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BEYOND THE DREAM: IMPROVING COLLEGE-READINESS OF UNDERPREPARED COMMUNITY COLLEGE STUDENTS

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ABSTRACT

The majority of the nation's first-year college students are not prepared to assume postsecondary level studies. Many are diverted to developmental education programs and most never attain postsecondary credentials. Educational reform is on the national agenda and challenges community colleges to address the growing lack of postsecondary achievement. The purpose of this instrumental multi-case study was to explore and analyze reformative strategies that effectively address college-readiness and achievement of underprepared community college students.

A qualitative methodology was employed in analyzing strategies implemented at community colleges to improve college-readiness. A criterion-based selection process identified six community colleges recognized by the Achieving the Dream organization as Leader Colleges in improving student success and located within systems with statewide educational policy reform. In addition, purposeful sampling was used to design a focus group of field experts to examine effective strategies and best practice criteria.

Data were collected via semi-structured interviews with Core Team Leaders who led implementation of reformative strategies at the six colleges. Collected demographic survey-data offered context and pertinent document reviews and focus group data contributed to the triangulation of evidence.

The interviews yielded insight into 18 strategies designed to improve college-readiness. Findings include descriptions, evidence of impact, factors that supported effectiveness, perceived potential for wide-scale implementation, and recommended best practices. Cross-case analyses

offered aggregated comparative analysis and a disaggregated examination of ten common strategies.

Composite analyses revealed seven themes that underscore common purposes of the strategies and factors that improve effective implementation. Three common core purposes among the effective strategies include instructional reform, student engagement, and transition to college. Four thematic elements that support effective implementation of strategies include college culture, evidence of effectiveness, integrated systems, and committed leadership. A Relational Paradigm is offered that describes the multidimensional interplay between the core purposes of the strategies and the contextual factors that influence effective implementation. The Paradigm can be used to guide adaptation of strategies to fit unique college cultures. Implications for community colleges to improve college-readiness include the need for strong leadership with system-wide collaborations to create new instructional and organizational models that support student transition, engagement, and learning.

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INTRODUCTION

Background

National Context

In an address to the Joint Session of Congress, United States President Barack Obama (2009a) set a new goal for the nation: "By 2020, America will once again have the highest proportion of college graduates in the world" (p. 7). In order to meet this goal, reform is needed to increase not only opportunities to access postsecondary education, but also the likelihood that Americans who seek degrees will successfully complete them. Community colleges in this nation are part of this call to action. According to the American Association of Community Colleges (2011), community colleges are the fastest growing segment of higher education, enrolling 46% of this nation's college students.

Entering the open door of the community college is not enough. According to Complete College America (2011), a bipartisan organization devoted to assisting states increase graduation rates in this country, 70% of high school graduates start some type of postsecondary education within two years of graduation. However, fewer than three in ten full-time community college students graduate with a degree in three years and at four-year institutions about half graduate in six years. The focus of the reform agenda is degree completion. In a presidential address on the American Graduation Initiative, Obama (2009b) indicated that the focus must not be

> just on enrollment in a community college program, but completion of that program. . . . More than half of all students who enter community college to earn an associate degree, or transfer to a four your school to earn a bachelor's degree, unfortunately fail to reach that goal. . . . That's a tragedy for these students. . . . And it's a disaster for our economy. (p. 4)

The economic impact is significant. By 2018, 62% of national jobs will require some college education (Complete College America, 2011) and currently, only about 38% of American adults between 25-34 years of age have an associate's degree or higher (National Center for Higher Education Management Systems, 2009). "Postsecondary education . . . has become the threshold requirement for access to middle-class status and earning. . . . It is no longer the preferred pathway to middle-class jobs - it is, increasingly, the only pathway" (Carnevale, Smith, & Strohl, 2010).

A major roadblock in the path to post-secondary degree completion is the lack of academic preparedness to assume college level work. The National Center for Public Policy and Higher Education and the Southern Regional Education Board (2010) noted that nearly 60% of all first-year college students are not college-ready. The challenge is greatest in community colleges with upwards of 75% of incoming students needing developmental courses in English and/or mathematics. Research from the Community College Survey of Student Engagement (CCSSE, 2008) revealed that being academically underprepared for college-level work puts students statistically at-risk of not completing a college degree. A review of research on more than 250,000 students with multiple math remediation requirements revealed that only 16% completed course sequences within three years, and fewer than 10% ever passed a college level math course within that period (Bailey, Jeong, & Cho, 2010). The Alliance for Excellent Education (2006) noted that "the leading predictor that a student will drop out of college is the need for remedial reading" (p. 3) with only 17% of students who enrolled in remedial reading courses receiving a bachelor's degree within 8 years. Bettinger and Long (2007) reported that many students do not complete remediation, noting that about 36% drop before finishing math

and English remediation and 75% of students required to take three remedial courses failed to successfully complete the sequences.

Previous efforts have not made widespread changes in persistence. Although access to college has increased with undergraduate enrollment doubling between 1970 and 2009, the rate of degree completion has not increased (Complete College America, 2011). According to Debra Bragg (2001), the director of the Office of Community College Research and Leadership at the University of Illinois, inadequate academic preparation in this country was a focus of the Reagan Administration and was articulated in *A Nation at Risk* in 1983. Cohen and Brawer (2003) indicate that little has changed as percentage levels of remediation have held or risen in most states since the 1980s.

Now, a 21st century American president echoes a similar message of a nation at educational risk, with students on the path to degree completion being diverted due to a lack of college-readiness. President Obama (2009a) challenged educators to address "the urgent need to expand the promise of education in America" (p. 7). He urged "lawmakers and educators to make the system work" (p. 7). Obama (2009b) outlined the role of community colleges in addressing this systemic breakdown with "programs that track student progress inside and outside the classroom. Let's figure out what's keeping students from crossing that finish line, and then put in place reforms that will remove those barriers" (p. 4).

Achieving the Dream

Some organizations have responded to the national call for reform by supporting research that results in strategies designed to improve readiness and success of community college students, one of which is the American Association of Community Colleges (AACC).

Representing over 1,100 associate degree granting colleges, AACC (2011) was instrumental in founding Achieving the Dream (ATD) and is a current partner in the organization's efforts to increase student success and achievement in community colleges.

Achieving the Dream (2011a) is an independent, non-profit organization serving a network of 160 community colleges with a mission to support research into and implementation of practices that improve student success, with a strong focus on educational equity. ATD's approach includes state-level public policy advocacy and direct work with affiliated community colleges. There are 16 state policy teams affiliated with ATD. "Achieving the Dream is the largest non-governmental reform movement for student success in higher education history," according to the ATD website (2011a). Other organizing partners of ATD include the Lumina Foundation for Education, Columbia University Community College Research Center (CCRC), Community College Leadership Program (CCLP) at the University of Texas at Austin, Jobs for the Future, MDRC, Public Agenda, and the managing partner, MDC.

ATD is known for its data-informed approach to identifying effective strategies that have the potential to improve student success with wide-scale implementation. Focused on developing a culture of evidence and accountability, the affiliated community colleges commit to a structured data-gathering analysis of student success and persistence rates (ATD, 2011a). The data are used to develop multi-year action plans that include strategies to address achievement gaps, implementation timelines, and outcome-based evaluation systems. Affiliates are assisted in this work by field experts from the ATD organization who serve as strategy coaches and data/research facilitators. These consultant-type agents participate on campus and also monitor progress through regular report cycles.

The network of community colleges is committed to a conceptual framework of institutional improvement (ATD, 2009). The conceptual framework is based upon the assumption that in order to substantially change the persistence and success rates of community college students, there needs to be substantial systemic change in operations. The framework includes four principles of change:

1. Committed Leadership

   Senior college leaders actively support efforts to improve student success, not just to increase enrollments, and are committed to achieving equity in student outcomes across racial, ethnic, and income groups. Administrators, board members, and faculty and staff leaders demonstrate a willingness to make changes in policies, programs, and resource allocation to improve student success.

2. Use of Evidence to Improve Programs and Services

   The college establishes processes for using data about student progression and outcomes to identify achievement gaps among student groups, formulates strategies for addressing the gaps identified and improving student success overall, and evaluates the effectiveness of those strategies.

3. Broad Engagement

   Faculty, student services staff, and administrators share responsibility for student success, and collaborate on assessing the effectiveness of programs and services and improving them. Other stakeholders with influence on student success (K-12 systems, community groups, employers, etc.) are included in discussions about student performance, desired outcomes, and potential improvement strategies. The college also gains invaluable insight about ways to improve student success from students themselves through surveys, focus groups, and/or advisory councils.

4. Systemic Institutional Improvement

   The college establishes planning processes that rely on data to set goals for student success and then uses the data to measure goal attainment. The college regularly evaluates its academic programs and services to determine how well they promote student success and how they can be improved. Decisions about budget allocations are based on evidence of program effectiveness and are linked to plans to increase student success. Faculty and staff are afforded professional development opportunities that

> reinforce efforts that help to close achievement gaps and improve overall student success. (p. 8)

Using adherence to the four principles of institutional improvement and evidence of three years of sustained student success improvement as a guide, ATD has recognized over 50 community colleges as Leader Colleges (ATD, 2011b). Leader Colleges have to demonstrate adherence to making deep, institutional change and provide data-informed evidence that reformative strategies have been successfully implemented with positive impact on student success.

Purpose of the Study

The purpose of this multiple case study was to explore and analyze reformative strategies that effectively address college-readiness and achievement of underprepared community college students. The study explored practices at six community colleges, in various regions of the country, which have been nationally recognized by Achieving the Dream as being Leader Colleges, with research data demonstrating three years of student success improvement. The selected Leader Colleges (a) represented a diversity of successful reformative strategies that address college-readiness and achievement, (b) provided evidence of effectiveness, and (c) were located within state systems that have minimally begun state-wide public education policy efforts to impact college-readiness. Semi-structured interviews with identified Team Leaders who oversaw the development and implementation of effective strategies on the individual campuses were intended to yield in-depth insight into the strategies, including effectiveness of impact, factors that supported effectiveness, and potential for wide-scale implementation. Comparisons between the case studies were intended to identify similarities as well as unique factors of effective strategies and allow for the emergence of specific effectiveness characteristics that

positively impact college-readiness. A focus group with strategy coaches and data/research experts from ATD yielded identification of effective strategies designed to improve college-readiness and achievement of underprepared community college students and provided definitional elements of the best practice label. The focus group data were intended to contribute to the triangulation of evidence. Overall, the intended purpose of the study was to identify successful institutional strategies and public policy initiatives that improve college readiness, determine common characteristics among the successful strategies that contribute to college-readiness, and identify specific strategies and criteria recommended for the best practice label and for wide-scale implementation.

Methodology and Guiding Questions

A qualitative research design was selected to explore factors that improve college-readiness and achievement of underprepared community college students and to obtain in-depth understanding of the contextual nature of the issue and the potential remedies (Creswell, 2007). An instrumental multi-case study (Stake, 2008) was chosen to yield greater insight into improving college-readiness through within-case analysis and the discovery of themes through cross-case analysis (Creswell, 2007). Qualitative data were collected through six semi-structured interviews, document reviews, and a focus group. Purposeful sampling ensured that the six selected cases and focus group participants represented the following: (a) critical case expertise, (b) balance and variety in perspectives, and (c) depth of knowledge (Johnson & Christensen, 2008; Stake, 2008).

Five Guiding Questions directed the data-gathering and analyses stages of this study. The five questions were intended to identify the following data elements: effective strategies

implemented, evidence of effectiveness found at the individual community colleges, perspectives on state policies that supported college-readiness and achievement, potential for large-scale implementation, and best practice recommendations. The five Guiding Questions include:

1. What strategies were implemented (at the identified ATD Leader Colleges) to improve the success of underprepared students?
2. What is the impact of the selected strategies on the success of underprepared students?
3. How do the state educational policies identified in the case studies support increasing the success of underprepared students?
4. Are the identified strategies replicable and scalable for large, system-wide implementations?
5. What are the best practice recommendations?

Significance of the Study

This study provided greater understanding of the context that surrounds the underprepared community college student and offered insights into effective strategies that improve college-readiness and success. The qualitative examination gave an in-depth view of strategies that hold the promise for helping to remove roadblocks in the path to the post-secondary degree completion for those who enter underprepared. Gaining access to the perspectives of the Team Leaders at six ATD Leader Colleges who have overseen the development and implementation of effective strategies has produced valuable data that can be used to inform and mentor other colleges in their efforts to improve college-readiness and support achievement. The cross-case comparisons resulted in the identification of commonalities and synthesized characteristics of effective strategies. The outcomes of this study can be utilized

to inform educators about methods and characteristics that hold potential for wider-scale implementation to improve readiness and degree completion of underprepared community college students.

Definitions

Generally, the terms used in the study and in the analyses are commonly understood, but clarity is important to understanding the intentions and outcomes of the study. To that end, the following definitions are for terms used frequently in the study. Some of the terms are defined in more detail within the chapters.

1. College-readiness – This term is used to describe students who are prepared with the academic and non-academic knowledge and skills needed to enter college and successfully complete college-level work (Schmeiser, 2010). College-readiness also refers to possessing meta-cognitive and self-management behaviors needed to transition to and through the college environment (Conley, 2008).
2. College-readiness Assessments – As used in this study, this term refers to instruments that are used by postsecondary institutions and by some states to determine students' eligibility to take college-level coursework. These instruments are also referred to as placement exams. There are instruments that typically are used to determine college-level eligibility prior to entrance to college and other instruments typically used to assess eligibility upon or after entrance (Hughes & Scott-Clayton, 2011). The most common assessments used prior to entrance are the ACT and the SAT. The most common instruments used after or upon entrance are COMPASS by ACT, Inc. and

ACCUPLACER by the College Board. The last two are also used to place students into specific levels of developmental coursework.

3. Developmental Education – Coursework that typically does not carry college-level credit and is designed to improve content-specific knowledge and skills as a prerequisite to college-level coursework is categorized as Developmental Education. Although less accepted, another term used for this coursework is remedial. Developmental Education programs include reading, writing, and mathematics curriculum and may include other areas like science and social studies. Two terms associated with Developmental Education include:
    a. Centralized Developmental Education – The organization of developmental education programs varies on campuses. Centralized refers to the organizational structure that houses all developmental curriculum within a single unit. This is in contrast to decentralized structures which maintain developmental courses within the same department as the college-level curriculum, such as developmental math with college level math and developmental writing with English.
    b. Developmental Students – College students who have been assessed as needing to improve knowledge in one or more areas of reading, writing, and mathematics in order to be successful in college-level curriculum are referred to as developmental students.
4. Leader Colleges – Achieving the Dream (2011a) has recognized community colleges that have been involved in research and implementation of strategies intended to

improve student success and have at least three years of demonstrated evidence of effectiveness in improving student success.

5. Postsecondary Credentials – Degrees or certificates awarded by an accredited higher education institution upon completion of a defined set of college-level and/or non-credit-level courses are referred to as postsecondary credentials (Joyce Foundation Shifting Gears, 2011).
6. Reformative Strategies – Academic and non-academic programs and systems designed to make institutional improvements in college-readiness and achievement of underprepared community college students are called reformative strategies. The strategies identified through the semi-structured interviews and the focus group are identified as reformative strategies or effectiveness strategies in this study. Definitions used for specific reformative strategies identified in this study include the following:
    a. Accelerated Developmental Education – This term refers to a multitude of strategies that assist students in progressing more quickly through developmental course sequences by demonstrating proficiency, rather than being restricted to semester-length courses.
    b. Case Management – This counseling and advising strategy is often used in early alert systems, to closely monitor and intervene with developmental students.
    c. College-Readiness prerequisites – As a success strategy, college-level courses are assigned a prerequisite requiring the demonstration of college-readiness in

reading or mathematics. Some require college-readiness for all college-level courses.

d. COMPASS/ACCUPLACER Reviews – Prior to final course placement, underprepared students participate in review sessions in test-taking and content-level material. These are often repeatable and come in various formats, including in-person, group, and online.
e. Cooperative Learning – Focused on student engagement, this term refers to pedagogical approaches designed to create an active learning environment with group and problem-based learning activities, typically in the classroom.
f. Learning Communities – This term is used to describe a course delivery method that involves linking two or more courses together to form a cohort of learners. Integrative assignments, co-instructors, and block-scheduling are common organizational features.
g. Mentoring - Faculty, staff, or peers are matched with students, particularly new students, to serve as resource guides.
h. Orientation – Refers to a variety of activities designed for new students to assist with transitioning to college. Generally, orientation includes engagement activities, course advising, and registration. Assessment of college-readiness may occur prior or during orientation.
i. Student Success Courses – This term refers to college-level courses designed to assist students with transitions to college. Although content varies, the focus is on skills needed to effectively manage the college environment,

particularly study skills. Success courses are available for college-ready and developmental students. A popular delivery format is linking a success course and a developmental education course to create a cohort of learners.

j. Summer Bridge Programs – These support programs are offered prior to the first college-semester to address transition needs and academic skill deficiencies of developmental students.

k. Supplemental Instruction – Also referred to as supplemental learning, this is an organized approach to offering additional course-content assistance to students, typically by a resource other than the instructor. The assistance is directly related to the course content and can be delivered in the classroom and/or in learning laboratories.

7. Underprepared student – A student who does not possess the requisite knowledge and skill proficiency to succeed in college-level coursework upon entry to college is referred to as underprepared.

Organization of the Dissertation

This research study on reformative strategies that impact college-readiness and achievement of underprepared community college students is organized into a six-chapter dissertation. The organization of the chapters is described in brief in this section.

Chapter 1 introduces the national context of declining postsecondary completion rates and the connection between college-readiness and persistence. It introduces the Achieving the Dream organization and its role in the case study and focus group selection processes of the study. The purpose of the study is followed by an overview of the research methodology and

guiding research questions. Next, the significance of the results to inform educators about effective strategies and characteristics that have potential for wide-scale implementation is presented. The chapter concludes with definitions of terms used frequently in the dissertation.

Chapter 2 delivers a literature review that includes the multiple dimensions of college-readiness. The history of developmental education and its curricular function in community colleges in this nation are reviewed. Further, demographic profiles reveal a contextualized view of the developmental student. This insight is followed by a review of the success of developmental education and an overview of the cost of this curriculum to public education and to the student.

In addition to a review of related literature, Chapter 2 also reviews four theoretical frameworks. Identify Theory and Involvement Theory offer a contextual view of issues that may contribute to a lack of student success and provide insight to strategic interventions. Change Theory and Transformation Leadership Theory illuminate issues of institutional improvement pertinent to implementing long-term reform.

Chapter 3 provides a description of the qualitative methodology. The multiple case study protocol followed in the study is reviewed. Site selection, participant selection, and other data collection methods are explained, including semi-structured interviews, demographic survey, focus group, and document reviews. The two-stage data analysis, consisting of individual case and cross-case findings, is described along with validation and reliability processes. The chapter concludes with a review of limitations and delimitations.

Chapter 4 captures the within-case findings and focus group findings. Individual case-study profiles are outlined in accordance with the findings from the demographic surveys.

Individual case study report findings are organized in accordance with each of the Five Guiding Questions. The qualitative findings are inclusive of data from semi-structured interviews and document reviews. The focus group findings are organized in accordance with three areas of inquiry: effective strategies, challenges to implementation, and elements of best practices.

Chapter 5 provides cross-case comparisons. An aggregated cross-case comparison examines effective strategies identified across the six case studies and the focus group. Comparative analyses of the impacts of the strategies as well as a comparison of state policy efforts across the six case studies are described. Also included are the results of the cross-case comparisons of wide-scale strategies and best practice recommendations.

This chapter also contains a disaggregated analysis of common strategies. Findings from the disaggregated analysis of each of the 10 strategies are described in accordance with the five questions guiding this study. Chapter 5 details the similarities, differences, characteristics, and patterns revealed through the disaggregated analysis.

Chapter 6 presents a discussion of the study and its findings from the perspective of conclusions drawn by the researcher. Conclusions are organized by a paradigm that identifies the relationship between the strategies and thematic elements that affect the implementation of the strategies. Additionally, conclusions are presented in accordance with the five questions guiding this study. Following the review of conclusions, implications for practitioners and recommendations for future study are included in the final section of the chapter.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this study is to identify reformative strategies that effectively address college-readiness issues and increase achievement in the community colleges. An understanding of existing knowledge about college-readiness, the extent and impact of unpreparedness on completion and graduation rates, and a review of the success of community colleges in addressing a growing lack of students' preparedness will serve to contextualize the purpose and significance of the study. To that end, this review of the literature (a) clarifies the current state of college-readiness in the nation, (b) details the journey of developmental education as an integral part of the curricular function of community colleges, (c) identifies current reform trends in addressing the needs of the underprepared student, and (d) presents four theoretical frameworks toward the design of systemic solutions.

The issue of college-readiness is multifaceted with many determining and inhibiting factors. In order to identify strategies that effectively improve college-readiness of community college students, it is important to understand what contributes to its development and how it can be assessed. A review of pertinent literature identified the following: (a) definitions of college-readiness, (b) key dimensions that contribute to college-readiness, and (c) typical assessment measures used and their effectiveness in determining college-readiness.

Increasing access to post-secondary education is part of the foundation of community colleges in this nation. Aligned with that intentionality is the fact that developmental education is a curricular function of community colleges (Cohen & Brawer, 2003). This review of

literature tracks the history of developmental education in community colleges and identifies the current thinking on its general effectiveness.

In response to the growing number of underprepared students who access but do not complete degrees, an American Graduation Initiative involving community colleges has been launched by the Obama administration (Obama, 2009b). This initiative has spotlighted an issue that community colleges have focused on over the years and has created a national forum for the identification and assessment of reformative strategies to improve student success and completion. A review of literature identifies trends in reformative strategies that include: (a) pre-college preparation, (b) college-readiness assessment and milestone measurements, (c) curricular and pedagogical reforms, (d) student engagement practices, and (e) national and state policy-level reforms.

As noted above, allowing access to underprepared students has been a hallmark for community colleges. Critics note that although access is increasing, success rates are falling below 50% (Obama, 2009b). A review of the following four theoretical frameworks offers insights into reasons for weak success rates, the theoretical constructs that might influence new approaches, and methods for effectively implementing a change movement: (a) Involvement Theory, (b) Identity Theory, (c) Change Theory, and (d) Transformational Leadership Theory.

The review of literature includes a general overview of the selected methodology approach for this research study. This section will conclude with a summary of the major tenets related to college-readiness reform found in the literature.

College-readiness

Defining College-readiness

In an address to a United States Senate Committee, the president of the American College Testing Association promoted an equity education agenda urging a national goal to assure college-readiness of all students exiting secondary schools (Schmeiser, 2010). The American College Testing (ACT, 2011a) organization defines "college readiness as acquisition of the knowledge and skills a student needs to enroll and succeed in credit-bearing, first-year courses at a postsecondary institution. . . . Readiness for college means not needing to take remedial courses in postsecondary education or training programs" (p. 3). The College Board, a non-profit organization with proprietary ownership of the SAT test that is annually administered to 50% of high school graduates, uses a college-readiness indicator with three components. These include academic rigor in high school, cumulative grade point average, and SAT score (Patelis, Camara, Wiley, & The College Board, 2009). These "multiple indicators about college readiness" (p. 5) are recommended to assist educators in determining a student's college-level preparedness.

Some indicate that a common definition of college-readiness is contingent on the identification and adoption of common core standards in K-12 for English and Language Arts and literacy in History/Social Studies, Science, Technical Subjects, and Mathematics (Achieve, 2011b; Lederman, 2009). To this end, Achieve (2011a), a bi-partisan, non-profit educational reform organization, launched the American Diploma Project in 2005, which focused on the adoption of common core academic standards. Research by Achieve, working in concert with ACT, The College Board, and others, "suggests that for high school graduates to be prepared for

success in a wide range of postsecondary settings . . . they need to take four years of challenging mathematics — covering Advanced Algebra; Geometry; and data, probability, and statistics content — and four years of rigorous English aligned with college- and career-ready standards" (Achieve, 2011b, p. 1). The common standards initiative strives to eliminate multiple academic tracks in secondary schools that maintain below-standard expectations for students. Achieve (2011a) reports that 20 states have raised standards to these readiness-levels, seven have no opt-out provisions, and 13 allow a parental waiver to opt-out. ACT (2007) research indicated that rigorous high school curriculum increases the likelihood of a 3.0 grade point average in the first year of college by 9%. Research on remediation by Bettinger and Long (2007) revealed that academic rigor, years of subject matter study, and grade point averages in high school correlated with placing into college-level coursework.

Key Dimensions of Readiness

Conley (2008), a leading expert in the field of educational policy from the University of Oregon, broadens the description of college-readiness beyond demonstrated academic achievement to include specific critical thinking skills which he asserts are central to success in college-level coursework: "At the heart of college readiness is development of the cognitive and metacognitive capabilities of incoming students; analysis, interpretation, precision and accuracy, problem-solving, and reasoning" (p. 3). Conley (2010) asserts that "actual success in college seems to be more dependent on a much wider array of skills, knowledge, attitudes, behaviors and strategies" (p. 19). Readiness is impacted by the ability to understand and maneuver through the college milieu: academic expectations, administrative requirements, and interpersonal relationships (Conley, 2010; Karp, 2011; Kirst & Venezia, 2006; Levine-Brown, Bonham,

Saxon, & Boylan, 2008). Affective and personal factors can have equally significant impact on college success as cognitive abilities (Boylan, 2009). Affective factors involve "how students feel or what they believe about themselves and learning" (p. 15). Personal factors include work hours, family responsibilities, and financial stability.

Literature reveals a comprehensive view of college-readiness with multiple academic and non-academic dimensions. Examples of these multiple dimensions are identified and reviewed in this section.

