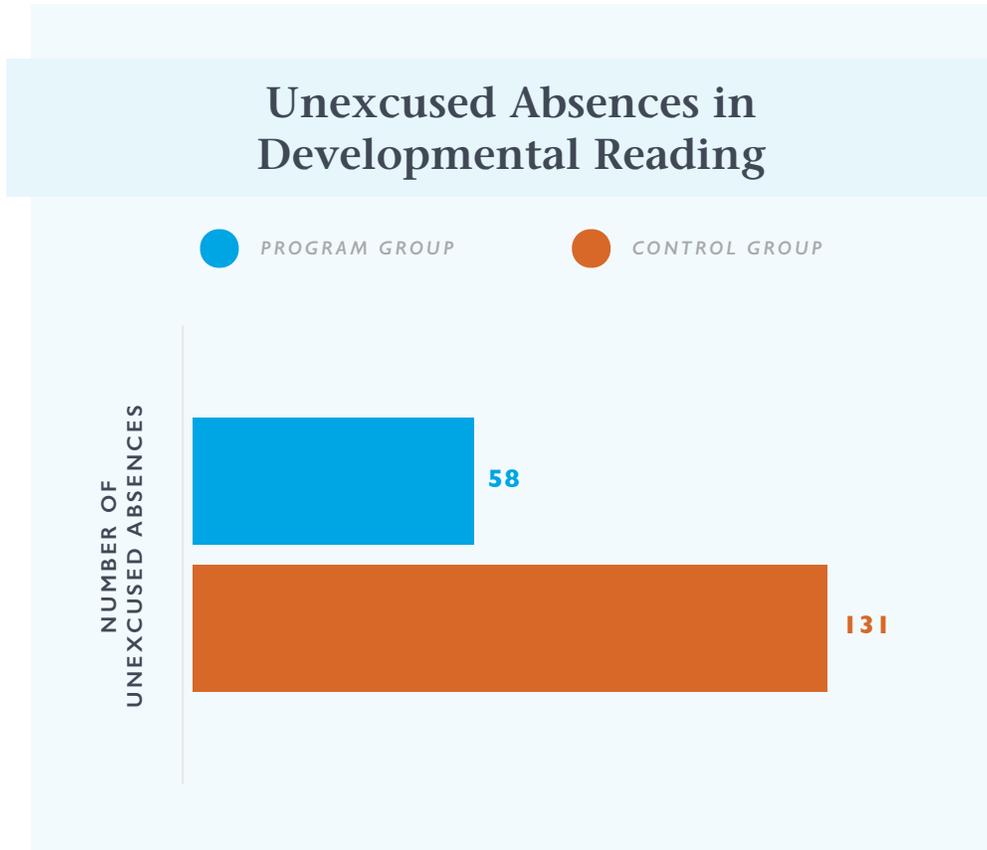


FIGURE 11. MSU NUMBER OF ABSENCES



The findings suggest a positive effect or an increase in student outcomes associated with participating in courses with an integrated curriculum. An integrated curriculum has the potential to positively impact learning gains because of its ability to reinforce concepts and increase students' opportunities to apply academic concepts. This transferability of knowledge from one course to another was observed by faculty who reported that students started to acknowledge the overlap in the curricula and would ask "are you working with the history teacher because I swear we just talked about that in history."

One could hypothesize that students may see a greater value in investing time in the courses and associated work because they view their efforts as "double counting" or a multiplied benefit as a result of the overlapping curricula. One faculty member even hypothesized that the overlapping curricula helped boost students' confidence when she stated "seeing how the classes overlap and giving them a sense of confidence to speak out when ordinarily they may not have spoken out for fear of being wrong or not understanding the subject matter—I think this cross-over or hybrid course has boosted their self-esteem in the classroom." Increases in confidence or engagement observed by the faculty, may also have contributed to the great reduction in the persistent problem of unexcused absences seen in the traditional courses.

## Model 4: Extended Courses

Clafin University is a private four-year HBCU with a population of 1,800 students. Approximately 60% of Clafin's students are first-generation college students, over 90% are African American or Black, and nearly 90% are Pell grant recipients. In 2010, when faced with the state imposed mandate to eradicate developmental English courses, Clafin University began placing students whose test scores suggest they would benefit from additional academic support into an extended course model. Institutional assessment data indicated that most of the students who would place in the former DE course scored particularly low in reading. Subsequently, students were placed into a college-level English 101 course that met 3 days per week, approximately 45 contact hours, and extended the course by two days integrating more reading instruction and increasing the contact hours in the course to 75 hours.

In the Fall semester of 2014, approximately 116 students were placed into 8 sections of the extended English 101 courses. The students were randomly placed in either a program group that included writing center assistance, or a control group that followed the traditional model but did not include the writing center emphasis.

