RESOURCE GUIDE

# DEVELOPMENTAL STRATEGIES FOR COLLEGE READINESS AND SUCCESS

*{What State Policymakers and Education Leaders Need to Know}*

COUNTDOWN TO 2015

**DEVELOPMENTAL STRATEGIES**

TO ADVANCE READINESS IN THE COMMON CORE ERA

# TABLE OF CONTENTS






Citation: Mary Fulton, Matt Gianneschi, Cheryl Blanco, Paulo DeMaria, *Developmental Strategies for College Readiness and Success* (Denver, CO: Education Commission of the States, April 2014).

This paper is available online at: **www.ecs.org/docs/DevEdStrategies.pdf**.


*This guide is intended to provide an overview of developmental education policies and practices. It is not intended as an endorsement of any particular policy or practice. While many of the recent developmental education reforms are based on emerging research and data, some have yet to be fully implemented and evaluated.*

# ACKNOWLEDGMENTS


## AUTHORS:

*Mary Fulton*, Education Commission of the States
*Matt Gianneschi*, Education Commission of the States
*Cheryl Blanco*, Southern Regional Education Board
*Paolo DeMaria*, Education First



SREB
Southern Regional Education Board


The Developmental Strategies for College Readiness and Success Resource Guide was produced by the Education Commission of the States and the Southern Regional Education Board for the *Countdown to 2015: Developmental Strategies to Advance Readiness in the Common Core Era* convening held April 21-23, 2014 in Charlotte, North Carolina. The meeting was the culmination of a project between the Community College Research Center, Complete College America, Education Commission of the States, Education First and the Southern Regional Education Board. The project was funded by the Bill & Melinda Gates Foundation, the William and Flora Hewlett Foundation, and Lumina Foundation.


The meeting brought together 10 state teams, consisting of policy leaders and K-12 and higher education officials, committed to improving college readiness for all students. The overarching goal was to help states develop action plans to ensure that significantly more students are prepared for postsecondary education, complete entry-level college courses and persist toward credential completion. This challenge will become even more apparent in 2015 when the results of the first full administration of new assessments aligned to the Common Core State Standards are released.

The Resource Guide summarizes information about developmental models, research and examples of state policies and institutional practices. The guide is designed to help policymakers and postsecondary leaders and practitioners identify and implement strategies that will improve college readiness and completion in their states.


## FUNDING AND SUPPORT FOR THIS PAPER WAS GENEROUSLY PROVIDED BY:


BILL & MELINDA GATES foundation

THE WILLIAM AND FLORA HEWLETT FOUNDATION

# SECTION I: MAKING THE CASE FOR CHANGE

States across the nation are focused on increasing the educational attainment levels of their populations to respond to projections of workforce need, strengthen economic development and compete more successfully in the domestic and global economy. But these efforts are hindered by massive numbers of students leaving high school unprepared to succeed in entry-level college courses. Postsecondary institutions have been responsible for helping recent high school graduates and returning adult students develop the knowledge and skills they did not master in high school or have since forgotten. While colleges and universities have offered remedial education for decades, traditional approaches to designing and delivering remediation have not worked well for many underprepared students.

The endgame of any state or institution's approach should be helping more individuals attain credentials and degrees. Of course, this means identifying strategies to improve student readiness to succeed in postsecondary education. But care must be taken to identify and implement developmental strategies that increase the probability students will complete a program of study and obtain a credential or degree. A state may identify a strategy that leads to improved outcomes in a ***developmental course***, but if the strategy doesn't also result in improved persistence and completion of ***entry-level*** – or gateway – ***courses*** and ultimately credentials and degrees, then what improvement has actually been accomplished?

Looking at the challenge with a view toward the ultimate goal also means that states should take an integrated and multi-faceted approach to addressing the challenge. Strategies that can ultimately improve readiness as well as completion can be implemented in high school as well as in colleges and universities, and need to address placement, assessment, course design, student support, advising and other key components of the secondary and postsecondary experience.

This Resource Guide is designed to provide state policymakers, system-level administrators and practitioners with tools to more effectively think about, develop strategies and plans, and ultimately take action to address this complex problem. As a practical reference source on what states and institutions need to do in order to identify and implement strategies in their states and systems that will improve readiness outcomes with a view toward improving completion, the guide brings together information about what we know – models and approaches, research and examples of state and institutional policies and practices. It will help decision-makers understand what is required to make the case for reform, changes to policy that can improve implementation, strategies for driving model selection and implementation, and examples of research and practice. Because the work on improving readiness to increase college completion is dynamic and varied, this Resource Guide is the first iteration of what we know; as our knowledge and experiential base grows, the guide will expand and change as well.

> *"The endgame of any state or institution's approach should be helping more individuals attain credentials and degrees."*

# THE CASE FOR CHANGE

The importance and value of a postsecondary credential or degree is evident in projections of future workforce demand, personal income data and unemployment data. Information compiled over the past decade is particularly helpful in understanding the economic impact on workers with varying levels of education, as the recession affected them very differently. Those with less schooling were hit disproportionately hard in the recession and continued to lose jobs in the recovery. All of the post-recession recovery has gone to workers with education beyond high school:

- Nearly 4 out of 5 jobs lost were held by those with no formal education beyond high school.
- Greater job gains were made by those with bachelor's degrees or better; they gained 187,000 jobs in the recession — and gained 2 million jobs in the recovery.
- Individuals with an associate degree or some college lost 1.75 million jobs in the recession but gained 1.6 million jobs in the recovery.
- Those with a high school diploma or less lost 5.6 million jobs in the recession — and lost 230,000 more in the recovery.[1]

Additionally, a recent study comparing today's young adults with previous generations found a greater disparity in economic outcomes between college graduates and those with a high school diploma or less than has been seen in previous generations:

- 22 percent of "millennials" — individuals ages 25 to 32 - with only a high school diploma are living in poverty, compared with 6 percent of today's college-educated adults in the same age bracket.
- College-educated millennials also are more likely to be employed full-time and significantly less likely to be unemployed than their less-educated counterparts.
- Millennial college graduates who are working full-time earn more annually — about $17,500 more — than employed young adults with only a high school diploma.[2]

These data clearly underscore the need to provide opportunities for more students to access a postsecondary education and to complete a college credential or degree. States and postsecondary systems continue to pursue outreach efforts and support services once students arrive on campus, but a greater commitment is necessary to close the college attainment and employment gaps.

We also know that current efforts to remediate student academic deficiencies have not been very effective for millions of students:

- Only 60 percent of students in two-year colleges in participating Complete College America states and 74 percent in four-year institutions complete their remedial work.
- Of those who complete remediation, only 22 percent of community college students and 37 percent of students at four-year institutions completed an entry-level gateway course in their designated subject area within two years.
- Only 9.5 percent of remedial students in two-year colleges were projected to graduate within three years, and 35 percent in four-year institutions were projected to graduate in six years.[3]

These statistics clearly reinforce the importance of helping ***all*** students succeed, ensuring that more students are college ready, and assisting underprepared students persist and complete a degree or credential. This is one of the greatest challenges that higher education faces today — one that it has struggled with for decades. We know the magnitude of the problem on several levels — the number of students requiring developmental education or remediation is estimated at 1.7 million annually, the cost to them and the state to remediate academic deficiencies was estimated at $3 billion in 2011 and the attendance rates among students, especially those requiring multiple remedial courses, is low.[4]

States are well aware of these data, and several systems and institutions have taken comprehensive, assertive steps to reform the way they address these realities. In the sections that follow, read about the ways in which states, systems and institutions are scaling meaningful — and often comprehensive — reforms in remedial education.

# THE CHALLENGE OF CHANGE

We know that traditional practices in developmental education have not worked well for students. What we know far less about is what strategies actually work to allow students to quickly overcome their challenges in a context that engages and motivates them to persist and complete. But we are learning as states and their institutions implement strategies designed to drive improvements along a number of fronts — new standards for what high school graduates should know and be able to do; better assessments and placement policies that identify supports rather than label students "ready" or "not ready"; better supports for students enrolled in credit-bearing courses; and course paths and sequences that allow students to experience real progress toward program completion, etc. ***This Resource Guide contains specific examples of policies, practices and strategies that support implementation of efforts to help underprepared students succeed in college-level courses, with the goal of increasing the likelihood that those students will complete a credential or degree.***

Signs of our lack of success are summarized in *Core Principles for Transforming Remedial Education: A Joint Statement*, from the Charles A. Dana Center, Complete College America, Education Commission of the States (ECS) and Jobs for the Future. The arguments are too clear to ignore. Based on research and evidence, the Joint Statement finds the following:

- There is limited evidence of overall effectiveness in remedial education.
- Remedial education course sequences are a key factor in high student attrition.
- The assessment and placement process is too often an obstacle to college success.
- The academic focus of remedial education is too narrow and not aligned with what it takes to succeed in programs of study.
- Remedial education does not adequately provide the non-academic supports many students need.
- The longer it takes for students to select and begin a program of study, the less likely they are to complete a credential.[5]

To ensure that reform is comprehensive and balanced, state policy and institutional practice must come together in ways that support students, high schools and postsecondary institutions. Resolving students' developmental education needs involves addressing other needs of underprepared students — especially career advising, support services and financial aid — as well as giving attention to the delivery and content of college courses.[6]

Major challenges facing reform efforts with developmental education include data collection and usage, student placement in appropriate courses, terminology and funding for developmental education.

Measuring the effects of any reform effort and aggregating data are particular challenges. While we know that millions of students have been tested and placed in developmental education courses, this information is rarely comparable because there is no consensus yet across states — or often within states — on placement protocols (e.g., which tests to use, when to test and which cut scores best determine if a student is college ready). Until postsecondary leaders agree on a basic definition of remediation, how to identify students who need remediation, how to apply those criteria in a consistent way, which metrics to gauge performance and so on, comparisons are weak indicators at best. ECS has conducted research on state-level remedial reporting requirements, and a task force recommended that all states should adopt uniform and transparent methods for reporting placement into and success in remedial education.

Placement is a particularly thorny issue. Recent research from the Community College Research Center (CCRC) reveals that commonly-used placement exams are not very good predictors of which students need remediation;[7] consequently, large numbers of students are placed in remediation when they won't benefit from it and others are not provided with remediation when they need it. A CCRC study reports that "three out of every 10 test-takers is either assigned to developmental education, despite being predicted to get at least a B in college-level English, or assigned to college-level English, despite being predicted to fail the course."[8] Increasingly, discussions around placement are less about identifying which students are ready or not, but what level of support does a student need in order to succeed in the first entry-level credit-bearing course.

States can be more directive in requiring valid placement tests, especially those that measure college readiness before students leave high school, and defining appropriate cut scores or ranges to decide how best to support students in order for them to succeed.

Additionally, state policy can require that institutions use multiple measures to inform placement decisions and apply common standards for successful completion of developmental work (generally within the first year of postsecondary studies). These steps will help ensure that internal state data are comparable, transparent and useful. States can also hold institutions accountable for improving their assessment intake processes to provide clear and timely information to students on the stakes involved with placement testing.[9] ***This Resource Guide contains examples of placement policies and practices that are effective in identifying students' weak areas and placing them appropriately.***

There also is not a common understanding and use of other terms that are becoming more widespread in the reform movement to describe how and where students are placed and how we deliver developmental education. Typical examples are terms such as *accelerated or compressed courses and programs, modular and self-paced courses, competency-based courses* and *co-enrollment or co-requisite instruction.* As institutions develop delivery systems and explore new models such as supplemental instruction and co-requisites, working from a consensus of what these terms mean will allow for comparative studies and more accurate information about which approaches are most effective and under what conditions. ***This Resource Guide provides direction on key terms in order to bring greater clarity and commonality to the way we describe this work so that comparability is increased.***

Policymakers need to consider linking success with underprepared students to funding and require institutions serving underprepared students to provide adequate and appropriate support services for these students. Policymakers can strengthen institutional accountability by requiring information that documents the effectiveness and efficiencies of remediation efforts. Practitioners and institutional leaders need to agree on placement procedures, cut scores and common definitions so that data are comparable across institutions. ***This Resource Guide presents examples of policy and practice in a range of states and institutions.***

The challenges of change are great, but the opportunities to serve our students better and to strengthen our states' workforces and economies are even greater. The need for developmental strategies that work for high school students, recent high school graduates as well as returning students will not diminish in the near term, which means the imperative to act quickly and aggressively is paramount. The next section of the guide centers on implementing change — understanding what is happening in your state, reviewing your policies at all levels to determine those that are effective and those that are barriers, engaging key policy and institutional leaders as allies, identifying your best options and implementing a comprehensive and integrated approach to improving readiness with a view toward improving completion. ***This Resource Guide is your handbook for change.***

Author: *Cheryl Blanco*, Southern Regional Education Board

# ENDNOTES


1. Anthony P. Carnevale, Tamara Jayasundera and Ban Cheah, *The College Advantage: Weathering the Economic Storm* (Washington, DC: Georgetown Public Policy Institute, 2012, p. 5).
2. Pew Research Center, *The Rising Cost of Not Going to College*, February 2014, http://www.pewsocialtrends.org/2014/02/11/the-rising-cost-of-not-going-to-college/.
3. Complete College America, *Remediation: Higher Education's Bridge Nowhere*, 2012. p. 8, http://www.completecollege.org/docs/CCA-Remediation-final.pdf
4. Ibid p.10
5. Charles A. Dana Center, Complete College America, Education Commission of the States and Jobs for the Future, *Core Principles for Transforming Remedial Education: A Joint Statement*, 2012, http://www.completecollege.org/docs/CCA_joint_report-printer.pdf.
6. Linda McTiernan, Iris Palmer and Mary Fulton, *NextDev Challenge: Student Supports*, (Denver, CO: Education Commission of the States, May 2013).
7. Judith Scott-Clayton, *Do High-Stakes Placement Exams Predict College Success?,* Community College Research Center Working Paper No. 41, February 2012.
8. Clive R. Belfield and Peter M. Crosta, *Predicting Success in College: The Importance of Placement Tests and High School Transcripts*, Community College Research Center Working Paper No. 42, February 2012, p. 39.
9. Mary Fulton, *Using State Policies to Ensure Effective Assessment and Placement in Remedial Education*, (Denver, CO: Education Commission of the States, May 2012).

Making statewide changes to improve readiness in a comprehensive, systematic way is clearly a challenge — but more and more institutions, systems and states are finding that implementing reform is doable and rewarding. It takes commitment, follow through and strong leadership. Inertia is strong in many places — it's much easier to continue doing what we have been doing with remedial education for decades. But we know that what we have been doing hasn't worked very well, or in a way that really helps students succeed in obtaining a degree or credential.

Many states are interested in changing what they are doing with remedial education, developing more expansive and integrated approaches to improving readiness and supporting improved completion outcomes. Also of interest is identifying ways to scale up successful approaches system wide or state wide. Efforts at local levels and in isolated or regional areas are not uncommon, and many have met with success. But reforms must be inclusive and state-driven if they are to have maximum impact and provide new opportunity for students throughout the state. Fortunately, there are a number of resources that address the issues of strong implementation and scaling of reforms at multiple institutions.