Content knowledge. As noted above, the most commonly considered dimension in college-readiness is content knowledge (ACT, 2007; Boylan, 2009; Conley, 2010). ACT uses English, social science, college algebra, and biology as the content areas key to college-readiness (Schmeiser, 2010). Using those four content areas, "of the 1.5 million high school graduates who took the ACT during academic year 2008-2009 . . . only 23% were ready to enter college-level courses without remediation in any of the four subject areas" (p. 3). Despite the assessment, there is no standard, sequential curriculum in place in this nation to assure that students are exposed to and gain the baseline content knowledge for college-readiness (Bailey, 2009a; Bettinger & Long, 2006; Conley, 2010; Schmeiser, 2010). Common content knowledge standards for college-readiness along with appropriate assessments, professional development for faculty, and evaluation are necessary to establish a "cohesive, aligned educational system" (Schmeiser, 2010). Conley (2010) suggests eight common knowledge and skill areas: reading, writing, English, mathematics, science, social sciences, world languages, and the arts. In 2010, Common Core Standards were released for K-12 by The Council of Chief State School Officers and the National Governors Association (Common Core State Standards Initiative, 2011). The

Common Core Standards represent the work of 48 states in defining learning outcomes for elementary and secondary schools in English language arts and mathematics. The Common Core Standards represent knowledge and skill sets required to succeed in college and career fields (Common Core State Standards Initiative, 2011; Center on Education Policy, 2011). These have been adopted by 43 states with implementation expected in 2013 or later. This movement, along with the efforts of other organizations to standardize and align curriculum, is addressed later in this chapter under the National Reform Agenda.

Cognitive strategies. A second key dimension to college-readiness is cognitive strategies. Seminal work on the cognitive domain of learning, referred to as Bloom's Taxonomy, described a multi-tiered, hierarchical classification of thinking with six ladders of cognitive complexity (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). "The lowest three levels are: knowledge, comprehension, and application. The highest three levels are: analysis, synthesis, and evaluation" (Forehand, 2005, para. 8). Bloom's Taxonomy provided educators with a framework to understand cognitive learning as progressive with measured complexity associated with intellectual behaviors.

Success in college level coursework requires the ability to apply cognitive strategies that include higher level thinking beyond factual recall (Conley, 2010). It requires contextual learning and cognitive skills such as: (a) using multiple strategies to problem-solve, (b) critical thinking to analyze and synthesize information, (c) constructing sound arguments with logic and accuracy, and (d) using precision and accuracy in achieving results (Conley, 2010; Levine-Brown et al., 2008). College-readiness is also associated with understanding one's preferred learning styles in order to discern appropriate study skills (Levine-Brown et al., 2008).

Metacognition skills. A third key dimension to college-readiness is metacognition: "the ability to think about how one is thinking" (Conley, 2010, p. 39). This dimension focuses on strategies that allow the learner to build upon previous knowledge, retrieve relevant information, and integrate concepts (Barkley, 2010). Metacognition, also referred to as self-management skills, involves self-awareness and self-control in determining what one needs to be successful, including time management, persistence, study techniques, and learning strategies. Successful college students "tend to monitor actively, regulate, evaluate, and direct their own thinking" (Conley, 2010, p. 40).

Non-academic factors. The work by Bloom et al. (1956) on the taxonomy of learning postulated that "nearly all cognitive objectives have an affective component" (p. 48). Bloom was referring to the integration and interplay of the non-academic and the academic factors in learning. Developed attitudes and interest toward learning facilitate a move from recall of facts to "more actively attending to it . . . and taking satisfaction in this responding" (p. 49).

Research by the American College Testing (ACT) organization confirms that non-academic factors influence college-readiness. ACT (2007) identifies three non-academic contributors to college-readiness: (a) psychosocial factors including interest in college, self-motivating behaviors, emotional control, and confidence; (b) family support for education and involvement with prior school activities; and (c) alignment between college goals and career interests. Although academic rigor and achievement in high school are stronger predictors of success,

> ACT research also indicates that students with higher academic motivation, self-discipline, and self-confidence are more likely to earn higher college GPAs. Students with these traits, as well as those with clear academic goals, strong academic skills,

> college social connections, a commitment to college and an interest in their subject matter, are more likely to persist through the third year of college. (ACT, 2007, p. 2)

Familiarity with college milieu. College-readiness is also associated with familiarity with the college milieu, i.e. understanding how colleges work and having confidence in being able to transition to and through the system (Conley, 2010; Levine-Brown et al., 2008; Scott-Clayton, 2011). This involves three levels of knowledge: (a) awareness of various forms of post-secondary institutions and the rules and processes for applying; (b) understanding how to use resources such as support services and activities; and (c) understanding the appropriate behaviors for the situation, including how to interact with academicians and peers (Conley, 2010). Thereby, first-generation college students and those not exposed to college preparatory experiences in their secondary settings are particularly disadvantaged (Kirst & Venezia, 2006). "Individuals with cultural capital are more likely to attend and complete college and career-preparation programs because they understand the institutional values and norms associated" (Conley, 2010, p. 89).

Assessing College-readiness

Prior to entrance into selective and most non-selective post-secondary institutions, students are assessed for college-readiness. College-readiness assessments for selective post-secondary institutions are made in advance of students' admission acceptance. In contrast, most open-access institutions determine college readiness after admission acceptance (Hughes & Scott-Clayton, 2011). Community colleges generally fall into the latter category. Assessment in community colleges is used to determine eligibility of students to enter college-level coursework, particularly in English and mathematics. Whether assessment and course placement processes should be required or recommended has been widely debated throughout the history of

community colleges. The philosophical stance that students have the right to make their own educational choices about readiness was prevalent in the 1970s. The current philosophical leaning is toward greater institutional assessment of readiness with standardization of assessment and placement processes that place students in the course levels that match their readiness-levels (Hughes & Scott-Clayton, 2011). Current trends include standardizing college-readiness assessment state-wide to assure performance alignment and provide state-wide data (ATD, 2011c; Collins, 2009; Hughes & Scott-Clayton, 2011).

Student populations. Although college-readiness has academic and non-academic attributes, post-secondary assessment focuses primarily on content knowledge. As noted above, the majority of high school graduates are assessed as not college-ready (Schmeiser, 2010; Bailey, 2009b). Recent reports from the Education Commission of the States and the U.S. Department of Education estimate that 34% of new entering college students are not college-ready in at least one content area, with some states reporting rates over 50% (Vandal, 2010). The lack of college-readiness is greatest in the community colleges with estimates of 60% -75% of students entering as "unprepared" (Kirst & Venezia, 2007; Collins, 2009). According to a longitudinal study in Ohio that tracked students from eighth grade through entrance into community college, 44% of those entering the community colleges took at least one developmental course and 14% took more than three (Attewell, Lavin, Domina, & Levey, 2006). Readiness in mathematics is lowest with estimates of 60-90% of entering community college students being assessed into developmental math (Sherer & Grunow, 2010).

Examining college-readiness by disaggregating the data for specific populations identifies definite achievement gaps. The profile of the American community college student

indicates that approximately 60% of those identified as not college-ready are recent high school graduates (Kirst, 2007b). When high school graduation data are disaggregated by race, it shows that 97% of African Americans and 90% of Hispanics are not college-ready upon high school graduation (Collins, 2009). This is in comparison to one-third of Caucasian and one-quarter of Asian students (Bettinger & Long, 2007). An examination of gender differences reveals that young males, particularly males of color, are more likely than females to be identified as not college-ready (Gardenhire-Crooks, Collado, Martin, & Castro, 2010).

Assessment processes. A lack of college-readiness impacts the student's ability to enter college-level courses, increases the time to degree, and adds to college costs (Alliance for Excellent Education, 2006). Despite the importance of the assessment-outcome process, "there is no national consensus about what level of skills is needed to be college-ready or how to assess that level" (Bailey, 2009a, p. 22). There is a lack of standard assessments for college-readiness. In fact, the variety of assessment instruments currently in use to determine college-readiness is estimated to be in the thousands (Kirst, 2007a). However, there are two instruments that are used at the majority of community colleges: ACCUPLACER and COMPASS (Hughes & Clayton, 2011). ACCUPLACER is a product of The College Board (2011) that is a computer-adaptive instrument delivered via the internet and tests students in five areas: writing, reading, arithmetic, algebra, and college-level mathematics. COMPASS, another computer-adaptive instrument, is an American College Testing (2011b) product that tests students' reading, writing, and mathematics skills.

Variability in viewpoints about what constitutes college-level work between, and sometimes within, institutions makes the cut-off score appear less objective (Attewell, Lavin,

Domina & Levey, 2006). Even among those community colleges that use the most common assessment instruments, ACCUPLACER and COMPASS, the existence of a variable range of acceptable cut-off scores makes the identification of an accurate standard of college-readiness an impossible task (Kirst, 2007a). This lack of common standards makes it difficult for students to assess their own college-readiness and for comparisons to be made between institutions and states (Bailey, 2009b; Conley, 2008). Additionally, COMPASS and ACCUPLACER are not designed as diagnostic instruments to identify specific content deficiencies per student. Therefore, a component of validity rests on how the test is used in combination with course curriculum. The likelihood of a particular score to predict better performance if the student is placed in one course over another is a critical element that is often not carefully examined (Hughes & Scott-Clayton, 2011). "Effective assessments should identify not just who is struggling but also who is likely to benefit from a given treatment. . . . Evaluations of remediation . . . are critical to the overall validity of a placement testing system" (p. 12). Current assessment results do not address the need to identify specific content knowledge deficiencies. According to Bailey (2009a), the "assessment score may do little to reveal what help students need to be successful in college" (p. 24). Students with the same score may have very different levels of deficiency. One may need to improve on overall math skills while another may have a strong deficit in one area, and both may have received the same score. The existing assessments leave a gap between diagnosing the general problem and being able to accurately determine appropriate corrective measures (Collins, 2008; Bailey, 2009a).

The majority of American colleges use a single cognitive assessment, which measures subject knowledge at a specific point in time, to determine college-readiness of entering students

(Saxon et al., 2008). "Although the information from such instruments is generally valid . . . it does not address all of the factors that might contribute to student success. . . . Affective characteristics of developmental students represent an important component of success" (p. 1). Research by Gerlaugh, Thompson, Boylan, and Davis (2007) noted that only 7% of community colleges used non-cognitive factors such as motivation as part of college-readiness assessments. Saxon et al. (2008) indicate that the growth in reliability and computerized versions of such assessments has led to increased recommendations for their addition to the range of measurements of college-readiness.

Nationally, state-wide efforts have been undertaken to standardize assessment processes for determining college-readiness (Collins, 2008). Jobs for the Future (JFF, 2010a), an organization working with 43 states to improve the transition from high school to college to jobs, partnered with Achieving the Dream, a network of 160 community colleges, to lead a state policy initiative to align "expectations, standards, assessments, and transition requirements across educational systems (K-12, community college, higher education, adult education)" (ATD, 2011a). JFF (2010a) works with 16 states to create a policy framework which guides state-wide efforts. The sixteen states with identified state-wide policy efforts include:

Arkansas
Connecticut
Florida
Hawaii
Indiana
Massachusetts
Michigan
New Mexico
North Carolina
Ohio
Oklahoma
Pennsylvania
South Carolina
Texas
Virginia
Washington

The policy framework includes “assessment and placement policies that accelerate the progress of underprepared students . . . and aligned expectations and transitions across educational sectors” (JFF, 2010, p. 1).

Although improvements are being made, “differences among state standards are widespread in terms of content, rigor, organization and progression” (Vasavada & Shen, 2010). The National Center for Higher Education Management Systems (NCHEMS) reported findings on its national study on state policy development governing transitions between secondary and postsecondary educational systems. The 50-state NCHEMS study determined the following: (a) few states have a single agency that governs both sectors, (b) 15 states have defined college-ready competencies and 14 states were in the process of developing them, (c) 17 states had state-wide college placement policies for public institutions, (d) 14 out of the 17 states with college placement policies already use common placement tests and three were in planning stages, (e) 12 states had determined common cut-off scores for developmental education placement, and (f) 33 states reported no common placement policies but some had voluntary alignment processes in progress (Ewell, Boeke, & Zis, 2008).

Developmental Education

Community colleges have addressed the college-readiness issue with extensive developmental education systems in reading, English, and mathematics, designed to prepare for entrance into college-level coursework. Stahl (2002) referred to the field of developmental education “as a very young but old field” (p. 10). Its roots reach back through history, yet the specializations and sub-fields of the current field of developmental education span the last 50 years (Stahl, 2002; Dotzler, 2003).

Historical Overview of Developmental Education

Attending to the needs of the underprepared student is not a new role for post-secondary educators. Dotzler's (2003) historical work on developmental education traces the remedial roots to America's first college, Harvard, "which first existed to teach remedial reading to adults" (p. 122) in 1636 to compensate for the traditional Latin-language lectures and books. Tutoring of white privileged males was the primary form of remediation through the 1700s (Arrendale, 2002). The growth of developmental education began to take formal shape after the American Revolution as American colleges grew and replaced the Latin-based traditions (Dotzler, 2003; Arrendale, 2002). Opportunities for social advancement through higher education brought more middle-class white men to college and with them, greater need for remediation-tutoring (Dotzler, 2003). In 1849, The University of Wisconsin became the first to establish a formal College Preparatory Department with a focus on reading, writing, and math. Over the next 50 years, with the growth of the middle class and the advent of the Morrill Land Grant Act (1862), the nation experienced a burgeoning interest in public post-secondary education. With growing interest of the middle-class in professional and technical skilled programs influenced by the needs of the Civil War and the establishment of Agricultural and Mechanical Arts colleges, access to post-secondary education widened. "By 1889 more than 80% of post-secondary institutions had established some form of college preparatory program" (Dotzler, 2003, p. 123).

Other significant historical events that increased the need for college-preparatory work included: (a) the liberation movements of the 1900s, which focused on equity in education for women and African slaves in this country who were historically denied education;

(b) the end of World War I (1918), which focused on training and employment of veterans; (c) The G. I. Bill of Rights (1944), which offered veterans a college education and living expenses, and increased open access; (d) The Truman Commission's (1947) democratization of higher education, which opened access and led to the growth of the community colleges across every state by the 1960s, increasing not only academic access but physical proximity of post-secondary education; and (e) a sharp decline in high school achievement scores between mid-1960s and mid-1980s (Cohen & Brawer, 2003; Doetzler, 2003; Losak & Miles, 1992). With the growth of community colleges, the open access option shifted away from the land grant college and to the neighborhood community college (Boylan, 1988; Losak & Miles, 1992). Developmental education has been included as one of the four curricular functions of the public community college since its inception (Cohen & Brawer, 2003). In the 1960s, as the post World War II "baby boom" generation became college-aged, colleges and universities experienced application surges which resulted in greater selectivity. Community colleges increased efforts in developmental education while the universities increased selectivity (Boylan, 1988). "The apparent breakdown of basic academic education in secondary schools in the 1960's, coupled with the expanded percentage of people entering college, brought developmental education to the fore" (Cohen & Brawer, 2003, p. 23).

Between 1988 and 1994, the National Center for Developmental Education (NCDE) conducted a study of developmental education programs at 160 postsecondary institutions sampled from 3,000 colleges and universities in the United States (Boylan, Bliss, & Bonham, 1997). Findings revealed that there were two primary organizational models for developmental education present.

> One is a centralized program in which all courses and services are provided under a single administrative unit with its own director or coordinator. The other is a decentralized program in which remedial courses and laboratories are offered through individual academic departments. (Boylan et al., 1997, p. 3)

A follow-up study by the NCDE was undertaken in 2004 and focused on community and technical colleges, with 29 institutions reporting data. Centralized and decentralized organizational structures were still the primary organizational models for developmental education (Gerlaugh et al., 2007). The findings indicated that "44% of institutions had developmental education programs that were centralized. This represents a 4% increase from data reported 10 years earlier. . . . More than half of the 2-year colleges surveyed (56%) still offered developmental courses through individual departments" (p. 2). Support for centralized organization focused on better access to professional developmental educators and resources. Those supporting decentralized departmental structures focused on the benefits of collegial planning for instructors and ease of transition for students.

The Developmental Student

The profile of community college students has long been known to comprise of "characteristics that might compromise their ability to succeed in college" (Bailey, Jenkins, & Leinbach, 2005, p. 2). As compared to baccalaureate profiles, Bailey et al. note that community college students enter with lower academic test scores and socio-economic status, and are more likely to have delayed or interrupted college studies. Lavin, Domina, and Levey (2006) examined and analyzed longitudinal data from the US Department of Education's Center on Educational Statistics that tracked a representative sample of this nation's eighth grade students for 12 years, from 1988 through 2000. The study, called NELS:88, provided descriptive

characteristics of students who took developmental coursework in post-secondary institutions, as shown in Table 1.

Table 1: Profile of Developmental Students

Profile Characteristic		Percent in Developmental Education
High School	Rural	40%
	Suburban	38%
	Urban	52%
Socio-economic Status (SES)	Lowest SES Quartile	52 %
	Highest SES Quartile	24%
Skill Level	Most Advanced High School Curriculum	10 %
	Mid-level	25%
	Lowest Level	32 %
Post-secondary Type	Two-year College	58%
	Four-year College	26 %
Race	Non-Hispanic Black	61 %
	Non-Hispanic White	35 %

Attewell et al. (2006) examined the demographic data while accounting for similar SES backgrounds, academic preparation, and high school performance and discovered that there were

> three separate and independent effects: Students who enter two-year colleges are more likely than equivalent students in four-year colleges to enroll in remedial courses; students who enroll in public colleges are more likely than academically equivalent students in private colleges to take remedial coursework; and African American students are significantly more likely than otherwise similar non-Hispanic White students to enroll in remedial courses. (p. 903)

The majority of community college students are placed in at least one developmental course (Bailey, 2009a) and fewer than 20% pass these developmental courses and make it to graduation (Templin, 2011; Vandal, 2010). Community colleges serve nearly half of

undergraduates and “provide economic opportunity for the majority of immigrant, minority, and first-generation college goers” (Templin, 2011, p. 7). Bulger and Watson (2006) focused on the diversity of the community college student profile and identified other student characteristics that contribute to a lack of readiness and success. These characteristics include: (a) background characteristics such as poor prior school experiences, language barriers, physical challenges, and technology proficiency; (b) internal characteristics such as weak self concepts and unrealistic goals; and (c) environmental factors such as lack of access to support services, travel time, poor study environments, and lack of flexible course offerings.

Success of Developmental Education

Over the last decade, the assessed value of developmental education has become a debated topic. The growth in developmental education enrollment has been used as evidence of weakening academic standards (Attewell et al., 2006). Others have argued that developmental education provides needed access to higher education. With an overrepresentation of students of color and those from lower socio-economic levels in developmental courses, proponents have argued that effective programs that improve academic preparation are necessary compensation for a lack of equity in educational access (Attewell et al., 2006; Engle & Tinto, 2008). Others have contended that poor completion rates are evidence that developmental education is a disservice to the academically weak who have less chance of graduating and is acquiring needless debt in wasted tuition and taxes (Attewell et al., 2006; Saxon & Boylan, 2001; Alliance for Excellent Education, 2006; Bailey, 2009a). Using graduation rates as the gauge, others argue that proving the effectiveness of developmental education is challenging because even without

remediation, students with less academic ability or preparation are less likely to complete a degree (Bettinger & Long, 2007).

Data on developmental student completion rates and success rates in college-level courses have been growing. Additionally, the return on investment has been under review. Recent literature on these "value" perspectives offers the following perspectives.

It is estimated that "nearly 60% of students take at least one developmental course during their community college career" (Bailey, 2009a, p. 1). The Achieving the Dream (ATD) network of community colleges has been monitoring student success and completion in developmental courses and subsequent college-level courses since 2004 (ATD, 2010a). Its research on a cohort of 250,000 students indicated that only about 15% completed their developmental requirements within the first year of college (Bailey, 2009a; Collins, 2009) and 46% did not complete any of their requirements in that year (Clery, 2008). Many underprepared students avoid or delay enrollment. About 21% of students with developmental math placements and 33% of those with reading placements did not enroll in a remedial class within three years of initial registration (Collins, 2009).

The struggle is particularly strong for those in developmental math with nearly 20% requiring a sequence of at least two courses before entering college-level. Many fail to ever complete the sequences of developmental courses, thus the likelihood of completion declines with the increase of developmental courses (Bettinger & Long, 2007; Bailey, 2009a). Of the 250,000 students studied by Achieving the Dream, "only 44% of those referred to developmental reading completed their full sequence, and only 31% of those referred to developmental math completed theirs" (Bailey, 2009a, p. 14). Failure may not be the main reason for their exit,

however; “about two thirds of students who fail to complete the sequence to which they were referred do so even while having passed all of the developmental courses in which they enrolled” (Bailey, Jeong, & Cho, 2008, p. 3).

Bettinger and Long (2007) studied 28,000 students for six years starting with their entrance into Ohio public colleges and universities in the fall of 1998. Comparing those who were placed and enrolled in developmental courses to those placed but who did not enroll, those who did enroll were more likely to drop out of college or transfer to another college. However, completion of developmental math courses was found to increase chances of graduation. The NELS:88 data showed that 28% of developmental community college students in the study completed a degree or certificate within 8.5 years compared to 43% non-remedial students (Attewell et al., 2006). Although those data do not appear to support effectiveness, Attewell et al. (2006) point out that half of the African American and three-quarters of the Hispanic graduates of baccalaureate degrees in the study had completed developmental education courses. “If those students were deemed unsuited for college and denied entry to four-year institutions, a large proportion of the minority graduates . . . would not have received degrees” (p. 915).

The lack of clear data on the effectiveness of developmental education is amplified by the fact that students succeed with and without it. Bailey (2009b) notes that the distinction between college-ready and those labeled as not college-ready can be interpreted as arbitrary to a large extent. Institutions must determine a cut-off score despite questionable statistical significance.

> Some students placed in remediation do succeed in college-level courses even when they do not enroll in remediation, while many students who score well above the cut-off scores struggle in the college courses. . . . There is considerable variation in correlation between scores and course grades. (p. 23)

Adhering to the "do-no-harm" philosophy, proponents indicate that developmental education courses provide a structured environment for unprepared students to receive assistance in addressing academic deficiencies that they would not receive in the college-level course. However, others claim that developmental education can be harmful. There is evidence of negative reinforcement from being identified as a poor performer which can limit motivation levels and self-esteem (Kuh, 2007). Additionally, exposure to higher achievers in the classroom environment is shown to have a positive impact on peer achievement, which raises questions about the effectiveness of forming low-achieving groups (Bettinger & Long, 2007; Kuh, 2007).

Cost of Developmental Education

With a lack of clarity on the effectiveness of developmental education**,** the return on investment is being questioned by legislators, education administrators, and taxpayers. Varying estimates report between one and two billion dollars a year are allocated from the state and local tax bases to fund developmental education in community colleges (Alliance for Excellent Education, 2006; Bailey et al., 2008). A 2007-2008 study of students enrolled in remediation indicated that $3.6 billion was expended on direct remedial needs throughout their time in college (Alliance for Excellent Education, 2011). With a focus on the remediation of skills taught originally in the secondary schools, it is noted that the taxpayer is paying twice for the same service and the use of federal and state funds is questioned (Alliance for Excellent Education, 2011; Saxon & Boylan, 2001). There are also financial implications for the developmental student. Financial aid resources are affected by the increased time to degree completion (Khan, Castro, Bragg, Barrientos, & Baber, 2009). With students from the lowest socio-economic groups being overrepresented in developmental education, the cost of education

is made the highest for the neediest (Attewell et al., 2006). With graduation rates for developmental students around 20%, financial aid can be seen as a lost investment. Tuition costs for developmental education total nearly $300 million (Alliance for Excellent Education, 2006). It is important to compare these costs to the overall educational budget. Saxon and Boylan (2001) studied the cost of remedial education and noted that "statewide remediation . . . costs less than 10% of education as a whole" (p. 8) and there were no reports of remedial programs that exceeded revenues.

Reformative Strategies

In response to the growing number of underprepared students accessing but not completing degrees, community colleges have been investing in reformative strategies. These are academic and non-academic programs and systems designed to improve college-readiness and achievement of underprepared community college students. Areas of reform include: (a) pre-college preparation, (b) assessment and milestone measurements, (c) curricular content and pedagogy, (d) student engagement practices, and (f) national and state education policy.

Pre-college Preparation

About 1.62 million high school students took the American College Testing (ACT) assessment test in 2011, equivalent to 49% of all high school graduates in the United States (ACT, 2011). The instrument is used to assess students' college-readiness in accordance with benchmarks in four subject areas: English, reading, mathematics, and science. In 2011, ACT reported that 66% of high school graduates met the English benchmark, 52% met the reading benchmark, 45% met the mathematics benchmark, and 30% met the benchmark in science. One in four met all four college-readiness benchmarks and 28% met none of them. "Of the 29 states

where at least 40% of all 2011 high school graduates took the ACT, in only one state did more than half of the graduates meet at least three of the four College Readiness Benchmarks" (p. 7).

ACT (2011) reported that test scores have remained static between 2007 and 2011 even though 25% more students were tested. With such trends in college-readiness, previous patterns of determining the party at fault for the lack of college-readiness have not resulted in positive improvement in scores. Newer approaches include secondary and postsecondary partnerships focused on agreement of outcome standards, better alignment of curriculum, setting common academic expectations, and designing preventive strategies (Alliance for Excellent Education, 2011; Bolden, 2009; Collins, 2009; Conley, 2005; Conley, 2010; Kirst, 2007; Templin, 2011). Agreement on content knowledge and expected self-management skills (Conley, 2010), such as studying and time management, establish common ground on student learning.

> Ongoing communication across institutional boundaries using the language of student learning . . . means in practice that it is easier to identify when students are really ready for postsecondary studies as opposed to when they have simply run out of classes to take at high school. (Conley, 2005, p. 77)

Regional-level curricular alignment workshops are gaining popularity with faculty who "teach entry-level college courses and those who teach exit-level high school courses" (Conley, 2010, p. 96). Sharing college-level expectations and information about content-level requirements has resulted in curriculum changes and clearer pathways from secondary to postsecondary education. With a spirit of partnership, college counselors work with high school seniors to assist with transition issues prior to graduation and serve as a supportive bridge to the next level (Templin, 2011). Utilizing federal programs such as Talent Search, Upward Bound, and GEAR UP, community college and high school partnerships are working jointly to support economically

disadvantaged and first-generation high school students by helping them to understand college expectations and graduate college-ready (Bolden, 2009).

In addition to academic preparation, "community colleges are reinventing their connections with secondary schools with a focus on joint processes" (p. 35). There is a movement to combine efforts to establish common achievement objectives and align curriculum with creating shared data systems between education levels (Conley, 2005; Kirst, 2007b). Shared data systems have the potential to result in "much tighter connections between elementary, secondary, postsecondary learning and a drive to standardize reporting on student knowledge and skill" (Conley, 2005, p. 157). Collaboration between colleges and secondary systems is recommended to determine effective processes for using the shared data on student performance to improve success rates (Kirst, 2007b).