### Writing Center

Frequent visits to the writing center to monitor the writing process was a mandated intervention for the program group. At the writing center, the students received individualized assistance from a group of peer tutors led by a faculty member from the English department. The control group was not mandated to go to the writing center. However, later it was discovered that instructors in the control group offered grade incentives for students to attend. As a result, 90% of the program group and 71% of the control group registered attendance of at least nine visits to the writing center during the fall. Disruptions in the leadership of the writing center and the discontinued instructional course and ongoing meetings, made it difficult to adequately monitor the groups in the study. There was also a breach in the method of adequately preparing peer consultants for supplemental instruction specific to the needs of basic writers in the study.

The outcomes suggest that the students who participated in the initiative were successful as indicated by their course passing rates that were above 80%; however, there is limited evidence that the program students were more successful than the control group students who had higher course passing rates that averaged above 90%. The program group has higher grades than the control group in the following course (English 102), thus the impact of the program on student outcomes, may be delayed. The outcomes, including the extended course pass rates and performance in the following course, English 102, are provided in Figures 12-14. Clafin University is in the process of conducting an analysis of the impact of the transition from the traditional DE model to the extended course model. The current assessment is only reflective of the impact of the writing center and tutoring strategy on the extended course model.



FIGURE 12. CU FINAL GRADE ANALYSIS-ENG 101

PROGRAM EXPERIMENTAL GROUP N=57	CONTROL GROUP N=59
Passing rate = 83% Explanations: 1 student failed because of low academic performance (ADA accommodation) Remaining 8 students did not turn in assignments nor did they visit the writing center	Passing rate = 99.3% Explanations: Poor attendance



FIGURE 13. CU COURSE GRADES-ENG 102

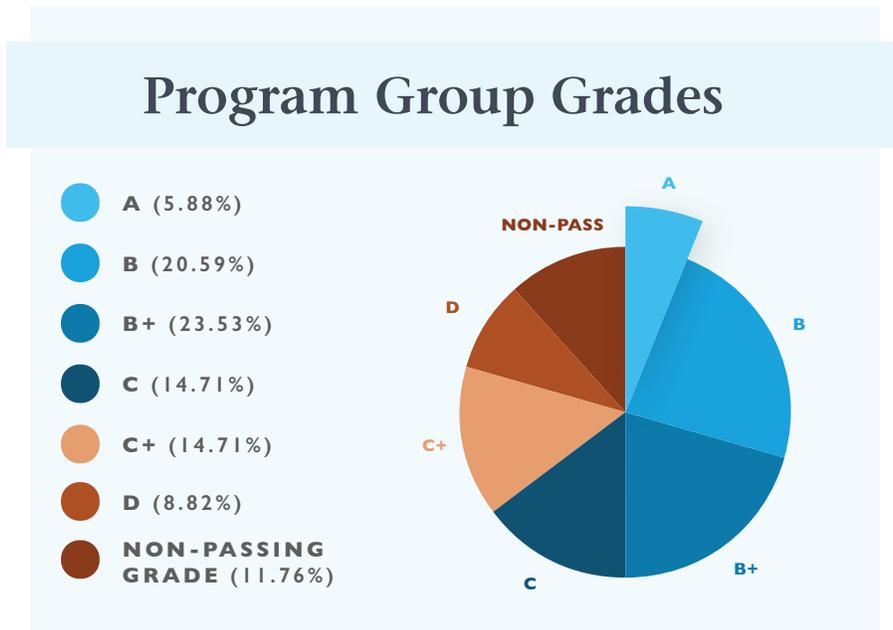
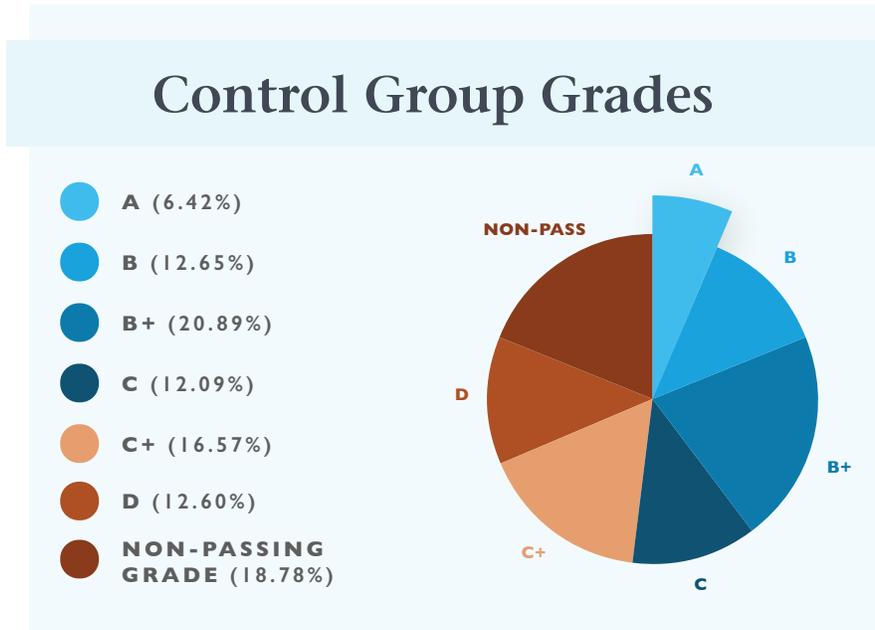