Achieving the Dream, a large initiative to scale up developmental education strategies in 15 community colleges, offers insights on reform efforts. After the first year of implementation, evaluators recommended using the best available data in intervention planning, looking to the institution president to express support for the intervention, involving adjunct staff, requiring staff professional development and understanding the trade-offs in reform efforts.[1] From evaluation activities for this initiative and other work, we are learning that multiple factors influence a state's success in scaling remedial reforms, including leadership, resource adequacy, communication and engagement, agreement that all instructors will teach and all students will learn through a uniform instructional approach, and marketing to students. Factors that may inhibit scaling involve choice for students and faculty about teaching and learning approaches, students' other needs, correcting a course of action that wasn't working and the desire to evaluate before scaling further.[2]

In addition to research, there are other well-constructed resources available to assist in statewide reform initiatives. The Community College Research Center's website has a practitioner packet to help administrators implement reforms to developmental education. "Designing Meaningful Developmental Reform" reviews common impediments to developmental reform and presents data that support directions colleges can take to create a system of developmental education that might serve students more effectively.[3]

***This Resource Guide contains examples from states like Tennessee and Texas, where large-scale reforms are underway.***

There are three important steps for implementing critical college readiness and developmental reforms:

1. **Know your baseline**: Understand what is happening in your state and system.
2. **Conduct a policy audit:** Identify and address policy issues.
3. **Take action:** Start the conversation and benchmark progress

> *"... reforms must be inclusive and state-driven if they are to have maximum impact and provide new opportunity for students throughout the state."*

# KNOW YOUR BASELINE: UNDERSTAND CURRENT PERFORMANCE AND PRACTICES

States have created task forces, blue-ribbon committees and conducted special studies to take an in-depth look at how they approach college readiness and meeting the needs of underprepared students and the outcomes of these approaches. Whether it's a designated committee or an internal special project, the most critical first step is to know your baseline. Progress and achievements are best measured when there is a clear starting point. There are two key components to understanding the baseline:

**Data:** Good, reliable and timely data are critical. Policymakers and institutional administrators often are frustrated because the kind of information they want and need to make informed decisions is not available. In the process of identifying and implementing new strategies, you will find that it is imperative to review the data and other information collected, understand who gathers it, for what purpose and how it is used. A number of questions are central to this work, including:

- Which mathematics and English language arts courses did students complete in grade 12, and how did they do?
- What were the remediation rates for each level of mathematics courses that students completed in grade 12, and how did the rates differ by student performance in those courses?
- How many students require remediation and in which subjects before they can enroll in credit-bearing courses?
- How did the remediation rates differ by other student characteristics — race/ethnicity, gender and type of public college attended (two-year, four-year or combination)?
- How did students perform in entry-level, credit-bearing courses?

**Current Practices:** The other key element of "know your baseline" is gaining an understanding of current practices. This understanding should focus both on how functions are performed and how much variability there is across the state. These current practices can span a number of critical areas, including the following:

- **Defining College Readiness:** Is there a shared understanding of what college readiness means across the state, or are there multiple perspectives and working definitions? Is the state involved in implementing the Common Core standards or other college-ready standards in the K-12 sector?
- **High School Strategies:** What strategies are in place to improve college-readiness outcomes among students enrolled in high school?
- **Assessment:** What types of assessments are given to identify college readiness? Do campuses use similar cutoff scores? What practices exist to make sure students are well-prepared to take assessments?
- **Placement:** Placement policies and procedures are another crucial component of an integrated strategy to improve students' outcomes. Much hinges on a placement decision — how it's done, who does it and which cut points will send students to credit-bearing courses or to remediation. Research has shown that our current placement protocols are often detrimental to students — many are referred to developmental education when they do not need it, while others are placed in credit-bearing courses when they are not ready for that level of work. Focused questions involve:
  - How does your state determine who needs remediation and who doesn't?
  - Who makes those decisions? When?
  - Do all institutions follow the same protocols?
  - Is it possible for a student to be placed in developmental education courses in one college but not in another?
  - How do students fulfill a developmental course?

Once the baseline is understood, ideas can begin to be developed for how best to drive improvements, and goals with new targets and appropriate measures and data to gauge progress can be set. ***This Research Guide examines strategies such as assessments, preparation, placement instruction and delivery, and student supports to help you understand performance.***

# CONDUCT A POLICY AUDIT: IDENTIFY AND ADDRESS POLICY BARRIERS

Helping students become college ready and ultimately succeed in higher education is impacted by a great number of policies at the state, system and institutional levels. Policies adopted with the best of intentions decades ago may now create barriers to the implementation of new approaches. Additionally, remediation has captured a considerable portion of state support for public institutions and become embedded in accountability and other significant policy areas. Consequently, reform efforts are both supported by and entwined with a myriad of state, system and institutional policies and practices. While examining baseline performance in your current system, a comprehensive policy audit is important to determine which policies have potential to increase the effectiveness of the reform effort and which may be detrimental.[4]

Areas that often contain policies that impact college readiness, developmental education and related issues include:

- **High school graduation requirements:** What do we expect of our high school graduates? Does a high school diploma mean the student is ready for college-level work? If not, how is readiness defined?
- **Budget and appropriations:** How do we pay for developmental education? Should the state pay for developmental education at the postsecondary level? Should the state and student share the responsibility of covering the cost of developmental education?
- **Institutional missions and goals:** Which institutions offer developmental education? Why?
- **Accountability:** What should we expect from developmental education and other efforts to improve readiness and success? How do we measure its effectiveness? Who is accountable for establishing statewide goals concerning developmental education and reporting on those goals?
- **Educational attainment and college completion:** How does developmental education impact educational attainment and college completion goals?
- **Faculty:** Who teaches developmental courses? Does teaching developmental education take faculty away from core courses, especially in math and English language arts?
- **Affordability:** What impact does developmental education have on college affordability? How do financial aid policies interact with the cost of developmental education?

Reviewing, clarifying and structuring comprehensive statewide policy for developmental strategies that lead to improved completion outcomes is the linchpin of reform. Absent a statewide policy that treats all students equally and holds all institutions to high standards of performance, the state has gained nothing. But clear policy that requires consistency and transparency with developmental education may be the first step in moving remediation from a problem to a solution. ***This Resource Guide contains multiple examples of how state policy can be used effectively in reforming developmental strategies.***

> *"What do we expect of our high school graduates? Does a high school diploma mean the student is ready for college-level work?"*

# TAKE ACTION: START THE CONVERSATION, DESIGN THE STRATEGY, IMPLEMENT AND BENCHMARK PROGRESS

The reform process is under way in many states, and has yet to begin or has struggled to get traction in others. But we don't have to look far into the future to see that we are running out of time if we want to tackle our readiness problems. Getting the job done will require a lot of hard work — because, fundamentally, change is hard! But the payoff can be huge. It's impossible to give a step-by-step guide to strong implementation, but reformers should understand the key components that are fundamental to success.

Drawing from a number of resources and various examples, we have identified six components of highly effective implementation:

## 1. Leadership

One of the basic elements of successful change strategy is leadership — a key individual or group that assumes the role and responsibility of promoting and advocating for reform. Statewide reform needs a voice or set of voices that can marshal the information and has access to the appropriate audiences at the policy level. At the campus level, leadership must come from the president and senior academic officers as well as student affairs officers, and through deans and department chairs. Without effective system and campus leaders, practitioners and faculty will not have the widespread support they need to implement the critical changes at their level.

Leadership can take many forms. Leadership can come directly from the college or university president. It can be a faculty member that sees the need to do something differently. It could be a dean, department head or provost. Regardless of where the leadership comes from, it is fundamentally important to the process. Leadership serves to articulate the imperative for change, providing emotional motivation, and to help show the way to success.[5]

But leadership needs to be supported, especially when it is not coming from the highest levels of the organization, and when opposition begins to surface. Presidents need to know they will be supported by their boards. Deans and department heads need to know they will be supported by higher administrators. Faculty members need to know they will be supported by their department heads and superiors. And all leaders need to have a base (even a small one) of support among committed faculty members who are willing to stand behind the reform.

## 2. Project Management Structures

There are few reforms that can be implemented based on the leadership and activity of one person. More typically, however, it takes a team to get the job done. Almost every successful implementation of a reform involves a designated project leader and a project leadership team with clearly identified responsibilities.

Additional structures may be beneficial depending on the type and breadth of implementation. For multi-campus implementation, a project lead and project implementation team on each campus is essential.

Ironically, teachers, faculty members and education leaders are often not knowledgeable in change management. This has not been a subject of study for them. Consequently, providing design and implementation teams and leaders some development around good implementation techniques can be very beneficial. This can include simple skills like planning, conducting meetings, holding team members accountable for following-up and effective communications.

## 3. Engagement and Learning

The success of reform hinges on the buy-in of those who will ultimately be involved in designing and implementing the solution. Faculty engagement is critical, and faculty buy-in is essential to successful implementation.[6] Faculty play a key decision-making role in all things related to curriculum. There are many examples of reforms that are attempted in a top-down fashion and which consequently failed because those implementing them had not bought into the reform and had little knowledge of the underlying problem, or the process of designing the reform. The more people are involved in understanding the problem and causes, and design and implementation, the more likely success will be achieved.

Engagement allows all the players to examine the baseline and achieve a shared basic understanding of the problem and the various approaches to solving it. Faculty care deeply about their students, so having the student experience and point of view at the center of the engagement effort is fundamental. Faculty are tuned into how well students perform in their own class or department, but are often naïve about the broader student experience and the challenges and barriers to completing a degree or credential. Additionally, many faculty are not aware of research and examples from other states or institutions about improving student outcomes. A strong engagement strategy allows a campus community to better understand the challenges it faces as well as the options for making change in the interest of helping students succeed.

In the course of engagement, it is likely that reformers will encounter a number of tensions that could adversely impact the progress of reform. Three of these tensions are discussed in the publication by the Community College Research Center entitled, "Designing Meaningful Developmental Reform."[7] Having an awareness of these possible tensions will allow reformers to be better able to find middle ground. The three tensions identified by CCRC are:

- **Institutional autonomy vs. systemwide consistency:** Institutional autonomy is a fundamental principle in higher education. But increasingly there is a need for policies and practices that reflect consistency across multiple institutions. It is important to attempt to find ways that can satisfy both ends.
- **Efficiency vs. effectiveness:** Sometimes effective strategies can be identified, but they require resources and time that make them highly inefficient. Again, a key pursuit of good reform design is to examine how to find a middle ground that allows the identification of strategies that address both criteria.
- **Student progression vs. academic standards:** An engagement strategy should also make it clear that academic freedom and rigorous curriculum are not at risk. Reform is not about "dumbing down the curriculum." In fact, a continuing emphasis on rigor must be a part of any report effort. Faculty can continue to exercise freedom under new approaches to helping students succeed. At the same time, reforms can be made that do not violate academic freedom while creating the conditions that allow more students to succeed.

A fundamental element of a good engagement strategy is strong communications. Change can be an emotional undertaking and create anxiety. Holding informal information-sharing meetings designed to share data and examples from other states can help start the conversation. Providing regular updates on the work, and ensuring that faculty and staff know where to find information and know to whom they can go with questions, can also help ensure involvement and awareness. Care should be taken to allay fears of layoffs or staff reductions.

## 4. Planning

Successful implementation requires a deliberately designed plan. The process of designing a plan forces the implementation team to think through all the various required steps and also consider the possible bottlenecks and bumps in the road that may be encountered. A well-developed plan includes timelines and process steps, and identifies people to be responsible for the necessary actions. Plans are not set in stone – and typically must be revisited and adjusted over the course of implementation.

## 5. Executing and Monitoring the Plan

Once the plan is set, the process turns to executing the plan. As execution takes place, it is important to monitor the process and engage in problem-solving and troubleshooting as the work unfolds. The Education Delivery Institute is engaged in disseminating information about strategies of effective implementation designed to deliver results. In the book ***Deliverology 101: A Field Guide for Educational Leaders***, the authors specify a number of principles of good execution:

- Establish routines to drive and monitor performance. These routines can include regular reports, monitoring visits and face-to-face discussions.
- Solve problems early and rigorously. Problems can easily derail an implementation process. So ensuring that mechanisms exist to identify problems quickly and address them immediately is important to continued progress and ultimate success.
- Sustain and continuously build momentum. It is important to manage distractions and the monotony of implementation as well as effectively engage those who resist change and seek to preserve the status quo. It is also important to celebrate success.[9]

Throughout the entire implementation process, communicating about what is happening is very important. Communication should be clear, informative and continuous. People need to hear key messages and information repeatedly.

## 6. Staff Support and Development

Although technically an element of the plan and something to be executed and monitored, it is worth calling out the importance of a thoughtful approach to staff support and development around the reform being implemented.

Reform may involve changes to teaching practices or implementing new mechanisms of student support. For these types of changes to be successful, the implementation plan must include opportunities to provide support for staff in understanding and mastering the new approaches and strategies.

Resources may need to be developed to support this work, and faculty should be provided with the time to engage in the development work.

> *"The time is past for piloting and testing ideas."*

# SCALING REFORMS

The time is past for piloting and testing ideas. We now have sufficient examples of promising practices that any state or institution can identify a strategy that will allow them to improve beyond current performance. It is important that reform efforts be undertaken from the outset with a view toward statewide scaling.

Examining your current performance, identifying appropriate progress measures and data sources, and addressing policy barriers are all essential steps, but they are just the beginning. As Tom Bailey has argued, remedial reform must be part of comprehensive reform efforts.[10] That means also addressing many issues at once to tie remediation tightly to college completion. For example:

- Strengthen high school preparation.
- Ensure that all students choose a major and develop an individual graduation plan by the end of the freshman year.
- Closely monitor all student progress and intervene if students diverge from the plan.
- Place students in the math and English courses where they have the highest potential to be successful.
- Embed needed academic help in multiple gateway courses.

As you look at your state's current approach to improving college readiness and your reform work, remember that a successful reform effort must go beyond individual or groups of remedial courses. A comprehensive, unified approach builds on helping students progress through gateway courses and into programs of study that lead quickly and efficiently to completion of a credential of value. Bear in mind a few overriding principles that can help you shape a reform effort. The following are taken from The Core Principles for Transforming Remedial Education: A Joint Statement.[11]

### Principle 1

Completion of a set of gateway courses for a program of study is a critical measure of success toward college completion.

### Principle 2

The content in required gateway courses should align with a student's academic program of study — particularly in math.

### Principle 3

Enrollment in a gateway college-level course should be the default placement for many more students.

### Principle 4

Additional academic support should be integrated with gateway college-level course content — as a co-requisite, not a pre-requisite.

### Principle 5

Students who are significantly underprepared for college-level academic work need accelerated routes into programs of study.

### Principle 6

Multiple measures should be used to provide guidance in the placement of students in gateway courses and programs of study.

### Principle 7

Students should enter a meta-major when they enroll in college and start a program of study in their first year in order to maximize their prospects of earning a college degree.