Kirst (2007b) expands the concept of shared data to include a recommendation to combine K-12 with postsecondary structures to better align college-readiness preparation. Current state budgets divide K-12 from postsecondary and "lack incentives to promote college-readiness reforms" (p. 59). Although there is no current state that has fully integrated K-16 finance structures, movement toward the establishment of unified educational structures, including curricular alignment and budget, were noted by Kirst (2007b).

Dual enrollment programs are another strategy with increasing implementation. "Nearly every community college in the United States . . . offer[s] opportunities for high school students to take courses for college credit within dual enrollment programs" (Rutschow & Schneider, 2011, p. 17). The newer development uses dual enrollment to address the underprepared student (Collins, 2009). Such courses are intended to increase college preparation in subject matter and

awareness of college expectations. Dual enrollment programs include both high school and college-level courses, are typically offered at no-charge, and are taught on the college campus by discipline-specific faculty or in the high school by high school faculty with appropriate credentials. Used across the country, "College Now and the Middle/Early College High School movement provide good examples of well-established dual enrollment programs aimed at academically disadvantaged students" (Rutschow & Schneider, 2011, p. 17).

Following high school graduation, summer bridge programs have been designed to assist with college-readiness for new college students identified as underprepared (Bailey, 2009b; Brock, 2010; Rutschow & Schneider, 2011). Condensed content courses, college-skills courses, and acclimation programs take place during a three- to five-week period. Students may have opportunities to retest to improve placement scores after the conclusion of the summer bridge program. Outcomes results are not abundant but more recent programs have shown promise in increasing readiness.

Assessment and Milestones

New entering students at most community colleges take an assessment test (typically ACCUPLACER or COMPASS) that determines their academic placement into developmental education or college-level English and mathematics. A developmental-prevention strategy gaining momentum between secondary and postsecondary partners is the use of college-readiness assessments given during the junior and/or senior years of high school. According to Achieve (2011b), a bi-partisan, non-profit education reform organization, 14 states currently administer assessments to high school students that postsecondary institutions use to judge college-readiness. Using the same instrument to place students at the community college, the

students and parents are given more information about college expectations and college-readiness, and more time to remediate prior to exiting from high school (Collins, 2009; Kirst, 2007b; Rutschow & Schneider, 2011).

Limiting placement into college level courses on the basis of a single test is questioned when coupled with the lack of clear outcome data from developmental education (Hughes & Scott-Clayton, 2011). "This calls into question not only the effectiveness of remedial instruction but also the entire process by which students are assigned to remediation" (Hughes & Scott-Clayton, 2011, p. 2). Diagnostic approaches are recommended to determine the areas of deficiency in order to avoid placing students with varying needs in the same course based solely on cut-off scores (Bailey, 2009b). Rather than single-cognitive assessment models, Boylan (2009) recommends "a combination of cognitive, affective, and personal information about students to develop more integrated intervention plans for underprepared students" (p. 15). This combination allows for a summative assessment of knowledge and a formative assessment that inform appropriate interventions and encourages learning (Barkley, 2010; Boylan, 2009). Hughes and Scott-Clayton (2011) noted that individualized education programs use a team approach of professionals (staff and faculty) to assess a student on multiple dimensions of readiness. The Targeted Intervention for Developmental Education Students (TIDES) is a model that is intended to strengthen "the accuracy of assessment by using multiple variables to triangulate cognitive, affective, and personal" (Boylan, 2009, p. 16). The key to the TIDES multiple assessment model is the use of advising to clearly interpret "a range of affective characteristics such as motivation, attitude toward learning, help-seeking behavior, autonomy, anxiety, desire for peer or instructor affiliation, self-efficacy, and/or willingness to expend effort

on academic tasks" (p. 17). Instruments that assess non-cognitive characteristics are included in Table 2 (Boylan, 2009; Levine-Brown, Bonham, Saxon, & Boylan, 2008; Saxon et al., 2008).

Table 2: Non-Cognitive Assessment Instruments

Instruments to Assess Affective Readiness Factors, Learning Behaviors, and College Awareness		
Name	Description	Publisher
College Student Inventory	Self-reported motivational assessment.	Noel-Levitz, Coralville, IA
The College Success Factors Index	Self-scoring assessment of characteristics associated with success.	Wadsworth Cengage Learning, Florence, KY
Student Adaption to College Questionnaire	Assesses adjustment to college; academic, social, personal-emotional, and institutional.	Western Psychological Services, Los Angeles, CA
Student Readiness Inventory	Assesses overall readiness including motivation, academic skills, and social engagement.	ACT, Iowa City, IA
Achievement Motivation Profile	Four-scale motivation and achievement level assessment.	Western Psychological Services, Los Angeles, CA
BarOn Emotional Quotient Inventory	Self-report inventory on emotional intelligence.	Multi-Health Systems, North Tonawanda, NY
Developmental Advising Inventory	Personal developmental assessment across nine dimensions.	Developmental Advising Inventories, Inc., Paradise, CA
Noncognitive Questionnaire	Measures eight self-assessment variables. Specifically normed for minority students.	Jossey-Bass, San Francisco, CA
Study Behaviors Inventory	Self-report survey on study behaviors and academic confidence.	Andragogy Associates, Torrance, CA
Survey of Student Assessment of Study Behaviors	Assessment of study behaviors with pre and post test measures.	The Cambridge Stratford Study Skills Institute, Williamsville, NY
Perceptions, Expectations, Emotions, and knowledge about College (PEEK)	Assesses expectations about college; academic, emotional, and social.	H & H Publishing Company, Clearwater, FL
Test Anxiety Inventory	Self-report assessment of anxiety symptoms before, during, and after tests.	Mind Garden Incorporated ,Menlo Park, CA
Motivated Strategies for Learning Questionnaire	Assesses motivation levels and application of learning strategies.	The University of Michigan, Ann Arbor, MI
Transition to College Inventory	Needs assessment on nine transition factors; with advising profile output.	Old Dominion University, Norfolk, VA
Learning and Study Strategies Inventory	Assessment of strategic learning strategies with pre-post test use.	H & H Publishing, Clearwater, FL
Inventory of Classroom Style and Skills (INCLASS)	Assesses seven areas of learning styles and skills.	H & H Publishing, Clearwater, FL

Note: Instrument information obtained from Boylan, 2009; Saxon, Levine-Brown, & Boylan, 2008; Levine-Brown, Bonham, Saxon, & Boylan, 2008.

The feasibility of individualized and multi-level assessment approaches is questioned when considering large numbers of incoming students and the costs in time and resources (Hughes & Scott-Clayton, 2011).

Assessment of college-readiness upon entry and placement into strategies designed to improve readiness and success have been the major focus of reform measures. Gaining national momentum is a call for greater accountability concerning the impact of the strategies on achievement and postsecondary credentials attainment (Offenstein & Shulock, 2010). Peter Ewell (2009), a leading researcher and executive for the National Center for Higher Education Management Systems (NCHEMS) recommends that institutions assess at various points in order to assure that students are achieving milestones along their educational pathway. The milestone assessment approach puts the focus not only on the entry and exit but on the identification and assessment of the intermediate stages (Ewell, 2009; Offenstein & Shulock, 2010). The Community College Research Center produced a research tool to collect and use student unit record data longitudinally to track student progression through milestones and momentum points (Leinbach & Jenkins, 2008). These intermediate stages were used in the development of a conceptual measurement framework by Offenstein and Shulock (2010).

> Milestones are measureable educational achievements that vary by students' levels of preparation and goals. In this framework, the milestones identified are:
>
> - Completion of pre-collegiate coursework;
> - Transition into college-level coursework;
> - Transfer to four-year university; and
> - Completion of an educational program or apprenticeship.
>
> Momentum points are measureable educational attainments that predict completion of a milestone. . . . Students who attain momentum points are more likely to achieve the milestone than students who do not. The momentum points identified are:
>
> - Completion of one pre-collegiate course;

- Completion of a career exploration or introduction course;
- Completion of one college-level gatekeeper math course;
- Completion of one college-level gatekeeper English course;
- Completion of 15 college-level credits;
- Completion of 30 college-level credits;
- Completion of 30 college-level credits in one year;
- Completion of 15 vocational credits;
- Completion of 30 vocational credits; and
- Completion of 30 vocational credits in one year. (pp. 2-3)

Analysis conducted by Columbia University's Community College Resource Center in studying the Washington State Board for Community and Technical Colleges noted that the measurement of these momentum points correlated with the achievement of the milestones and can be used to assess intermediate progress (Leinbach & Jenkins, 2008).

Curricular and Pedagogical Reform

A literature review reveals evidence of curricular reform intended to assist academic success and progression of underprepared students (Rutschow & Schneider, 2011). More than half of community college students are referred to developmental education with mixed or negative results on their progression to college-level courses and graduation (Bailey, 2009a; Hughes & Scott-Clayton, 2011; Rutschow & Schneider, 2011). Although developmental education is not a new field, there still remains limited evidence about its effectiveness (Bailey, 2009a; Bettinger & Long, 2006; Hughes & Clayton, 2011; Rutschow & Schnieider, 2011). Reformative delivery methods for developmental education fall into three main categories: acceleration, contextualization, and modularization. These approaches are used interchangeably to support student progression. In addition to delivery methods, a curricular overhaul is being proposed in mathematic sequences (Carnegie Foundation, 2011b; Collins, 2009).

Acceleration. Movement through developmental sequences increases time to completion, and longer sequences tend to weaken the likelihood that a student will persist through to college-level work (Bailey, 2009a; Bettinger & Long, 2007; Collins, 2009). Approaches that accelerate the acquisition of knowledge and quicken the progression toward college-level work are reported to be showing promise (Edgecombe, 2011; Rutschow & Schneider, 2011). In order to reduce the time it takes to enter college-level courses, community colleges are accelerating the pace of developmental education with review-type courses or intense immersion courses that are shorter in length, particularly for the students whose assessment scores are near the top cut-off point (Zachry, 2008). With restructuring to compress curriculum and, in some cases, reduce requirements, self-paced and fast-track courses have been developed that allow students to complete more than one developmental course in a given sequence within a single semester (Edgecombe, 2011; Epper & Baker, 2009; Rutschow & Schneider, 2011). Fast-track courses often allow for testing-out options or enrollment in compressed developmental or college-level courses. The reduction of the number of courses in the sequence of developmental courses is another reform taking shape. Developmental sequences are accelerated when "redundant content is eliminated, and the remaining curriculum is modified to meet the learning objectives of a particular intervention or academic pathway" (Edgecombe, 2011, p. 2).

Research analysis by Davis Jenkins (2011), from Columbia University's Community College Research Center, indicated that entering a program of study within the year of first-time college enrollment increases the likelihood of earning a credential. A cohort of college-level and developmental students monitored over a five-year period revealed that about a third of the

students either do not achieve credentials or transfer within five years, if a program of study is not selected until the second academic year. The results prompted recommendations to redesign college-wide processes to accelerate students' readiness and likelihood to select a program of study in the first year and move to completion. Recommendations were designed to target key phases in the students' pathways and include a call to: a) work with the high schools to increase awareness of college programs of study; b) require success courses for all first-time college students to expose them to college expectations and options, with a focus on major and career; c) strongly encourage students to declare a major within the first year with an educational completion plan; and d) streamline programs and processes to support and monitor clear pathways to completion.

Modularization. An alternative acceleration model to course compression is modularization. This reform strategy divides traditional curriculum into learning modules. Students progress through modules relevant to their identified deficiencies and at a pace that fits their learning needs (Edgecombe, 2011). This method, most commonly associated with accelerating mathematic sequences, has been offered in self-paced laboratory settings and online delivery. Supplemental instruction and tutoring are typically available for individualized assistance. Mastery of course content is monitored and interventions occur when needed. Outcome measurements show positive gains in success and persistence rates with modularized approaches (Epper & Baker, 2009; Rutschow & Schneider, 2011).

Similar approaches to individualize the learning experience for the unprepared student have been growing. Diagnostic tools are being utilized to more precisely identify individual skill deficiencies and assist in refining student learning objectives (Zachry, 2008). As part of

developmental course curriculum, students are assigned to mandatory success centers for additional instruction and reviews with individualized tutoring and computerized learning aids (Brock, 2010). Supplemental instruction involves faculty, staff, or peer tutors who assist within and outside of class in individual, group, and lab settings (Zachry, 2008; Rutschow & Schneider, 2011).

Contextualization. Community colleges have been experimenting with alternatives to self-contained developmental education courses. One such alternative involves contextualized instruction which embeds developmental education into college-level career and technical education courses to engage the learner through career interests (Baker, Hope, & Karandjeff, 2009; Perin, 2011; Rutschow & Schneider, 2011). This approach is also referred to as contextualized teaching and learning (CTL). Reported benefits include accelerated progress to college-level course taking and increased student engagement due to a link with career or major choice. "A primary principle of CTL is that knowledge becomes the students' own when it is learned within the framework of an authentic context" (Baker, Hope, & Karandjeff, 2009, p. 8). The instructor helps the student bring the skills needed to perform the task at hand, similar to a "cognitive apprenticeship" (p. 8).

Another form of contextualized learning is the creation of cohort learning environments involving standard developmental courses. These learning cohorts, referred to as learning communities or paired courses, integrate information from one course with projects and discussions in others to engage the learner in making meaningful connections (Brock, 2010; Edgecombe, 2011; Karp, 2011). Instructors collaborate on lessons, integrate assignments, and often are present in each other's classrooms. In addition to being able to accumulate college-

level credit, linking a developmental course with a college-level content course affords the student an integrated learning experience wherein the application of basic skills is reinforced (Edgecombe, 2011). The study skills course tends to compliment the content course by encouraging self-management behaviors needed for academic success (Conley, 2010). The cohort learning environment also encourages social engagement which is noted to have a positive impact on retention (Barkley, 2010; Tinto, 1993). Rutschow and Schneider's (2011) findings suggest that learning community programs have positive gains in course completion but show mixed results in long term impact on students' progression through developmental education.

Mathematics. Mathematics curriculum often contains the longest sequences for developmental students, with less than a third of underprepared mathematics students completing the required sequences (Bailey et al., 2008; Bailey, 2009b). About 60% are referred to developmental math and of those, about 19% have a sequence of three or more remedial courses. With multiple developmental courses often required of students before reaching their first college-level mathematics course, less than 10% successfully finish the sequence (Bailey et al., 2008).

One area of reform aims to decrease the amount of time required for students to progress through developmental coursework and successfully reach college-level mathematics (Sherer & Grunow, 2010). Supported by The Carnegie Foundation for the Advancement of Teaching, Sherer and Grunow (2010) examined developmental math programs at 10 colleges across seven states described as "math intensive programs" (p. 4). Intensive programs were divided into three categories: boot camps, summer bridge programs, and accelerated semester courses. The boot

camp category focused on summer programs that varied in length from one to three weeks and were intended to review math skills rather than teach developmental math content. Boot camps varied with instructional staff ranging from math faculty to tutors and with curricular materials incorporating traditional textbooks, special boot-camp materials, or computer programs. Retesting for college-readiness using COMPASS, ACCUPLACER, or another math assessment instrument followed the boot camps.

Summer bridge programs were extended in length between 5 and 10 weeks. The extended time allows for content learning as well as social acclimation. The program focus is typically broader, including college transition issues and study skills concepts. Summer bridge programs often target specific high-risk populations. Some programs concentrate on only math content and others include reading and English. Discipline-specific faculty members teach the content and can be assisted by supplemental instructors and counselors. Retesting typically occurs after the program to determine whether students can progress to college-level courses.

Accelerated semester courses are typically developmental math courses offered during the academic year. The focus is on accelerating completion of one or more developmental courses in a single semester. These courses may be taught in self-paced modules that allow a student to complete them and test out of developmental math sequences within a single term. Variations include computer-based software, learning community options with study skills courses, and special support services.

The Carnegie Foundation (2011c) is focused on two reform initiatives designed to "double the number of students who, in a one-year course sequence, are mathematically prepared to succeed in further academic study" (para. 2). These two Carnegie-launched mathematics

pathways are called Statway and Quantway. The pathways are based on the philosophy that mathematics needs to be better aligned with the requirements of career fields and draws a distinction between science, technology, engineering, and mathematics (STEM) fields and other professions. "Preparation for calculus is appropriate for students pursuing careers in STEM fields; however, new data suggest most non-STEM careers demand rigorous preparation in statistics (Statway) or quantitative reasoning (Quantway)" (Carnegie Foundation, 2011b, p. 1). Across five states, 19 community colleges have been involved in the development of curricular materials and assessments for Statway. Statway is designed as a year-long course that enables a student placed into elementary algebra to complete a statistics course that carries college-level, transferable statistics credit. It aligns with career fields such as "allied health sciences and public safety or academic programs in the liberal arts, business, and social sciences which frequently require students to complete a single quantitative course to achieve a credential" (Cullinane & Treisman, 2010, p. 6).

Eight community colleges across three states have been involved with the development of Quantway. It is an accelerated developmental pathway that prepares students in one semester in "foundations of quantitative literacy and decision-making. . . . Upon completion . . . students will be prepared to take various credit-bearing, transferable mathematics courses, including quantitative reasoning or mathematics for liberal arts, statistics, or a college algebra" (Cullinane & Treisman, 2010, p. 2).

Student Engagement

Theoretical constructs by Alexander Astin (1999) and Vincent Tinto (1993) address the connection between the levels of involvement and engagement of the learner and persistence.

Research on how college impacts students conducted by Pascarella and Terenzini (1991) concluded that the level of student engagement in the academic experience (in and out of the classroom) had a strong impact on cognitive development. "A substantial amount of evidence indicates that there are instructional and programmatic interventions that not only increase a student's active engagement in learning and academic work but also enhance knowledge acquisition and some dimensions of both cognitive and psychosocial change" (p. 616). Activities that increase active engagement in the learning process were noted under experimental conditions to increase learning. Additionally, cognitive development and academic success in college have been linked to out-of-class engagement with peers and faculty. This holds true across ethnic and gender differences (Pascarella & Terenzini, 1991).

More recently studies have shown that some practices are more effective than others in engaging "participants at levels that elevate their performance across multiple engagement and desired-outcome measures such as persistence" (Kuh, 2008, p. 14). Understanding what is involved in student engagement is needed because it is not the activity or program in itself that makes the difference but rather how it is done (Barkley, 2010). Kuh (2008) refers to how the activity is delivered with the distinctive phrase, "when done well" (p. 14). For example, the act of putting students in groups does not necessarily engage the learner in the material; it requires both motivational techniques and active learning activities (Blakely, 2010). "Motivation and active learning work together synergistically, and as they interact, they contribute incrementally to increase engagement" (p. 7). Astin (1999) refers to the importance of involving the student physically and psychologically in the experience. Student engagement refers to the manner in which the programs, activities, and inclusive culture of the institution intersect with the students'

levels of effort, motivation, and involvement (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Blakley, 2010).

The Association of American Colleges and Universities (AACU) and the Carnegie Foundation for the Advancement of Teaching (2004) produced a statement on the importance of promoting integrative learning practices for all students in order to be better prepared to succeed in a diverse, interconnected world. Integrated learning includes interconnections between different academic disciplines and extends to co-curricular experiences (AACU & Carnegie Foundation, 2004; Dunlap & Sult, 2009). Examples include interdisciplinary studies, first-year seminars, individual portfolios, advising, and integrative assignments that draw connections between undergraduate experiences. Interdisciplinary analysis is learned and practiced with learning communities and integrative assignments (Dunlap & Sult, 2009). Making continual connections between what is known and what is new requires a dynamic environment of engagement, not a passive transfer of information (Blakely, 2010).

Community College Survey of Student Engagement. The Center for Community College Student Engagement (CCCSE) was established in 2008 by the University of Texas College of Education "as the umbrella organization for survey research, focus group work, and related services for community and technical colleges interested in improving educational quality through strengthened student engagement and student success" (CCCSE, 2011, p. 2). The Community College Survey of Student Engagement (CCSSE) is an initiative of CCCSE used to assess levels of perceived student engagement. The survey was administered on 435 community college campuses in 2011(CCSSE, 2011). CCSSE has identified benchmarks for community college student engagement based on research that indicates that "the more actively engaged

students are, with college faculty and staff, with other students, and with the subject matter, the more likely they are to learn and to achieve their academic goals" (p. 3). The benchmarks include the frequencies and means reported on the following practices: (a) active learning involving the application of knowledge in collaborative, problem-solving settings; (b) student effort involving the level of time and mental investment in the learning process; (c) academic challenge involving the complexity of the academic tasks and the expectations to meet high standards; (d) student-faculty interaction involving opportunity to interact and communicate with faculty out-of-class; and (e) support for learners involving the level of academic and non-academic assistance for students.

High impact educational practices. Engagement strategies, referred to as high-impact educational practices, were identified in a report from the National Leadership Council for Liberal Education and America's Promise (2007). Kuh (2008) indicates that these educational practices have demonstrated effectiveness and include: (a) first-year seminars focused on intellectual competencies in a collaborative learning format, (b) "common intellectual experiences" (p. 9) with a set of common courses, (c) "learning communities" (p. 10) to integrate learning across courses, (d) "writing-intensive courses" (p. 10) across the curriculum, (e) "collaborative assignments and projects" (p. 10) involving group problem-solving and team-based projects, (f) "undergraduate research" (p. 10) in all disciplines encouraging empirical inquiry, (g) "global learning" (p. 10) that explores diversity and world cultures, (h) "service learning" (p. 11) with experiential involvement in the community, (i) "internships" (p. 11), and (j) "capstone projects" (p. 11) that demonstrate application of knowledge. High impact educational practices are effective in engaging students due to: (a) the degree of invested effort

over time, in-depth involvement, and ongoing nature; (b) frequent, substantive, and collaborative interaction with faculty and staff; and (c) the likelihood that students will experience diversity and be confronted with people and circumstances that challenge current views (Kuh, 2008). It is noted that less prepared students benefit the most from high-impact practices (Kuh, 2008). Current impact of such programs has been limited in scale. Reform measures recommend large-scale implementation in order to increase the likelihood that students will be engaged in high-impact strategies multiple times during their college experience (Jenkins, 2007; Kuh, 2008).

Columbia University's Community College Research Center determined that there are four mechanisms or actions that, when part of programs and services, strongly encourage student success in college: creating social relationships, clarifying aspirations and enhancing commitment, developing college "know-how," and making college life feasible. Mechanisms are intended to go beyond a single program into "the establishment of an environment" (Karp, 2011, p. 24). These non-academic mechanisms include the following:

(a) "Creating social relationships" (p. 1). This mechanism involves activities that connect students with others in meaningful ways such as finding mentors, creating lasting friendships, and establishing relationships with important academic or career resource people.

(b) "Clarifying aspirations and enhancing commitment" (p. 2). This mechanism involves activities that help draw connections between college and life goals and assist with developing logical goal-attainment steps. Goal direction contributes to persistence (Jenkins, 2011; Karp, 2011). Such activities include intensive, ongoing advising and success courses (Karp, 2011; Kuh et al., 2006; Scott-Clayton, 2011). An emphasis on

targeted monitoring and early intervention with students who are not identified as college-ready has led to more case management approaches in advising and counseling with a design to increase goal commitment (Scrivener & Weiss, 2009).

(c) "Developing college know-how" (p. 2). This mechanism involves activities that facilitate the contextual skill development needed to acclimate to the college environment and increase cultural capital (Conley, 2008; Karp, 2011). This mechanism goes beyond the transfer of information and requires consistent, structured, and timely activities such as success courses (Karp, 2011). Understanding the college environment and feeling a sense of confidence about interacting with college services and resources is part of being college-ready. Community college trends include blending student success courses with developmental courses to assist with understanding the college milieu (Brock, 2010).

(d) "Making college life feasible" (p. 2). This mechanism involves assistance with removing roadblocks - financial, personal, or academic - that may interfere with students being able to stay enrolled (Karp, 2011; Kuh, 2007).

Organizational engagement practices. Contemporary organizational structures in higher education separate curricular instruction and out-of-classroom functions into Academic Affairs and Student Affairs (Rhatigan, 2009; Myran, 2009). Out-of-class functions are further divided into various segregated service units and programs which may create obstacles to students' engagement with the full college-experience (Kuh, 2007; Myran, 2009; Scott-Clayton, 2011). There is a movement toward a more integrated approach to the student experience through collaborative services and a focus on a student flow model from admissions to

graduation (Jenkins, 2007; Myran, 2009). The focus diverts from the role of the administrative unit, and instead centers on the continuum of the student experience, with an integrated college-wide response system. This concept has been referred to as the teacher-learner continuum with a commitment to shared responsibility in addressing students' needs through an engagement philosophy (Balog & Search, 2006). A research study of 150,000 community college students in Florida revealed that "seamless integration of services from the student's perspective and collaboration among faculty, staff, and administration in providing these services are what seem to contribute most to student success" (Jenkins, 2007, p. 959). In order to determine where policies and practices do not flow with the student experience, formal and informal assessments on the effectiveness of instructional and support practices are recommended to remove barriers to student engagement (Jenkins, 2007; Kuh, 2007).

National and State-level Reform

National and state attention has been focused on the growing demand for postsecondary credentials to support the changing economy. It is projected that by 2018, 62% of jobs will require some level of postsecondary credential and currently, national data indicate that only 42% of 25- to 34-year-olds currently have college degrees in this country. This compares to 55% in such countries as Canada, Japan, and South Korea (Carnevale & Rose, 2011). Reform is focused on increasing completion rates across the country. According to Complete College America (2011), of every 10 first-time students who seek an associate's degree, five are placed into developmental education, and one graduates within three years. Several initiatives have been started to assess, track, and improve completion rates across the country.

Race to the Top. On July 24, 2009, President Obama and U.S. Secretary of Education, Arne Duncan, announced over $4.35 billion in grants available to states through a competitive program called Race to the Top (U.S. Department of Education, 2011). The program is focused on awarding grants to state-wide educational reform that addresses standards, assessments, and data systems that impact student preparation for and success in postsecondary education and the world of work. Particular emphasis for reform is placed on (a) promotion of science, technology, engineering, and mathematics education; (b) high school graduation rates, particularly in rural schools; (c) effective teaching; (d) implementing high standards and assessments; and (e) improvement models for low-performing schools. In the first two years, 62 grants were awarded and the 2012 budget proposes a third round of grants.

Achieve. The state-wide emphasis encourages an alignment of educational objectives and interventions across education-levels. Twenty-two states have systems in place that match K-12 and postsecondary longitudinal data (Achieve, 2011c). Progress has been made to implement state-wide P-20 longitudinal data systems, with all states reporting such systems in place or in progress. Four indicators of college and career readiness are encouraged by Achieve to be part of the tracked data: "percentage earning a college and career-ready diploma, scoring college-ready on a high school assessment, earning college credits while in high school, [and] requiring remedial courses in college" (Achieve, 201lb, p. 17). Forty states are tracking at least one of the four indicators. Achieve's America Diploma project was launched in 2005 and works with 85% of public schools to align high school standards, graduation requirements, and assessments.