FIGURE 14. CU COURSE GRADES-ENG 102



## Model 5: Accelerated Math

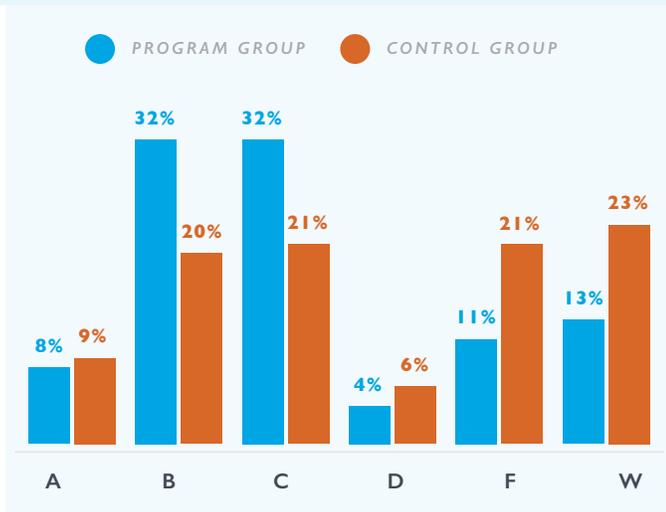
The Fast Track program consisted of an accelerated learning model offered to students enrolled in developmental math courses at Texas Southmost College (TSC) starting in Fall 2013. TSC is a public two-year HSI with a population of about 4,000 students, with over 90% of its students identifying as either Latino or Hispanic. Acceleration refers to the reorganization of instruction and curricula into 8-week courses in order to expedite the completion of DE coursework. TSC students had the opportunity to complete two levels of DE coursework in one 16-week semester. That is, the accelerated courses consisted of two 8-week math courses that run consecutively in a single semester. Two developmental mathematics courses were included in the accelerated 8-week learning model: Introductory Algebra and Intermediate Algebra. The Introductory Algebra course was conducted during the first 8 weeks and the Intermediate Algebra course was conducted during the second 8 weeks. This sequence allowed students to complete the developmental math sequence in one semester.

Participants in this program were TSC students who self-selected to enroll in either two “traditional” 16-week developmental math courses offered in two consecutive semesters or two consecutive 8-week “accelerated” developmental math courses within the same semester. By tracking developmental math students through these two different sequence models, TSC was able to determine how developmental math students performed in college-level math courses. The following graphs summarize the grades and passing rates for both the accelerated and traditional programs. Although, there are limitations because approximately 600 participants from the Fall 2013 cohort self-selected into the course options, the findings demonstrate that those in the accelerated courses had better grades, course completion rates, and retention (consecutive course enrollment) than those enrolled in the traditional course model (see figures 15-20 below).