# CONCLUSION

It is time to move the needle on meeting the needs of underprepared students to help them complete a credential or degree. And systemic, comprehensive change is much more likely than current practice to provide the framework and support that most underprepared students need to be successful in postsecondary education. ***Use this Resource Guide to take action on identifying and designing reforms that can work for students in your state.***

Author: *Cheryl Blanco*, Southern Regional Education Board

# ENDNOTES AND ADDITIONAL RESOURCES

Many reformers have found the book, *Switch: How to Change Things When Change is Hard* by Chip and Dan Heath, to be a practical resource. The authors compare making change to an elephant with a rider. There are two perspectives — the rational side (the rider) and the emotional side (the elephant). Ultimately they must be helped to go down a particular path. The authors then proceed with identifying a number of key practices that help direct the rider (making it rationally easier by following the bright spots, scripting the critical moves and pointing to the destination), motivate the elephant (making it emotionally easier by finding the feeling, shrinking the change and growing your people) and shaping the path (making it less stressful by tweaking the environment, building habits and rallying the herd).[12]

1. Janet Quint, et al, *Scaling Up Is Hard to Do: Progress and Challenges During the First Year of the Achieving the Dream Developmental Education Initiative*, MDRC, May 2011, http://www.mdrc.org/scaling-hard-do.
2. Janet C. Quint, Shanna S. Jaggars and D. Crystal Bryndloss, *Bringing Developmental Education to Scale: Lessons from the Developmental Education Initiative*, MDRC, 2013, http://www.mdrc.org/sites/default/files/Bringing%20Developmental%20Education%20to%20Scale%20FR.pdf.
3. *Designing Meaningful Developmental Reform* (New York City, NY: Community College Research Center) http://ccrc.tc.columbia.edu/publications/designing-meaningful-developmental-reform.html.
4. The self-assessment used by states attending the Countdown to 2015: Developmental Strategies to Promote College Readiness in the Common Core Era can form a good starting point for a policy audit.
5. Michael Fullan and Geoff Scott, *Turnaround Leadership for Higher Education* (San Francisco, CA: Jossey-Bass, 2009).
6. "*Engaging Higher Education in College Readiness Reforms: A Practical Guide for States*," (Seattle, WA: Education First, August 2012) http://rockpa.org/document.doc?id=232.
7. *Designing Meaningful Developmental Reform* (New York City, NY: Community College Research Center) http://ccrc.tc.columbia.edu/publications/designing-meaningful-developmental-reform.html.
8. A good guide to effective implementation planning can be found in the book *Deliverology 101: A Field Guide for Education Leaders*, Chapter 3, part C: "Produce Delivery Plans."
9. *Deliverology 101: A Field Guide for Education Leaders*, Chapter 3, part C: "Produce Delivery Plans."
10. Thomas Bailey, "Tackle the Real Problem," *Inside Higher Ed*, February 3, 2014.
11. *Principles for Transforming Remedial Education: A Joint Statement of the Charles A. Dana Center, Complete College America, Education Commission of the States, and Jobs for the Future* 2012, p. 6, http://www.ecs.org/docs/STATEMENTCorePrinciples.pdf.
12. Chip Heath and Dan Heath, *Switch: How to Change Things When Change is Hard*, Crown Publishing, New York, 2010.

For states to achieve success in advancing college readiness, it is important for both high school and college educators, as well as policymakers and other stakeholders, to have a shared understanding of what college readiness means. Without a deliberate effort to establish a shared definition, different requirements and standards for what is meant by "college ready" will cause confusion for students and parents and perpetuate the disconnect between high school and postsecondary educators that exists around what college-ready means. The ACT National Curriculum Survey illustrates the nature of the problem. When surveyed, 89 percent of high school teachers responded that their students were "well" or "very well" prepared for college level work, while only 26 percent of college faculty gave the same response.[1] A shared definition forms the foundation on which to construct other policies that promote college readiness and student success, including a smoother transition from high school to postsecondary education.

# STRATEGIES THAT CAN IMPROVE IMPLEMENTATION

- Develop a statewide college-readiness definition collaboratively between the higher education and K-12 sectors.
- Broadly engage higher education faculty, high school educators and other key stakeholders in the development process.
- At a minimum, include standards for English and mathematics as well as cognitive strategies and learning skills.
- Communicate widely about the definition and promote postsecondary opportunities.
- Use the definition to inform and align relevant college readiness and completion policies.
- Use the definition to support greater K-12/higher education alignment.

## Examples of State Policy

- The **Colorado Achievement Plan for Kids** (S.B. 212, 2008) called for the state Department of Education and the Commission on Higher Education to jointly adopt a definition of postsecondary and workforce readiness.
- The **Complete College Tennessee Act** of 2010 is comprehensive legislation that called for a number of reforms directed toward improving college completion. The development of a college and career readiness definition was one of the first actions taken to support the implementation of the Act.
- **Kentucky's S.B. 1** (2009) called on the Council on Postsecondary Education and the Department of Education to create a unified strategy to reduce college remediation rates and increase graduation rates of postsecondary students with developmental education needs. This work included the creation of a college readiness definition.

## Examples of Practice

### *Components of a College-ready Definition*

Several states have developed shared definitions of college readiness. A variety of approaches and options can provide a framework for an effective and useful definition.[2] Common to most definitions, and perhaps most important, are standards for English (reading and writing) and mathematics. These two subjects are, in many respects, foundational to all other learning. Many definitions, however, go beyond English and mathematics and include other subjects like social studies, science, foreign languages or the arts. Increasingly, states are recognizing that, beyond content knowledge, students also need to master key "learning skills and dispositions" (i.e. key cognitive strategies and learning techniques that facilitate higher learning).[3] Definitions may also include high school course-taking requirements, assessment scores, grade point averages and other similar requirements. Several organizations and initiatives like the Educational Policy Improvement Center[4] , ConnectEd[5] and the Innovation Learning Network[6] provide frameworks for knowledge, skills and dispositions that can support the development of high quality definitions.

### *Developing a College-readiness Definition*

The process for developing a college-readiness definition can be as important as the actual language and content. In **Massachusetts**, campus Engagement Teams comprised of higher education faculty and high school teachers were formed at every public college and university campus. Supported by the state's six Regional Readiness Centers, the teams developed statements on college readiness that were collected and aggregated into a single draft definition. A task force was charged with integrating the work of the teams with similar

work conducted around defining career readiness. The integrated definition was then circulated widely, and an online survey was used to collect additional comments and feedback. The draft definition was presented to a joint meeting of the State Board of Elementary and Secondary Education and the State Board of Higher Education, and was formally adopted by each board.[7]

In **Colorado**, 2008 legislation (The Colorado Achievement Plan for Kids) called for the development of a postsecondary and workforce readiness definition to be developed by the Department of Education and the Department of Higher Education. The two departments convened 13 regional meeting to engage local communicates in conversation about the skills and competencies student need to succeed after high school. Over 1,000 educators, business leaders, parents and other stakeholders participated. After final revisions were made, Colorado's Postsecondary and Workforce Readiness definition was adopted by both Boards.

In both of these examples, the broad engagement of faculty and teachers was an important part of the process needed to build a shared understanding of what college readiness is all about.

### *Using a Readiness Definition*

A common definition of college readiness can form the foundation of a number of other policies and practices that support an aligned and integrated strategy for improving college preparation and, ultimately, college completion.[8]

The **Colorado** definition, for example, has been used to create a high school diploma college ready endorsement, drive the components of the state's Individual Career and Academic Plan tool for high school students, support the development of policy recommendations for high school graduation guidelines, expand data collection and reporting for the state's accountability system, and influence the state's higher education admission and remedial education policy.

The **Massachusetts** definition is being used to support a communications strategy. The Future Ready Campaign is designed to promote awareness and understanding of what it takes for all students to be college and career ready. The state also is using the definition in its efforts to improve the preparation and ongoing support of teachers.

The state of **Tennessee** has used its definition to support the work of eight regional Curriculum Councils that are engaged in specific local activities around K-12/higher education alignment. Additionally, the definition has informed the state's effort to align higher education credit-bearing, entry-level courses in English and math to the Common Core State Standards.

Definitions also could be used to support state efforts to engage parents, implement or strengthen dropout prevention initiatives and early warning systems, create foundations for high school reform efforts, and provide the basis for service learning programs and expanded learning opportunities.

A good comprehensive resource about college readiness definitions with a set of discussion worksheets useful for facilitating the development process is *Developing and Using a Definition of College and Career Readiness: A Practical Primer for States*[9] created for the Core to College project.

Author: *Paulo DeMaria*, Education First

# ENDNOTES


1. ACT National Curriculum Survey, 2012 (ACT: Iowa City. 2013).
2. Jennifer Dounay Zinth, *The Progress of Education Reform: Defining College Readiness* (Denver, CO: Education Commission of the States, April 2012) http://www.ecs.org/clearinghouse/01/01/22/10122.pdf.
3. Dave Spence, *State Policies to Support a Statewide College- and Career-Readiness Agenda*, (Atlanta, GA: Southern Regional Education Board, November 2013).
4. David T. Conley, *A Complete Definition of College and Career Readiness*, May 2, 2012, https://www.epiconline.org/publications/documents/College%20and%20Career%20Readiness%20Definition.pdf?force_download=true.
5. ConnectEd The California Center for College and Career, *College and Career Readiness: What Do We Mean?* (Version 1.2, April 12, 2012) http://connectedcalifornia.org/app/webroot/uploads/files/CACR%20Version%20V1-2%20Apr%2012%202012_FINAL.PDF.
6. Council of Chief State School Officers, *Knowledge, Skills, and Dispositions: The Innovation Lab Network State Framework for College, Career, and Citizenship Readiness, and Implications for State Policy*, February 2013, http://www.ccsso.org/Resources/Publications/ILN_CCR_Framework.html.
7. http://www.mass.edu/library/documents/2013College&CareerReadinessDefinition.pdf.
8. *Blueprint for College Readiness: Case Studies of College & Career Ready Definitions* (Denver, CO: Education Commission of the States,forthcoming publication).
9. *Developing and Using a Definition of College and Career Readiness: A Practical Primer for States*, Core to College, December 2013. http://www.education-first.com/files/College_and_Career_Readiness_Guide.pdf.

# TRANSITIONAL COURSES AND DUAL ENROLLMENT

1

HIGH SCHOOL

It is generally acknowledged that, for traditional students, the first place to try to ensure that students reach college readiness is in high school. In most states, a key strategy in support of improving readiness outcomes by the end of high school is the implementation of the Common Core State Standards (CCSS) or other rigorous college-ready standards and accompanying assessments. For many states, these standards and assessments represent the first efforts of their kind to connect K-12 systems with college expectations, so there is reason to believe that more students will graduate high school prepared to engage in college-level work.

These standards and assessments will allow schools, districts and states to better identify students who are not on track to being college ready. In particular, new assessments will show whether 11th-grade students are on track to being college ready. Many states are beginning to identify strategies to address the needs of these students. The most common strategies include the use of 12th-grade interventions, such as transitional courses — also known as readiness courses — and offering developmental education courses in high school through dual enrollment.

**Transitional courses** are supplements to a college-ready curriculum, usually offered in the junior or senior year for students who are assessed as underprepared for entry-level, credit-bearing college courses. These courses can lessen the readiness gap and prevent students from needing remediation in college. Several states, especially those served by the Southern Regional Education Board (SREB), are retooling their curricula to include readiness courses. Since the adoption of the CCSS, SREB has worked with teams in 14 states in and out of the South to develop model readiness courses in disciplinary literacy and math. SREB is developing model course curricula and working with policymakers to ensure that the readiness courses are available to students and recognized across the K-12 and postsecondary systems. For more information, see SREB's policy brief on transitional courses.[1]

## POLICIES THAT CAN IMPROVE IMPLEMENTATION

### Transitional Courses

- Ensure that transitional — or readiness — courses are based upon college- and career-ready standards.
- Ensure that transition courses are designed collaboratively between the K-12 and higher education sectors and that they are rigorous (and not considered low-level options).
- Be clear in defining which students are targeted with transition courses.
- Ensure that all postsecondary institutions recognize and apply the same standards in their placement procedures.
- Assess all students for college readiness no later than the junior year.
- Ensure that students who successfully complete readiness courses are not subject to additional testing and will be placed into college-level courses.
- Allow school districts to recognize transitional courses as eligible for high school academic credit and state funding.

**Dual or concurrent enrollment programs** allow eligible high school students to take postsecondary courses for college and, usually, high school credit. Dual enrollment policies are nearly ubiquitous; such programs exist in every state and the District of Columbia. Nonetheless, the scope and scale of these programs differ dramatically.

Historically, dual enrollment programs are limited to credit-bearing courses at the 100-level or higher, but this is changing. Recently, states are using dual enrollment programs to promote greater access to courses offered by colleges to lower-performing students or students at risk for not enrolling in college. While 16 states strictly prohibit dually-enrolled students from enrolling in developmental/remedial courses, eight states — Arkansas, Colorado, Georgia, North Carolina, Ohio, Oregon, Tennessee and Texas — allow high school students to enroll in such courses. For more information, see ECS' **Dual Enrollment Policy Database**.

### Dual Enrollment Courses

- Eliminate tuition and fees for participating students.
- Ensure equitable access across urban, suburban and rural school districts.
- Develop a common statewide definition of "college ready" (i.e., maintaining a common "remedial" description, including test score cut ranges, grade point averages and courses). Such a policy would clarify expectations for K-12 practitioners and allow them to better identify students in need of academic support.
- Develop consistent statewide admission and placement policies that recognize remedial courses as college-preparatory courses.

# RESEARCH

Because transitional courses are relatively new, empirical evidence on the effectiveness of the strategy is emerging. A study of Virginia's College and Career Readiness Initiative, which includes two capstone courses — one in English and one in mathematics — for high school juniors and seniors who intend to enroll in college but are at risk of placing into developmental education. The courses were piloted in more than 20 Virginia high schools in 2011-12. The authors found that there was widespread support for the courses, but that there was little agreement as to whom the programs should serve and whether the courses were a supplement to or replacement of traditional college preparatory courses. In addition, the authors found that the instructors had to design their instructional materials and lessons around college-ready ideas because they did not have such materials available to them.[5]

Though empirical research on dual enrollment remediation continues to evolve, the literature supports the effectiveness of dual enrollment policies. Importantly, the literature on the effectiveness of dual enrollment programs addresses college-level courses — not remedial courses — offered to high school students. In spite of this limitation, findings from recent research are noteworthy.

A Community College Research Center study found that participants in dual enrollment programs were more likely to graduate from high school, more likely to transition to a four-year college (rather than a two-year college), less likely to take basic skills courses in college, more likely to persist in postsecondary education and more likely to accumulate college credits than comparison students.[6]

One researcher found that the benefits of dual enrollment programs extend beyond simple performance differences; participation refined attitudinal and behavioral traits as well. The author found the majority of students analyzed shifted their conceptions of the role of college. The students also developed a greater awareness of the requirements of college and socialization skills conducive to college success, such as navigating complex bureaucracies and taking responsibility for their academic progress. Students learned new technical skills, norms and values consistent with postsecondary attainment.[7]

Another study found that lower-income participants in dual-enrollment programs increased their probability of attaining a postsecondary degree by 8 percent and a bachelor's degree by 7 percent. In addition, first-generation students who participated in dual enrollment were more likely to attain any postsecondary degree and earn a bachelor's degree compared to non-participants.[8]

# EXAMPLES OF STATE POLICIES

### *Transitional Courses*

**Florida** Senate Bill 1908 (2008) requires the state Department of Education to establish transitional courses for high school students who are underprepared based on multiple state test scores. The bill also requires the department to analyze the assessments and create teacher development for the courses. House Bill 1255 (2011) requires all districts and high schools to offer the five college-readiness and success courses for all high school seniors who do not test as ready for college-level work on state assessments.

**Kentucky** Senate Bill 1 (2009) requires schools to provide a transitional course or monitored intervention to every student not meeting college-readiness benchmarks set by ACT, Inc. in English/language arts or math. The legislation requires the Kentucky Department of Education to provide for the training of teachers and administrators on integrating the revised standards and assessments with instruction.

**Maryland** Senate Bill 740 (2013) directs the Department of Education, in collaboration with local school systems and community colleges, to develop and implement transition courses or other instructional opportunities for students in the 12th grade who have not achieved college and career readiness by the end of the 11th grade.