Common Core Standards. The Common Core Standards is a state-driven, voluntary initiative launched jointly by The Council of Chief State School Officials and the National Governors Association for Best Practices to establish common standards in English Language Arts and mathematics (Common Core State Standards Initiative, 2011). The standards are divided into two categories: "college and career readiness standards, which address what students are expected to learn when they have graduated from high school; and K-12 standards, which address expectations for elementary through high school" (para. 4). With adoption by 43 states, the Center on Education Policy surveyed states in 2010 to ascertain the implications of the Common Core Standards on state policy and practices. Of the 36 responding states, between 33 and 36 noted plans to change the following: (a) state assessments, (b) curriculum guides, (c) professional development programs, (d) educator evaluation systems, and (e) educator certification policies and requirements (Center on Education Policy, 2011). Survey results indicated that "state education departments lack solid plans to coordinate with higher education entities on linking college admissions requirements or curriculum to the common core state standards" (p. 6).

Complete to Compete. National Governors Association (NGA) launched its Complete to Compete initiative for the purpose of improving postsecondary completion rates and efficiencies (Reyna, 2010). NGA named a Work Group on Common College Completion Metrics to recommend measures to strengthen the current capacity to nationally track postsecondary student progress. "The postsecondary graduation rate collected by the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) only accounts for 48% of all undergraduates enrolled in four-year public institutions and 32% of those

enrolled in two-year public institutions" (Reyna, 2010, p. 8). To this end, the NGA Work Group made recommendations in 2010 on standard metrics that will allow all states to collect comparable data and align policies in order to determine areas for improvement. The standard measurements track progress of first-time undergraduate students using two categories, outcome metrics and progress metrics (Reindl & Reyna, 2011; Reyna, 2010).

> Outcome metrics [include]: degrees and certificates awarded; graduation rates; transfer rates; and time and credits to degree. Progress metrics [include]: enrollment in remedial education; success beyond remedial education; success in first-year college course; credit accumulation; retention rates; and course completion. (Reyna, 2010, p. 5)

In addition to standardized tracking of progress to determine areas in need of reform, the NGA set forth efficiency and effectiveness metrics. These include "meeting workforce needs; student output relative to input; return on investment; and quality (student learning)" (Reindl & Reyna, 2011, p. 7). Each of the metrics requires specific data elements that standardize definitions, timeframes, and populations targeted. The Complete to Compete Metrics were adopted by 30 states in 2011.

Complete College America. In its development of the standard metrics, the NGA also worked with Complete College America, a non-profit organization founded in 2009. Complete College America, supported by the Bill & Melinda Gates Foundation, Lumina, Carnegie Corporation, W. K. Kellog Foundation, and the Ford Foundation, is a non-profit organization focused on working with states to increase postsecondary completion rates (Complete College America, 2011). Using the NGA standard metrics, Complete College America works with the states in compiling statistics and reporting progress and completion data. In 2011, 29 states had joined Complete College America's Alliance of States.

Getting Past Go. Related to reform specifically focused on developmental education, The Education Commission of the States created its Getting Past Go Initiative in 2009. The purpose of Getting Past Go is to "enable states to compare their policies with those of other states to determine how to more effectively align remedial education policies with state strategies to increase college attainment rates" (Vandal, 2010). Getting Past Go has developed a policy framework for remedial education and is developing a 50-state database on developmental education systems including assessments, placement standards, regulations, funding, delivery and intervention strategies, accountability systems, and data collection requirements.

Achieving the Dream. The Achieving the Dream (ATD) organization, started in 2004, is a network of 160 community colleges across 31 states focused on improving achievement and completion rates. The organization has been involved in data-based examinations of achievement gaps, effective strategies, and public policy reform (ATD, 2011a).

On the public policy level, 16 states affiliated with ATD are involved in state-wide policy reform. Collins (2009) identified the following four key areas of concentration for the state-wide policy reform efforts among the ATD state affiliates:

(a) Preventive Strategies. These are state-wide efforts to reduce the need for developmental education in college. These efforts focus upon "setting and broadly communicating college-readiness standards, providing early assessment opportunities for high school students, and ensuring that high school and college-entrance standards and expectations are aligned" (p. v).

(b) Assessment and Placement. The emphasis is on carefully planned and standardized assessment and placement policies. "A state's approach to placement-assessment

policies can make the difference between whether a student who cannot succeed without intervention is well-served" (p. v).

(c) Implementation and Evaluation of Program Innovation. These are state efforts to encourage innovation and guide implementation efforts of strategies with proven outcomes.

(d) Performance Measurement and Incentives. States are identifying performance indicators to measure progress toward state developmental education goals. Incentives are often attached to drive progress.

Developmental Education Initiative. In 2009, six of the states affiliated with Achieving the Dream (Connecticut, Florida, North Carolina, Ohio, Texas, and Virginia) were selected as partners to participate in a three-year project called the Developmental Education Initiative (DEI), funded by the Bill & Melinda Gates Foundation and the Lumina Foundation for Education (Developmental Education Initiative, 2011). DEI has developed a new state policy framework and strategy to be employed at 15 community colleges. The policy framework includes five parts: (a) data and performance measures that include intermediate benchmarks, effectiveness comparisons, state-wide data sharing, and performance incentives; (b) developmental education redesign with accelerated delivery, supplemental instruction, learning communities, success courses, case management, and other learning assistance; (c) aligned P-16 standards with clear college-readiness expectations, and early assessment and remediation; (d) standard assessment and placement policies, diagnostic approaches with early intervention and options for students near the cut-off score; and (e) funding strategies for developmental education (Jobs for the Future, 2010b).

Completion by Design. In 2011, four states were selected to participate in a five-year project called Completion by Design, funded by the Bill & Melinda Gates Foundation. There are 15 campus sites in North Carolina, Texas, Florida, and Ohio that are participating in this project to increase completion and graduation rates, specifically targeted at low-income students less than 26 years of age (Completion by Design, 2011).

Theoretical Frameworks

Opening access to postsecondary education is a hallmark of the community college system. "Of all the higher education institutions, the community college contributed most to opening the system" (Cohen & Brawer, 2003, p. 27). The community college structure also embraced developmental education as one of its mission-driven curricular functions. With access for underprepared students increasing but success rates falling below 50%, the following four theoretical frameworks offer insights into why and what might make a difference in the community college: (a) Involvement Theory, (b) Identity Theory, (c) Change Theory, and (d) Transformational Leadership Theory.

Involvement Theory

Alexander Astin's (1999) seminal work on Involvement Theory purports that student success depends on the level of student involvement within and outside of the classroom. According to Astin (1999), "The theory assumes that student learning and development will not be impressive if educators focus most of their attention on course content" (p. 522). Astin (1999) contrasts pedagogies of involvement with content theory, where the student is the passive recipient. According to Schuetz (2008), it is erroneous thinking on the part of community college personnel to associate student attrition primarily with poor academic skills (content)

acquisition. Involvement Theory places the focus on the interaction between the student and the college to strengthen the students' engagement with the content. Tinto (2009), whose Student Integration Model supports Involvement Theory, identifies four primary conditions for student success: clear expectations, academic and social support, feedback on progress, and involvement. "Nowhere is such involvement more important than in the classroom. . . . Active involvement of students in learning activities in and around the classroom, especially with other students, is critical to student retention and graduation" (p. A33).

Identity Theory

Chung and Higbee (2005) indicate that within the field of developmental education, "there is no robust and shared theoretical framework unique to the field" (p. 5). Dweck (2009) offers a view on intelligence as it relates to self-perceptions. According to this self-identity theory, there are two views on intelligence - entity view and incremental view. The entity view purports intelligence as a fixed mindset. "Students who have a fixed mindset believe that their intelligence is simply fixed--they have a certain amount" (p. 8). Research indicates that students who enter the classroom with this view are less prone to explore challenging subject matter and are at risk of under-achievement. The incremental view is a growth mindset. "Those who believe that their intelligence can be developed--are eager learners" (p. 9). Incrementalists believe that they can expand their intelligence through learning and strategic thinking. These views shape how students view the world and themselves, with implications for self-esteem and motivation. The growth mindset can be cultivated by praising students when they explore challenging, in-depth material and when they use learning strategies. Praising for intelligence

alone is not recommended. "Praising students' intelligence puts them into a fixed mindset . . . eager to look smart" (p. 9) and cautious to try things that might not uphold that image.

Change Theory

In order to address the issues surrounding college-readiness, change is needed. These changes will potentially impact the students, the faculty, the administrators, and state-wide policies. Change Theory can address how effective change happens.

Lewin's seminal work on planned change took place during World War II and had a profound impact on social and organizational psychology (Schein, 1995). The Three Step Change Theory considers the opposite forces that resist and support change and suggests a process for successful change implementation (Kritsonis, 2005; Lewin, 1997). "The first step is to unfreeze the existing situation or status quo . . . to overcome the strains of individual resistance and group conformity" (Kritsonis, 2005, p. 2). Unfreezing involves actions that move people away from the current situation such as preparation time and trust building. Schein (1995) expanded on Lewin's work over the years, and indicates that unfreezing requires "some form of dissatisfaction . . . that disconfirm(s) our expectations" (p. 2). To avoid the tendency to dismiss the discomforting information as irrelevant, "disconfirmation must arouse survival anxiety . . . if we do not change we will fail to meet our needs" (p. 2). The second step, movement, is the process of moving people to a new level of equilibrium through encouraging fresh perspectives and working together to formulate new views. There is a need for balance between the threat to move and the psychological support to be motivated to change. The third step is refreezing and involves reinforcement of change and "integration of the new values into the community values and traditions" (Kritsonis, 2005, p. 2). In order to achieve this integration of new values, Schein

(1995) stresses the need for cognitive redefinition. This third step includes institutionalizing change through procedures and formal policies.

Transformational Leadership

James MacGregor Burns (1978) proposed a philosophy of leadership that supports deep, lasting change in an organization. The key to leading change, according Burn's philosophy, is not in the possession or use of power to lead but in having a relationship with the values and motives of those within the organization. In contrast, when change solely aligns with the leader's goals, wielding power over others in the organization to achieve change is "often self-destructive and transitory" (p. 18). The distinction is made between exerting control over things which have no motives, such as money, and leading people who possess motives that need to be aroused to change. Using Burn's philosophy, leading systemic change to improve college-readiness of community college students would involve tapping into the values and motives of those in the organization that resonate with improving the success of the underprepared students. Grasping the values and morals of those within the organization brings about an arousal for change. Burns refers to this as transforming leadership.

> Such leadership occurs when one or more persons engage with others in such a way that leaders and followers raise one another to higher levels of motivation and morality. . . . Power bases are linked not as counterweights but as mutual support for common purpose. (p. 20)

This is in contrast to transactional leadership which is described as a bargaining process to exchange or trade something of value such as performance in return for financial reward. "A leadership act took place, but it was not one that binds leader and follower together in a mutual and continuing pursuit of a higher purpose" (p. 20). Successful leaders are distinguished by their ability to bring about real change, described by Burns as "a continuing interaction of attitudes,

behavior, and institutions, monitored by alterations in individual and collective hierarchies of values" (p. 414). Transforming leadership brings about transformational change that impacts the long-term attitudes, behaviors, and conditions. "That people can be lifted into their better selves is the secret of transforming leadership and the moral and practical theme of this work" (p. 462).

Involvement Theory (Astin, 1999) suggests that the extent to which community colleges can successfully engage the underprepared students in the learning process and into the college experience, it will positively impact student learning and retention. Identity Theory (Dweck, 2009) espouses that the students' belief that intelligence is finite makes a difference in achievement. Encouraging growth mindsets can impact motivation levels and success. Change Theory (Schein, 1995) identifies stages required to acquire sustained reform. Educational reform will require not only changes in students but also changes that impact faculty teaching and administrative systems. Moving systems and people to embrace and sustain change is critical to successful reform. James MacGregor Burns' (1978) theory of leadership suggests that real change occurs when leaders connect with the morals and values of the people and create change through a mutually valued relationship. Each of the above theories serves as a foundational element for the reform agenda. If students have an open mindset to their own ability to learn (Identity Theory), if community colleges effectively engage students in the learning process (Involvement Theory), and if community colleges can effectively implement reform in their practices (Change Theory) that create systemic, lasting change (Transformational Leadership), then student achievement may be positively impacted.

Research Methodology

The lack of college-readiness is a complex issue involving not only the majority of community college students (Collins, 2009) but also a lack of consensus as to how to prepare or assess academic college-readiness (Bailey, 2009a). A qualitative exploration of effective strategies for addressing the issues surrounding college-readiness brings greater understanding and insight. A qualitative research approach addresses the complexities of the issue, explores the context of the strategies employed to address the issue, and answers the Guiding Questions (Creswell, 2007). An instrumental multi-case study was selected to allow for an understanding of the larger context of college-readiness and the multiple approaches to improving college-readiness and success of the unprepared community college students (Johnson & Christensen, 2008 Stake, 2008,). Within-case analysis of the individual cases and cross-case analysis were employed to find themes shared across the cases (Creswell, 2007).

Summary of the Review of Literature

College-readiness is defined as possessing the requisite knowledge and skills needed to master college-level coursework (ACT, 2011a; Schmeiser, 2010). The number of students who lack skills needed to master college-level work upon entrance to the community college is rising (Bailey, 2009b; Obama 2009b). In response, efforts to better understand characteristics that predict college-readiness (Bettinger and Long, 2007; Patelis, Camara, Wiley, & The College Board, 2009) and adopting common core standards in K-12 (Achieve, 2011; Lederman, 2009) have gained momentum. Defining college-readiness has expanded to include non-academic values like personal management skills and contextual knowledge of the college milieu, as well

as affective and personal factors (Boylan, 2009; Conley, 2008; Conley, 2010; Karp, 2011; Kirst & Venezia, 2006; Levine-Brown, Bonham, Saxon, & Boylan, 2008).

Although the majority of degree-seeking students entering community colleges are assessed as not college-ready (Collins, 2009; Kirst & Venezia, 2007; Vandal, 2010), there is no consensus on the level of skills needed to be successful in college level work (Bailey, 2009b). There are two instruments that are used at the majority of community colleges to assess college-readiness - ACCUPLACER and COMPASS (Hughes & Clayton, 2011). Variability as to what constitutes college-level work between institutions and sometimes within institutions makes the cut-off score appear less objective (Attewell, Lavin, Domina & Levey, 2006). Only 7% of community colleges used non-cognitive factors, such as motivation, as part of college-readiness assessment (Gerlaugh, Thompson, Boylan, & Davis, 2007).

A primary treatment for the lack of college-readiness in community colleges is developmental education in reading, writing, and mathematics. Developmental education has been included as one of the four curricular functions of the public community college since its inception (Cohen & Brawer, 2003). The lack of college-readiness standards complicates the ability to determine effectiveness of current strategies, particularly developmental education (Bailey, 2009b). Many fail to complete the sequences of developmental courses and the likelihood of completion declines with the increase of developmental courses (Bettinger & Long, 2007; Bailey, 2009a). For those who do complete developmental education, there are mixed results on the impact on degree completion rates (Attewell et al., 2006; Bettinger & Long, 2007). With mixed results, there are questions about the return on investment with developmental education. Estimates report between one and two billion dollars a year are allocated from the

state and local tax bases to fund developmental education in community colleges and student tuition costs for developmental education total nearly $300 million (Alliance for Excellent Education, 2006; Bailey et al., 2008).

Community colleges have been investing in reformative strategies to improve college-readiness. Newer approaches include secondary and postsecondary partnerships focused on agreement of outcome standards, better alignment of curriculum, setting common academic expectations, and designing preventative strategies (Alliance for Excellent Education, 2011; Bolden, 2009; Collins, 2009; Conley, 2005; Conley, 2010; Kirst, 2007; Templin, 2011). Reform includes the use of multiple assessments to more accurately assess the multiple dimensions of readiness (Barkley, 2010; Boylan, 2009; Hughes & Scott-Clayton, 2011; Levine-Brown, Bonham, Saxon, & Boylan, 2008; Saxon, D. P., Levine-Brown, P., & Boylan, H. R., 2008). Beyond assessment upon entry, there has been an adoption of momentum points that are used to measure intermediate progress toward completion, and allow for intervention along the way (Leinbach & Jenkins, 2008).

Reforms to developmental education fall into three main categories: acceleration, contextualization, and modularization. In addition to delivery methods, a curricular overhaul is proposed in mathematic sequences (Carnegie Foundation, 2011b; Collins, 2009). Approaches that accelerate the acquisition of knowledge and quicken the progression toward college-level work are reported to be showing promise (Edgecombe, 2011; Rutschow & Schneider, 2011; Zachry, 2008). Modularization divides traditional curriculum into learning modules, allowing students to attend to their identified deficiencies and at a pace that fits their learning needs (Edgecombe, 2011). An alternative to self-contained developmental education courses involves

contextualized instruction which embeds developmental education into college-level career and technical education courses to engage the learner through career interests (Baker, Hope, & Karandjeff, 2009; Perin, 2011; Rutschow & Schneider, 2011). With mathematics curriculum often containing the longest sequences for developmental students and with less than a third of underprepared mathematics students completing the required sequences (Bailey et al., 2008; Bailey, 2009b), there has been significant attention on accelerating developmental math. Intensive developmental mathematics programs were found to divide into three categories; boot camps, summer bridge programs, and accelerated semester courses (Sherer & Grunow, 2010). In addition, the Carnegie Foundation for the Advancement of Teaching (2011b) proposed new mathematics pathways, called Statway and Quantway, based on the philosophy that mathematics needs to be better aligned with requirements of specific career fields. While preparation in calculus is needed for science, technology, engineering and mathematics (STEM) fields, many non-STEM careers demand rigorous preparation in statistics (Statway) or quantitative reasoning (Quantway).

Finally, four theoretical frameworks offered insights into student motivation and achievement as well as mechanisms to enact sustained systemic change within institutions. Identity Theory (Dweck, 2009) espouses that the students' belief that intelligence is finite makes a difference in achievement. Examining how to encourage growth mindsets can impact motivation levels and success. Involvement Theory (Astin, 1999) suggests that the extent to which community colleges can successfully engage the underprepared students in the learning process and into the college experience, they will positively impact student learning and retention. With the lack of success reported with current systems, Change Theory (Schein, 1995)

suggests a three-stage process required for sustained reform. James MacGregor Burns' (1978) theory of leadership suggests that real change occurs when leaders connect with the morals and values of the people and create change through mutually valued relationships.

CHAPTER 3

METHODOLOGY

This chapter outlines the research methodology undertaken to examine and analyze reformative strategies that have been identified as positively impacting college-readiness and achievement of underprepared students at six community colleges. The chapter begins with a brief review of the problem being addressed and the purpose of the study. The research design is reviewed, including the five guiding research questions and the qualitative, multiple case-study methodology. The Data Collection section describes the four methods used: semi-structured interviews, demographic surveys, focus group, and document reviews. The Site Selection section describes the purposeful criterion-based processes undertaken to select the six community colleges, the semi-structured interview participants, and focus group participants. Next, the multiple case-study protocol that was used to guide the field procedures and instrumentation is discussed. The Data Analysis section reviews the two-stage - within-case and cross-case - analyses completed on the six cases. This is followed by a description of validity and reliability tactics incorporated in the study. The chapter concludes with a review of the following: limitations, delimitations, and assumptions; subjectivity of the researcher; and ethical consideration of the study.

Problem Statement

Although the numbers of students entering colleges with postsecondary degree aspirations have more than doubled since 1970, completion rates have stagnated (Complete College America, 2011). "For many years, the United States was the undisputed leader in educational expansion and had a significantly higher rate of college completion than any other

country" (Carnevale & Rose, 2011, p. 12). America now ranks tenth in postsecondary degree attainments for 25-34 year olds with about 42% of the population having completed degrees, with some estimates even lower. This compares to 55% degree completion for the same age group in Canada, Japan, and South Korea (Carnevale & Rose, 2011). Declining postsecondary degree completion rates have raised concern for the economic future of the country and led to a national-level call to identify the roots of the problem and fix them (Obama, 2009b). Community colleges have been identified as a major part of this educational reform effort by President Obama.

Fewer than one in ten freshmen with associate degree aspirations graduate within three years (Complete College America, 2011). One root cause for the lack of completion in community colleges is the growing number of students who are identified as underprepared for college level work. The lack of college-readiness has been noted as the major barrier to college graduation (Alliance for Excellent Education, 2006; Attewell, Lavin, Domina and Levey, 2006; Carnegie Foundation for the Advancement of Teaching, 2008).

The majority of students who enter community college are underprepared to succeed in college-level work (Attewell, Lavin, Domina & Levey, 2006; Bailey, 2009a; Collins, 2009; Kirst, 2007; Schmeiser, 2010). Estimates indicate about 60% of entering community college students are unprepared in at least one area of reading, writing, or mathematics (Collins, 2009; Kirst & Venezia, 2007; National Center for Public Policy and Higher Education and the Southern Regional Education Board, 2010). In some states, the figure raises to 90% of incoming, first-time community college students who are lacking in college-ready mathematics skills (Carnegie Foundation, 2011). Of 1.5 million students who took the ACT assessment test in

2011, only 25% were determined to be college-ready in reading, English, math, social science, and biology (ACT, 2011).

Community colleges have traditionally offered developmental education curriculum to address a lack of college-readiness in reading, writing, and mathematics. The majority of students placed in developmental sequences reportedly do not complete them and there is a lack of clear data on the success rates of those who do complete them (Bailey, 2009b; Bailey, Jeong & Cho, 2008; Bettinger & Long, 2007; Collins, 2009; Kuh, 2007).

A lack of college-readiness has a negative impact on success and completion. The negative impact is compounded by a lack of clarity surrounding how to effectively improve college-readiness and achievement. These factors uncover a need to examine the issue of college-readiness and learn more about effective strategies that hold potential to improve student success and completion in community colleges.

Purpose Statement

The purpose of this multiple case study was to explore and analyze reformative strategies that effectively address college-readiness and achievement of underprepared community college students. A prerequisite to the exploration was the identification of community colleges that were recognized for having expertise in strategies that positively impact college-readiness and achievement of underprepared students. The Achieving the Dream organization was used to determine community colleges with such expertise. Achieving the Dream (ATD, 2011a) is an independent, non-profit organization serving a network of 160 community colleges with a mission to support research into and implementation of practices that improve student success. ATD has recognized over 50 community colleges as Leader Colleges (ATD, 2011b). Leader

Colleges are recognized for demonstrated adherence to making deep, institutional change and providing data-based evidence that reformative strategies have been successfully implemented with positive impact on student success. The purpose of this study was to examine strategies implemented at selected Achieving the Dream (ATD) Leader Colleges that (a) represent a diversity of successful reformative strategies that address college-readiness and achievement, (b) provide evidence of at least three years of sustained effectiveness as identified by outcome data, and (c) are within state systems that have minimally begun state-wide public education policy reform efforts.

A multiple-case study was selected in order to achieve both in-depth understanding and comparative analysis. Within-case study analysis was intended to yield in-depth insight into the strategies including effectiveness of impact, factors that supported effectiveness, and potential for wide-scale implementation. Cross-case comparisons were intended to identify similarities as well as unique factors of effective strategies and allow for the emergence of specific effectiveness characteristics and themes across the strategies. The overall intended purpose of the study was to identify successful institutional strategies and public policy initiatives that improve college readiness, determine common characteristics among the successful strategies that contribute to college-readiness, and identify specific strategies recommended for the best practice label and for wide-scale implementation.

Research Design

The lack of college-readiness is a complex issue involving not only the majority of community college students (Collins, 2009) but also a lack of consensus on how to prepare or assess academic college-readiness (Bailey, 2009a). A qualitative exploration of effective

strategies for addressing the issues surrounding college-readiness was selected to bring greater understanding and insight. According to Creswell (2007), qualitative research is used when "we need a complex, detailed understanding of the issue . . . to understand the contexts or settings in which participants in a study address a problem or issue" (p. 40). There are relatively few community colleges in the country that have been identified as leading experts in addressing this issue. Qualitative research into the success of these select experts afforded in-depth descriptions and delineated the processes involved, allowing for deeper understanding to be derived. This emic, or insider, perspective is best obtained from a qualitative approach that uncovers firsthand insight into addressing issues of college-readiness (Merriam, 2009). The selected qualitative research approach addressed the complexities of the issue, explored the context of the strategies employed to address the issue, and answered the Guiding Questions.

Guiding Questions

Exploration and analysis of reformative strategies employed in community colleges that effectively address college-readiness and achievement will provide solution-oriented insight to the problem of incoming underprepared students. According to Merriam (2009), Guiding Questions articulate what is to be explored and steers the methodology to gather and analyze the data in order to answer the questions.

Questions that guided this exploration included the following:

1. What strategies were implemented (at the identified ATD Leader Community Colleges) to improve success of underprepared students?
2. What is the impact of the selected strategies on the success of underprepared students?

3. How do the state educational policies identified in the case studies support increasing success of underprepared students?
4. Are the identified strategies replicable and scalable for large, system-wide implementations?
5. What are the best practice recommendations?

Qualitative Methodology

A case study methodology was employed to explore the issue of college-readiness and strategies to address the issue effectively. According to Stake (2008), a case study methodology is organized around an issue or theme. Instrumental case study is best selected when the case selection allows for an understanding of a larger issue (Johnson & Christensen, 2008; Stake, 2008). A case study is deemed instrumental when "the case is of secondary interest . . . it facilitates our understanding of something else . . . the choice of case is made to advance understanding of that other interest" (p. 123). The larger issue of interest in this study was effective college-readiness strategies for underprepared students. The selected cases in this study each identified effective strategies that improve college-readiness for the underprepared student. Examining multiple sites where reformative strategies have been implemented was instrumental in obtaining a greater breadth of understanding of the college-readiness issue and allowed for greater generalizability (Johnson & Christensen, 2008).