FIGURE 15. TSC COURSE GRADES SUMMARY

FIGURE 16. TSC PASSING AND FAILING GRADE RATES

### Letter Grade Rates Summary



### Passing and Failing Grade Rates

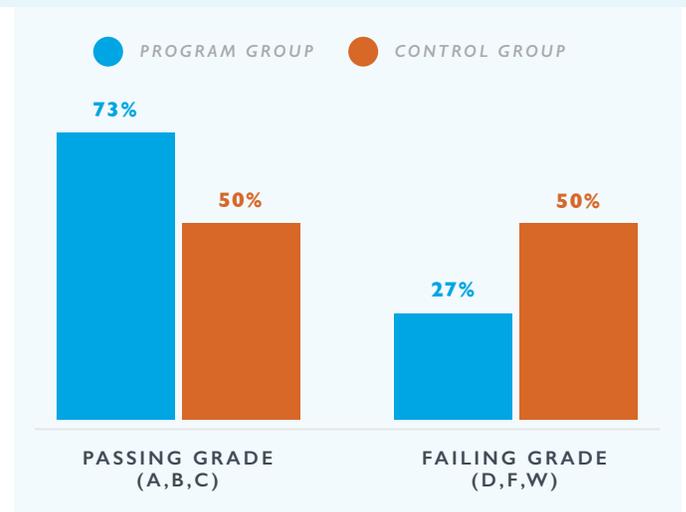


FIGURE 17. TSC COURSE COMPLETION RATES FALL 2013

FIGURE 18. TSC COURSE COMPLETION RATES-SPRING 2014

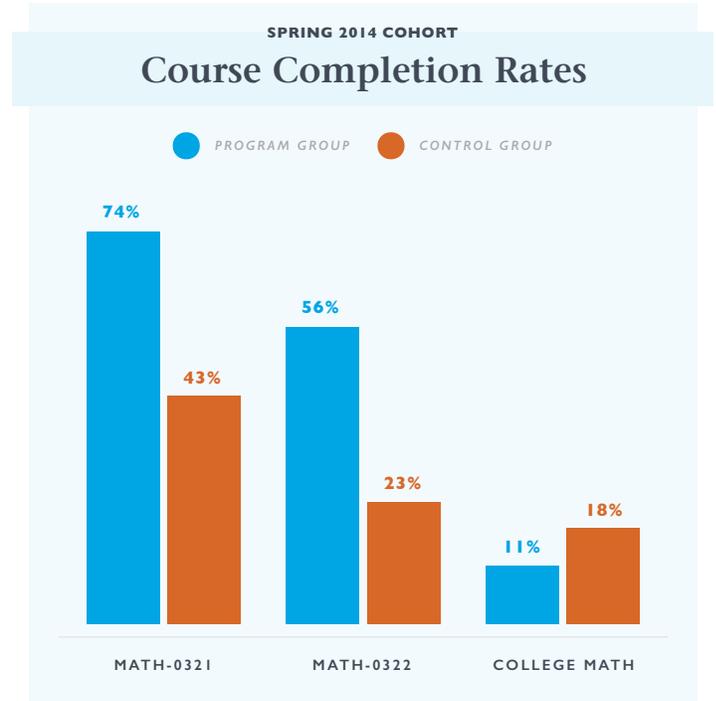
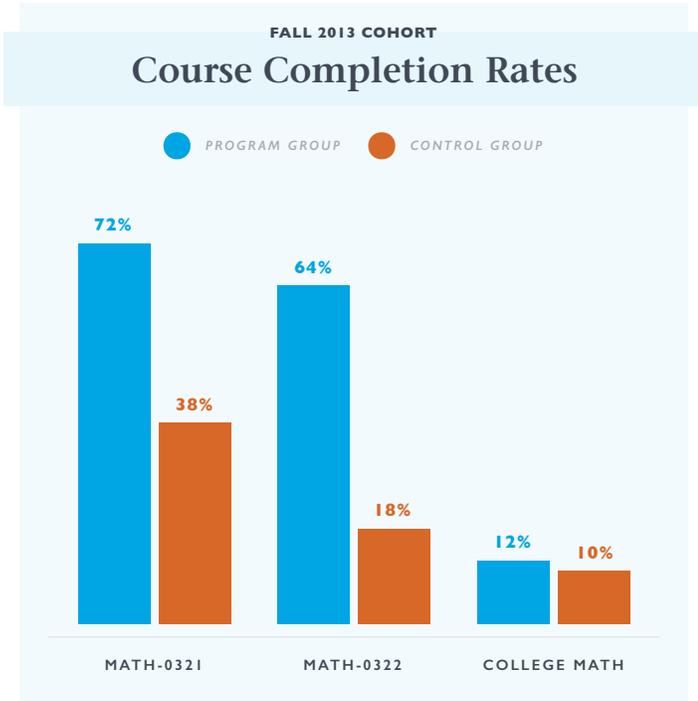
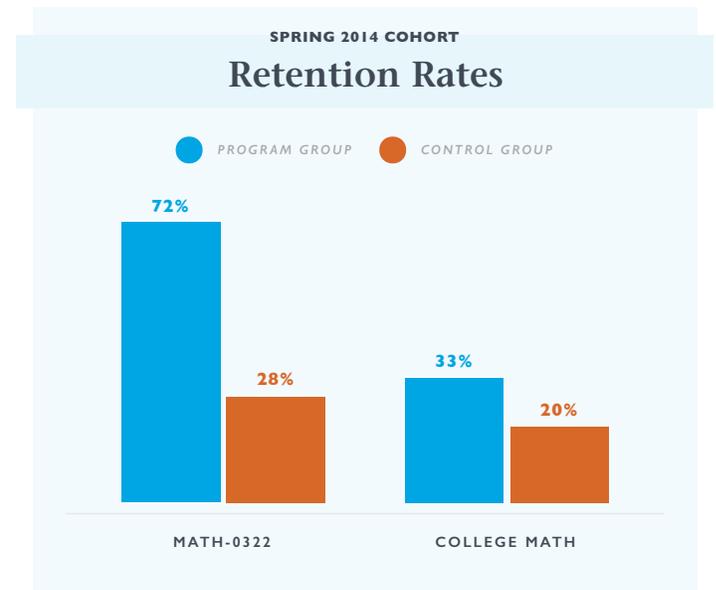
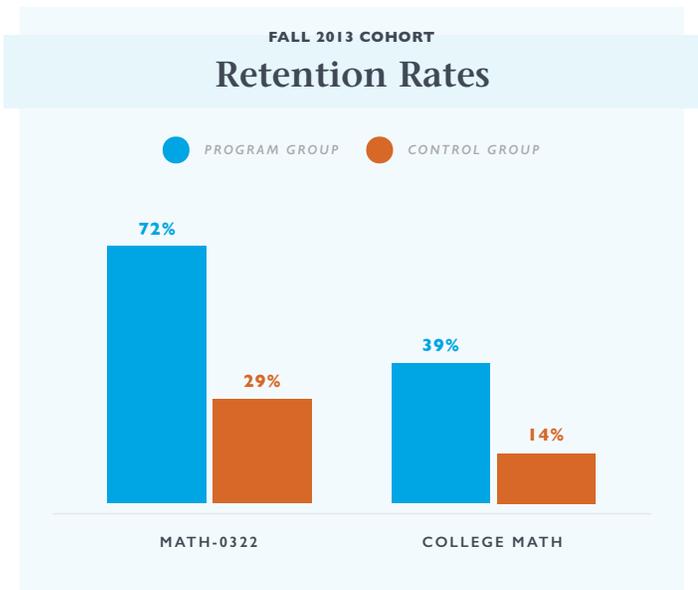