### *Dual Enrollment*

**Colorado** state law (H.B. 09-1319) allows 12th-grade students to enroll in developmental education courses offered by colleges through the state's concurrent enrollment program. In addition, Colorado Commission on Higher Education policies recognize developmental education courses for purposes of admission and remedial placement. In 2014, the Colorado Department of Higher Education **reported**[2] that 1,073 students enrolled in remedial courses through the state's dual enrollment policy. The statewide pass rate for these students was 75.6 percent.

**Tennessee** state law (T.C.A. § 49-15-105) allows community colleges to develop cooperative innovative programs targeted to high school students who need postsecondary remediation. Student participants, upon certification by the community college of successful participation and upon admittance to the postsecondary institution, must be deemed to need no further remediation.

# EXAMPLES OF PRACTICE

### *Transitional Courses*

In the report, *Reshaping the College Transition: Early college Readiness Assessments and Transition Curricula in Four State. A State Policy Report*[3] the Community College Research Center profiles four states — New York, Tennessee, California and West Virginia — and their efforts in implementing transitional courses.

In **New York City**, the City University of New York implemented its At Home in College program, which included transitional math and English courses, in 62 public high schools. Each course contained an embedded College Access and Success Workshop to support students in applying for college and financial aid. These courses targeted students who were on track to graduate but who had not tested as college ready on the New York Regents exam. The New York State Education Department is beginning to develop similar transitional courses for use in other parts of the state.

**Tennessee** has developed a Bridge Math course for high school students with low ACT math scores since test results showed more students not college ready in this subject. Bridge Math is organized around a set of online developmental math modules (Pearson's My MathLab). The course is aligned to the Common Core math standards.

The **California State University** system worked with K-12 educators to develop the Early Assessment Program to assess for college readiness. Students who are deemed not college ready have access to a number of transitional course options. Chief among these is the Expository Reading and Writing Course developed by CSU English faculty and high school teachers. High school teacher receive three days of professional development to be qualified to teach the course.

**West Virginia** developed a statewide Transition Mathematics for Seniors course in 2009 and an English transitional course in 2012. The math course is targeted at students that score below mastery on the state's college ready assessment. The English course is an alternative to the traditional senior year English course with an emphasis on research-based writing and nonfiction texts.

The **Tennessee SAILS** (Seamless Alignment and Integrated Learning Support) program introduces the college developmental math curriculum in the high school senior year. By embedding the Tennessee Board of Regents Learning Support Math program in the high school Bridge Math course, students can get a head start on their college careers. Students who successfully complete the program are ready to take a college math course, saving them time and money while accelerating their path to graduation.

The program is available to students who score less than a 19 on the math portion of the ACT; these students are required to take the SAILS Bridge Math course their senior year. With an initial investment of $1.124 million in 2012, all 13 institutions in the Tennessee Community College System partnered with 118 high schools serving 8,400 students. Positive results are beginning to emerge: 2,252 of the 6,003 students who started in the fall term already have completed the entire program, with approximately 2,400 more students starting in the spring. From August through December 2013, students saved 6,350 semesters of learning support (remedial math) and $3.5 million in tuition and books.[4]

### *Dual Enrollment*

**Community College of Aurora and Aurora Public Schools**: Rangeview High School in Aurora Public Schools designed a yearlong sequence for 12th-grade mathematics using dual enrollment. In the fall semester, students scoring just below the state's official remedial cut scores (ACT Math: 19, SAT Math: 450) are invited to enroll in Introduction to Algebra (Mathematics 090), a high-level remedial course. Because this course is a prerequisite for college algebra — Colorado state policy ensures that students completing the course will not be retested — participating students enroll in college algebra in the spring semester. As a consequence, by the end of their senior year, students are able to address their academic deficiencies and complete college algebra. Importantly, Colorado law ensures that the completion of certain general education courses is honored at all institutions in the state.

**Community College of Denver and Denver Public Schools**: In 2013, Denver Public Schools launched an early remediation option for college-bound seniors. The program enrolled 160 students in a remedial bridge program the summer prior to enrolling in college. Students in the program enrolled in remedial English and mathematics courses taught by instructors at the Community College of Denver and Western Colorado Community College. Technically, this program is an example of a summer boot camp, though it is offered by way of state dual enrollment policies, which allows the school district to use K-12 revenues to pay for the courses.

Author: *Matt Gianneschi*, Education Commission of the States

# ENDNOTES


1. Megan Root, *Essential Elements of State Policy for College Completion* (Atlanta, GA: Southern Regional Education Board, January 2013), http://publications.sreb.org/2013/013_Ess_Elem_Tran_Courses.pdf.
2. *Annual Report On Concurrent Enrollment 2012-2013 School Year*, Colorado Department of Higher Education, March 27 2014, http://highered.colorado.gov/Publications/Reports/Enrollment/FY2013/2013_Concurrent_Enrollment_Mar_2014.pdf.
3. Elisabeth Barnett, Maggie P. Fay, Madeline Joy Trimble and Lara Pheatt, ***Reshaping the College Transition: Early College Readiness Assessments and Transition Curricula in Four States, A State Policy Report*** (New York City, NY: Community College Research Center, Teachers College, Columbia University, November 2013), http://ccrc.tc.columbia.edu/media/k2/attachments/reshaping-college-transition.pdf.
4. Adapted from the SAILS Overview on the Chattanooga State Community College website: http://www.chattanoogastate.edu/high-school/sails/index.html.
5. H. Wathington, A. Barnett, M. Fay, C. Mitchell, J. Pretlow, R. Bork , *Preparing Students for College Learning and Work: Investigating the Capstone Course Component of Virginia's College and Career Readiness Initiative*, Working paper, (New York City, NY: National Center for Postsecondary Research, Teachers College, Columbia University, December 2012), http://ccrc.tc.columbia.edu/media/k2/attachments/preparing-students-capstone-courses.pdf.
6. K. Hughes, O. Rodriguez, L. Edwards and C. Belfield, *Broadening the Benefits of Dual Enrollment Reaching Underachieving and Underrepresented Students with Career-Focused Programs* (New York City, NY: Community College Research Center, Teachers College, Columbia University, July 2012).
7. M. Karp, *Learning About the Role of College Students Through Dual Enrollment Participation*, Working paper 007 (New York City, NY: Community College Research Center, Teachers College, Columbia University, 2007).
8. B. An, *The Impact of Dual Enrollment on College Degree Attainment: Do Low-SES Students Benefit?*, Educational Evaluation and Policy Analysis, 2012.

# DIAGNOSTIC ASSESSMENTS, MULTIPLE MEASURES AND DIRECTED SELF-PLACEMENT



Nearly every postsecondary institution uses standardized tests to determine students' readiness for college-level work. Typically these policies require those who do not meet specified cut scores to enroll in one or more semesters of remedial courses. Many of the traditional course placement exams do not — or their results are not used in ways that — precisely measure students' specific skill deficits. Research also shows that the placement exams, at least by themselves, are not good predictors of student success in entry-level or gateway college courses. Further, few states or institutions use measures beyond the standardized assessments to gauge students' level of college readiness.[1] These shortcomings of the assessment process undermine the ability to tailor instructional interventions and to recognize non-academic characteristics that might identify students' potential to succeed in college-level coursework.

Several states and institutions are moving away from using assessment to decide whether a student is placed in a developmental education course. Rather, the assessments are being used to determine the level of supplemental support and type of instructional approach a student needs to succeed in a credit-bearing gateway course.

States and postsecondary systems are beginning to respond to the limitations of the existing assessment and placement policies through the following approaches:

## Diagnostic Assessments

While most standardized placement exams measure broad competencies, diagnostic assessments are designed to pinpoint students' strengths and weaknesses in content areas as well as specific knowledge such as proper sentence structure or using linear equations. A primary benefit of diagnostic assessments is to help identify the most appropriate instructional approach or intervention for students. Despite their potential, diagnostic assessments are relatively new and not widely administered. Therefore, they have not been evaluated on a large scale. Further, developing diagnostic tests requires significant time and money but the payoff in improved results could be well worth the investment.

## Multiple Measures

Emerging research supports the need to consider a broader range of measures to predict students' likelihood of success in gateway classes. These measures could include students' past academic performance, such as high school courses and GPA, and non-cognitive attributes, such as motivation, discipline and "grit." But there are drawbacks. Factoring in high school performance, for example, will be of little value to adults without transcripts who make up a large percentage of students identified for remediation. And while incorporating non-academic characteristics would add another dimension to a student's profile, they are difficult to quantify and to use for comparison purposes. Further, most states' data systems do not allow college officials easy access to high school student transcripts and test results. Still, efforts should be made to expand the ways in which states and institutions determine a student's level of preparation for credit-bearing courses.

### Directed Self-Placement

Directed self-placement involves an advisor or faculty member working with individual students to review test results to help them select the most appropriate first-year coursework. According to a Community College Research Center study, this approach can leverage multiple information sources, including student performance, advisor or faculty experience and judgment, and student's self-knowledge of their preparedness. The process also might incorporate other factors, such as high school performance or non-cognitive measures, as well as the student's intended program of study. Given the demands on counselors and faculty, student self-placement might be more feasible at smaller institutions.[2] But larger campuses and systems should consider how to involve students in crucial decisions, including the courses in which they begin their college careers. More research will be required to understand the efficiencies and effectiveness of self- placement, but the approach might prove to be an attractive option for some institutions to reduce unnecessary placement in remedial courses.

## POLICIES THAT CAN IMPROVE IMPLEMENTATION

- De-emphasize the use of single cut scores and develop standards for interpreting multiple measures of student readiness.
- Encourage or require that institutions use diagnostic assessments that are aligned with state or institutionally defined college-ready competencies to more accurately pinpoint students' skill levels.
- Encourage or require that postsecondary systems and institutions periodically evaluate the effectiveness of the multiple measures and diagnostics to increase students' success in remedial interventions, college-level courses and completing a credential.
- Ensure state data systems allow college officials easy, but appropriate, access to high school academic records that provide a broader assessment of student competencies.
- Support efforts for systems and institutions to engage students in their course placement process.

## RESEARCH

Recent research is raising questions as to whether commonly used assessments are the most effective — and only — means to determine which courses are most appropriate for students. Studies also are demonstrating the shortcomings of relying on a single test score for course placement and that far more students can successfully complete college-level work without the need for stand-alone remediation.

A Community College Research Center (CCRC) study, for example, found that a significant percentage of students who are placed into remedial education could succeed in entry-level courses. In one community college system, the study suggested that 18.5 percent of students who take a math test and 29.5 percent of students who take the English exam are placed in remediation even though they could have earned a B or higher in a college-level course. Similar results were found for the other community college system that the researchers examined. The authors refer to these students as being "severely underplaced."[3]

In another CCRC report, *Assessing Developmental Assessment in Community College*,[4] the authors suggest that the use of multiple measures could result in course placement and interventions that better meet students' individual needs. Additional research done by CCRC in two studies confirms this finding and concludes that multiple measures are far more effective at placing students into the appropriate developmental or college-level course. The working papers found that a student's high school GPA turns out to be a more accurate and consistent measure for course placement and a better indicator of performance in college-level classes than scores on the common placement assessments.[5, 6]

# EXAMPLES OF STATE AND SYSTEM POLICIES: DIAGNOSTIC ASSESSMENT AND MULTIPLE MEASURES

**California** has required that multiple measures be used for course placement for several years. In an effort to create a common system of assessments and cut scores, **Assembly Bill 743** enacted in 2011 expands the current requirements for multiple measures and directs the California Community College system to use the following information for course placement and advising: the common placement exam, all available K-12 assessment data and other data or student transcript information. Students and advisors will have access to this information through a central data warehouse, which should lead to more efficient and informed placement decisions.

**http://bit.ly/1errMKW**

Under **Florida's Senate Bill 1720** (2013), recent high school graduates and members of the military are deemed college ready and can bypass additional assessments and be placed directly into credit-bearing courses. Students still can opt to enroll in remediation and those who do not meet the criteria listed above must take a common placement exam. Institutional governing boards must develop plans that use assessment results, as well as other measures such as GPA, work history and military experience, to advise students on their options. Ultimately, students decide which instructional approach, including co-requisite, modularized and compressed courses, are the best match to help them prepare for college-level work and their programs of study.

**http://bit.ly/1g8NR4H**

In **Mississippi**, institutions can consider high school performance, ACT scores (if available), placement testing, special interests and skills, as well as other non-cognitive factors for course placement of students who do not meet the full admissions standards.

**North Carolina's Community College System** (NCCCS) has participated in the Developmental Education Initiative (DEI) to redesign the developmental education curricula, accelerate completion, implement diagnostic assessments, increase the number of remedial students who enroll in college-level courses and implement supporting policies. The NCCCS is working with the College Board to create diagnostic assessments to accompany developmental curriculum redesign. Also, the system approved a Multiple Measures for Placement policy that allows recent high school graduates who meet the specified GPA benchmark to be exempt from diagnostic placement testing and considered ready for college-level courses. Full implementation by all colleges is scheduled for fall 2015. North Carolina's DEI efforts have been rolled into a larger, statewide initiative known as **SuccessNC**.

**http://bit.ly/1iuYDQ5**

In 2012, the **South Dakota Board of Regents** revised their **course placement policy** to reflect emerging research. In addition to scores on standardized assessments, institutions may consider other information such as high school GPA and curriculum completed for placement decisions.

**http://bit.ly/1sB8lZ8**

**Texas** enacted Senate Bill 162 (2011), which directed the Higher Education Coordinating Board to develop a statewide developmental education plan. In response, the coordinating board created the 2012-17 **Developmental Education Plan**, which builds on the previous plan. The new plan calls for addressing the needs of underprepared students through various delivery approaches, including modular, co-requisite and integrated instructional models. Under the plan, the board implemented a new, single Texas Success Initiative diagnostic assessment for course placement and eventually will incorporate multiple measures to determine a students' level of college readiness.

**http://bit.ly/1g8OD1D**

The **Virginia Community College System's** (VCCS) Developmental Education Redesign **initiative** aims to significantly reduce the time it takes students to complete developmental courses and enter credit-bearing classes. As part of the initiative, the VCCS developed diagnostic exams that support redesigned remedial math and English courses. Developmental math is based on competencies and the curriculum is divided into modules, which students complete in a self-paced manner. Students take only the modules that are necessary, as determined by the diagnostic assessment results and the requirements of the program of study. Developmental English has three direct pathways to college-level courses, including a co-requisite model, and allows students to complete their remediation within a year.

**http://bit.ly/OEelAd**

# EXAMPLES OF PRACTICE: DIRECTED SELF-PLACEMENT

In 2013, **Boise State University** fully implemented the **Write Class**, which allows students to gauge their abilities through questions about reading/writing ability, informational resources for course options and test scores. The students are given a recommendation based on the answers and are able to choose the level of their first English course. Initial results are promising and the university was able to replace English 90 with English 101 Plus, which is a co-requisite course that offers students additional support.

**http://bit.ly/1g8P30E**

Soon after applying, students at the **Community College of Vermont** meet with an academic advisor to learn about the admissions process, **skills assessments** and support services. Students also take a standardized placement assessment to measure their academic skills and a self-assessment about their attitudes, behaviors and commitments. Armed with this set of information, the student and their advisor select the most appropriate reading, writing and math classes.

**http://bit.ly/1g8PJKR**

**Diablo Valley College** in California uses a student **self-placement assessment** for math course placement. The community college requires students to take a standardized exam, but also posts questions and a math problem on its website to help guide their course selection.

**http://bit.ly/1elbQzq**

**Shasta College** in Oregon employs a **self-placement assessment** for students to determine the most appropriate math course. The two-year college provides a web page that guides students through the decision-making process and recommends that they contact a counselor or faculty member if they have further questions.