To that end, an instrumental multiple-case study (Stake, 2008) was used to gain an understanding of the issue of college-readiness preparation and explore the strategies used to increase success of the underprepared community college student. It was intended that the

instrumental multi-case study employed would yield recommendations for systemic changes that can be duplicated in larger-scale. Stake (2008) concludes:

> A number of cases may be studied jointly in order to investigate a phenomenon, population, or general condition….They [the cases] are chosen because it is believed that understanding them will lead to better understanding, and perhaps better theorizing, about a still larger collection of cases. (p. 123)

This instrumental multi-case study was selected in order to gain greater understanding of the multiple approaches to improving college-readiness and success of unprepared community college students. It allowed for within-case analysis of the individual cases, cross-case analysis to find shared themes, interpretation of meaning, and extraction of conclusions across all (Creswell, 2007).

Data Collection

Qualitative case study research is focused upon the "search for meaning and understanding" within a "bounded system" (Merriam, 2009, pp. 40-41). The bounded system in this study consisted of those community colleges identified by Achieving the Dream (ATD) as Leader Colleges in effectively addressing college-readiness and achievement. From within this bounded system, the study collected data that contributed to a greater understanding of effective reformative strategies that address the issue of college-readiness and achievement through exploration and analysis. Stake (2008) suggests that "these activities [strategies] are expected to be influenced by contexts, so contexts need to be described" (p. 131) because the "contexts may go a long way toward making relationships understandable" (p. 127). Demographic information and relevant documents were collected to allow for a clear understanding of the particular context of each case study.

Data Collection Methods and Protocol

Data were collected to address the Guiding Questions via semi-structured interviews employing interview questions as noted in Appendix A. Additional data were gathered through multiple processes to include demographic surveys (Appendix B), a focus group (Appendix C), and document reviews. The methods and the protocol followed in the collection of the data are described in this section.

Semi-structured interviews. Interviews are a standard form of data collection in qualitative research (Merriam, 2009). In this study, semi-structured interviews were conducted with project leaders from each of the selected community colleges. A list of standard questions (Appendix A) address the Guiding Questions and help to provide for assessable information from all the respondents (Merriam, 2009). The interview was supported by an unexhausted list of possible prompts (Appendix D) to allow the researcher to explore further into issues, gain an understanding of the contexts as well as "respond to the situation at hand, to the emerging worldview of the respondent, and to new ideas on the topic" (p. 90).

Demographic survey. A demographic survey (see Appendix B) was designed to capture basic contextual information related to each of the respondents and the corresponding community college. The survey data included the following: (a) data about the respondents, such as job title, number of years of service at the college, and brief history of roles within the institution and with Achieving the Dream (ATD) projects; (b) data about the community colleges, such as the students' demographics, the college's enrollment figures, and employee demographics; and (c) data about ATD related projects such as length of membership, number of

strategies implemented, number of students involved, number of employees involved, and amount of college funds invested.

Focus group. "A focus group is a type of group interview in which a moderator (working for the researcher) leads a discussion with a small group of individuals . . . to examine, in detail, how the group members think and feel about a topic" (Johnson & Christensen, 2008, p. 209). Such a data gathering process was employed to gather data from a group of professional strategy coaches and data experts affiliated with the Achieving the Dream (ATD) organization and who had experience working with ATD Leader Colleges. The purpose of the focus group session was to ascertain the identification of effective strategies, opinions on the challenges related to implementing effective strategies, and recommendations for best practice criteria and best practices (see Appendix C).

Document review. The last method for data collection was document review. Secondary data were collected and reviewed from each selected community college. These sets of secondary data were "used with other data for corroboration" (Johnson & Christensen, 2008, p. 209) and some contributed as primary data related to the Guiding Questions. Documents pertaining to strategy descriptions, outcome data, and public policy positions were retrieved for review as available for each of the selected sites. Retrievable documents included Achieving the Dream (ATD) publications, data reports on the success strategies employed at the participating community colleges, and state-wide public policy positions. Project proposals, data reports, presentation materials, and other pertinent internal documents were requested for review from the participating community colleges.

Site Selection

Site selection for this study followed a purposeful criterion-based selection process, as the criteria for inclusion were created prior to site selection (Johnson & Christensen, 2008). A primary selection criterion for this study was community colleges that were recognized by Achieving the Dream (ATD) as being effective in improving college-readiness preparation and achievement. The selected community colleges, named ATD Leader Colleges, were reported to have at least three years of sustained evidence of effectiveness. Johnson and Christensen (2008) refer to this method as critical-case sampling. "In critical-case sampling, cases that can be used to make a point particularly well or are known to be particularly important are selected for study" (p. 245).

Additionally, a review of public documents outlining strategies implemented at the Leader Colleges was undertaken to decipher both balance and variety among the selected sites. According to Stake (2008), "balance and variety are important" (p. 130) selection criteria for case study.

Another critical case-sampling criterion focused on community colleges that reside in states that have initiated state-wide public education policy reform efforts related to preparation, alignment, and measurement. Identifying how state educational policies supported success of underprepared students was the focus of one of the Guiding Questions of the study. Selecting community colleges located within state-systems facilitated the ability to identify effective strategies. Another of the Guiding Questions focused on determining the potential of strategies for wide-scale implementation. Selecting community colleges within state-wide systems was intended to assist in identifying strategies with potential for wide-scale implementation. Stake

(2008) suggests that good case selection includes cases "that seem to offer opportunity to learn" (p. 130) and where the potential to learn is the greatest.

Achieving the Dream (ATD, 2011b) has identified over 50 Leader Colleges recognized for their demonstrated expertise in implementing strategies that improve student success. Additionally, there were 16 states identified by ATD as having state-wide public education policy efforts in-progress or implemented (see Appendix E). At the time of this study, six of those states housed two or more community colleges that were recognized as Leader Colleges. Site selection for this study focused on those six states; for purposes of anonymity, the identification of the six states was not revealed. Six community colleges were selected, one from each of the six states. To select six sites from the 26 potential community colleges, outside experts were consulted. An experienced strategy coach and a data expert affiliated with ATD were asked to separately prioritize a minimum of six community colleges that represent a diversity of effective strategies. A third resource consulted was a publication, *Promising Practices: 2010 Leader Colleg*es (ATD, 2010b). The six selected sites were chosen by one or both of the ATD coaches and were also listed as a promising practice in the ATD publication.

Participant Selection

Merriam (2009) indicates that "sample selection occurs first at the case level, followed by sample selection within the case" (p. 82). Sampling criteria for who to interview is necessary "unless you plan to interview, observe, or analyze all the people . . . within the case" (p. 81). Participant selection was completed for the six semi-structured interviews and the focus group.

Semi-structured interview participants. Six participants were selected for the semi-structured interview process representing six separate community colleges. Generally, all ATD

affiliated community colleges have an identified project leader, also referred to as a Core Team Leader. The participants selected for this study were the project leaders identified at each of the selected community colleges.

The project leaders were selected for their familiarity with the processes undertaken at their particular community college including selection, implementation, and evaluation of the strategies employed to improve college-readiness and achievement of underprepared students. The project leaders also had familiarity with administrative aspects of the projects undertaken at their respective community colleges such as budget, personnel, and student impacts.

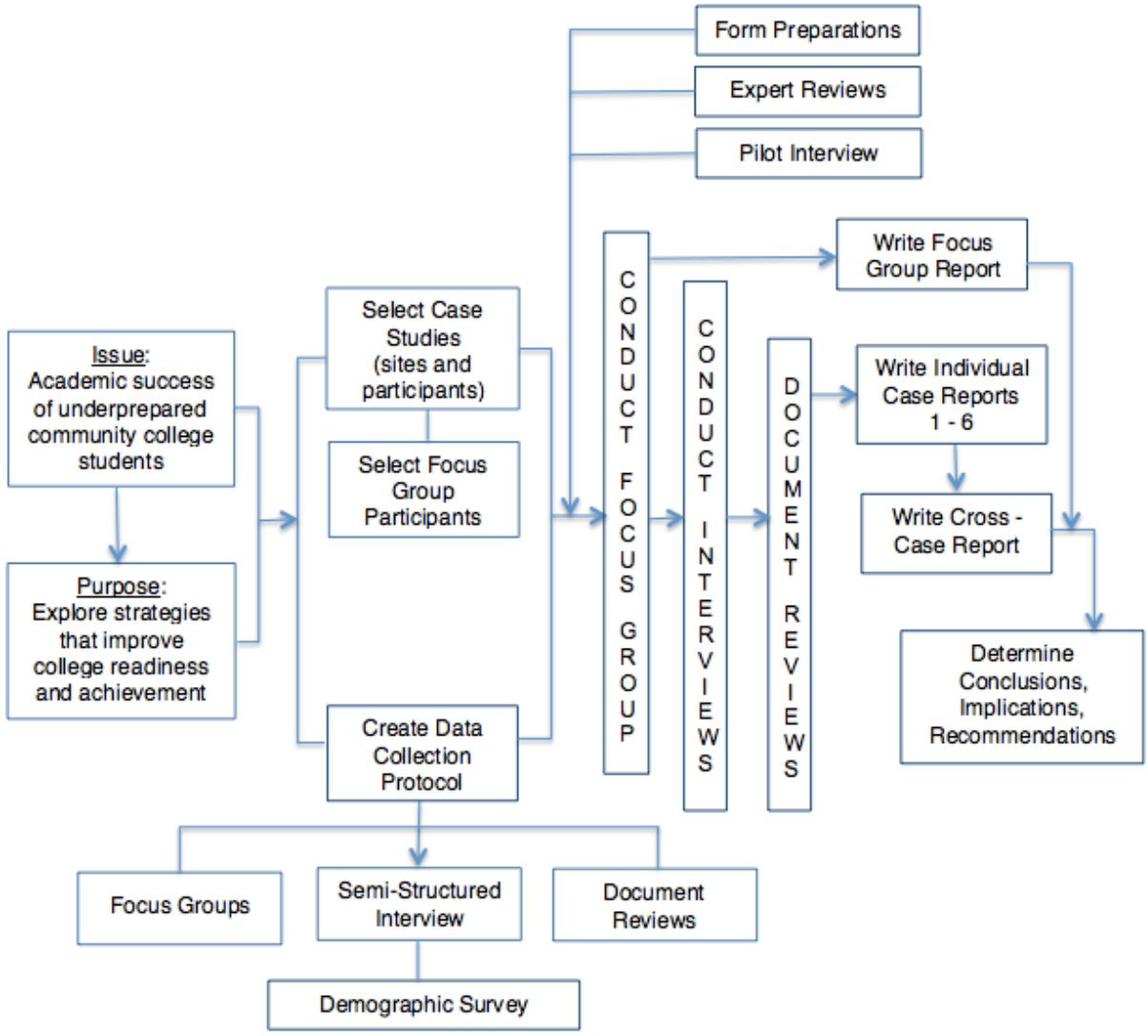
Focus group participants. Purposeful sampling was used in the selection of the participants for the focus group process. Merriam (2009) suggests that "the composition of a focus group depends on the topic to be discussed . . . purposeful sampling should be used to include people who know the most about the topic" (p. 94). Professionals who were involved as strategy coaches or data experts for ATD and who have worked with Leader Colleges were considered experts in both design and evaluation of effective strategies that improve college-readiness and achievement. The coaches and data experts were experienced with design and evaluation of success strategies. Many work at other community colleges in a variety of administrative and research capacities. These individuals were not employed by the community colleges selected nor were they made aware of any of the names of Leader Colleges that were selected for the study. An invitation to participate in the focus group was extended to all strategy coaches and data experts who were affiliated with any ATD Leader College and who were planning to attend the ATD Strategy Institute in February 2011.

Multiple Case Study Protocol

Yin (1994) notes that multi-case study protocol "is a major tactic in increasing the reliability of case study research and is intended to guide the investigator in carrying out the case study" (p. 63). The protocol includes a series of preparatory tasks including identification of the selected case studies, identification of focus group participants, expert review of proposed data collection methods, creation of letters of introduction and consents, and execution of pilot interviews. The protocol includes a series of implementation tasks including document reviews, demographic surveys, individual case interviews, focus group process, individual case study analysis, focus group analysis, cross-case analysis, case study report, focus group report, and cross-case study report (see Figure 1). As part of the protocol, the field procedures and instrumentation procedures are described in this section.

Field procedures. With multi-case study research, the "data are to be collected from existing people and institutions" (Yin, 1994, p. 66). In this study, the data were collected in interview settings at the selected community college sites with the Core Team Leader involved with the coordination of the effective strategies being studied. Operational procedures employed on-site included "gaining access to the key . . . interviewees . . . [and] making a clear schedule of data collection activities that are expected to be completed with specified periods of time" (Yin, 1994, p. 69).

Figure 1: Multiple Case Study Protocol



Adapted from Yin, 2009

Semi-structured interview procedures. The purpose of this multiple case study was to explore and analyze reformative strategies that effectively address college-readiness and achievement of underprepared community college students. In order to fulfill this purpose, semi-structured, in-person interviews with community college Core Team (project) Leaders were

arranged at their individual campuses (natural setting). The six interviews were arranged to take place throughout a six-week period. The in-person interviews were planned to be approximately 90 minutes with opportunity for a follow-up telephone interview. Each interview was recorded and professionally transcribed. The interviewee was assured the right and opportunity to fully review and change the transcript prior to it being used in this study. Assurances of confidentiality of both the participant and the site were reviewed with the participant prior to the interview (Johnson & Christensen, 2008). Field notes were taken during and following each interview to document observations of a contextual nature and reflections. While on campus, direct observations of the physical campus were made and reflected in the field notes.

Focus group procedures. The annual Achieving the Dream (ATD) Strategy Institute was held in February 2011 for affiliated community colleges, coaches/data experts, and staff. This setting offered a convenient location to hold a focus group with the coaches and data experts of the ATD Leader Colleges. The focus group was held at the conference site in the early evening, following the conclusion of the daily schedule of regular sessions on the first full day of the conference. The focus group was intended to be limited in size, with six to ten participants. A trained and experienced focus group facilitator and a note taker were employed to conduct the focus group session. The researcher was present as an observer, taking field notes during the focus group session. The session was scheduled to last approximately 60 minutes. The focus group participants were made aware of the topic of the focus group in advance but were not alerted to the questions. The participants were assured of confidentiality in the study and were asked to not identify any specific community college by name. The focus group session followed a scripted structure with three areas of inquiry: effective strategies that impact

college-readiness, challenges to implementation, and best practice recommendations (see Appendix C). The session was recorded and transcribed. Participants were given the opportunity to review and make changes to the notes from the focus group before they were used in the study.

Instrumentation. Following Merriam's (2009) recommendations, "the interview guide will . . . contain several open-ended questions that could be followed up with probes" (p. 103). The interview questions for the semi-structured interview process were formulated into a matrix with the Guiding Questions (see Appendix A). This served as a guide for the interview process. The open-ended questions for the focus group session can be found in Appendix C. The demographic survey (see Appendix B) was distributed in advance of the semi-structured interview. However, if the information was not provided in advance, the information requested on the survey was obtained following the interview.

Expert review. Expert reviews were made to assure quality in data collection. Experts were utilized to review the data collection instruments for initial validation as follows:

- One process expert in the area of qualitative methodology was selected to review and give feedback regarding the Guiding Questions and interview questions matrix.
- Three process experts in the area of focus group interviews were secured to assess and give feedback regarding the focus group process and questions.
- One community college research specialist was selected to review the overall research design and provide insight and recommendations related to the site and participation selection, interview questions, and focus group design.

Process pilot. A pilot interview was conducted in order to assess the usefulness, clarity, and thoroughness of the instrument (Merriam, 2009). One local community college affiliated with Achieving the Dream (ATD) was selected as a pilot site for the semi-structured interview. The pilot site had at least one reformative strategy in implementation stage. The project leader was available for an in-person interview on the leader's individual campus. Feedback was received verbally immediately following the interview.

Data Analysis

Multiple-case studies bring forth a rich amount of data for analysis requiring attention to data management to assure that there is clarity of understanding and meaning (Merriam, 2009). This study used a data analysis flow chart to guide the analysis and theming processes (Figure 2). The overall data analysis included a two-stage process with attention to reliability and validity.

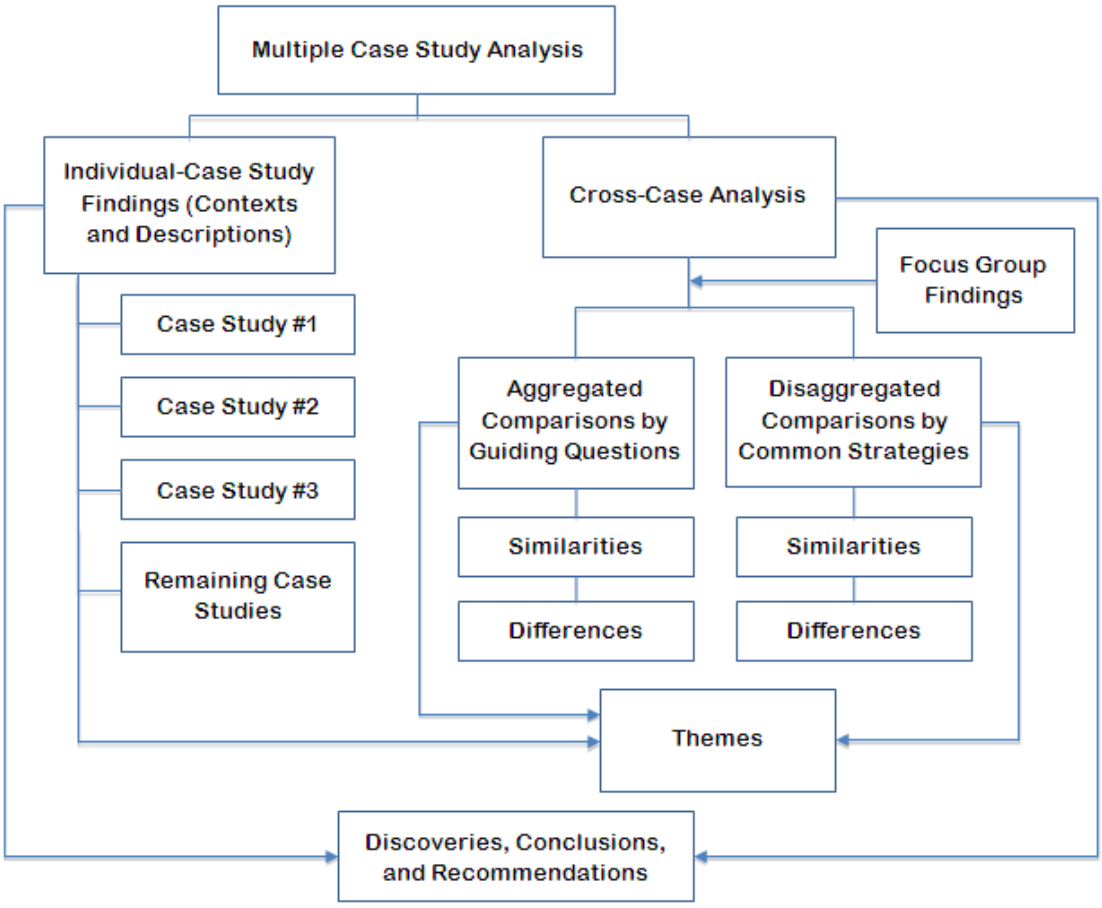
Two-stage Multiple Case Study Analysis

In this study, a two-stage analysis was used to analyze the multiple cases - a within-case analysis and a cross-case analysis (Creswell, 2007). The within-case analysis examined each of the individual case studies. The cross-case analysis was further divided into a two-stage process: an aggregated analysis of each case in accordance with the five Guiding Questions and a disaggregated analysis of the common strategies found across the cases.

Creswell (2007) noted that "the process of qualitative data analysis . . . starts with the researcher analyzing the raw data . . . forming the raw data into codes, and then combining the codes into broader themes" (p. 169). The themes will serve as rubrics to hierarchically organize the smaller, coded units in order to "build levels of analysis and see the relationship between the raw data and the broader themes" (p. 169). Color coding was used in the within-case analysis to

track response data for the Guiding Questions. In the cross-case analysis, color coding was utilized in the identification of similarities and unique features in the comparisons. Finally, color coding was used in the identification of themes across the cases.

Figure 2: Multiple Case Study Data Analysis Flow Chart



Adapted from Creswell, 2007

Within-case data analysis. In accordance with Merriam (2009), the within-case analysis treats each individual case "as a comprehensive case in and of itself" (p. 204). The data from each individual case were separately prepared for analysis (Creswell, 2007) using the following processes: (a) organized the data per case for ease of retrieval, (b) synthesized the data using

color codes to abstract data and themes related to the five Guiding Questions, and (c) visually represented the data with bulleted lists and tables. Documents pertinent to each case were similarly reviewed using color codes to link the data from the documents with the interview data for corroboration and as pertinent to the Guiding Questions. The document reviews were most specifically used to ascertain outcome data on strategies that were referenced in the interviews. Data from the demographic surveys were individually reviewed and used to provide context for each case study analysis.

The focus group data analysis was completed independently from the case study analyses. Data recovered from the three areas of inquiry that framed the focus group were analyzed individually to synthesize meaning and identify themes: effective strategies, challenges that impeded effective strategies from becoming best practices, and elements of the best practice label. The results were summarized in lists for use in corroborating themes and drawing conclusions.

Cross-case data analysis. After the analyses of the individual cases and focus group were completed, the cross-case analysis was conducted. This stage is an integration analysis in search of similarities, patterns, and differences across the multiple cases (Johnson & Christensen, 2008). Themes and patterns derived from the focus group were also brought forth in the cross-case analysis.

The cross-case analysis was organized in two stages. In the first stage, the five Guiding Questions were used to organize a cross-case examination. A comparative analysis of similarities and differences across the case-studies was made for each question. The cross-case analysis served to synthesize the data, “aggregating findings across a series of individual studies”

(Yin, 2009, p. 156). To gain deeper insight into the identified strategies that impact college readiness, the second stage embedded a comparative analysis of the commonly identified effective strategies (Yin, 2009). This disaggregated examination focused on key issues (strategies) identified across multiple cases and allowed for greater comparative understanding into the characteristics of the common strategies (Creswell, 2007). The composite of these analyses revealed themes in improving college readiness for underprepared community college students (Creswell, 2007).

Validity and Reliability

To assure the quality of social research, four tests are recommended: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability (Yin, 2009). Yin's (2009) recommended tactics for case study validity and reliability were incorporated where applicable to this multiple case study.

Construct validity. During the data collection phase multiple sources were used to allow for "convergent lines of inquiry" (Yin, 2009, p. 42) or data triangulation. These sources included (a) reviews of pertinent documents that demonstrated the objectives and outcomes of the effective strategies in the case studies; (b) interviews with project leaders who have first-hand experience with the development, implementation, and evaluation of the effective strategies in the case studies; and (c) a focus group session with Achieving the Dream (ATD) experts that identified effective strategies and best practices. This triangulation of evidence "provides multiple measures of the same phenomenon" (p. 117) allowing for corroboration.

Internal validity. Simple time-series analysis (Yin, 2009) was used to examine how the studied strategies impact college-readiness of underprepared students. One of the criteria for the

selected sites was the completion of at least three years of implementation (of the effective strategies) with patterned evidence of improved college-readiness of underprepared students. Examination of consistency and trends of impact were completed via document reviews of outcome data and pertinent interview questions.

Member checks were performed (Merriam, 2009). The interviewees were given data collected from their interviews for review and confirmation.

External validity. Replication logic is embedded in the research design to ensure external validity and provide analytic generalization (Yin, 2009). In multiple-case study, "each case must be carefully selected so that it . . . predicts similar results" (p. 54). The cases selected for this study are best-practice institutions in college-readiness based on judgments of external experts. Additionally, the selected sites are located in states with state-wide public policy efforts related to preparation alignment and measurement. Examining these cases allowed for a retrieval of effective college-readiness strategies because the multiple cases allowed for "compelling support for the initial set of propositions" (p. 54).

Reliability. Research and data collection procedures were clearly documented. A case study protocol with articulated operational steps was followed (see Figure 1) to assure reliability and future replicability of the same study (Yin, 2009). Individual case study reports were compiled to form a database for cross-case analysis. "A case study database markedly increases the reliability of the entire case study" (p. 119). The case study database consisted of semi-structured interview transcripts, relevant documents on strategies and outcome reports, and field notes. Copies of documents reviewed from each case study were retrieved and stored. Notes and document files were created for organization and retrieval of the data. Case study notes

were taken and maintained throughout the multiple case study protocol: interviews, focus group, document reviews, and observations. The notes were organized for possible future retrieval (Yin, 2009).

Limitations, Delimitations and Assumptions

Limitations

There are inherent limitations to this study. The inclusion of only Achieving the Dream (ATD) community colleges may have limited the diversity of the strategies and omitted other expert community colleges that are outside of this select group. Additionally, participant and researcher affiliation with the same organizational network of community colleges (ATD) poses a potential bias.

Delimitations

There are three areas of delimitations of this study. These involve (a) the limited sample size of no more than six community colleges, (b) the multiple-case study methodology limiting the depth of the exploration (Johnson & Christensen, 2008), and (c) the focus group methodology limiting participation to those who attended the annual Achieving the Dream Strategy Institute.

Assumptions

The following assumptions were held related to the research process of this study:

1. Honesty. The respondents will be honest and forthright in their answers regarding the effectiveness of the strategies employed at their colleges;
2. Objectivity. The Achieving the Dream coaches will be objective in their identification of strategies and best practice recommendations; and

3. Applicability. The results of this study will have applicability and relevance to others working with underprepared students.

Subjectivity: The Researcher as Instrument

The researcher is an Achieving the Dream (ATD) project leader at an ATD affiliated institution. Therefore, the researcher is familiar with the ATD processes and data-driven approaches. The researcher has attended three ATD Strategy Institutes, has familiarity with ATD professional coaching roles, and has contact with other ATD affiliated institutions. According to Denzin and Lincoln (2008), "All research is interpretive; it is guided by the researcher's set of beliefs and feelings about the world and how it should be understood and studied" (p. 31). This researcher's association with ATD is recognized as a subjective factor for consideration in the analyses and conclusions drawn from this study.

Ethical Considerations

The multiple cases in this research study involved the exploration of strategies implemented at community colleges to address college-readiness of underprepared students. Those being interviewed were asked questions about the impact of strategies on the underprepared students at their respective institutions. Those participating in the focus group were asked to identify and discuss strategies that were effective in addressing college-readiness of underprepared students. Precautions were taken to assure that any data referring to students were reported in the aggregate only. Further, there was no risk beyond standard professional practice to interviewees and participants in the focus group process. Interview participants and focus group participants were informed of the purpose and the processes of the study. Each participant reviewed and signed an Informed Consent Form (see Appendix F & Appendix G).