FIGURE 19. TSC RETENTION RATES-FALL 2013

FIGURE 20. TSC RETENTION RATES-SPRING 2014



# Research and Evaluation

The aim of the MSI Consortium for Innovation and Change was not only to support innovative approaches to DE, but to also ensure that defensible evidence about the effectiveness of these innovations was produced. The members of the technical review and support team guided the design of a research and evaluation study that would discover whether various innovations were effective, and if so distinguish in what ways it was successful. A description of the technical review and support team members is found in Appendix A. Along with SEF staff, the technical review and support team made trips to each campus to accomplish a key set of tasks:

1. Convene the key institutional leaders and faculty to discuss the progress of the program.
2. Address any challenges related to the evaluation study.
3. Discuss preliminary findings and next steps for continuing or expanding the program at the campus.

A summary of the research and evaluation strategy for each campus is provided in Figure 21 below:

FIGURE 21. EVALUATION STRATEGY

Campus	Evaluation Strategy
California State University-San Bernardino Summer Bridge Program	<ul style="list-style-type: none"> <li>• A comparative analysis of 12 years of data on Intensive Math Program (IMP) participants and non-participants. IMP is a math intensive program taking place for five weeks in the summer before students' fall semester.</li> <li>• Could be classified as acceleration as the goal is to provide enough instruction in five weeks so that students no longer need DE by the start of the fall semester.</li> <li>• The available data includes grades in general education math coursework, retention rates, total units completed, total general education units completed, 1st year GPA, graduation rates for nearly 400 IMP participants. Collected qualitative data on the implementation of the program and participant experiences.</li> </ul>
Clafin University Extended Courses	<ul style="list-style-type: none"> <li>• A randomized study of the impact of the Extended English intervention on student outcomes including post-test outcomes, portfolio evaluations, attrition, and course grades.</li> <li>• Extended English participants for fall 2013 were enrolled in college-level English three days a week and participated in two additional days of instruction to remediate their skills (acceleration) so they did not need to enroll in a complete DE course.</li> <li>• The control group were spring 2014 non-developmental English course participants. Approximately 116 students were included in the study.</li> </ul>

Campus	Evaluation Strategy
Morgan State University Interdisciplinary Curricula	<ul style="list-style-type: none"> <li>A comparative analysis of the impact of an integrated curricula approach to DE courses on outcomes like, DE course completion rates and grades, retention, and general education course enrollment and completion.</li> <li>The initiative includes an integrated curricula approach to DE courses in reading and English and the general education history course. Approximately 122 students were included in the study.</li> </ul>
Texas Southmost College Accelerated Math	<ul style="list-style-type: none"> <li>A comparative analysis of the impact of their “fast-track” developmental math course which combines Introductory and Intermediate Algebra courses into two 8-week sessions on student outcomes (acceleration).</li> <li>TSC compared developmental and gateway course success of fast-track students with students who took the traditional 16-week format. Approximately 400 students were included in the study.</li> </ul>
University of the Incarnate Word Co-Requisite Model	<ul style="list-style-type: none"> <li>A randomized study of the impact of the co-requisite course approach on student outcomes including course grades and completion, retention, and pre/post test scores (ACCUPLACER).</li> <li>Participants for fall 2013/spring 2014 were enrolled in college-level math, but were provided with a one hour math lab to address their remediation needs (acceleration) so they did not need to enroll in a semester long, traditional, DE course. Approximately 25 students were included in the study.</li> </ul>

The technical review and support team was key to helping the campuses develop and implement a rigorous research design and evaluation study. At UIW and Clafin University, this meant randomly assigning students to intervention and treatment groups in order to account for factors other than the intervention that could impact observed student outcomes. The difficulty of executing experiments on college campuses is well documented and is often caused by limited capacity, resources, and logistical challenges. Further, the inability to control for student choices in college courses, and program enrollment; the non-conformity of instructional delivery; curricula; course materials; and the coordination of “loosely-coupled” administrative and academic units pose additional challenges. Consequently, SEF and the technical review and support team members worked together to provide each campus with support to ensure fidelity to the research and evaluation study.