**http://bit.ly/1iuZC2t**

Author: *Mary Fulton*, Education Commission of the States

# ENDNOTES


1. Mary Fulton, *Using State Policies to Ensure Effective Assessment and Placement in Remedial Education* (Denver, CO: Education Commission of the States, May, 2012). http://www.ecs.org/clearinghouse/01/02/28/10228.pdf.
2. Michelle Hodara, Shanna Smith Jaggars and Melinda Mechur Karp, *Improving Developmental Education Assessment and Placement: Lessons from Community Colleges Across the Country*, Working Paper No. 51 (New York City, NY: Community College Research Center, Teachers College, Columbia University,November 2012, page 15), http://ccrc.tc.columbia.edu/publications/developmental-education-assessment-placement-scan.html.
3. Judith Scott-Clayton, Peter M. Crosta and Clive R. Belfield, *Improving the Targeting of Treatment: Evidence from College Remediation*, Working Paper 18457 (Cambridge, MA: National Bureau of Economic Research, October, 2012, page 41).
4. Katherine L. Hughes and Judith Scott-Clayton, *Assessing Developmental Assessment in Community Colleges*, CCRC Working Paper No. 19 (New York City, NY: Community College Research Center, Teachers College, Columbia University, 2011), http://ccrc.tc.columbia.edu/Publication.asp?UID=856 .
5. Judith Scott-Clayton, *Do High-Stakes Placement Exams Predict College Success?*, CCRC Working Paper No. 41 (New York City, NY: Community College Research Center, Teachers College, Columbia University, 2012), http://ccrc.tc.columbia.edu/Publication.asp?UID=1026.
6. Clive R. Belfield and Peter M. Crosta, *Predicting Success in College: The Importance of Placement Tests and High School Transcripts*, CCRC Working Paper No. 42 (New York City, NY: Community College Research Center, Teachers College, Columbia University, 2012), http://ccrc.tc.columbia.edu/Publication.asp?UID=1030.
7. *Advancing Student Success in California Community Colleges: Recommendations of the California Community Colleges Student Success Task Force*, Final Report (Sacramento, CA: California Community Colleges Student Success Task Force, 2012), http://californiacommunitycolleges.cccco.edu/PolicyInAction/StudentSuccessInitiative.aspx.
8. Samantha Sturman, *The Write Class: Student Self-Efficacy in a Pilot Placement Program at Boise State University* (Boise, ID: Boise State University Theses and Dissertations, Paper 299, 2012), http://scholarworks.boisestate.edu/td/299.
9. Linda McTeirnan, Iris Palmer and Mary Fulton, *NextDev Challenge: Assessment and Placement* (Denver, CO: Education Commission of the States, May 2013), http://www.ecs.org/clearinghouse/01/07/87/10787.pdf.

# Assessment Test Preparation and Retesting Opportunities

Emerging research and practical experiences on college campuses are shining a spotlight on the limitations of traditional assessments to effectively distinguish between students who are — and are not — ready for college-level work. As states and institutions move toward more precise and multiple measures for determining college readiness, or using assessments to gauge the need for supports, they also should consider re-examining the process on which these decisions are based.

The current assessment intake process is confusing, inconsistent and poorly communicated, and it could be contributing to higher than necessary remediation placement. The problems are of particular concern at community colleges — where the vast majority of remediation takes place — since many students register soon before classes begin and often aren't required to take the placement assessments until they enroll. All too often, students do not have a chance to prepare for the assessments and do not understand the high-stakes implications of the results.

Strategies that improve students' test taking experiences and outcomes should be viewed as an important, but an insufficient part, of a broader approach to ultimately improve gateway course success and increased degree and credential completion. Assessment reforms must be paired with revisions to the structure and delivery of remedial education to increase students' success in entry-level college courses and beyond. Postsecondary systems and institutions have begun to improve student assessment practices through several approaches, including the following:

## Test Preparation

Test preparation programs are a pro-active approach that allows students to take courses to brush up on specific academic or test-taking skills before they take placement exams. The programs typically incorporate practice exams that offer a preview of students' potential scores and deficits and familiarize them with the assessments, perhaps relieving test-taking jitters. The preparation courses typically are intensive and short, and the goal is to help students bypass at least one level of developmental coursework. The refresher courses have various formats, modes of delivery and participation requirements and duration, ranging from a few hours to a multi-week academic skills review.

The considerations and barriers to implementing and expanding review courses differ according to the specific components of the program and institutional capacity. Adequate funding, including support for the technology needs, can pose challenges for sustaining effective programs. Institutions also must decide whether to make the test review courses mandatory or voluntary and, if the latter, how to select and engage the students who would benefit most from the interventions. Ideally, the refresher courses can be designed to address students' various preparation levels and skill deficits. In addition, lower-cost test-preparation courses that don't require tuition or tap financial aid can provide students an opportunity to quickly address academic deficits that will allow them to participate in a range of instructional options, such as co-requisite and accelerated models.

### Retest Opportunities

In a similar vein, some institutions allow students to retake part or all of the placement exams if the results would require them to enroll in remedial courses. Quite often, these programs are coupled with a brief, online refresher of the particular competencies that students struggled with on the tests. And intensive, pre-enrollment boot camp programs typically embed retesting to improve students' placement results. Opportunities to retake placement tests can help students who fall just below cut scores avoid remediation altogether and others place into higher-level remedial classes or receive interventions that don't require semester-long courses, such as modular or accelerated instruction.

> *"All too often, students do not have a chance to prepare for the assessments and do not understand the high-stakes implications of the results."*

## POLICIES THAT CAN IMPROVE IMPLEMENTATION

- Require that information about the assessment and placement process, including the possible implications the outcomes may have on students' degree completion prospects, is clear, accessible and proactively distributed.
- Expect students to complete a disclosure statement indicating that they fully understand the assessment and placement process and its consequences.
- Communicate — clearly and directly — the availability of resources for students to prepare for the assessment process, including tutoring, test prep programs offered by the institution or outside providers, practice exams and other self-instructive tools.
- Require all — or selected — students to attend short "refresher courses" and a pretest before taking the placement exam.
- Advise all students of their options based on the assessment results, including required developmental coursework that is aligned to their desired program of study. Students also should be provided data on the success rates of students in various academic programs based on their assessment results.
- Track data about the impact of various intake practices on the placement process and overall student success, especially for those referred to remediation.
- Use assessment results to more effectively support students while they are enrolled in remedial and gateway college-level courses.

# RESEARCH

Two reports highlight the shortcomings of assessment and placement intake practices and the realities that students encounter when they arrive on campus. *One-Shot Deal? Students' Perceptions of Assessment and Course Placement in California's Community Colleges*[1] and *Case Studies of Three Community Colleges*[2] describe a far too common situation whereby students are unaware of and unprepared for placement exams, rarely are given opportunities to refresh their skills, don't fully understand the consequences of the assessments and don't pursue possible options for challenging their scores or retaking tests. As a result, the assessments become a one-day event, but with long-term implications. The authors of *One Shot Deal* also point out that many students don't view the placement exams as part of the college preparation process that begins in high school — or before — and continues through their postsecondary career.

Most institutions post requirements for placement assessments on their websites, and some offer online practice tests or mention that students can take the tests a second time. The notices typically indicate, however, that students "can't fail" the exams and that the results will be used for placing students in appropriate courses. But the consequences of the tests and placements are far from clear.

The Community College Research Center suggests that student awareness of, and institutional information about, math placement assessments do not necessarily lead students to prepare for the exams. The analysis identified four reasons why students tend not to prepare for tests: (1) misperceptions about the stakes of the assessment and placement process, (2) lack of knowledge about preparation materials, (3) misunderstandings about why and how to prepare for a college placement exam, and (4) a deep lack of math confidence.[3]

# EXAMPLE OF STATE POLICY

**California's Assembly Bill 743** (2011) requires a central data warehouse, which eventually will be part of a web portal that provides a complete student assessment and placement data profile, an online practice test for students and an advisement tool that indicates the importance of the placement assessment results and the success rates of remedial education students. **http://bit.ly/1errMKW**

# EXAMPLES OF PRACTICE

In Ohio, **Cuyahoga Community College** is implementing mandatory test review courses for math and English that include a staff-facilitated session and a student self-directed preparation guide. According to faculty, the courses showed an 8 percent decrease in pre-algebra — the first developmental math course — and a 5.5 percent increase in beginning algebra. The college also saw a 12 percent decrease in developmental English placement.[4]

**Rasmussen College** in Minnesota uses the National Repository of Online Courses curriculum to offer a free online course. The Math Prep Experience is designed for students who tested just below the placement cut scores on the math assessments. Faculty members report that 80 percent of students place at least one course level higher after taking the course.[5]

California's **Santa Monica College** offers an online orientation, **Prep2Test**, to its placement test that describes the content and format, preparation tips and the implications of the results. According to the online orientation video, the college's assessment center has determined that students who prepared for the exams were 18 percent more likely to place into college-level English and 36 percent more likely to place into college-level math than students who did not prepare.[6]

**http://bit.ly/1i2jOMN**

North Carolina's **Wake Technical Community College** has developed a Massive Open Online Course, or MOOC, for **Introductory Algebra Review** (IAR). The MOOC is designed to help students prepare for the North Carolina diagnostic math exam and is aligned with the community college system's Developmental Math Modular Curriculum. The IAR course covers the first five of the eight modules in the curriculum. Students who complete the MOOC may retake the diagnostic math exam and enroll in college-level courses if they test out of the five modules. According to faculty members, 15,000 students have participated in the IAR MOOC.[7]

**http://bit.ly/1ivfsdu**

Author: *Mary Fulton*, Education Commission of the States

# ENDNOTES AND ADDITIONAL RESOURCES


1. Andrea Venezia, Kathy Reeves Bracco and Thad Nodine, *One-Shot Deal? Students' Perceptions of Assessment and Course Placement in California's Community Colleges* (San Francisco: CA, WestEd, 2010), http://www.wested.org/resources/one-shot-deal-students-perceptions-of-assessment-and-course-placement-in-californias-community-colleges/.
2. Stephanie Safran and Mary G. Visher, *Case Studies of Three Community Colleges: The Policy and Practice of Assessing and Placing Students in Developmental Education Courses* (New York City, NY: National Center for Postsecondary Research, Teachers College, Columbia University, 2010), http://www.mdrc.org/publication/case-studies-three-community-colleges.
3. Maggie Fay, Susan Bickerstaff and Michelle Hodara, *Why Students Do Not Prepare for Math Placement Exams: Student Perspectives*, CCRC Brief No. 57 (New York City, NY: Community College Research Center, Teachers College, Columbia University, December 2013), http://ccrc.tc.columbia.edu/media/k2/attachments/why-students-do-not-prepare.pdf
4. Linda McTeirnan, Iris Palmer and Mary Fulton, *NextDev Challenge: Assessment and Placement* (Denver, CO: Education Commission of the States, May, 2013), http://www.ecs.org/clearinghouse/01/07/87/10787.pdf.
5. Ibid
6. Pamela Burdman, *Where to Begin? The Evolving Role of Placement Exams for Students Starting College* (Boston, MA: Jobs for the Future, August 2012) http://www.jff.org/sites/default/files/publications/ATD_WhereToBegin_050213.pdf.
7. Laura Kalbaugh, *MOOCs Sharing Lessons Learned*, Wake Tech Community College Raleigh, January 2014, http://www.ecs.org/docs/MOOCs-Lessons-Learned.pdf.


## Additional Resources:


Michelle Hodara, Shanna Smith Jaggars & Melinda Mechur Karp, *Improving Developmental Education Assessment and Placement: Lessons from Community Colleges Across the Country*, Working Paper No. 51 (New York City, NY: Community College Research Center, Teachers College, Columbia University, November 2012)
http://ccrc.tc.columbia.edu/publications/developmental-education-assessment-placement-scan.html.

Mary Fulton, *Using State Policies to Ensure Effective Assessment and Placement in Remedial Education* (Denver, CO: Education Commission of the States, April, 2012). http://www.ecs.org/clearinghouse/01/02/28/10228.pdf.


# DIFFERENTIATED MATH PATHWAYS

Research, data and anecdotal evidence demonstrate that weak math skills pose a significant barrier to students as they begin their postsecondary careers. On many campuses, college algebra is considered the default entry-level — or gateway — math course for most majors. There is a growing consensus, however, that college algebra is only relevant for programs of study that require pre-calculus or calculus. One study found that 70 percent or more of people with bachelor's degrees do not require intermediate algebra in their careers.[1] Further, many colleges require students to either pass out of or complete a remedial intermediate algebra course before enrolling in a gateway math class. But the high rate of referrals to remedial math reveals students' lack of preparation for these courses. In one study, nearly 60 percent of community college students were referred to developmental math. But many of these students fail to enroll in a remedial class, complete the sequence or advance to a college-level course.[2]

In response, a growing number of institutions are adopting ***differentiated math pathways*** that aim to align math coursework with a student's degree program and career ambitions. The models differentiate the math skills necessary for various academic pathways and tailor course placement or interventions to these requirements. Students pursuing a degree in social work, for example, are more likely to need statistics than algebra, which is more appropriate for science, technology, engineering and math or STEM programs. The pathways programs move away from the traditional notion of remedial and college-level courses and toward a more coherent approach for students to advance their mathematics skills and knowledge.

## POLICIES THAT CAN IMPROVE IMPLEMENTATION

- Encourage students to declare and enroll in a program of study or, at a minimum, to indicate their fields of interest within their first semester.
- Ensure that course placement procedures for mathematics can be differentiated based upon a student's planned field of study.
- Redesign academic advising to ensure that students who are assessed below college-ready understand the skills that are essential for the gateway math courses in their chosen program of study.
- Improve advising for all students regarding the math courses that are necessary for different degree programs and develop plans to meet these requirements.
- Align all remedial math instruction to the skills necessary to complete a student's chosen program of study.
- Develop and articulate rigorous non-STEM gateway courses that meet minimum math standards and align with appropriate programs of study.
- Ensure that gateway math courses meet the requirements for programs of study at the receiving institution when students transfer.
- Create a STEM transfer and a non-STEM transfer gateway math course pathway.

# RESEARCH

Data from 51 community colleges participating in the Achieving the Dream initiative show that 59 percent of students in the sample were referred to developmental math, which includes 24 percent to one level below college-level, 16 percent to two levels below and 19 percent to three or more levels below. In comparison, only 33 percent of students were referred to developmental reading. Of the 73 percent of the students who actually enroll in remediation, only 33 percent complete their developmental sequence.[3]

While these percentages show that many students struggle with math competencies, they speak more specifically to deficits with algebraic concepts that lead to placement in remedial courses. As a result, many students are prevented from beginning college-level courses and entering a program of study (for example, a declared major or field of study) when they arrive on campus.