Member checks of interview transcripts and focus group notes were undertaken to help assure participants of the accuracy in "how they are presented, quoted and interpreted" (Stake, 2008, p. 140). Additionally, identification of the institutions under study was prohibited.

Policies and procedures as outlined by National Louis University's Institutional Research Review Board (NLU IRRB) were followed to assure the protection of human subjects in this study. The researcher completed and submitted the NLU IRRB application detailing the procedures for collecting research data. The application is based in part on the October 1, 1997 revision of the *Code of Federal Regulations, Title 45, Public Welfare, Part 46, Protection of Human Subjects*. In fulfillment of this application, the following steps were taken and were reviewed by the NLU IRRB:

1. The purpose of the study was outlined including what requests were made of the participants and data collection procedures, including instruments utilized.
2. Potential risks or benefits to the participants were reviewed.
3. Demographic information about the participants was shared.
4. Procedures for obtaining informed consent from individual interviewees and focus group participants were outlined and forms shared.

Summary

College-readiness is a key to increasing the number of students who not only enter community colleges but exit with degrees. This study employed a qualitative methodology to analyze effective strategies implemented at community colleges that were identified as leading experts in improving college-readiness of underprepared students entering the community

college system. An instrumental multi-case study was designed to yield a greater understanding of the multiple approaches to improving college-readiness.

Achieving the Dream (ATD), a national network of over 160 community colleges organized to improve student success in community colleges and reduce achievement gaps, was utilized to identify the instrumental, multiple case-studies. ATD recognizes over 50 community colleges as Leader Colleges in increasing academic success of the underprepared. Additionally, ATD has identified 16 states that have active public policy efforts in the area of educational reform. The bounded system for this study was comprised of six community colleges located within state-wide educational reform efforts. These states were selected following a purposeful criterion-based selection process that included (a) being recognized as having reformative state education policy efforts underway and (b) having at least two recognized Leader Colleges residing within each selected state. The six community colleges were selected from within these states in accordance with the following criteria: (a) representing a diversity of successful reformative strategies that address college-readiness and achievement, (b) providing evidence of at least three years of sustained effectiveness outcomes data, and (c) a review by an ATD expert.

Data were collected to address the Guiding Questions via semi-structured interviews employing interview questions noted in Appendix A. A demographic survey (Appendix B) was administered to capture basic contextual information related to the particular case study. Purposeful sampling was used to design a focus group of Achieving the Dream (ATD) strategy and data coaches familiar with Leader Colleges. The focus group was designed to capture effectiveness criteria and best practice criteria in the identification of strategies that improve

college-readiness and achievement of underprepared students. Document reviews were the final method of data collection.

A multiple case study protocol was followed from design through analysis phases (see Figure 1). A two-stage approach was used to analyze the multiple cases - a within-case analysis and a cross-case analysis (see Figure 2). Yin's (2009) recommended tactics for case study validity and reliability were incorporated where applicable to this multiple case study.

Limitations and delimitations were recognized and considered in the analyses and conclusions along with the subjectivity of the researcher. Precautions were taken to preserve the highest ethical standards. Informed consent forms were reviewed and signed by all participants. Policies and procedures as outlined by National Louis University's Institutional Research Review Board were followed to assure the protection of human subjects in this study.

CHAPTER 4

FINDINGS: WITHIN-CASE ANALYSIS

The lack of college readiness is a complex issue impacting the majority of community college students (Collins, 2009). In his first address to the Joint Session of Congress, President Barack Obama (2009a) spoke about the need to find solutions to the broken pathways to degree completion. "We know that our schools don't just need more resources. They need more reform" (Obama, 2009a, p. 7). In an address to the State Higher Education Executive Officers, Under Secretary of Education Martha J. Kanter (2010) warned that the American educational system is falling behind. "We rank twelfth in the world among developing countries, and no matter how we interpret the data, that places us well below where we want to be, well below where America needs to be in the 21st century" (p. 1). Kanter encouraged finding effective reformative measures to bring "better-prepared students to the doors of higher education" (p. 4).

A lack of consensus on how to improve college-readiness (Bailey, 2009b) complicates reform initiatives. This research study sought to gather perspectives on effective strategies from community colleges involved in and recognized for implementation of reformative initiatives. In order to identify community colleges involved in effective reformative initiatives, the Achieving the Dream (ATD) network of 160 community colleges was used as a primary resource. ATD is a not-for-profit organization focused on reform measures to improve community college student achievement. ATD supports community colleges in identifying student achievement gaps and implementing effective strategies to improve student success (Achieving the Dream, 2011a).

As a supporting organization, ATD offers selective grant funding to community colleges committed to long-term reformative strategies based upon research, large-scale implementation,

and outcomes assessment. ATD assigns two expert consultants to each member community college: a strategy coach and a data facilitator. The ATD member colleges are guided in designing plans that "build a long-term, institution-wide commitment to student success by creating a culture of evidence, engaging with diverse groups, and implementing systemic reforms" (ATD, 2010a).

The research protocol for this study is rooted in the effective strategies that impact college-readiness of underprepared community college students as identified by the Achieving the Dream network of community colleges and the coaches and data facilitators associated with this network. Using a purposeful criterion-based selection process, this study explored strategies implemented at six community colleges identified by Achieving the Dream (ATD) as leaders in educational reform initiatives located within state-systems involved in public education policy. These community colleges are referred to as ATD Leader Colleges. Using purposeful sampling to select the interview participant at the six Leader Colleges, the identified Core Team Leader who oversaw the reform initiative at each community college was selected. Data were collected in accordance with the five Guiding Questions and related interview questions (Appendix A) via semi-structured in-person interviews. A demographic survey (Appendix B) was administered to gather basic contextual data relevant to each case. Pertinent documents were reviewed for additional data related to the reformative strategies, particularly in relation to outcome data. In addition to the six case studies, purposeful sampling was used to form a focus group of Achieving the Dream strategy coaches and data facilitators, with expertise in reformative strategies and familiarity with Leader Colleges. The focus group was designed to ascertain

collective expert opinions on effective reformative strategies and best practice criteria to be used primarily for data triangulation.

This chapter details the findings of the focus group and the six individual case studies. A review of the focus group protocol is offered. This is followed by findings from the focus group organized in accordance with the three areas of inquiry used in the session: effective strategies, challenges and barriers, and best practices. Next, the case selection protocol is reviewed followed by individual case study profiles. Finally, individual case study report findings are presented in detail and organized by the five Guiding Questions. This within-case analysis treats each individual case "as a comprehensive case in and of itself" (Merriam, 2009, p. 204). The data from each individual case has been separately prepared for analysis and synthesized by using the identified strategies as organizational codes. The data have been organized into lists and, where pertinent, into tables (Creswell, 2007).

Purpose

Improving college-readiness of underprepared students is central to degree completion (Conley, 2010) and reformative strategies that address preparation need to be part of the reform movement (Kanter, 2010). The purpose of this multiple case study was to explore and analyze reformative strategies that effectively address college-readiness and achievement of underprepared community college students.

Five Guiding Questions

Five questions guided this study and were used to explore reformative strategies that improve the success of underprepared community college students at selected Achieving the Dream (ATD) Leader Colleges.

1. What strategies were implemented (at the identified ATD Leader Colleges) to improve success of underprepared students?
2. What is the impact of the selected strategies on the success of underprepared students?
3. How do the state educational policies identified in the case studies support increasing success of underprepared students?
4. Are the identified strategies replicable and scalable for large, system-wide implementations?
5. What are the best practices recommendations?

Focus Group Protocol

The purpose of this study was to explore and analyze reformative strategies employed in community colleges that effectively address college-readiness and achievement. A focus group was held with professionals who have served as consultant-like coaches for Achieving the Dream Leader Colleges. The community colleges within the Achieving the Dream network are assigned two expert consultants, a strategy coach and a data facilitator. These coaches are experts in assisting colleges with data analysis and strategy development. At the time of this study, there were 30 identified Leader Community Colleges in the Achieving the Dream network and 31 coaches assigned to work with them (some were assigned to multiple colleges).

These strategy and data coaches were invited to attend a focus group at the annual Achieving the Dream Strategy Institute held in Indianapolis. Affirmative responses were received from 15 coaches. With anticipated attrition, arrangements were made to accommodate up to 15 participants. Although there were no set limits, the focus group size was designed to include 6 to 10 people (Merriam, 2009). The focus group was held with 10 Achieving the

Dream coaches for Leader Community Colleges: six data facilitators and four strategy coaches. Collectively, the group had familiarity and analytical experience with the various success strategies implemented at 14 Leader Community Colleges. There were seven men and three women in the focus group.

Participants signed consent forms and discussed confidentiality prior to taking part in the focus group. Observed casual conversation prior to the start of the session indicated that there was familiarity within the group. The group continued to function with familiarity and casual banter during the session. Pseudonyms were not assigned; however, participants were instructed not to identify any community college by name during the focus group.

The focus group was held in a general conference session room with chairs set around a U-shaped table arrangement. The focus group was not part of the conference program. It was held after the last regular session of the day. A professionally-trained focus group facilitator conducted the session. A separate scribe took notes via a computer with a large visual display for the participants. The participants were informed that the focus group would be structured in format, and were asked to react to three separate questions. The facilitator called upon participants to assure that each had an opportunity to respond and react, as desired, to the questions. The focus group was limited to one hour.

The focus group was intended to capture the coaches' opinions on effective strategies to improve college-readiness and the identification of elements needed for the label of best practice. The focus group discussion was divided into the three areas of inquiry summarized in Table 3. Notes from the focus group were captured by the scribe, compiled in accordance with the three

areas of inquiry, and sent out to the participants via email for member checks. No changes were recommended.

Table 3: Three Areas of Inquiry for the Focus Group

Effective Strategies	Challenges and Barriers	Elements of Best Practice
Identify effective strategies that improve college-readiness and achievement of underprepared community college students.	Identify challenges or barriers that need to be overcome to make effective strategies into best practices.	Identify the elements that are necessary to be labeled a *best practice*.

Focus Group Findings

The focus group was intended to extract perceptions on effective strategies and elements needed to move an effective strategy to a best practice. To provide a framework for capturing the perceptions of strategy coaches and data facilitators who have worked with various Achieving the Dream Leader Colleges on college-readiness strategies, three areas of inquiry were posed in a focus group format: (a) identify effective strategies, (b) identify challenges in moving strategies to best practices, and (c) identify elements that define a best practice. The focus group findings reported below are organized in accordance with the three areas of inquiry.

Effective Strategies

The focus group identified 20 effective strategies to improve college-readiness and achievement. There was a free-flow of ideas and all suggestions were recorded. Although there was no attempt to reach consensus, there were opportunities for members to react or refine strategies; none were eliminated. The focus group members were in agreement that the list exhausted their ideas. Below is the list of effective strategies identified by the focus group. The

effective strategies are listed in the order in which they were identified; there was no order of priority or importance in the creation of the list.

1. Clear college preparatory curriculum available for all high school students.
2. Well-defined programs of study with well-defined learning outcomes and common assessments to measure learning.
3. Accelerated developmental coursework for ‘cusp’ students who test just below college-level. Coursework accelerates developmental pace or combines developmental coursework with college-level course.
4. Case management advising for all students.
5. Learning Communities format for team-teaching developmental math and student success courses in back-to-back schedules.
6. Collaboration with the high schools to assess college-readiness during the junior year of high school in time for senior year course selection.
7. Mandatory student success course for those who place into two or more developmental courses.
8. Specialized advising to address social development of students.
9. Supplemental instruction sections for development math courses integrated into the students’ schedules.
10. Mandatory new student orientation.
11. Elimination of late registration with alternative late-start course options with support resources.

12. Standardized processes that inform and elicit support of family in college-readiness and preparation.
13. Mentoring programs for campus culture acclimation processes.
14. Alternative structure to replace 16-week semester format for developmental math with integrated support systems for students.
15. Intensive, 5-day developmental math structures with increased contact hours.
16. Assessment test preparation for students. Timely orientation prior to assessment testing to clarify process and emphasize importance of course placement. Involve faculty in regular assessment test preparation processes.
17. Success coaches (intrusive advising) for students integrated within student success courses.
18. Early alert systems that capture and intervene with patterns of absence and academic deficiencies.
19. Contextualized curriculum that embeds developmental learning within content courses.
20. Aligned pedagogy and curriculum between secondary and postsecondary education, involving faculty.

Challenges and Barriers

The focus group participants identified strategies that they determined were effective in improving the college-readiness and achievement of underprepared students. This process continued until there were no additional responses to the prompt. The facilitator then explained

that although the strategies are identified as effective, they may not all be considered best practices. General agreement was expressed and no one objected to that statement.

The group was asked to think about what might limit or challenge an effective strategy from becoming a best practice. For each strategy identified under the first area of inquiry, the group was asked to identify possible challenges that might interfere with it becoming a best practice. The participants were encouraged to openly comment on each strategy; all comments were recorded. Participants were not asked to verify or provide evidence for their responses. There was neither consensus sought nor priority order to the challenges recorded. Below is a summary of the challenges and barriers identified for each effective strategy recommended in the previous section.

1. *Clear college preparatory curriculum available for all high school students.*

   The lack of state policies and ineffective state policies were identified as barriers to making this a widespread best practice. This history of tracking students in high school as non-college material with lower academic standards challenges the implementation of new college-readiness approaches for all students. Adding to this challenge is the factor that vocational/career-technical faculty and high school counselors may not be engaged in or in favor of college preparatory curriculum for all students.

2. *Well-defined programs of study with well-defined learning outcomes and common assessments to measure learning.*

   The identified barriers to implementing this strategy focused on faculty apathy, resistance to change, and lack of faculty development. Additionally, the focus group noted that

transfer policies between community colleges and universities can form barriers to creating new programs of study, as do overly complicated outcome measures.

3. *Accelerated developmental coursework for 'cusp' students who test just below college-level. Coursework accelerates developmental pace or combines developmental coursework with college-level course.*

Overcoming a mindset that developmental coursework must be sequential is needed in order to fully implement accelerated or combined developmental and credit coursework. The focus group noted that some state policies may inhibit accelerated developmental coursework, particularly those that require prerequisite developmental education to be completed before entry into college-level courses. Additionally, the lack of faculty approval, lack of student interest or understanding, and scheduling issues were identified as further challenges.

4. *Case management advising for all students.*

The cost of implementing a case management approach was raised as the main challenge for this strategy due to caseloads and impact on staffing needs. Effective training for faculty and staff was also identified as a challenge.

5. *Learning Communities format for team-teaching developmental math and student success courses in back-to-back schedules.*

Program costs were identified as hindering wide-scale implementation of learning communities due to faculty load. Large-scale organization of learning communities often

presents technical challenges with scheduling and registering. Maintaining faculty interest and student awareness were noted as difficulties.

6. *Collaboration with the high schools to assess college-readiness during the junior year of high school in time for senior year course selection.*

High school and college "silo-mentality" was identified as a challenge to improving commitment to long-term collaboration and coordination. Arrogance was another word used to describe the reason for a lack of collaboration. Lastly, costs and sharing of time and resources were noted as factors that may challenge college-readiness testing in the high schools.

7. *Mandatory student success course for those who place into two or more developmental* courses.

Several challenges were identified for this effective strategy. Regarding curriculum and teaching, a lack of agreement on course content by faculty and consistent quality of teaching were noted. Difficulty with faculty recruitment, costs, and scheduling issues were identified as challenging to a wide-scale implementation of success courses. For remedial students, the addition of a course to already high developmental education course loads challenges students' interest as well as time and finances.

8. *Specialized advising to address social development of students.*

This strategy focused on the non-academic aspects of college-readiness, particularly social-behavioral aspects. The biggest challenge identified for this strategy was a reliable method for identification of social needs. Related to this challenge were lack of good

referral resources, work load of advisors, and the stigma associated with social-behavioral issue identification.

9. *Supplemental instruction sections for developmental math courses integrated into the students' schedules.*

Embedding supplemental instruction into the schedule requires collaborative working relationships and good, clear communications among the faculty and the supplemental instructors. Scheduling issues along with continual recruitment and training of supplemental instructors were cited as challenges as were caseloads and funding issues.

10. Mandatory new student orientation.

Enforcing mandatory orientation is challenged by late registration processes and presents scheduling conflicts. Similar to services previously identified, funding and staffing were noted challenges.

11. *Elimination of late registration with alternative late-start course options with support resources.*

Overcoming the fear of enrollment decline was a main challenge cited for the elimination of late registration. Another concern is the lack of efficiency in facility usage when late-start and staggered-start times are implemented.

12. *Standardized processes that inform and elicit support of family in college-readiness and preparation.*

Cultural and language issues were noted as challenges in seeking greater family connections with and support for the underprepared student.

13. Mentoring programs for campus culture acclimation processes.

The challenge of eliciting and maintaining student involvement was strongly noted. The difficulty in finding appropriate matches between mentor and mentee is an ongoing challenge with this strategy. Recruitment requires continuous involvement and strong buy-in from the faculty and staff. Funding and time-intensive coordination were noted as additional barriers.

14. Alternative structure to replace 16-week semester format for developmental math with integrated support systems for students.

A strong, historical bias for 16-week formats was identified. Redesign of curriculum into modules or self-paced formats requires faculty buy-in. It also requires a redesign of support systems. The challenges to overcome resistance to change and appropriate avenues for professional development were noted.

15. Intensive, 5-day developmental math structures with increased contact hours.

Challenges to intensive scheduling include student availability due to conflicting priorities and commitment to such a schedule. Faculty load and scheduling issues were also cited.

16. Prior placement test preparation for students with timely orientation prior to placement testing to clarify process and emphasize importance of the test. Involve faculty in regular assessment test preparation processes.

Preparing students to take the placement tests is sometimes perceived as cheating. Overcoming this bias may be a barrier. Scheduling preparation time is challenging and

can be viewed as a disruption to the one-stop process. Students may not deem it necessary to prepare.

17. *Success coaches (intrusive advising) for students integrated within student success courses.*

Overcoming the general resistance to mandatory success courses was cited as an initial barrier. Recruitment and training of a wide-spectrum of success coaches beyond the counseling staff might be challenging to maintain.

18. *Early alert systems that capture and intervene with patterns of absence and academic deficiencies.*

Overcoming the complicated technology requirements of implementing a successful early alert system was identified as a barrier. Eliciting faculty interest and participation in such practices as monitoring attendance and early grading may be challenging. There must be an interest and investment in funding follow-up interventions for success of the program.

19. Contextualized curriculum that embeds developmental learning within content courses.

Professional development for faculty is needed to learn and become comfortable with new teaching methods. The biggest challenge is encouraging faculty engagement in the process. Additionally, state transfer policies need to be considered when changing course content.

20. Aligned pedagogy and curriculum between secondary and postsecondary education, involving faculty.

It is challenging to establish a commitment to collaborative working relationships in designing and redesigning curriculum for alignment. It requires effective leadership, facilitation of ongoing dialogue, and a long-term plan. Addressing feelings of arrogance on the part of the high schools and the community colleges was cited as a significant barrier.

Best Practices

In the first two areas of inquiry, the focus group identified effective strategies that improve college-readiness and the challenges inherent in bringing these strategies to wide-scale implementation. The third component challenged the group to synthesize this information into elements that might serve to define the label of best practice.

The facilitator asked the group members to list the elements of best practice in a free flow of ideas. The group members cited various elements and the scribe categorized them on the screen with direction and concurrence from the group. The members continued to list elements of best practices until there was no longer a response from the prompt and the group members indicated that the list was complete. Although there was no formal request for consensus, there was a sense of agreement as the list was being compiled, as noted by head nods and interest in adding to the list. There was no prioritization of the list.

The participants identified 11 elements of best practice. Listed in Table 4 are the elements and identified factors that further define the elements.

Table 4: Eleven Elements of Best Practices

Institutionalized and embedded into policies and practices • Identified funding sources • Faculty involvement and development • Supportive institutional policies • Supported, aligned with state policies • Embedded professional development
Buy-in and attitude of all constituents is critical • Student involvement • Faculty support • Parent awareness • Administrative priority
Use of evidence based upon summative data and informative data to determine effectiveness
Positive cost-benefit analysis
Demonstrated trend of success
Proven sustainability • Scalable • Replicable (replicated at least twice) • Able to be institutionalized
Clearly defined implementation plan that is followed
Clearly defined characteristics that, when compared to other programs, identifies this as better/more effective • How do you know it is a promising practice? • Can demonstrate that a practice is effective.
Clearly defined processes/steps taken to design and implement the program, not just a model
Understanding and addressing root causes, not just symptoms
Having champions across and up and down the campus • Multiple champions to maintain the focus • Accepted practice, not trend or fad

Case Selection Protocol

Case study selection for this study followed a criterion-based selection process; most particularly, selected community colleges had been recognized for implementing reformative strategies that improve college-readiness and achievement. There are relatively few community colleges in the country that have been identified as leading experts in addressing this issue. To achieve a critical-case sampling, community colleges identified by Achieving the Dream as being effective in implementing reformative strategies to improve student success were selected.

Achieving the Dream Leader College Distinction

Achieving the Dream (ATD) maintains a centralized data file on the implementation progress and outcomes measurements of the member community colleges. Starting in 2009, ATD recognized community colleges that were effective in implementing reformative strategies with high standards of success. Such community colleges were identified as ATD Leader Colleges:

> Achieving the Dream Leader Colleges have demonstrated commitment to and made progress on the four principles of Achieving the Dream: committed leadership, use of evidence to improve programs and services, broad engagement, and systemic institutional improvement. They have also shown three years of sustained student success improvement. (ATD, 2011b)

Case study selection focused on those institutions that were recognized by ATD as Leader Colleges.

Public Policy Reform

Another critical case-sampling criterion was community colleges that reside in states that have initiated state-wide public education policy reform efforts. This criterion was selected in order to assure that the cases selected met one of the stated purposes of this study, which is to identify recommendations that have applicability for broad, systemic change. In 2010, there

were 16 states identified by ATD as having state-wide public education policy efforts implemented or in progress. Six of those states with public policy efforts have multiple community colleges identified as ATD Leader Colleges. Case selection focused on the 26 community colleges that resided in states that had both, public policy efforts underway and two or more community colleges with the Leader College distinction.

To select 6 sites from the 26 potential, outside experts were consulted. Two experienced ATD coaches were asked to separately prioritize a minimum of 6 community colleges out of the 26 that represent a diversity of effective strategies. A third expert used was a recent ATD publication, *Promising Practices: 2010 Leader College*s (ATD, 2010b). The six sites selected were chosen by one or both of the ATD coaches and also listed as a promising practice in the ATD publication.

Sampling Criteria

As part of the Achieving the Dream (ATD) network, each community college identifies one or multiple project leaders, often referred to as Core Team Leaders (CTL). These individuals coordinate strategy development and serve in a liaison role between the college and ATD. Sampling criteria for individuals to interview were based upon this leadership role. The CTL is familiar with processes involved such as selection, implementation, and evaluation of the strategies employed to improve college-readiness and achievement. The CTL is also familiar with administrative aspects of the project such as budget, student impact, and personnel matters.

Interview Protocol

Six individuals**,** who functioned as Core Team Leaders (CTL) according to the Achieving the Dream (ATD) directory at the selected community colleges, were invited via telephone to participate in this research study. Each of the six agreed to participate. A follow-up email

confirmation was sent to the CTLs along with additional information about the study and timelines. In-person, 90-minute interviews were scheduled with each CTL to take place at the selected community college campus. All six interviews were held as scheduled within a seven-week period. Prior to the interview, the CTL received a copy of the semi-structured interview questions (Appendix A). Additionally, the CTL received a consent form (Appendix F) and a short institutional demographic survey (Appendix B) to be complete and returned.

Individual Case-Study Profiles

The selected community colleges are located in various regions of the country. The community colleges are classified in accordance with the Carnegie Classification system (Carnegie Foundation, 2010) and represent medium, large, and very large sized public community colleges. They are located in urban, suburban, and rural locations.

The case study profiles include racial and socio-economic demographics for each community college. The selected case studies were identified as members of the Achieving the Dream network. Community colleges in the Achieving the Dream network pledge to address equity issues with "interventions that close the achievement gaps for their low-income students and students of color" (ATD, 2010a). Each of the selected case studies has at least 30% ethnic minority students and 40% Pell grant recipients. Institutional demographics are summarized in Table 5, following the individual case study profiles. In accordance with confidentiality, pseudonyms have been assigned to the six community colleges in the multiple-case study: Central, Southern, Northeastern, Eastern, Southwestern, and Southeastern Community College.

Central Community College

Central Community College (Central) is classified as a very large, public, urban-serving, multi-campus, associate degree-granting institution (Carnegie Foundation, 2010). Fall enrollment is reported to be about 32,000 students. About 40% of Central's student headcount attends full time. African Americans comprise 32% of the student population and 53% are white, non-Hispanic. As a socio-economic indicator, about 42% of the students are Pell Grant recipients. Recent demographic information indicates that 82% of first-time students test into one or more developmental courses. Central Community College joined Achieving the Dream (ATD) as a grant recipient in 2005.

The Central Community College Core Team Leader (CTL) has held an executive level position at the College for seven years. The CTL was the original lead person when Central joined ATD and continued to champion the college's student success initiatives as a Leader College at the time of this interview.

Southern Community College

Southern Community College (Southern) is classified as a very large, public, two-year, urban-serving, multi-campus institution of higher education (Carnegie Foundation, 2010). Fall headcount is over 55,000. Approximately 50% of degree-seeking students are enrolled full time. As a socio-economic measure, 57% are Pell Grant recipients. The largest ethnic minority student population is Hispanic with 27%, followed by African American with nearly 15%. White, non-Hispanic students comprise about 42% of the student population. Southern joined Achieving the Dream as a grant recipient in 2004. Approximately 70% of first-time students test into one or more developmental courses.

The Southern Community College Core Team Leader (STL) has been with the College for 14 years as a mathematics professor. The STL was the original project director and continued throughout the grant period in 2009. The STL continues to be involved post-grant as a technical assistant for continued success strategies.

Northeastern Community College

Northeastern Community College (Northeastern) is classified as medium-sized, public, urban-serving, single-campus, associate degree-granting institution (Carnegie Foundation, 2010). Northeastern serves over 4,500 students, with 29% of students attending full time. Ethnic diversity is strong with over 34% African American, nearly 28% Hispanic, and nearly 13% unreported. About 22% are white, non-Hispanic. From a socio-economic perspective, about 90% of students are Pell grant recipients. Of first-time students, 80% place into developmental courses.