# Lessons for Scaling DE Initiatives

**T**he campuses in SEF's MSI Consortium for Innovation and Change, along with other higher education leaders, policy makers, and partners across the nation are exploring how to improve academic success and degree completion through the improvement of DE. Therefore, it is critical to highlight a few lessons learned for scaling strategies similar to those piloted by the campuses in the MSI Consortium for Innovation and Change.

## 1. One size does not fit all, but no need to dress the same

The main benefit of scaling an evidence-based strategy is being able to impact outcomes for significant groups of students, the institution, and higher education as a whole. However, the primary challenges of scaling are the limitations in being able to meet individual student needs. For example, the findings from UIW suggest that students who fall just below the recommended margin for inclusion into credit-bearing college courses are successful in the co-requisite model that places them directly into a college-level course. In such cases, a one hour math lab provides sufficient support. These findings support other studies (Complete College America, 2016; Jaggars et. al., 2014) that suggest co-requisite models can be an effective replacement for traditional DE courses. However, it is important to emphasize that in this case it was for a particular type of student, the “bubble student” who tested somewhat close to the cutoff score required to enroll in college level math courses. Our evidence also suggests that students whose test scores suggest that they would benefit from multiple DE courses, are likely not best suited to skip over the courses entirely. Instead they could benefit from accelerated models like those used by TSC. In both cases, the students were able to complete their DE requirements with greater success, in less time, and without threatening academic performance later in their time at the university.

Thus, these examples demonstrate the importance of offering multiple DE options for the multiplicity of student needs that may exist on a single campus. Although it could take concerted effort and resources for campuses to transition to offering one or more of these options, they will see a return on their investment in the form of increased retention and completion rates. However, the effectiveness of these strategies depend on continuous improvement of placement tests, and methods for assessing students' skills, thus SEF provided support to campuses like UIW to continue experimenting with different placement exams. The aim is to enhance correct placement, which will inform the refinement of academic support strategies, course performance, and student success beyond first-year courses.

## 2. Promoting intercampus collaboration is critical

DE should not be singularly relegated to academic support offices or departments. In fact, DE impacts various divisions of academic and student affairs. Thus, these different parts of the campus must be engaged to ensure new DE strategies are successfully implemented and evaluated. Getting buy-in from senior academic and administrative leaders is key to ensure organizational support and necessary to coordinate multiple academic and student services departments. This buy-in is critical in helping to navigate unexpected hurdles and to keep the project moving forward in the face of competing demands. MSU's integrated curricula design was an example of a DE strategy that was dependent on the collaboration of faculty, campus leaders, and academic

and student services departments. Beyond engaging different types of faculty across departments, MSU noted the importance of working with the registrar to evaluate program impact using random assignment.

### 3. How it works is as important as what works

It is important to create innovations in DE; however in doing so, it is helpful to draw on existing theory and research about student learning, engagement, and outcomes to develop the innovations. It is helpful to create campus level knowledge on existing DE challenges, and outcomes from pilot programs, thus context relevant adjustments can be made before bringing the initiatives to scale. Therefore, it is critical to think through a plan for assessing program impact prior to implementation because the requirements of rigorous evaluation research can inform program design. Program assessment is critical at MSIs because existing research on DE is not always inclusive of MSIs or specific to the experiences of Black or Latino students. Lastly, use of qualitative and quantitative strategies to study program impact is critical to telling a robust story about if, and how initiatives are working. Qualitative methods, such as interviews and focus groups, can explicate quantitative phenomena and provide insight into issues ranging from program implementation and fidelity to program design, both of which are critical to understanding the impact of an institution. The qualitative methods can be especially helpful in understanding how these particular initiatives work at MSIs and for students of color.

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*“These examples demonstrate the importance of offering multiple DE options for the multiplicity of student needs that may exist on a single campus”*

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## Conclusions

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**S**ome states and institutions have opted to eliminate or reduce DE course offerings. This has led to rapid changes in approaches to DE practices. Much of the programmatic work aimed at improving DE has taken place in community colleges and has produced mixed results. There are many program designs, theories, and practices currently in play. Some involve accelerated courses, computer assisted instruction, prescribed course sequences, tutoring supplements, the use of math labs, writing groups, or the option to test out of a developmental course at any time during a semester. Campus-based efforts to assess the effectiveness of their DE programs vary tremendously in concept, rigor, reliability, and relevance to the larger higher education community. SEF's MSI Consortium for Innovation and Change utilized rigorous methods of evaluation and assessment that included random assignment and matched comparison groups, in order to produce defensible evidence about what works for supporting the academic success of underprepared students in their first-year college courses. Based on this work, final thoughts pertinent to continuing higher education's efforts to address DE are offered.