Emerging research is demonstrating that the sooner students declare and enter a program of study, the more likely they are to complete a college degree — and in a timely manner. One study by the Community College Research Center found that less than 30 percent of entering students completed a certificate or degree or transferred to a four-year institution within seven years. However, nearly 50 percent of students who entered a program of study successfully completed a credential or transferred.[4] Results from another CCRC study showed that only about 20 percent of students who entered a program of study in their third year completed a credential or transferred.[5]

# EXAMPLES OF PROGRAMS AND PRACTICE

Carnegie Foundation for the Advancement of Teaching developed the **Community College Pathways (CCP) program** that consists of two courses being implemented across a network of 49 community colleges in 14 states including more than 4,500 students. The two courses are called Statway and Quantway. Statway is a one-year course that combines college-level statistics and remedial math and also focuses on data analysis and causal reasoning. Quantway consists of two, one-term courses focused on quantitative literacy that fulfill both remedial and college-level math requirements. In 2012-13, 52 percent of Statway students successfully completed the pathway (grade of C or higher) and earned college credit. Baseline comparison data from 2011-12 showed that only 5.9 percent of non-Statway students received college credit within one year. Quantway 1 students saw similar results with 52 percent successfully completing the semester course, compared to 21 percent of the baseline data non-Quantway students. Sixty-eight percent of Quantway 2 students completed the college-level class with a grade of C or higher.[6]

**http://bit.ly/1jEXF7a**

The **New Mathways Program (NMP)**, created by the Charles A. Dana Center at the University of Texas at Austin, includes three math pathways for students placed into remediation. **New Mathways**, launched in 2012, blends the academic pathways and the co-requisite models, allowing students to receive remedial instruction while enrolled in credit-bearing courses that are closely connected with their degree programs. The three pathways include statistical reasoning, quantitative reasoning and STEM preparation. If necessary, students can enroll in a semester-long Foundations of Mathematics course, which is not credit-bearing, to strengthen their skills. The other option is a semester-long, credit-bearing course, Frameworks for Mathematics and Collegiate Learning, which is taken in conjunction with a student's first math class.

**http://bit.ly/1juXCKU**

**Texas Association of Community Colleges (TACC)** is collaborating with the Charles A. Dana Center to implement the New Mathways Program at its 50 independent campuses. The community colleges will use the program as part of the Texas Success initiative, a statewide effort to improve student learning and outcomes. The TACC and the Dana Center will work with four-year institutions to ensure the New Mathways courses align to programs of study and are transferable.

The **Colorado Community College System (CCCS)**, a 13-campus system, recently revamped its remedial placement procedures and courses. This initiative was funded by a Completion Innovation Challenge grant from Complete College America. The CCCS mathematics sequence places students based upon their planned program of study: algebra-based (Associate of Science students) or statistics/quantitative reasoning (Associate of Arts). Students are assessed on their math abilities but are placed into a sequence of developmental courses in accordance with their degree plans.

The **Path2Stats** program was developed by Los Medanos College which is part of the **California Acceleration Project**. It is an open-access (no minimum placement score) course that leads directly to college statistics after one semester. It is intended for non-STEM majors, and replaces the traditional four-course, 17-unit developmental math sequence. The course was created with the realization that the traditional developmental math sequence was oriented to algebra, but 70-80 percent of the students were taking statistics as the gateway math course. Six cohorts of students (n=151) had an 84 percent success rate in the course, 91 percent persisted to the gateway statistics course of which 76 percent passed, for an overall completion rate of 58 percent. Path2Stats students complete the gateway statistics class at three to six times the rate of students at equivalent math placement levels but who take the developmental math sequence. Path2Stats is a model for statistics pathways at 21 community colleges in California. A forthcoming third-party evaluation of student outcomes at the first eight colleges piloting Path2Stats found, after controlling for an array of potentially confounding variables, students odds of completing a transferable math course were 4.5 times greater in the statistics pathway compared to traditional remediation.

**http://bit.ly/1ksr4F1**

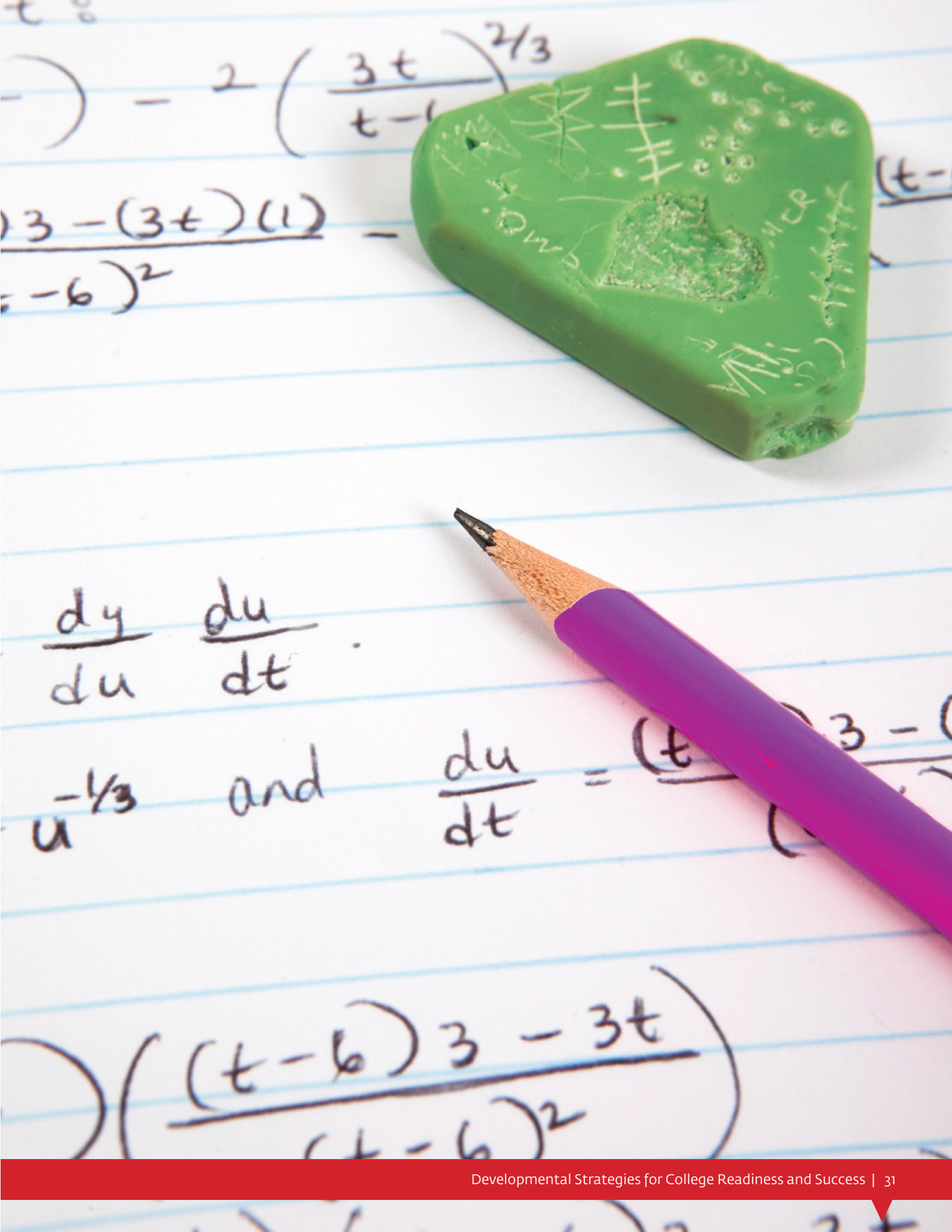
Author: *Mary Fulton*, Education Commission of the States

# ENDNOTES AND ADDITIONAL RESOURCES


1. Pamela Burdman, *Changing Equations: How Community Colleges Are Re-thinking College Readiness in Math* (Oakland, CA: Learning Works, 2013), http://www.learningworksca.org/wp-content/uploads/2013/10/LWBrief_ChangingEquations_WEB.pdf.
2. Thomas Bailey, Dong Wook Jeong and Sung-Woo Cho, *Referral, Enrollment, and Completion in Developmental Education Sequences in Community Colleges*, Working Paper No. 15 (New York City, NY: Community College Research Center, Teachers College, Columbia University, November, 2009), http://ccrc.tc.columbia.edu/publications/referral-enrollment-completion-developmental-education.html.
3. Ibid.
4. Davis Jenkins, and Sung-Woo Cho, *Get With the Program…and Finish It: Building Guided Pathways to Accelerate Student Learning and Success*, Working Paper No. 32 (New York City, NY: Community College Research Center, Teachers College, Columbia University, January, 2012), http://ccrc.tc.columbia.edu/publications/get-with-the-program.html?UID=885.
5. Davis Jenkins and Madeline Joy Trimble, *Charting Pathways to Completion for Low-Income Community College Students*, Working Paper No. 34, (New York City, NY: Community College Research Center, Teachers College, Columbia University, September, 2011), http://ccrc.tc.columbia.edu/publications/charting-pathways-to-completion.html#.UGs_uk7ybTr.
6. James Van Campen, Nicole Sowers and Scott Strother, *Community College Pathways: 2012-2013 Descriptive Report* (New York: Carnegie Foundation for the Advancement of Teaching, December, 2013), http://www.carnegiefoundation.org/sites/default/files/pathways/CCP_Descriptive_Report_Year_2.pdf.


## Additional Resources:


Linda McTeirnan, Iris Palmer and Mary Fulton, *NextDev Challenge: Instructional Delivery* (Denver, CO: Education Commission of the States, May, 2013), http://www.ecs.org/clearinghouse/01/07/88/10788.pdf.



# CO-REQUISITE INSTRUCTION

The co-requisite model allows students to enroll in college-level courses while receiving additional academic support to address skill deficiencies. The instructional model, also known as co-enrollment, treats remedial education not as a prerequisite to, but as a co-requisite with, credit-bearing coursework. Students are able to simultaneously earn college credit while satisfying remedial requirements.

The goal is to prevent academically underprepared students from being placed in stand-alone remedial courses that may be unnecessary and impede their progress toward degree completion. Currently, the majority of students who place into remediation do not complete their developmental education course sequences and never enroll in entry-level college courses.The co-requisite model eliminates all attrition points before students enroll in college-level gateway courses and provides the academic support students need while enrolled in gateway courses.[1]

Typically, students who score at the higher level of remedial placement are allowed to immediately enroll in entry-level or gateway math and English courses with supplemental support. Increasingly, however, there is evidence that providing this option to most students who are referred to remediation is highly successful. Institutions may use a cut-score range instead of a single standard to determine a student's eligibility for a co-requisite course arrangement.

Co-requisite courses can be offered in one or two semesters. Additional instruction may be offered through a one-hour remedial course, online lab sessions, tutoring or other learning supports that are structured to increase student performance in the college-level course. A common approach is to offer extended class time for students to review concepts presented in the college course, address particular skills — academic and non-cognitive — necessary to complete an assignment or preview upcoming lessons.

## POLICIES THAT CAN IMPROVE IMPLEMENTATION

- Develop common placement policies across institutions that provide a consistent definition of college readiness and use a range of readiness indicators to identify student abilities.
- Evaluate the effectiveness of placement policies to assist underprepared students to enter into and successfully complete gateway courses. Then determine the level and type of support necessary to help students succeed in the college-level course.
- Develop or expand state data systems to track the progress and success of students who participate in co-requisite programs. Systems should be able to flag and monitor co-enrolled students.
- Consider ways to modify credit-hour cap policies for degree programs (i.e., 120 credit hours for a bachelor's degree) to accommodate students enrolled in co-requisite courses.
- Establish performance targets based on the completion of entry-level college courses in one academic year rather than the completion of remedial courses.

# RESEARCH

A study by the Community College Research Center found that the current models of remedial education serve as a diversion track and discourage students from taking credit-bearing courses. The effects are most pronounced among students who are very near the college-ready benchmarks.[2] Such findings have fueled a number of developmental education instructional reforms, including the adoption of co-requisite models by a growing number of institutions. Preliminary results of these programs are promising and show improvements in course completion for both remedial and college-level courses.

A recent study of the Accelerated Learning Program (ALP) at the Community College of Baltimore County indicated that students who participate in the program were much more likely to complete English 101 and English 102, persist to the next year and complete more college courses and credits than their non-ALP peers. For example, 74.5 percent of ALP students successfully completed English 101 compared to 38.5 percent of non-ALP students — a 36 percentage point difference. Students who participate in the ALP program are 16 percentage points more likely to persist to the next year after taking English 052 (the highest level of developmental courses) compared to their non-ALP counterparts, 64 percent and 48 percent, respectively.[3]

Before adopting the Structured Learning Assistance (SLA) program, Austin Peay State University in Tennessee eliminated its two remedial math courses, Elementary Algebra and Intermediate Algebra, and instead offered enhanced sections of its two entry-level college math courses. Students completing the co-requisite workshop and core math courses succeeded at more than twice the rate of those who previously took the traditional remedial courses. The pass rate for remedial students rose from 23 percent to 54 percent in Elements of Statistics, and from 33 percent to 71 percent in Mathematical Thought and Practice.

# EXAMPLES OF STATE POLICIES

**Colorado** **House Bill 1155** (2012) set the stage for adopting the co-requisite model, or supplemental academic instruction. The legislation allows Colorado's four-year institutions to develop courses and procedures to accommodate students with modest academic deficiencies. These students are allowed to bypass remediation and enroll in entry-level math and English courses with additional instructional support.

**http://bit.ly/Q6JVYp**

In 2012, the **Connecticut** legislature enacted **Senate Bill 40**, which requires postsecondary institutions to place most underprepared students into college-level courses with embedded remedial support. Lower-skilled students may receive an intensive college readiness program before receiving embedded remedial support.

**http://1.usa.gov/1g8ofl3**

**Florida** **Senate Bill 1720** (2013) allows community college students to enroll directly in credit-bearing courses, regardless of whether placement tests and advisors indicate that they need remediation. Students who opt to enroll in remedial courses can select from a set of instructional strategies, including the co-requisite model. Recent high school graduates and active-duty military members will not have to take placement exams or enroll in remedial courses.

**http://bit.ly/1IKVZK2**

In June 2013, the **Indiana** Commission for Higher Education approved a **resolution** to endorse the co-requisite model as a statewide best practice and affirmed Ivy Tech Community College's goal of delivering 100 percent of remedial coursework through this approach. Ivy Tech Community College, the state's two-year system, will fully scale co-requisite support for students assessed below college-ready by the Fall 2014.

**http://bit.ly/1g8ow7M**

The **West Virginia** legislative Select Committee on Outcomes-Based Funding Models in Higher Education passed a resolution that requested a study of the administration and outcomes of developmental education. The report had to include several items, including benchmarks for the proportion of remedial students who will be placed in co-requisite courses. Consequently, the West Virginia Community College System has set a goal for 70 percent of students placed into remedial education to receive their support while enrolled in college-level courses by Fall 2014.

# EXAMPLES OF PRACTICE

**Cape Cod Community College in Massachusetts** uses an **intensive paired** system that matches developmental and college-level courses. Students meet for six hours a week. The first eight weeks cover basic skills in English, reading and statistics, and the last eight weeks cover the college-level content.

**http://bit.ly/1gMjoXR**

**The Community College of Baltimore County's Accelerated Learning Program** uses a co-requisite, cohort model that allows students who score at the upper level of remedial placement to enroll in English 101 and a companion course that provides extra support. Designated sections of English 101 have 10 seats reserved for ALP students, and the other 10 seats are reserved for students who initially place into English 101. ALP students receive an additional hour of focused instruction following the college-level course. The ALP students not only complete English 101 at more than twice the rate of non-ALP students in traditional remedial courses, but they also go on to complete English 102 at a higher rate and enroll in more college courses. More than 150 postsecondary institutions have adopted ALP on their campuses and five states have launched statewide adoptions of ALP, including Colorado, Indiana, Michigan, Virginia and West Virginia.