The Northeastern Community College Core Team Leader (NTL) interviewed for this study was not the original core team leader when Northeastern first joined Achieving the Dream (ATD) in 2005. There were two previous faculty members who were selected. Both served one year in the lead capacity and chose not to continue. The NTL, a Business Administration department chair assumed co-leadership in 2007 with a math faculty member. This leadership role continued through 2009 when the grant funding for ATD was completed. The NTL's current involvement is more marginal, with initiatives currently coordinated by separate organizational units of the College.

Eastern Community College

Eastern Community College (Eastern) is classified as a public, rural-serving, medium sized, two-year, associate degree-granting institution of higher education (Carnegie Foundation,

2010). Fall headcount is reported at over 3,200, and nearly 2,600 are degree seeking. The student population is evenly split between full and part time. Eastern's largest ethnic minority population is African American, representing about 25% of the students. About 60% of the students are white, non-Hispanic. Of the credit student population, 66% are Pell Grant recipients. Of first-time students, about 89% test into one or more developmental course areas; 36% test into three. Eastern joined Achieving the Dream as a grant recipient in 2005.

The Eastern Community College Core Team Leader (ETL) was the original grant-writer for Eastern's application to Achieving the Dream and continued as project director. The ETL had a high-level administrative position and had been employed at Eastern for over 30 years at the time of this study.

Southwestern Community College

Southwestern Community College (Southwestern) is classified as a very large, public, urban serving, multi-campus associate degree-granting institution of higher education (Carnegie Foundation, 2010). Southwestern serves over 30,000 students, about 40% full time. Southwestern experienced an expansive 51% enrollment growth between 2002 and 2010. It is a Hispanic community serving institution; 86% of its student population is Hispanic. Less than 8% are white, non-Hispanic. About 60% of students are Pell Grant recipients. Southwestern joined Achieving the Dream (ATD) in 2004. Prior to implementing its college-readiness strategies, 98% of first time students at Southwestern were placed into one or more developmental courses; 46% placed into three developmental subjects.

Southwestern Community College's Core Team Leader (SWTL) was involved with the ATD grant from the beginning. SWTL holds a high-level administrative position at the College,

has maintained a leadership role with strategy implementation efforts throughout the ATD grant period that ended in 2009, and has been involved with ongoing efforts as an ATD Leader College.

Southeastern Community College

Southeastern Community College (Southeastern) is classified as a large, public, two-year, suburban-serving, associate degree-granting, multi-campus institution of higher education (Carnegie Foundation, 2010). The fall semester headcount is nearly 15,000 with about 60% full-time students. About 60% of the students are Pell Grant recipients. The largest ethnic minority is African American, which comprises 44% of the student population. The white, non-Hispanic student population is also about 44%. Southeastern joined Achieving the Dream as a grant recipient in 2004. According to Fall 2010 demographics, about 86% of first time students test into one or more developmental courses.

The Southeastern Community College Core Team Leader (SETL) has been an executive level administrator at the College since 2008 and functioned as the co-leader for the ATD grant for its last year of funding. The SETL continued as the project leader post-grant and coordinated the current developmental education initiatives at the time of this study.

Table 5: Institutional Demographics

Institution	Type	Size/ Headcount	Fulltime	Dev Ed Placement	Pell Grants	Ethnicity/ Race
Eastern Community College	Rural/ Single Campus	Medium/ 3,200	50%	89%	66%	25% African American 60% White non-Hispanic
Central Community College	Urban/ Multi-Campus	Very Large/ 32,000	40%	82%	42%	32% African American 53% White
Northeastern Community College	Urban/ Single Campus	Medium/ 4,500	29%	80%	90%	22% White 28% Hispanic 34% African American
Southeastern Community College	Suburban/ Multi-Campus	Large/ 15,000	61%	86%	60%	44% African American 44% White non-Hispanic
Southern Community College	Urban/ Multi-Campus	Very Large/ 55,000	50%	70%	57%	15% African American 27% Hispanic 42% White
Southwestern Community College	Urban/ Multi-Campus	Very Large/ 30,000	40%	98%	60%	86% Hispanic

Findings for Guiding Questions by Case Study Participants

The individual case study reports summarize data gathered in each interview organized by five Guiding Questions (see Appendix A). The semi-structured interview format allowed participants the freedom to emphasize some aspects over others in describing the unique strategies and processes of the individual cases. The individual case study reports summarize data gleaned from participants' responses to the interview questions as well as data gathered from supplemental materials as referenced by the participant and/or pertinent to the case study.

The responses to the Guiding Questions were discovered through related interview questions. The interview questions were designed to add context to the acquisition of factual answers. For example, Guiding Question One asks: What strategies were implemented at the identified Achieving the Dream Leader Community Colleges to improve success of

underprepared students? Additional questions ascertained such perspectives as the participant's perceived concern about the college-readiness of students and identified needs of students. Additionally, the participants were encouraged to direct the interview in ways that they deemed best articulated their perspectives and the unique features of their particular institution. The findings from each of the case studies have been structured by the five Guiding Questions and contextualized by the responses to the interview questions, exposition by the participants, and any relevant supplemental information.

Central Community College

Prior to 2005, when Central Community College (Central) joined the Achieving the Dream (ATD) network, various strategies were being implemented on its multiple campuses. The Core Team Leader indicated that Central's approach was ad hoc, optional, and lacked cohesiveness. "Everything but the kitchen sink. . . . There were just things all over the place. . . . We clearly didn't have any focused approach. And, we clearly weren't focusing on any particular issue" (Central, Core Team Leader). As a new member of ATD, Central began to examine student success patterns going back to 1999. Central uncovered that students placed into developmental education were not successful. "Dev Ed [Developmental Education] wasn't a pipeline, but Dev Ed was more like a funnel . . . huge numbers of students entering at the top and only very few coming out the other end" (Central, Core Team Leader). Students entering college-ready were 3.5 times more likely to graduate than those entering developmental math and 2.5 times more likely to graduate than those entering developmental English. Of new incoming students, over 80% needed some developmental education.

Guiding Question One: What strategies were implemented to improve success of underprepared students? Central Community College started with three strategies to improve college-readiness and achievement of underprepared students: paired math and study skills courses, learning communities for developmental education students, and extended orientation for delayed-entry students. Since 2005, other strategies have been added including required orientation, the elimination of late registration, peer mentoring, college-readiness prerequisites for content-level courses, supplemental learning, and ease of processes and services. Each is briefly described below.

Paired math and study skills courses. Support for students in developmental math was identified as a priority due to the lack of achievement in this area. Central focused on a support strategy that paired developmental math courses with a linked study skills course. The study skills course was launched "using Skip Downing's *On Course* materials . . . and had gotten pretty significant success rates just doing it in a couple of sections" (Central, Core Team Leader). This was expanded to all three of its campuses. Study skills, a two-credit credit course, involves general college study skills curriculum with focused math support in areas such as math anxiety and math review.

Learning communities for developmental students. Central began implementing learning communities as a success strategy in 2006. Learning communities consisting of a block of four linked courses, including developmental English, developmental math, study skills, and an activity course such as physical education, were developed and piloted. Central has transitioned the design of the learning communities to more paired courses, such as a developmental English course paired with a gatekeeper course, "allowing students to complete

developmental and general education requirements in a supportive environment" (Central Community College, 2011a, p. 15, see Appendix J).

Extending orientation for delayed-entry students. Data indicated that, in addition to developmental students, students who delayed their entrance to college after high school were not succeeding. To support this population, Central designed and offered a special orientation for these new incoming students. The strategy was designed to acclimate students to the college, help form a supportive cohort, and include family members. This program was eliminated due to a lack of participation, despite multiple attempts to encourage interest.

Required orientation. Central experimented with various orientation formats and found success with half-day orientations that include a counseling session and engagement activities. Although the program varies by campus and semester, data on those who attend orientation indicate "10 to 20% greater retention" (Central, Core Team Leader). Students are given the expectation to attend orientation with 36% attending. Beginning in 2011, this half-day orientation is required for incoming students.

Elimination of late registration. Central recognized that about 1,400 students registered on the first day of classes or later. In order to enforce required orientation, the college changed its registration policy and no longer allows registration once classes have started.

Mentoring. Approximately 1,000 students per year are matched with trained faculty/staff mentors to provide students with a contact person for assistance and referral. The mentors meet one-on-one or in groups. A peer mentoring component has been launched which involves student ambassadors assigned to courses for in-class visits and out-of-class assistance.

College-readiness prerequisites for content-level courses. Central research indicates that English preparation is associated with success in entry-level content courses, also referred to as gatekeeper courses. Six disciplines have assigned English or the highest level Developmental English course as a prerequisite for their gatekeeper courses. "Based on what we know from the analyses, these pre-requisite changes could increase students' successful course completion in certain gatekeeper courses by as much as 30+ percentage points" (Central Community College, 2011a, p. 2, see Appendix J).

Supplemental instruction. Central selects and trains students who have successfully completed developmental education to serve as Supplemental Instructors (SI) in developmental math and English sections. The SI leaders work closely with the course faculty to align the weekly sessions with the course objectives. About 35 English sections have access to Supplemental Instruction, involving about 800 students annually. Data indicate that pass rates, attendance, and assignment completion are positively impacted by the addition of supplemental instruction.

Ease of processes and services. Business processes that were not supportive of student success at Central were targeted for examination. Changes that encourage more communication and intervention were made to the drop-for-nonpayment processes. Efforts were also made to increase communication around processes, such as financial aid, that were more difficult to understand. Centralizing and standardizing services for the multi-campus system along with cross-training for one-stop efficiencies were also implemented.

Guiding Question Two: What is the impact of the selected strategies on the success of underprepared students? Achieving the Dream (ATD) member colleges are encouraged to increase the percentage of students who accomplish the following:

- Advance from remedial to credit-bearing courses;
- Enroll in and successfully complete initial college-level courses in math and English;
- Persist from one semester to the next; and
- Earn degrees and/or certificates (ATD, 2010a).

The institutional research office at Central Community College regularly conducts research on the impact of the strategies. "We continue to use the data to track the impact of our initiatives, to make decisions around the use of resources, and to establish policies related to student success" (Central, Core Team Leader). Central maintains a database that tracks students who participate in the strategies and those who do not. Enrollment and academic success rates on the student cohorts are collected from the onset of the strategies and compared to randomly selected, matched comparison groups over time.

Evidence on the success of the paired math and study skills courses has been tracked for 13 semesters. Results indicate that the paired course format is having a small positive impact on student success. "Of the students who participated in the ATD math intervention from Fall 2006 through Fall2010, 63% successfully completed their Algebra course [with a grade of A-C]. . . . This compares to a success rate of 60% in the matched comparison groups" (Central Community College, 2011a, p. 10, see Appendix J). The three Central campuses showed varying success rates ranging from a low of 53.7% to high of 70%. Data also showed that regardless whether the students experienced the same or a different instructor for the developmental math sequence, the success rate increased (Central Community College, 2011b, see Appendix J).

Fall to spring retention rates for students who attend in-person orientation and counseling sessions show improvement over non-attendees across all three campus sites. For attendees, semester retention for Fall 2010 to Spring 2011 varied by campus but was consistently strong, ranging from 66% to 82%. Participation increased retention by 15% (Central Community College, 2011a, see Appendix J).

Central indicated that courses with supplemental instruction had higher attendance and less missed assignment issues. Additionally, for supplemental instruction in developmental English, pass rates were 47% compared to 33% for the traditional sections. In developmental math, data indicated that students who did not attend supplemental instruction had a success rate [grade A-C] of 53% compared to those attending three to five times who had 77.8% success rates and those attending six to eight times who had 80% success rates (Central Community College, 2011b, see Appendix J). The Central Core Team Leader indicated that the data, although based on a small sample size, were promising and encouraged movement toward a mandatory supplemental instruction approach.

The decision to change the policy of late registration at Central Community College was based on data indicating that the 40% of grades earned for students who registered at the first day of class or later were D-W grades compared to under 30% for those registering before the first week. As noted above, data indicating that in-person orientation made a significant difference in semester-to-semester retention were an impetus to eliminating late registration in order to effectively implement a mandatory orientation program (Central Community College, 2011b, see Appendix J).

Across the college's three campuses, the mentoring program has shown "good initial data around retention . . . for those students." College data indicated that those participating in mentoring had 76-80% semester-to-semester retention compared to 63.7% for the control group (Central Community College, 2011b, see Appendix J).

Central determined that learning communities with three- and four-course formats did not positively impact student success of developmental education students. Results indicated that, although the students enjoyed the learning community environment, "over time, we didn't see consistent differences between students in those groups and students who weren't part of those learning communities" (Central, Core Team Leader). The costs associated with increased faculty loads and time intensity in administering the learning communities were noted as further rationale for not expanding the strategy.

Guiding Question Three: How do the state educational policies support increasing success of underprepared students? The Lumina Foundation for Education, a primary supporter in launching the Achieving the Dream (ATD) organization, commissioned a series of policy audits of some states that housed ATD affiliated community colleges to ascertain policies that impact access and success in community colleges (Dougherty, Marshall, and Soonachan, 2006). The audit revealed that the Central state system had "very little state direction for remedial education in two-year colleges" (Dougherty et al., 2006, p. 32). The audit report recommends state-wide performance measures for developmental education and the creation of a state data warehouse. Support for state-wide policies was noted. For example, "the 'no late registration' policy, we would have welcomed that from the state as a mandate years ago" (Central, Core Team Leader). A state-wide policy would eliminate the fear that students would

go elsewhere, leaving Central with a competitive disadvantage and revenue loss. Additionally, in alignment with the state audit findings, the Core Team Leader at Central encouraged a state-wide direction for developmental education, specifically the recent state-wide movement toward the alignment of adult basic education that allows those with the lowest developmental education placements to use the tuition-free option of remediating through adult education in community colleges. Conversely, state-wide standard assessment tests and cut-off scores were noted as possibly interfering with flexibility for individual exceptions that may arise.

Question Four: Are the effective strategies replicable for large, system-wide implementations? Central Community College is a large, multiple campus system serving more than 32,000 credit students. Universal buy-in and grassroots involvement were noted as primary factors in moving strategies across the multi-campus system.

> It's only been about getting out and listening to what the faculty wants to do and what they want to feel supported in doing. . . . We've done a lot more work in being all inclusive of the academic and student affairs leadership teams across the three campuses. (Central, Core Team Leader)

It was noted that representative committees are not effective because change is emotional. "We couldn't expect the communication of passion and . . . encouragement of faculty to happen just because a representative from each group knew it should happen" (Central, Core Team Leader). Regularly scheduled campus-wide meetings, working retreats, and grass-root task forces across all of the campuses armed with clear data on the success of strategies were recommended.

> We all were able to sit in a room together…and hear how all of these initiatives were going and provide some input into those initiatives and then say at the end…now that you see where we've gotten this year, what are the next things we need to do? What of these do we need to delve deeper in? What of these do you want to hear more about? What are

> the new areas we want to move into? And now we've kind of got this all-inclusive group that's excited and on board. (Central, Core Team Leader)

Scalable strategies require an integrative approach that brings support to the classroom and vice versa. "You've got tutoring and mentoring and . . . you've got counselors . . . all sitting out here. And there's not necessarily any relationship between what happens in the classroom and here" (Central, Core Team Leader). The lack of connectedness results in student referrals that are often perceived as confusing and disconnected by the students. Integration and cooperation were cited as key components.

> Integrate all of these services in a way where there was a real connection between all of these. And in some ways, rather than having them sit out here. . . . All these places [should] have their arms wrapped around the student and the faculty member. (Central, Core Team Leader)

Effectiveness of strategies is contingent on the whole system understanding the integrative parts. Facilitating student persistence and success requires that all the parts work as a unified system. Otherwise, students cannot maneuver through the system.

Professional development was identified as integral to universal integration of the effective strategies. The importance of integration and professional development was emphasized:

> You have a student in developmental math, and they're having problems. So you send them to a tutor…they go see a tutor, and the tutor has no idea what's going on in the class. And the student gets even more confused and goes back and says to the instructor….The tutor wasn't helpful at all. . . . So they go to the TLC lab, but they don't know how to access MyMathLab. And the guy working in the TLC lab knows nothing about MyMathLab and doesn't know how to access it either. Goes back to his faculty member and says, "Well, I can't get into MyMathLab. I'm going to just drop this course." [The faculty member says,] "Go see your mentor." So you go see your mentor, but your mentor went to Harvard and knows nothing about Dev Ed and what you're going through as a Dev Ed student and really can't help you at all. And that's kind of a normal experience unfortunately. (Central, Core Team Leader)

The training integrates the various strategies together and thereby brings the various professionals together. "You wouldn't need to put any new resources into a model like that. You would just need to do your work differently. It's really about doing business differently, with the student and the faculty member as the focus" (Central, Core Team Leader).

With the integrative model as the guide, Central Community College selected two strategies to bring to full scale across the multi-campus system, the paired math and study skills courses and supplemental instruction. Both of these strategies link support to the classroom.

Guiding Question Five: What are the best practices and recommendations from the Leader Community Colleges? Utilization was noted as the defining factor for moving an effective strategy to a best practice category. Collecting evaluative data as to whether a strategy is achieving its intended outcomes is critical. However, determining the qualitative experience of those implementing it is important for long-term sustainability. **"**It's a best practice when you can demonstrate that people are using it and that it's impacting what's happening in their classes" (Central, Core Team Leader).

Understanding and addressing the implications of scaling a strategy to full scale is needed in order for sustained change to occur. It was emphasized that scaling an effective strategy does not mean that it is appropriate for all students; best practice does not mean "one size fits all" (Central, Core Team Leader). Identifying the target population and scaling the strategy to impact the targeted group were noted distinctions of a best practice. "You recognize that different students have different needs and . . . . You want to have three or four things that you scale to particular target audiences, and students have some choice in that" (Central, Core Team Leader). The unique needs of the student population and the campus culture need to be considered.

Identified examples of best practices included required first year experience programs and accelerated developmental sequences. These programs are in investigative stages at Central but were noted as best practices in the field. The notable best practice feature of the first year experience is the focus on college expectation. "Not just study skills but…what's expected of you when you're in college, and…helping you to develop that career plan….being able to think about career goals and college plans" (Central, Core Team Leader).

Related to accelerating developmental education, a best practice was identified at another community college:

> One of the best practices around English that I've seen is that Baltimore County Community College model, where it allowed students who are right on the cusp…to try that next course but to have kind of a safety net when they need it of the other one [developmental course] for students who have placement scores near the cutoff for college readiness. (Central, Core Team Leader)

To adopt this best practice, various interrelated systems and policies may be impacted. For example, the Core Team Leader noted that in order for Central to implement the accelerated developmental sequences, polices mandating developmental education courses be taken upon first registration would need to be considered. Notably, two criteria for best practice are recognition of the systemic implications and a willingness to integrate the effective strategy inclusive of related changes that would be needed.

Southern Community College

Southern Community College (Southern) is well-known for its commitment to student success. "Southern is known for being innovative. We try a lot of different things. But, what we aren't good at is scaling across the entire college" (Southern Community College, Core Team Leader). Prior to joining Achieving the Dream (ATD) in 2004, Southern reportedly had over

100 success strategies in place but none was brought to scale. There was one exception, due to state law set forth in 2002; students identified as not college-ready and placed in developmental education must take those courses before they can take college-level classes. This state mandate became the foundation upon which Southern built its ATD-related success strategies. The ATD grant became an impetus to pull the various innovative strategies together to support college-readiness for the underprepared student.

> So in 2004, our data included the mandate and that's what we built our entire plan on for Achieving the Dream.…We decided to make it part of our central mission….They [success strategies] were never integrated into the core work of the college….With this particular grant, we were ready for complete integration into the core. (Southern, Core Team Leader)

Guiding Question One: What strategies were implemented to improve success of underprepared students? The multiple campuses at Southern Community College came together to review over 100 strategies to determine those that had the promise for being "ripe… scalable . . . and . . . effective" (Southern Core Team Leader). At the conclusion of a one-year process, three success strategy categories were selected: Supplemental Learning, Student Success Course, and Learning Communities. The success strategy categories included integrated initiatives. Each of the three categories was refined through subcommittee work. Southern's selected strategies are described below.

Supplemental learning. Some math faculty members at Southern Community College had used peer-led supplemental instruction with positive results. "They love having that really great student in class demonstrating what they [faculty] can't really show . . . We, as math professors, don't really know how to teach these study skills . . . to read better . . . to take the best notes" (Southern, Core Team Leader). After an examination of five separate supplemental

initiatives at the college, Southern designed a coordinated Supplemental Learning (SL) program based on peer-level role models trained in study skills, test taking techniques, and study skills. Supplemental Learning programs focused on courses with high enrollment and low success: three pre-college mathematics courses and three college-level courses with low pass rates for incoming students. The SL leaders are recommended by discipline-specific faculty. They are physically present during the class and offer assistance during and after the classes to their peer students. At this multi-campus community college, implementation included the creation of a campus coordinator position at each of the four sites. The coordinator role is responsible for recruitment of SL faculty, recruitment and training of SL leaders, and recruitment of students. The course sections with SL are primarily voluntary for students. Students who have previously been unsuccessful in their developmental education courses are strongly encouraged to repeat the coursework with SL; they avoid a steep tuition penalty by doing so. Southern Community College had 315 sections of supplemental instruction in 2010, impacting 8,525 students. According to the Core Team Leader at Southern, it grew to 375 sections in 2011.

Student success. As state mandated, underprepared students take developmental courses prior to college-level coursework. Southern supported this college-readiness initiative by requiring students with three discipline-specific developmental placements to also enroll in a Student Success course. Southern structured the sequence of mandatory courses. "If they test into three developmental courses…they had to take reading first….The second course they must take is Student Success. And, the third class is math. And, the fourth class is writing" (Southern, Core Team Leader).

The Student Success class is a three credit-hour course designed to assist students in understanding and managing the college environment; basically, it is a course on "how to do college" (Southern, Core Team Leader).

The Southern's Student Success website links to the course description and learning outcomes:

> Students learn and apply strategies for success in college and life-long learning. Major topics include setting academic, career and personal goals; effective communication; study strategies; critical thinking; self-discovery; learning styles and mastering Southern's core competencies. Students develop educational and career plans utilizing college resources. Major learning outcomes:
>
> 1. Students will identify and evaluate their learning style and use that knowledge to practice effective study strategies across disciplines.
> 2. Students will demonstrate critical thinking by analyzing ideas, patterns, and principles related to college and life situations.
> 3. Students will use critical thinking skills to identify personal, academic and career goals and construct action plans to achieve them
> 4. Students will communicate effectively with individuals and in groups through verbal and written methods. (Southern Community College, 2011a, p. 49, see Appendix J)

Since the Student Success course was mandated for those with three developmental preparations in 2006, the majority of the sections are filled with developmental students; however, the course is open and encouraged for others as well. Research at Southern indicates 39% of all new students were enrolled in the student success course in 2010 and included 90% with three developmental preparations, 30% with two developmental preparations, 26% with one developmental preparation, and 15% of new college-ready students (Southern Community College, 2011b, see Appendix J). An incentive for developmental students was implemented. "[Students] get a $500 scholarship by completing the [success] course and the prep courses…at the same time" (Southern, Core Team Leaders).

Learning communities. Prior to 2004, Southern had three learning community formats: a four-course model, a paired course model, and a faculty community model that involved collaborations between faculty about the needs of shared students but without linked courses. As part of the ATD project, Southern decided to expand the paired course offerings, called Learning in Community (LinC). The three-part learning community for underprepared students involves a developmental course, a student success course, and a success coach. As part of this learning community,

> The success coach is either an advisor, a counselor or . . . [someone] who knows the student services side forwards and backwards. . . . They are basically [the students'] advisor for the entire time that they are at the college. . . . They come in [to the LinC] three times. They are part of the integrated lessons for the courses. (Southern, Core Team Leader)

The coursework is fully integrated with joint staffing, block-scheduling, and linked assignments.

Although the majority of LinCs are comprised of developmental math and the student success courses, the offerings were expanded to include composition, American government, and college algebra. These are linked with the success course and use the same integrated model. The difference is in the selection of the success coach. "The success coach has a different role when we get to the college level . . . information literacy is . . . what they need. . . . We have librarians serving as the success coach. . . . They use that librarian for the entire . . . time here" (Southern, Core Team Leader).

The number of LinC pairs has grown from 18 sections in 2007 to 40 in 2010, impacting 1,000 students (Southern Community College, 2011b, see Appendix J). Administrative implementation of LinC for the multi-campus system included changes in coordination, technology, and faculty load. A full-time coordinator administers the LinC system college-wide.

Ease of access to the LinC courses was made possible through the online registration system. Faculty load was adjusted to compensate for simultaneous staffing in the LinC courses with an $800 stipend for each instructor.

Guiding Question Two: What is the impact of the selected strategies on the success of underprepared students? The Institutional Research Office at Southern Community College maintains comparative data on the success of students involved with the selected strategies. The research office was noted to be particularly strong in size and involvement. Research provides an annual Strategic Indicators Report and monitors data for the college system. "We have an amazing institutional research department . . . five people . . . full time" (Southern, Core Team Leader). Among other things, the Strategic Indicators Report examines the targeted initiatives, completion rates in developmental education, and graduation rates (Southern Community College, 2011b, see Appendix J). In addition, the state maintains a developmental education database on its 28 community colleges and supplies data directly to the college.

Overall success rates (grade of A-C) for first time, degree-seeking students in courses with supplemental learning (SL) averaged 59.7% in 2005 and increased to 65.7% in 2009 (Achieving the Dream, 2010b). Comparison studies for matched sections with the same instructor, with and without supplemental learning, were made between Fall 2007 and Fall 2010 (Southern Community College, 2010b, see Appendix J) and showed that positive results with SL were achieved. The instructor was able to see the difference "and just focus on teacher against themselves with SL [and] without" (Southern, Core Team Leader). Table 6 summarizes the results of the comparison.

Table 6: Comparison Success Rates of Supplemental and Non-Supplemental Learning

Course	With Supplemental Learning	With non-Supplemental Learning
Pre-Algebra (Developmental 1)	53%	50.9%
Beginning Algebra (Developmental 2)	55.2%	50.8%
College Algebra	60%	59.9%
Freshman Composition	81.2%	73.2%
American Government	70.9%	67.8%

Southern Community College Data, 2007-2010

Trend data at Southern Community College suggest that a student success course positively impacts persistence.