### **Developmental Education reform should include an emphasis on teaching and learning.**

Although structural reforms, such as transitioning to co-requisite or other accelerated models are critical, instructional strategies and academic support remain critical issues that must be addressed in these shifts. Stakeholders interested in supporting DE reforms that emphasize teaching and learning should consider the following:

- a. What are the best strategies for providing supplemental academic support to students who would have previously been required to complete a traditional DE course sequence?
- b. How can campuses engage faculty who have experience instructing DE courses, to enhance the teaching strategies used in the new course models?
- c. How can all courses, but especially courses for first-year students incorporate culturally relevant strategies in order to facilitate greater student engagement?
- d. How can the integration of content across courses enhance student learning and engagement, especially in first-year courses for students that may require additional academic support?

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*“...initiatives like the push for the “right” math and guided pathways, could easily become vehicles for tracking low-income students and students of color into what are perceived as “less rigorous” pathways.”*

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## Developmental Education reform efforts must center on equity issues.

We should not implement structural changes (i.e. transitioning from traditional to co-requisite models) without explicitly addressing higher education's persistent challenges assessing student's academic abilities, especially as it pertains to low-income students and students of color. As the issue of disproportionately labeling low-income students and students of color as "remedial," is being mitigated by DE reform, higher education must continue to wrestle with why these students were disproportionately labeled remedial in the first place, and how low expectations of these populations permeate other aspects of higher education such as advising and discipline. The findings from this group of pilot studies and the data from DE reform across the nation suggest that students who were previously labeled as "underprepared" or "not college ready" can be successful in college level, credit-bearing courses, without traditional DE courses, which challenges higher education's often deficit view of these students. Therefore, the higher education community must explicitly acknowledge that we were wrong to assume that many low-income students and students of color could not be successful in college level, credit-bearing courses. Otherwise, structures may change, but low expectations and inequities will persist. For example, initiatives like the push for the "right" math and guided pathways, could easily become vehicles for tracking low-income students and students of color into what are perceived as "less rigorous" pathways. Therefore, stakeholders interested in DE reform that centers equity on issues should consider:

- a. Have we examined whether these DE reform strategies are improving or challenging equity as it pertains to the academic outcomes of low-income students and students of color? Are equity gaps closing or widening?
- b. Have we incorporated strategies to educate faculty, advisors, and other campus leaders on equity issues, especially as it pertains to our perceptions of the academic ability of students of color and low-income students?
- c. Are there any unintentional consequences of these DE reform efforts for low-income students and students of color on campus? How are these populations performing once they exit their first-year courses? Are they enrolling in STEM courses at similar rates?
- d. How are we engaging, learning from, and enhancing DE at the institutions that are most likely to enroll low-income students and students of color, i.e. Minority-Serving Institutions?

These questions have been provided to assist key stakeholders, which include funders, policy makers, campus leaders, faculty members, and key intermediary organizations as they continue the critical work of reforming DE and potentially enhancing college access and outcomes for low-income students and students of color. The continued improvement of DE requires coordination and support from the diverse array of higher education advocates. Although DE reform requires a substantial investment in time, effort, and resources, the result could be the most significant contemporary effort to dismantle structural inequality in higher education.

# Appendix A

## Technical Review and Support Team



Dr. Stephen Porter

Dr. Stephen R. Porter serves as Professor of Higher Education in the Department of Leadership, Policy and Adult & Higher Education at North Carolina State University, where he also serves as coordinator for the graduate research methods sequence for the College of Education. He teaches courses in educational statistics, causal inference with observational data, and survey research methods. He received his Ph.D. in political science from the University of Rochester, with a concentration in econometrics. Prior to his faculty positions at North Carolina State and Iowa State University, he spent nine years in higher education administration in the field of institutional research, working first at the University of Maryland, College Park, and most recently as Director of Institutional Research at Wesleyan University in Connecticut.



Dr. Josh Pretlow

Dr. Josh Pretlow earned a PhD in Higher Education with a minor in Research, Statistics, and Evaluation from the University of Virginia in 2011. As a graduate student and postdoctoral researcher, Josh worked for the National Center for Postsecondary Research, an IES funded center focused on rigorously measuring the effectiveness of programs designed to help students make the transition to college and master the basic skills needed to advance to a degree. His dissertation was an experimental evaluation of a Summer Bridge Program designed to help recent high school graduates successfully transition to community colleges. His current research continues to include the transition to higher education and includes a focus on dual enrollment and education policy. He is currently the Senior Research Analyst at the University of North Carolina at Chapel Hill.