**http://bit.ly/1htZLZ5**

**Tennessee's Austin Peay State University** phased out traditional remedial courses as part of the statewide Developmental Studies Redesign Initiative. The university now offers **Structured Learning Assistance** (SLA) in which students enroll in enhanced versions of first-year college math and English composition courses. In SLA workshops, students (1) receive guidance on study skills and test-taking, (2) obtain technology-based, individualized instruction, and (3) participate in cohort-based activities to improve math and writing skills. Through the enhanced courses, students complete the core requirement in math and English to satisfy requirements to address math and/or writing deficiencies.

**http://bit.ly/1mYkRkp**

**Texas State University at San Marcos** developed the Fundamentals of Conceptual Understanding and Success (**FOCUS**), a co-requisite program that allows students to complete developmental math and the first college-level math course in one semester. Students also receive small group instruction through a learning support lab.

**http://bit.ly/1ivuWhP**

Author: *Mary Fulton*, Education Commission of the States

# ENDNOTES AND ADDITIONAL RESOURCES


1. Katherine L. Hughes, Nikki Edgecombe and Myra Snell, *Developmental Education: Why and How We Must Reform It* (paper presented at the League for Innovation in the Community College Annual Conference, San Diego, California, February 27, 2011), http://ccrc.tc.columbia.edu/presentation/developmental-education-why-reform.html.
2. Judith Scott Clayton and Olga Rodriguez, *Development, Discouragement, or Diversion? New Evidence on the Effects of College Remediation*, Working Paper No. 18328 (Cambridge, MA: National Bureau of Economic Research, August, 2012), http://www.nber.org/papers/w18328.pdf?new_window=1.
3. Sung-Woo Cho, Elizabeth Kopko, Davis Jenkins and Shanna Smith Jaggars, *New Evidence of Success for Community College Remedial English Students: Tracking the Outcomes of Students in the Accelerated Learning Program (ALP)*, CCRC Working Paper No. 53 (New York City, NY: Community College Research Center, Teachers College, Columbia University, December 2012, page 7). http://ccrc.tc.columbia.edu/media/k2/attachments/ccbc-alp-student-outcomes-follow-up.pdf.


## Additional Resources


Nikki Edgecombe, *Accelerating the Academic Achievement of Students Referred to Developmental Education*, Working Paper No. 30, (New York City, NY: Community College Research Center, Teachers College, Columbia University, February 2011). http://ccrc.tc.columbia.edu/publications/accelerating-academic-achievement-developmental-education.html.

Judith Scott Clayton, *Do High Stakes Placement Exams Predict College Success?* Working Paper No. 41. (New York City, NY: Community College Research Center, Teachers College, Columbia University, February 2012). http://ccrc.tc.columbia.edu/Publication.asp?UID=1026.

*Transform Remediation: The Co-Requisite Course Model* (Zionsville, Indiana: Complete College America, September 2011). http://www.completecollege.org/docs/CCA%20Co-Req%20Model%20-%20Transform%20Remediation%20for%20Chicago%20final%281%29.pdf.

# ACCELERATED AND STRETCH COURSES

One of the persistent tensions in remedial instruction relates to the amount of time students should spend in developmental courses. As the Community College Research Center has noted, the pipeline for students persisting in developmental education sequences is "very leaky." The Achieving the Dream Project found that fewer than 30 percent of students assigned to the lowest levels of remediation ever complete the remedial sequence, and less than 10 percent of these students ever complete a credit-bearing course in English or mathematics. As Complete College America argues, time is the enemy for student progression in remedial courses.

Based upon the wide variations in course sections and instructional sequences offered by colleges and universities throughout the nation, consensus regarding the time and structure of remedial courses is elusive. Nonetheless, evidence is emerging that developmental education outcomes can be improved by replacing traditional semester-long developmental education courses with those that accelerate developmental education content into shorter sequences or stretching the content of one-semester gateway courses from one semester to one year for students who would otherwise have been assigned to a traditional remedial course.

**Accelerated or "fast-track" courses** meet more often, but for fewer weeks than courses in a traditional 16-week semester schedule. Often, accelerated courses deliver content in more intensive and expeditious ways and are coupled with other developmental courses during a 16-week term. Some colleges combine two semesters worth of developmental courses back-to-back within a 16-week term.

For example, the first course might last 10 weeks and the second course six weeks. Some accelerated courses deliver the same amount of academic content of a 16-week semester in a shorter sequence, so credit-hour loads are sometimes identical to those in longer semesters. That is, a student who enrolls in two accelerated courses might take six to eight credits for the courses during the term, not three or four. Alternatives include combining accelerated course timeframes with modified curricula.

In these options, both the timing and content of the courses are modified and fitted to a student's chosen academic pathway.

**Stretch courses** take the academic content of a traditional 16-week semester and elongate it across two semesters (32 weeks). Stretch courses are a remedial avoidance strategy as they permit students to move more slowly through academic content that may be difficult initially.

These courses are often used for students who desire additional time to adjust to college-level expectations and develop non-cognitive skills, such as self-efficacy, grit and general college knowledge. Stretch courses are more commonly offered by four-year colleges and universities where student enrollments are more predictable and stable.

# POLICIES THAT CAN IMPROVE IMPLEMENTATION

- States with statewide transfer agreements should ensure that these policies accommodate courses taught in alternative formats. Ideally, course-level transfer policies should accept course credits regardless of the time needed to earn them.
- Funding and registration procedures for alternative length courses can be difficult, as credit loads can vary throughout the term. Institutions interested in accelerated or stretch options should consider ways to accommodate these options and not disrupt students' progress.

# RESEARCH

Recent research has demonstrated that the amount of time spent in remediation is associated with significant differences — statistically and practically — in student outcomes observed across all categories of students regardless of age, gender and ethnicity. In particular, researchers found that students enrolled in compressed-format courses were more likely to succeed in those courses than students enrolled in regular-length courses.[1] Compressed courses led to improved outcomes across all departments, with the highest course-completion rates in the eight-week format in English. They also found that students in compressed-format courses were more successful than their counterparts in regular-length courses. This finding corroborated earlier studies that found improvements in course completion and withdrawals for students who enrolled in eight-week courses compared to traditional 16-week courses.[2]

Meta-analytical research showed that compressed courses resulted in increased progress through developmental education — increased course pass rates, higher grades and improvements in student persistence.[3]

Shorter, more intensive courses may lead to better retention and introduce fewer opportunities for departure, according to a study on the frequency of instructional lectures.[4] The authors found that students perform less well when attending courses with periodic class lectures compared to students who attended lectures more often. Another study suggests that student success in compressed courses may be explained by the fact that "they provide a smaller window of time for other issues — such as work and family — to interfere with academic progress."[5] The author argues that students who are capable of successfully completing remedial coursework stop attending class as a result of factors completely unrelated to academic ability.

# EXAMPLES OF PRACTICE

**Chabot College (California) Accelerated English:** The accelerated English program at Chabot College is a one-semester, four-unit developmental English course leading directly into college-level English. This course is an alternative to the college's two-semester, eight-unit sequence. There is no minimum placement score for entry into the program and students self-place. The course features a "backwards design" from college English. Students in the course engage in the same kinds of reading, thinking and writing of college English, but with more academic scaffolding and support. By Fall 2011, accelerated English comprised 75 percent of entry-level English sections.[6]

The Community College Research Center evaluated Chabot College's accelerated English program and found that accelerated students were more likely to successfully complete college-level English, in large part because they were more likely to enroll in it. These students also were more likely to earn college-level credits, transfer to four-year colleges and earn a college degree or certificate at any institution.

**Community College of Denver FastStart:** The Community College of Denver developed **FastStart** as a program to accelerate students through multiple sections of developmental instruction in mathematics, English and reading. The program combines multiple levels of courses and includes additional support through a learning-community approach, a college success course, a case manager and wrap-around services.

**http://bit.ly/1gwIH2D**

Students who require developmental courses in reading, English and/or math can participate in a FastStart Learning Community to help them accelerate through those classes. FastStart students can take a variety of pairings — two or more levels of developmental reading and English, two levels of developmental math, or a reading or English course paired with a transfer-level course.

FastStart provides students with supportive, interactive instruction throughout the semester and an opportunity to share their knowledge and experiences with other students in the learning community setting. A program advisor, with help from student ambassadors, monitors FastStart students' progress and refers them to the services they might need to succeed.

In a study on Community College of Denver's FastStart math program researchers found that students in the program outperformed the general remedial math student population on remedial course progression measures, including passing the developmental sequence and passing gateway math courses. The results suggest that an accelerated or compressed curriculum can facilitate progression through the developmental curriculum at a pace that allows between 40 percent and 65 percent of students to demonstrate success on measures such as retention, transfer and graduation.[7]

**Metropolitan State University (Colorado) Stretch English**: In 2013, Metropolitan State University of Denver (MSCD), a comprehensive urban university, began offering a yearlong stretch introductory English composition course for students with limited academic deficiencies, those whose assessment results placed them just below the state's college-ready threshold. This is an example of remediation avoidance strategy. Students with limited academic deficiencies were allowed to enroll in ENG 1008 and 1009, a yearlong sequence of courses with content identical to the existing ENG 1010. Colorado has a guaranteed transfer policy for general education courses, in which ENG 1010 was already included. In 2013, the Colorado Commission on Higher Education authorized guaranteed transfer credit for the completion of MSCD's stretch sequence (1008 and 1009). Consequently, students who complete ENG 1008 and 1009 are able to both avoid remediation and earn guaranteed transfer credit.

Author: *Matt Gianneschi*, Education Commission of the States

> *"Shorter, more intensive courses may lead to better retention and introduce fewer opportunities for departure."*

# ENDNOTES


1. C.Q. Sheldon and N.R. Durdella, "Success Rates for Students Taking Compressed and Regular Length Developmental Courses in the Community College," *Community College Journal of Research and Practice*, January-February, 2010, 34, 39-54.
2. P. Geltner and R.Logan, *The Influence of Term Length on Student Success* (ERIC Document Reproduction Service No. ED455858, 2001).
3. E. Rutschow and E. Schneider, *Unlocking the Gate: What we Know About Developmental Education* (New YorkCity, NY: MDRC, 2011).
4. M. Gallo and M. Odu, "Examining the relationship between class scheduling and student achievement in college algebra," *Community College Review*, 2009, 36(4), 299-325.
5. N. Edgecombe, *Accelerating the Academic Achievement of StudentsReferred to Developmental Education*, 2011, http://ccrc.tc.columbia.edu/publications/accelerating-academic-achievement-developmental-education.html.
6. K. Hearn, *Accelerated English at Chabot College: A Synthesis of Key Findings*, 2011, http://cap.3csn.org/2012/02/24/new-report-chabot-accelerated-english.
7. D. D. Bragg, E. D.Baker and M. Puryear, 2010 follow-up of Community College of Denver FastStart program (Champaign, IL: University of Illinois, Office of Community College Research and Leadership, December 2010).

# MODULARIZED AND SELF-PACED INSTRUCTION

The Community College Research Center suggests that modularization is primarily a curricular reform, breaking content into discrete, typically smaller, units. These curricular units can be matched to students' academic deficiencies to remediate weaknesses in a targeted way. The delivery of modules is a function of implementation and varies considerably across institutions.

Though modular instruction is not new to higher education, the approach is experiencing a revival on campuses in large part because of the availability of learning software, which allow students to work through instructional modules online. Modular approaches are popular among educators interested in tailoring developmental instruction for large numbers of students with wide-ranging academic deficiencies.

Studies of this approach, however, have yet to demonstrate a link between modularization and improved completion of gateway or entry-level courses. Some experts caution that it does not eliminate the risk of non-completion as students may elect to withdraw before completing all modules and, because all remedial instruction occurs at the pre-collegiate level, students may fail to subsequently enroll in college-level courses.

Modularization typically is applied to math courses, but not to English. As a result, most colleges must develop an alternative approach to meet the needs of remedial English students.

It is not uncommon for colleges to deliver modules in a self-paced format. But this format is not ideal for all students. It is more suitable for students who are self-directed, possess sufficient motivation and are disciplined enough to work in an unstructured environment. To support students enrolled in self-paced courses or modules, many colleges have established on-campus labs with tutoring.

Importantly, the effectiveness of modularized instruction tailored to students' known deficiencies — self-paced or not — can be dependent on the presence of comprehensive diagnostic assessments. Institutions interested in adopting modularized remedial instruction to address students' specific needs should expect to spend a good amount of time and energy developing discrete instructional units, matching assessments to these units and then monitoring students' placement into and progress through the units. Modular instruction can be very effective for providing tailored support to students, but the approach does require fairly significant startup investments.

Perhaps the most common application of modular instruction is the "emporium model" developed at Virginia Tech University. In the emporium model, students attend class in a computer lab where they work through learning modules supported by learning software programs such as MyMath Lab or ALEKS. Instructors can minimize their lecture time and instead focus on providing individual support to enrolled students.

# POLICIES THAT CAN IMPROVE IMPLEMENTATION

- Calibrate program evaluations to focus on the number of students who pass gateway courses in one academic year.
- Create common, statewide methods to recognize the transferability of modularized or self-paced courses. Ensure that modules have transferable interpretability for placement at receiving institutions.
- Develop flexible procedures for tracking and registering students outside of traditional processes. Self-paced student progression can complicate registration procedures as adding credits within an academic term may require institutions to re-evaluate a student's standing, tuition, fees and financial aid.
- Develop flexible financial aid policies. Eligibility for financial aid is often conditioned on a student's credit-hour load. Self-paced instruction and modules can affect students' eligibility for aid, as eager students may complete several additional credit hours during the academic term.
- Invest in faculty professional development. Before launching a modularized curriculum, institutions should invest time and resources into faculty professional develop. Such professional development will raise awareness of common challenges and improve instructional consistency.

# RESEARCH

Researchers studied the effects of "just in time" math modules for students enrolled in geosciences courses.[1] Their study reviewed the impact of **The Math You Need, When You Need It** (TMYN) modules on students' academic and attitudinal changes. The authors found that delivering mathematics modules in a just-in-time manner improved students' academic performance and the relevance of the material to the course. Pre- and post-test scores show that TMYN modules used in conjunction with a geoscience course successfully increase students' quantitative skills. "Our results suggest that the success of TMYN hinges on instructional methods that reinforce to students the value of the modules to their learning and that bolster students' perception that they can successfully complete the modules and online quizzes."

In 2008, **Cleveland State Community College** (CSCC) redesigned its developmental courses according to the emporium model developed at Virginia Tech University. Courses met one hour in small computer labs and two hours in a large computer lab. Instructors provided individual assistance to students. Course material was organized into modules and all homework and testing was done online. Students who completed a particular course were permitted to immediately enroll into the subsequent course. The National Center for Academic Transformation reports that the changes at CSCC led to improvements in students' learning and retention.[2] Specifically, pass rates increased in each section offered (see table below). Other benefits included reduced math anxiety and improvements in overall retention. Importantly, though this model improved student performance in developmental courses, the research did not include students' success in credit-bearing courses so the long-term academic effectiveness of this strategy was not observable.[3]

| | Previous Years | Spring 2008 | Fall 2008 | Spring 2009 |
|---|---|---|---|---|
| *Basic Math* | 73.3% | N/A | 86.2% | 84.8% |
| *Elementary Algebra* | 70.3% | 86.2% | 83.8% | 84.1% |
| *Intermediate Algebra* | 77.3% | 90.1% | 88.7% | 87.6% |

# EXAMPLES OF STATE POLICIES

**Florida's Senate Bill 1720** (2013) redefined developmental education as courses that satisfy a variety of instructional delivery models, including modular instruction "that is customized and targeted to address specific skills gaps." In making these changes the Florida legislature enabled all students a chance to "attain the communication and computation skills necessary to successfully complete college credit instruction" through customized, modular instruction rather than traditional semester-long courses.

**http://bit.ly/1g8NR4H**

**Texas'** Senate Bill 162 (2011) charged the Texas Higher Education Coordinating Board (THECB) with designing a statewide plan for developmental education. This plan required THECB to consider the use of technology to address students' academic needs and to specifically consider the effectiveness of various instructional methods, including modular instruction. Objective 6.3 of **the statewide plan** charged institutions with annually evaluating and reporting the fiscal and instructional impacts of, among other things, modular developmental education course materials.

**http://bit.ly/1g8OD1D**

As part of their Developmental Education Redesign **initiative**, the **Virginia Community College System** developed diagnostic exams that support redesigned remedial math and English courses. Developmental math is based on competencies and the curriculum is divided into modules, which students complete in a self-paced manner. Students take only the modules that are necessary, as determined by the diagnostic assessment results and the requirements of the program of study.

**http://bit.ly/OEelAd**

# EXAMPLES OF PRACTICE

In 2011, **Nevada State College**, a relatively new comprehensive state college, redesigned its remedial mathematics curriculum into six five-week modules. Modules 1 and 2 cover pre-algebra, modules 3 and 4 cover elementary algebra and modules 5 and 6 cover intermediate algebra. Students are expected to master the content of each module before moving into the next module. However, if students fails a module, they can retake that module again during the term, thus allowing students to advance at their own pace and ensuring that faculty members are able to address the needs of struggling students in a timely manner. Modules have four graded components: attendance, daily homework, a weekly quiz and a module exam. In order to pass a module, a student must score 70 percent or better in each of the four categories, or 80 percent or better on the module exam.

**Metropolitan Community College** (Kansas City, MO.) offers **modular mathematics courses** from elementary algebra (Math 40) through college algebra (Math 121). Students in these courses work at their own pace with the aid of ALEKS software, e-books and a math instructor present at each class session. Students can advance through as many levels of algebra as they can master using the computer software ALEKS. Upon completion of an assessment, students are given an individualized study plan and assigned units, and then retested. There are periodic tests and a comprehensive final exam in each math class. If a student completes the requirements for the course before the end of the semester, that student will be given the opportunity to proceed to the next course in the developmental sequence.[4]

**http://bit.ly/1mZEetk**

The **Foothills College** (California) **Math My Way** program was designed in 2006 as a way to improve the pace with which remedial students completed their courses, as well as a way to improve retention and content mastery. Through this program, students participate in mini-lectures then work on math modules at their own pace. All module work must be completed before students are allowed to sit for final assessments. Five instructors manage 150 students in the program and students are regularly reassigned to different levels of content. Evaluators of the program report that Math My Way students outperform traditional students in course completion, retention in credit-bearing courses and passing college-level math courses.[5]

**http://bit.ly/1hw56yY**

The goals of the **SMART Math** program at **Jackson State Community College** (Tennessee) are mastery of content, accommodation of learning styles, on-demand individual assistance and opportunities to move at a student's own pace. This program modularized the content of three developmental courses into 12 segments. Students can enter the sequence where needed and study only those concepts needed for a particular major. Student performance is determined by online homework (15 percent), guided study notebook (10 percent), attendance (5 percent) and the post-test (70 percent). Students have to earn a score of 75 percent on each module's post-test to advance. Faculty in the program are facilitators and support many students at one time through small group instruction on finite topics. Research from Jackson State Community College suggests overall student performance — passing college-level mathematics courses — increased by 45 percent. JSCC administrators report that the SMART Math program reduced costs per student by 20 percent.

**http://bit.ly/1hw5w80**

Author: *Matt Gianneschi*, Education Commission of the States

# ENDNOTES


1. J. Wenner, E. Burn and E. Baer, "The Math You Need, When You Need It: Online Modules That Remediate Mathematical Skills in Introductory Geoscience Courses," *Journal of College Science Teaching*, Vol 41: 16-24, 2011.
2. National Center for Academic Transformation, Tennessee Board of Regents: Developmental Education Redesign Project, 2009 http://www.thencat.org/States/TN/Abstracts/CSCC%20Algebra_Abstract.htm.
3. National Center for Academic Transformation, Tennessee Board of Regents: Developmental Studies Redesign Initiative website, http://www.thencat.org/States/TN/Abstracts/CSCC%20Algebra_Abstract.htm.
4. http://www.mcckc.edu/classes/creditclasses/schedule/other.asp.
5. Kathy Perino, *Math My Way: A Unique Approach to Teaching Pre-algebra*, Foothill College Mathematics Department, PowerPoint presentation, http://fhdafiles.fhda.edu/downloads/homefhda/PerinoMathMyWay.pdf.

# STUDENT SUPPORTS

Students who are the first in their families to attend college, attend underperforming high schools or come from low-income households are often in need of, and benefit from, support services that help them adjust to a postsecondary campus culture and expectations which they may not have been prepared for by their K-12 education and communities. Therefore, while course redesigns, testing procedures and instructional improvements are essential elements for improving the success of students transitioning to college, their effectiveness can be enhanced when complementary student supports are in place.

Targeted student success programs have been around for decades with generally positive, if sometimes difficult to measure, impacts. However, these programs were once considered the domain of student services or student affairs offices, not of faculty. This is changing.

Effective support programs can develop students' non-cognitive attributes — self-efficacy ("I can do this"), consciousness ("I understand what's required of me"), forecasting ("I know why I need this") and resilience ("I will work through this challenge"). Additionally, effective programs can more intentionally improve student outcomes by embedding academic advising or career planning into courses, developing intrusive early warning systems and integrating intervention activities into daily academic routines.

The Community College Research Center (CCRC) suggests that there are four main mechanisms by which student supports improve college success:

- **Creating social relationships:** Students who have strong relationships with peers, instructors and campus staff are more likely to feel they belong in college. Activities that promote ongoing and meaningful interactions between students and campus staff develop important and ongoing relationships.
- **Clarifying aspirations and enhancing commitment:** Students who are enrolled in college already understand that a college degree is important; however, many do not know what career to pursue or how to make appropriate academic choices. Support programs that develop students' awareness of academic pathways and clarify the connection between these and career opportunities improve students' commitment to college.
- **Developing college know-how:** Students from lower-income and first-generation college households often lack information regarding how postsecondary institutions work. Student support activities that develop students' time-management skills and build awareness of how and where to access important information can improve persistence and reduce students' anxiety.
- **Making college life feasible:** Many underprepared students face barriers to completion that can intensify existing academic deficiencies and introduce very real risks to completion. Student support activities that help students deal with challenges with work or scheduling issues or provide child-care for parents can reduce the impact of non-academic risks to completion.

CCRC further suggests that approaches to student supports should include four particular components: They should be sustained, strategic and well designed, intrusive and integrated, and personalized to a students' particular academic trajectory. CCRC refers to this system of support as the SSIP approach.[1]

Modern, successful approaches to remedial reform initiatives integrate intensive, high-touch student supports with academics. As researchers suggest, "These services primarily include advising [both academic and career-focused] and academic assistance, such as tutoring or the creation of comprehensive learning centers, but they can also include workshops or courses designed to teach study strategies and provide opportunities for students to access learning-assistance technology."[2] According to another study, strategies tighten the link between academic and student affairs domains. Examples of these strategies include:

- Centralizing and co-locating academic advising, tutoring and assessment divisions.
- Delivering modular or self-paced courses in computer labs with on-site tutoring and advising support provided by both faculty and academic advising staff.
- Allowing academic advisors to participate in classroom activities and advise students regarding strategies that will improve their performance.
- Integrating the development of study skills and college knowledge with traditional academic content.[3]

# POLICIES THAT CAN IMPROVE IMPLEMENTATION

- Ensure that academic schedules are intentionally designed so that students in developmental courses are able to participate in tutoring and counseling sessions.
- Reorganize academic schedules to link developmental courses with common credit-bearing courses.
- Offer mandatory tutoring services as credit-bearing student success or lab courses, thus enabling students to qualify for additional financial aid assistance.
- Build student success strategies into the supplemental curriculum for co-requisite courses that combine college-level and developmental education courses.
- Remove policies that prohibit students from enrolling in credit-bearing courses until they are college-ready. These policies can tamp down self-efficacy and ensure that students never experience a college course until after completing developmental courses.
- Encourage institutions to increase participation in student support services, whether through mandatory enrollment or incentives.

# RESEARCH

Researchers argue that traditional theories rooted in student persistence and retention effectively demonstrate that integration and commitment "are related to student success, but they do not explain how students become integrated."[4] They operationalized these theories into actions practitioners can implement. However, the authors caution that, though initially positive, the impacts of nonacademic student supports such as intrusive advising and intentional career planning, "may fade after two or three semesters."[5] Consequently, these approaches hold promise for initial integration and retention, but may not be as influential on degree completion. Complementary results suggest that that early, intensive and continuous interventions have positive impacts on initial student retention.[6]

Others reviewed the research on a number of student support programs coupled with remedial instruction. The authors found that a program incorporating a one-credit student success course into remedial courses resulted in positive impacts on the number of credits that students earned and on students' progression through remedial course sequences. The authors also found that a mandatory success course for probationary students resulted in participating students earning more credits, passing more classes and earning higher grade point averages than those who did not receive the course. Importantly, the authors point out that while positive results have been found, no student success support program by itself provided "striking changes" in students' course pass rates, GPAs or credits earned. The research suggests that while the programs resulted in positive benefits, they should be considered part of an overall remediation mitigation plan and not the only response.[7]

In a study on the impacts of increasing investments in student support services, the authors found that a $500 increase in student services funding resulted in an increase in institutions' six-year graduation rate of 0.7 percent. The impact of increased funding for student services was particularly meaningful for institutions with larger numbers of low-income and less well-prepared students. As a result, the authors concluded that institutions with comparably low graduation rates would benefit more from increases in student service expenditures than those institutions with higher graduation rates and that targeted strategies to improve funding for student services at baccalaureate colleges and regional universities would provide a much greater return on investment.[8]

# EXAMPLE OF STATE POLICY

In response to **Texas Senate Bill 162** (2011), the Texas Higher Education Coordinating Board developed a revised statewide **developmental education plan**. One recommendation from this plan requires institutions to develop and implement a student advisory program that includes an individualized plan for academic success for each underprepared student. Among the various components, the individual plans must contain: career advising, including career pathways and labor market information; campus and/or community student support services/resources; and regular interaction between student and designated point of contact (e.g., advisor, faculty member, peer and/or community mentor, etc.). In addition, the Texas Success Initiative requires all institutions to base their developmental education programs on research-based best practices that include student services (§4.62 Required Components of Developmental Education Programs).

# EXAMPLES OF PRACTICE

**Massachusetts's Berkshire Community College's** GetREAL Center Program was designed to improve student performance by increasing their knowledge of available resources and by supporting engagement with faculty and other students. Advisors offer first-year developmental education students academic guidance and help them manage the personal and social demands of college. The campus offers the advising as a free three-credit course to encourage students to use the service. Students meet with their advisor 10 or more times during the semester.

**Virginia's Mountain Empire Community College** Supplemental Instruction program links tutoring support services directly with particular courses. The college uses this strategy for peer-led team learning associated with its developmental algebra course. The supplemental instruction section is led by a peer tutor, who successfully completed the course in an earlier semester and received training to lead the supplemental section. The peer tutor also is required to attend the developmental algebra course and to work closely with the instructor, who reviews and may modify the tutor's lessons. Peer-led team learning also emphasizes active learning, with most lessons providing engaging exercises for students to interact with the course content. Metropolitan State University of Denver, a comprehensive university, offers a similar peer tutoring program for its introductory mathematics courses.

**Texas' San Jacinto College North campus** developed the Intentional Connections program for students placed in the lower levels of developmental education. Program mentors coach and advise students who participate in learning communities, exposing them to content, faculty and experts in their desired course of study. Mentors meet with instructors who teach learning community courses to discuss students' performance and help students set education and career goals. The Intentional Connections program has shown positive, early results and has been expanded to two other San Jacinto campuses.

The **City University of New York (CUNY)** Accelerated Study in Associate Programs (ASAP) targets low-income students who need developmental courses to build math, reading or writing skills and who are willing to enroll full-time. ASAP offers multiple supports and incentives for up to three years to address several potential barriers to student success, including a seminar, block-scheduled classes, comprehensive advisement, tutoring, career services, tuition waiver, free MetroCards and free textbooks. Two years into the program, an external evaluation conducted by MDRC found that students in the ASAP outperformed their control group counterparts on persistence, credit accumulation and graduation.[9]

Alabama's **Shelton State Community College's** SOAR Institute is a multi-faceted initiative designed to improve outcomes for developmental education students. The program consists of three central components: tutoring, intrusive advising and professional development for remedial education instructors. The primary component of the program is advising, facilitated by SOAR Navigators. The trained navigators provide detailed action plans for students enrolled in two or more developmental courses and serve as their regular point of contact. Though the college still is collecting data, program leaders report that the passing rates of students assigned to navigators are higher than the three-year average of the general population in the same courses.

Ohio's **Lorain County Community College** Enhanced Advising provides a team of counselors who meet with low-income students at least twice per semester for two semesters. During their counseling sessions, students are asked to discuss academic progress and attempt to resolve any issues that might affect their schooling. Counselors are expected to maintain personalized, regular contact with students in the program.

Author: *Matt Gianneschi*, Education Commission of the States

> *Students who have strong relationships with peers, instructors and campus staff are more likely to feel they belong in college.*

# ENDNOTES


1. Melinda Karp and Georgia Stacey, *What We Know about Nonacademic Student Supports* (New York City, NY: Community College Research Center, Teachers College, Columbia University, 2013), http://ccrc.tc.columbia.edu/publications/what-we-know-student-supports.html.
2. Elizabeth Zachry Rutschow and Emily Schneider, *Unlocking the Gate: What We Know About Developmental Education Reform* (New York: MDRC, June, 2011), http://www.postsecondaryresearch.org/i/a/document/18000_unlockingFull.pdf.
3. Kathleen E. Quirk, *A Comprehensive Approach to Developmental Education New Directions for Community Colleges, Special Issue: Responding to the Challenges of Developmental Education*, Volume 2005, Issue 129, pages 83–92, Spring 2005.
4. Melinda Karp, *Toward a New Understanding of Nonacademic Support: Four Mechanisms Encouraging Positive Student Outcomes in the Community College*, CCRC Working Paper No. 28 (New York City, NY: Community College Research Center, Teachers College, Columbia University, 2011), http://ccrc.tc.columbia.edu/publications/non-academic-student-support-mechanisms.html.
5. Ibid, Karp and Stacey
6. A. Seidman, "Minority Student Retention: Resources for Practitioners," *New Directions for Institutional Research*, 2005, No: 125, Spring, http://www.dso.iastate.edu/sites/default/files/files/success/minority-retention-seidman.pdf.
7. Ibid, Rutschow and Schneider
8. R. Ehrenberg, and D. Webber, *Do Expenditures Other Than Instructional Expenditures Affect Graduation and Persistence Rates in American Higher Education?* (Washington D.C.: National Bureau of Economic Research, 2009).
9. Susan Scrivener and Michael J. Weiss, *More Graduates: Two-Year Results from an Evaluation of Accelerated Study in Associate Programs (ASAP) for Developmental Education Students* (New York City, NY: MDRC, December, 2013), http://www.mdrc.org/sites/default/files/More_Graduates.pdf.


"AN INVESTMENT IN KNOWLEDGE PAYS THE BEST INTEREST."
BENJAMIN FRANKLIN