## Dr. Leticia Tomas Bustillos

Leticia Tomas Bustillos, Ph.D. is Associate Director of the Education and Children's Policy Project at the National Council of La Raza and has over 15 years' experience working across the K-20 education pipeline. She served as Co-Director of the Policy Research on Preparation, Access and Remedial Education (PRePARE) Project and Associate Director of the Los Angeles County Education Foundation. She has been a consultant to several national based projects focused on developmental education, including the Getting Past Go Project and the Lumina-MSI Models of Success Program. Bustillos is the author of articles, book chapters and blog entries and is in the process of authoring two forthcoming books on critical action research and developmental education. She is a mentor with the College Bound Today program within the Montebello Unified School District and is a board member of Girls on the Run of Los Angeles County. She is a graduate of Columbia University (A.B., 1994), Whittier College (M.A., 2000) and the University of Southern California (Ph.D., 2007).



## Dr. Paul D. Umbach

Dr. Paul D. Umbach serves as Professor of Higher Education in the Department of Leadership, Policy, and Human Development at North Carolina State University. He teaches classes on finance and higher education, organizational theory and higher education, policy analysis, college faculty, survey methods, and multi-level modeling. Prior to joining the faculty at NC State, he spent four years as an Assistant Professor of Higher Education at the University of Iowa. Before joining the faculty at Iowa, he served as a research associate with the Indiana University Center for Postsecondary Research. At the Center, he was a research team member working on the National Survey of Student Engagement (NSSE) and a project manager of the Faculty Survey of Student Engagement (FSSE). His professional background includes several years working in institutional research at Tidewater Community College, Old Dominion University, and the University of Maryland. He earned his Ph.D. in Higher Education from the University of Maryland, College Park.

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## Author Information

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### Tiffany Jones, Ph.D.

**PROGRAM DIRECTOR, HIGHER EDUCATION RESEARCH AND POLICY**

Dr. Tiffany Jones is the Program Director for Higher Education Research and Policy at the Southern Education Foundation (SEF). She engages in research and initiatives that address higher education accountability, assessment, finance, developmental education, institutional effectiveness, and Minority-Serving Institutions (MSIs). Dr. Jones has published book chapters, scholarly articles, op-eds and policy reports focusing on the role policies and practice play in facilitating college access and success for students of color. Most recently, her article, “A Historical Mission in the Accountability Era: A Public HBCU and State Performance Funding,” published in *Educational Policy*, examined the impact of a state performance based funding policy at a public Historically Black University. Prior to joining SEF, Jones was a dean’s fellow at the Center for Urban Education (CUE) at the University of Southern California, where she helped advance the Equity Scorecard in unique contexts like MSIs and urban high schools. She has also worked with the Pullias Center for Higher Education, the Pell Institute for the Study of Opportunity in Higher Education, and various pre-college programs.

Dr. Jones earned a doctorate in education policy at the University of Southern California, a master’s degree in higher education administration from the University of Maryland, College Park, and a bachelor’s degree in family studies from Central Michigan University.



## Amanda Assalone, Ph.D.

### **POSTDOCTORAL RESEARCH AND POLICY ANALYST**

Dr. Amanda Assalone is the Postdoctoral Research and Policy Analyst at the Southern Education Foundation (SEF). Her work centers on improving post-secondary access and outreach initiatives for underrepresented students and advancing research and policy supporting Asian American Pacific Islander students. Dr. Assalone has collaborated on a host of research initiatives focused on developing Latino/a family college access, exploring American Indian and Alaska Native community college student transfer experiences, and recognizing promising practices of Tribal Colleges and Native American-Serving Non-tribal Institutions. Her doctoral work in higher education at the University of North Texas (UNT) as a Doctoral Fellow investigated the college pathways of Asian American community college students and explored the role family, culture, and model minority stereotypes play in influencing college aspirations, perceptions, and experiences. Her professional background consists of extensive experience working in community college outreach, academic advising, educational programming, and high school counseling. Prior to joining SEF, Assalone worked for federal grant outreach programs committed to advancing STEM education for minority males at community colleges and served as a research assistant for the National Institute for the Study of Transfer Students (NISTS). She currently serves as a regional ambassador for the Asian Pacific American Network (APAN).

Dr. Assalone earned a doctorate in higher education at the University of North Texas (UNT) and a Master of Arts in education and counseling, and a Bachelor of Arts in communication from The University of Tulsa.



Founded in 1867 as the George Peabody Education Fund, the Southern Education Foundation's mission is to advance equity and excellence in education for all students in the South, particularly low-income students and students of color. SEF uses collaboration, advocacy, and research to improve outcomes from early childhood to adulthood.

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