> Institutional data since the mid 1990s have suggested a correlation between students who took [Student Success courses] and increased persistence rates as measured by enrollment from fall term to spring term and from fall term to the following fall term. (Southern, Core Team Leader)

In 2004 and 2006, fall to spring retention comparisons made between those students placed in three developmental courses who took Student Success and those who did not indicated positive results; results showed 77% and 80% retention with Student Success compared to 65% and 69% without (Southern Community College, 2006, see Appendix J).

In 2006, the Student Success course became a requirement for students with three developmental course placements in three disciplines. Research on the impact of the requirement was studied with recommendations made in December 2007:

> The facilitators of the data discussions came to the following conclusions…The data from the impact of mandating SLS1122 on 3-prep students are currently inconclusive. A reasonable evaluation of the impact of the 3-prep mandate on Student Success will require more time and the collection of more and different data. (Southern Community College ATD Data Team, 2009, p. 3, see Appendix J)

It was noted that the requirement to equally treat all students with three developmental education placements ("three preps") prevented a controlled study. Three preps were compared to students

with one and two developmental education placements. Three prep students had 1.2% better fall to spring retention but underperformed in fall to fall retention (-0.9%).

Southern Community College Institutional Research data on the three-part Learning in Community (LinC) courses indicate higher success rates (A-C) than non-LinC comparables (Southern Community College, 2010a, see Appendix J). Table 7 displays the success rate results for LinC as reported from 2009-2010. It was noted that student engagement in a learning community format was a common success factor among the three strategies.

> The thing that makes all of them [strategies] successful is that they're all learning communities in their own right. . . . I think it's their [students] engagement to the college. I think it's their connection to one another, the direction that they get by being in the course, and also the idea of follow-through. And because of the connection to each other . . . the learning community helps them [students] adapt to their new world and how they feel like they are a part of Southern Community College. (Southern, Core Team Leader)

Table 7: Success Rate of LinC compared to Non-LinC Section

Course	With LinC	Non-LinC
Pre-Algebra (Developmental 1)	61.6%	50.6%
Beginning Algebra (Developmental 2)	65.6%	50.5%
Intermediate Algebra (Developmental 3)	74.7%	61.9%
College Algebra	68.7%	61.3%
American Government	69.6%	68.5%

Guiding Question Three: How do the state educational policies support increasing success of underprepared students? A state-wide database and standardized educational policies support success efforts at Southern Community College. The state-wide database informed decision-making at Southern Community College when considering the viability of wide-scale implementation of its Success Course across its multi-campus system. The state had impact data on the various success courses offered across the 28 college system. The state data indicated that “anything that taught students how to do college . . . was a good thing. . . . If they

were in the student success course, they were more likely to get through Developmental Ed [and] make it to graduation" (Southern, Core Team Leader). As noted above, state-wide policies such as mandatory developmental education placements supported consistent treatment of all underprepared student. This extends to assessment tests and developmental curriculum.

Good-intentioned state policies have some limitations, particularly related to individuality. One specific example referenced a legislative mandate to deliver community college developmental education curriculum in the high schools during the senior year to those who are not college-ready. "It puts the community college in an awkward situation because it's telling the high school teachers that what they're doing is not right. . . . It makes us in direct conflict with what we're really trying to do, which is work with the public schools and make sure that we're all on the same page" (Southern, Core Team Leader).

Question Four: Are the effective strategies replicable for large, system-wide implementations? Leadership, faculty engagement, student connections, and evidence of effectiveness were noted as keys to successful, wide-scale implementation across a multi-campus college. Leadership from the top is "really quite the driving force. . . . We had big meetings surrounding this where we got a hundred or more people in a room" (Southern, Core Team Leader). However, the leader must be equipped with data and share the evidence that something makes a difference. "There needs to be a champion that's holding their feet to the fire saying, 'Where's the data? Where's the evidence? Show us how it's working'" (Southern, Core Team Leader). Part of leadership is nurturing a culture of innovation and a system for sifting out those things that can make a wide-scale difference. "So there has to be a way to make a model that

captures the innovation but also helps us and allows us to study it at a very scientific level in order to make sure it can move to the next stage" (Southern, Core Team Leader).

Leadership also includes integrating the strategy into the institution and finding it a home. Without institutionalization, "as soon as the champion disappears, so does the program" (Southern, Core Team Leader). Engaging the faculty was differentiated from information sharing. It was emphasized that institutionalization includes faculty engagement. Faculty must be included in the discussions from the onset and should be aware of the advantages and disadvantages of new strategies. Professional development that includes the adjuncts was noted as important. When faculty members are engaged in the process, the implementation is perceived as natural. "Some way of doing supplemental learning was part of what they knew they were doing well. I didn't feed that to them. I didn't tell them they had to say that. I just wanted it to come out naturally, and it did" (Southern, Core Team Leader).

Strategies that connect students to each other were noted as those most likely to be successful in wide-scale implementations. "We are building community from the start. . . . We are getting to know one another" (Southern, Core Team Leader). Additionally, strategies that are consistently implemented across student populations with limited options were recommended. A reason for limited success for supplemental learning on one campus was having too many options. "It has so many supports that it's overwhelming. . . . I think there's just too many things for students to choose from" (Southern, Core Team Leader).

Examining the data to determine effectiveness and the long-term impact was stressed as critical before bringing strategies to full scale.

> The ripe, the scalable, and the effective are the three things that we have continued to look for when we talk about taking things from . . . one step to the next . . . We want to

> test that theory to its fullest so we know it's truly being as helpful as we want it to be for students. (Southern, Core Team Leader)

Two strategies have been institutionalized and brought to full scale at Southern: the learning communities and the success course. "The learning communities are institutionalized and Student Success [Course] is. Supplemental learning is not yet institutionalized" (Southern, Core Team Leader). Institutionalization refers to a strategy living beyond the champion. "Champions get tired, which is why it has to be full engagement" (Southern, Core Team Leader). It has to be tested enough times with changing leadership in order for the strategy to become a part of the institution.

> The only way for a program to become truly part of the institutional fabric is for several different folks to put their hands on it and make changes to it to make it better. . . . There's been enough leadership change . . . that we don't have to worry about it. (Southern, Core Team Leader)

Guiding Question Five: What are the best practices and recommendations?

Learning from the experiences of others was advised but replication may not be effective.

> I believe that what we are doing works for us because we've designed it. We had the faculty engaged in it from the start. . . . It is something that we can replicate within our own institution because we know who we are and what we want and what we can do. I do think that people can learn from us. I don't think they can take what we have exactly and do it….I have noticed that the culture is so different. (Southern, Core Team Leader)

The same practice may have several different versions depending on the campus culture and student needs: "It's going to be 28 versions of the same practice" (Southern, Core Team Leader). Learning communities, in the broadest of contexts, was noted as an example of a best practice. Learning communities "can get students engaged in their learning . . . get the connection to college . . . and . . . get to whatever their dream may be" (Southern, Core Team Leader). The focus should be in the classroom. "If we're trying to figure out where to put our

money to make a change for the majority of our students, we need to target classes" (Southern, Core Team Leader). Learning communities that target classes that traditionally have high enrollment and low success were recommended as best practices, in order to make the biggest difference for underprepared students.

It was recommended that course content not be overlooked. Best practices need to focus not only on pedagogy but also on content. A noted prime example was mathematics curriculum. A national movement toward a greater emphasis on quantitative literacy was recommended. "I think it's a whole paradigm shift. We're teaching the same things we were teaching 50 years ago. . . . We really should be teaching quantitative literacy . . . not algebraic literacy" (Southern, Core Team Leader). Quantway and Statway were noted as better preparation for career fields not requiring algebraic literacy. Examples provided include using Excel in math classrooms rather than a singular focus on the TI-84 calculator. "How many people do you see in the business world that actually pull out their TI-84 and start solving problems? . . . We're teaching stuff that prepares everybody for calculus…a calculus that's antiquated" (Southern, Core Team Leader). Noted support for this concept was the Carnegie Foundation. It has supported research into the effectiveness of such a shift in curriculum, and state systems were recommended as a vehicle for implementing such changes on the policy level.

> These mathematics skills are essential for a growing number of occupations and professions, and are those needed for making decisions under conditions of uncertainty, an inescapable condition of modern life. This is the math that will help students understand the world around them and it is the math they can use right now. The Statway will be designed as a one-year pathway that culminates in college-level statistics. (Carnegie Foundation, 2011c)

Northeastern Community College

Prior to 2005, when Northeastern Community College (Northeastern) joined Achieving the Dream (ATD), the number of underprepared students was rising and the success rates were very low. Northeastern is an urban community college with 71% part-time students, 90% Pell Grant recipients, and 78.5% non-White students. The Northeastern's Core Team Leader reflected upon the academic and non-academic needs of the Northeastern students. "We knew the students weren't succeeding . . . they had more issues; academically very underprepared, economically poor, social . . . single parents, crime…in and out of jail." As student needs were increasing, budget support from the state was declining. "It's a bad combination, that you're losing your staffing at same time you have greater need with your students" (Northeastern, Core Team Leader). There was a sense of urgency but without the time and resources. Finding support through ATD allowed Northeastern Community College "to look at some of these alternatives . . . at what we're doing and what we could do better" (Northeastern, Core Team Leader).

Guiding Question One: What strategies were implemented at the identified Achieving the Dream Leader Community Colleges to improve success of underprepared students? Northeastern Community College selected success strategies focused on two areas: student engagement processes and content changes in developmental education. "I think a lot of what our students need . . . are relationships. They need the relationship in the classroom, with the instructor . . . [and] with their classmates" (Northeastern, Core Team Leader). With 80% of its students testing into developmental education, Northeastern focused on curriculum reform. "Are they [developmental courses] really doing what they need to do" (Northeastern, Core

Team Leader)? The selected strategies combined a student engagement focus with curricular change.

Active learning methodologies. Northeastern adopted classroom teaching techniques called Active Learning. This strategy had been previously employed in English as a Second Language (ESL) courses and was selected for expansion in other developmental courses in English and math. Rather than the lecture format, instructors use an activities-based approach to teaching; students work in problem-solving groups. Faculty-to-faculty mentoring and professional development for faculty, including adjunct instructors, were used to encourage Active Learning techniques. At Northeastern, Active Learning is not a structured set of strategies; rather, faculty members are encouraged to engage the student in the learning process through group work and tailored learning activities that address the needs of the individual classroom.

Supplemental instruction. The use of online software to supplement classroom instruction in all algebra classes, developmental and college-level, has been institutionalized at Northeastern Community College. MyMathLab was selected by the faculty as a required out-of-class homework instrument. The computer lab is staffed with a professional math tutor and students are required to attend the lab to work on the software assignments outside of class.

Black and Latino Resource Center. In recognizing the many transition issues that impact students at Northeastern Community College, a resource center dedicated to the needs of ethnic minority males was developed. The Black and Latino Male Resource Center "was created to provide male students of color additional academic and personal resources to make a successful transition to college" (ATD, 2010b, p. 76). This center has been institutionalized with

college funding and permanent staff. Serving as a home base for males of color, the Center is an optional service offering orientation, workshops, mentoring, and resource referral.

Developmental Education. At the end of the ATD grant, Northeastern Community College created an administrative position to oversee developmental education and to integrate the success strategies. Although the discipline-specific ties to the academic departments remain, this director-level, administrative position reports to the academic dean and is responsible for hiring faculty for developmental education and coordinating the implementation of effective strategies across the developmental courses.

In addition to the changes to the organizational structure, a paradigm shift in developmental math was reported to be in process. Northeastern Community College has been involved with implementing Statway as an alternative curriculum to the algebraic-based course sequence in mathematics. Statway, a problem-based curriculum, stresses group work rather than lecture formats and is intended to accelerate the math sequence for some fields that do not require calculus (Carnegie Foundation, 2011c).

Guiding Question Two: What is the impact of the selected strategies on the success of underprepared students? The Institutional Research Office at Northeastern Community College has been tracking the impact of its success strategies since 2005. It was noted that the college research office is a one-person operation and is limited in available resources.

New student retention in developmental courses has increased since 2006. Fall to spring retention rates have increased from 50% in Spring 2006 to 78% in Spring 2010, and fall to fall retention rates have increased from 33% in Fall 2006 to about 54% in Fall 2009. The increase in retention rates over a three-year period were associated with the interventions made in English,

English as a Second Language (ESL), and mathematics. "This positive trend speaks to the effectiveness of our Achieving the Dream initiatives in enhancing developmental education" (Northeastern Community College, 2010, p. 12, see Appendix J).

Overall success rates (A-C) in developmental courses have shown progress. Developmental English success rates were 65% in academic year 2006 and 70% in Fall 2009. Developmental ESL success rates moved from 69% in academic year 2006 to 74% in Fall 2009. Developmental math success rates moved from 46% in academic year 2006 to 49% in Fall 2009 (Northeastern Community College, 2010, see Appendix J).

Disparate success rates were recorded for students enrolled in developmental English sections with Active Learning Methodologies. In academic year 2006, baseline completion for overall developmental English was 65%. For sections with Active Learning, success rates were 67 % in Spring 2007, 72% in Fall 2007, and 55% in Spring 2008. Similar variability in performance was reported for the ESL sections with Active Learning. "The Learning Centered [Active Learning] strategy targeted 150 to 222 students per semester, and in each semester the success rates were consistent with or greater than the success rates of traditional developmental English sections" (Northeastern Community College, 2010, p. 11, see Appendix J).

Fall to spring retention rates for Black and Latino males has shown improvement from 61% in Spring 2006 for Black and Latino to 70% Black and 67% Latino retention rates in Spring 2009. "As a result of the Black and Latino Male Resource Center strategies in conjunction with other ATD initiatives, minority male student retention has increased over the past three years" (Northeastern Community College, 2010, p. 12, see Appendix J).

Guiding Question Three: How do the state educational policies support increasing success of underprepared students? The state's educational policies supported the success efforts at Northeastern Community College in three areas: assessment, transfer articulation, and recognition. Assessment of college-readiness has been standardized across the state, including instrumentation and cutoff scores for placement. Colleges may vary in the number of developmental levels but testing and scores are consistent. "This is a very important thing, making sure that students get the right placement" (Northeastern, Core Team Leader). Consistent treatment across the state was noted as a key factor in developmental education.

Similarly, the second state policy area focuses on consistent transfer articulation across the state. State-wide agreements have eased the transfer process and allowed students to be assured that credits will transfer. This has facilitated success for the underprepared community college student as well as the prepared.

A new supportive action by the state in 2011 was financial awards in recognition of student success rates. "The amount of money . . . won't give us incentive to do much but we felt it was good recognition of the work we had done" (Northeastern, Core Team Leader). Although the recognition awards were noted as positive, greater state-wide financial support was identified as necessary in order to offset the high costs incurred by community colleges when addressing the growing lack of preparedness of incoming students.

Question Four: Are the effective strategies replicable for large, system-wide implementations? At times educators "get kind of stuck in the status quo. . . . Achieving the Dream …released us from that for that time period. We were able to try new things and have success" (Northeastern, Core Team Leader). Strategies identified as having potential for large

scale, system-wide implementation included Active Learning Methodologies, Supplemental Instruction using MyMathLab, centralization of developmental education, and the Black and Latino Male Resource Center. Each was identified as having evidence of success and "embedded in our culture now" (Northeastern, Core Team Leader).

The importance of continuous improvement was cited as a critical factor in system-wide implementations. Without a focus on continuous improvement, there is the risk of "getting stuck. . . . It's not as though we've hit a turning point and now all of a sudden it is better" (Northeastern, Core Team Leader). Several factors were identified as keys to continuous, system-wide implementation.

Unified vision and committed leadership were identified as critical elements to success. It was noted that a unified approach between academics and student services was lacking at Northeastern Community College. "We tend to have silos in our college, the academic side versus the student services side. . . . If we operated more as one college, we could do a better job" (Northeastern, Core Team Leader). Leadership from the top was mentioned as a key success factor for sustaining a new strategic approach. Northeastern experienced two changes in presidents during the course of its ATD grant. Maintaining the momentum of the success strategies and making critical organizational changes were concerns when administrative changes at the top occurred.

> We had an issue…between academic side [and] student services where we needed the president to step in and he refused. . . . It was a pretty extreme case of not being the leader that we needed. . . . The administration of the school has got to be 100% supportive. So if you have any of these issues, any of these silos, that leadership steps in and resolves that [issue] rather than have the initiative fall apart. (Northeastern, Core Team Leader)

Faculty leadership and buy-in were also stressed as critical factors for system wide implementation. "I think you have to have strong faculty leadership which can lead to faculty buy-in. . . . Without that, nothing is going to work" (Northeastern, Core Team Leader). Faculty development, incentives, and time were noted as important factors in faculty engagement. Additionally, a focus on student success must pervade the hiring practices for full and adjunct faculty.

> We are trying to make more of an effort of who we hire . . . to make sure that they're the type of person who can buy-in to trying these new strategies. . . . So you don't end up hiring someone who will just lecture . . . they're going to do different things to try to engage the students. (Northeastern, Core Team Leader)

While additional fiscal support from grants was noted as helpful in giving faculty professional development and time to research effective strategies, continued funding to explore new, effective approaches was recommended. "That kind of gave us a jump-up. But now I . . . feel like . . . we're going to be . . . stuck at that level" (Northeastern, Core Team Leader). Without the time and resources for faculty to make systemic changes, doubt was raised as to whether the paradigm-level changes that are needed can be reached. "I think they really need a system that's revamped in many ways. . . . Because what we're doing . . . doesn't work for our students anymore. . . . There has to be something to allow them [faculty] to take on new things" (Northeastern, Core Team Leader). The incentives have to be long-lasting because "once that [funding] went away, then people kind of went back to their normal schedule" (Northeastern, Core Team Leader).

Guiding Question Five: What are the best practices and recommendations? Active Learning was the best practice selected for universal implementation. The engaged learner was noted as the foundation for the best practice label. Implementation of Active Learning as a best practice begins with hiring new faculty and encouraging current faculty who believe in "making that good connection with the student right away" (Northeastern, Core Team Leader).

It was recommended that developmental education curriculum be examined. There was encouragement to be creative and examine the potential for a different system for underprepared students.

> I think people have to look at their [developmental education] curriculum. . . . Are they doing what they need to do? And, if not, can you redesign them? Can you add a new course? Or can you combine courses. . . . Overall, look at things more creatively. Don't get stuck in, "This is how it has to be." (Northeastern, Core Team Leader)

A final recommendation focused on the power of effective mentors, particularly those involved in career fields that are of interest to the students. It was recommended that effective mentors programs, particularly through internships, be used to create supportive relationships and motivating environments for students. "With the right support system . . . the sky's the limit. The students can succeed" (Northeastern, Core Team Leader).

Eastern Community College

In the early 1990s, Eastern Community College (Eastern) began a process of reviewing best practices for the purposes of assessing and revising its Development Education curriculum. This review resulted in several recommendations that set the stage for improving college-readiness of underprepared students. "The first thing was to centralize Developmental Education into one department where you had the faculty and the support services together" (Eastern, Core Team Leader). This centralization led to the hiring of credentialed faculty to specifically teach

Developmental Education. Another recommendation from the early study was mandatory assessment and placement into Developmental Education courses. In addition, the support services, including counseling and tutoring, were embedded within the new department. "Since then, we developed a math lab, a writing center, all the things that support, because we recognize Developmental Ed[ucation] can't be successful with just the faculty" (Eastern, Core Team Leader).

Prior to joining Achieving the Dream (ATD) in 2004, the above recommendations had been implemented. However, success was not being realized. "No matter what we were doing …students kept coming in [at] lower and lower levels" (Eastern, Core Team Leader). Students who completed the developmental sequences were as successful as those who started in non-developmental levels. However, "we were missing all those who didn't get through Developmental. . . . We were missing the fact that we were losing so many along the way" (Eastern, Core Team Leader). Developmental Mathematics courses were found to have the poorest persistence rates. "If they were two levels below, or three levels below, their chance of being successful was just about zero. I mean, very, very low percentage. . . . Math was a real determining factor" (Eastern, Core Team Leader).

Guiding Question One: What strategies were implemented to improve success of underprepared students? After examining the data on persistence along with the results from the Community College Survey of Student Engagement (CCSSE), it became clearer as to why persistence rates were low and this factor laid a foundation for the future success strategies for the underprepared students. "Students were not as engaged in the classroom, and they were using memorization as the main technique for learning. . . . We needed to improve student

engagement. We took a two-pronged approach, both inside the classroom and outside of the classroom" (Eastern, Core Team Leader).

Cooperative learning. Eastern Community College selected the classroom as the priority focus in its effort to improve student success.

> Advising has become more and more key. . . . But, I don't care what you do with advising or what you do with support services, if you don't have it in the classroom. If they [students] are frustrated inside the classroom, you've lost them anyway. . . . What happens in that classroom is . . . absolutely key. (Eastern, Core Team Leader)

Eastern adopted a cooperative learning strategy within the classroom. Cooperative learning is defined as "a set of processes which help people interact together in order to accomplish a specific goal or develop an end product which is usually content specific" (Panitz, 1996, p. 1). Working with Dr. Roger Johnson from the Center for Cooperative Learning at the University of Minnesota, Eastern Community College infused a student engagement pedagogy across the curriculum. "With cooperative learning, you become a facilitator of learning and the students are more involved. It's not that you're doing away with lecture, but you're just doing it differently" (Eastern, Core Team Leader). This classroom engagement strategy "develops a constructive classroom environment, allows the faculty to cover more material, improves student social skills, and creates positive interdependence" (ATD, 2010b, p. 64). Faculty members have incorporated cooperative learning techniques in developmental and non-developmental courses, including the sciences and mathematics. Many faculty members have undergone extensive professional development through the Center for Cooperative Learning and developed a "Train the Trainer" model. Eastern has six certified trainers and discipline-based trainings are spread across meetings and activities each year. "The Johnson model is eye-to-eye and knee-to-knee . . . training in small groups. . . . It's all different types of tips and techniques as to how to

develop the classroom environment to create this openness" (Eastern, Core Team Leader). Nearly all of the faculty have incorporated cooperative learning techniques into the classroom: "80% are routine users of this strategy" (ATD, 2010b, p. 26). Professional development has involved the college community, including administrators and adjunct faculty. About 95% of all full-time faculty participated in professional development in cooperative learning and "35% are at the advanced level, 35% intermediate, and 30% foundations" (Eastern Community College, 2010a, p. 1, see Appendix J). The transformation of the campus toward cooperative learning has pervaded the environment. "We actually purchased furniture specifically for cooperative learning" (Eastern, Core Team Leader). The College conducts annual training through its Cooperative Learning Institute, which provides internal coordination of its program and external training for other institutions.

Predictive model for advising. Eastern was interested in accelerating students' progression through developmental education. It was determined that "there are many factors, not just their [students'] knowledge of the subject but their motivation…to help us look at whether a student would be a candidate for ALP [accelerated learning program]" (Eastern, Core Team Leader). Examining past data files on successful student characteristics, Eastern created a predictive model. It is an online tool consisting of a series of questions. The answers are weighted based on their predictability of success. When students have placement scores that are slightly under college-readiness, the counselors use the answers to standardized questions in determining the students' readiness to enter college-level courses. The weighted score "gives them [students] a low, medium, or high…probability that they'll pass the course" (Eastern, Core Team Leader). There are about 12 weighted questions used depending on the course. The

questions broach various areas, e.g. Have you had to repeat any remedial courses? How often do you anticipate using tutoring? Is there anything that may interfere with your regular attendance? The model has been based on self-reported information but "the plan for the fall is that a lot of this will be imported" (Eastern, Core Team Leader). For the student who tested slightly under the college-readiness score, the predictive model helps the advisor make an informed decision about the student's potential success, if moved directly into college level courses. "We've not let that model be the only thing that the advisor has been able to use; it's just supposed to be used as a guide" (Eastern, Core Team Leader). The student, along with the advisor, makes an informed decision using the predictive model as a mechanism to communicate about such things as motivation and commitment. One of the advantages of using the model is that it affords a standardized approach, while retaining consideration of individual factors. "I think that it really helps you . . . to communicate better with the student" (Eastern, Core Team Leader). Developmental students who are placed directly into college-level coursework are then given supplemental instruction in addition to the contact hours of the college-level course.

Concern about test validity has been the impetus for creating other avenues for predicting student success. "All the data coming out . . . is clearly showing that COMPASS is not a predictor of success" (Eastern, Core Team Leader). Eastern has brought the idea of a predictive model to the high schools to assist in gathering more data to improve their prediction of student success. The goal is to "understand that there are other things besides COMPASS that matter in whether they're [students] going to be successful or not. . . . There's recommendations where we're aligned closely with high schools to get more information on their high school records" (Eastern, Core Team Leader).

Guiding Question Two: What is the impact of the selected strategies on the success of underprepared students? In examining the factors that assist in predicting the success of students, Eastern Community College has discovered that student engagement is a key factor. "The more they miss, the lower their score. . . . Attendance is huge. If they miss class, they don't pass the class" (Eastern, Core Team Leader). Eastern discovered that attendance was three times more important in predicting success than both math and reading scores. The College administers the Student Response to Academic Engagement survey developed by Drs. David and Roger Johnson (Eastern Community College, 2010a, see Appendix J). Eastern Community College discovered that whether or not a student completed the survey was also a strong predictor of success "because even doing the survey is a measure of [student] engagement . . . 88% who took the survey passed versus 53% [who did not]" (Eastern, Core Team Leader).

Eastern Community College has been integrating a cooperative learning model across the curriculum since 2005. "The overall objective is to enhance student engagement through the use of collaborative/active learning" (Eastern Community College, 2010a, p. 1, see Appendix J). Eastern Community College compares the rate of successful completion of students involved in cooperative learning to those not involved.

> The expected measurable change after two years . . . is to increase the rate of students who successfully complete a degree, diploma, or certificate or transfer by 4% after two years. Data show that students who enroll in courses using cooperative learning are more likely to graduate than compared to students in the same cohort who are enrolled in a course taught in a traditional manner. . . . Transfer and completion rates have increased over the past two years in excess of 4%. (Eastern Community College, 2010a, p. 2, see Appendix J)

Data indicate that students who participate in cooperative learning courses the first semester have a higher probability of success.

> Approximately 66.7% of students who take at least one active collaborative learning course the first semester will be successful through the first year at the institution, compared to 56.7% of students who do not. By the end of the second year, the institution can expect 51.8% of entering students who take at least one active collaborative learning course to be academically successful compared to 39.8% of entering students who do not participate initially in this intervention. (Eastern Community College, 2010b, p. 1, see Appendix J)

After three years, students who entered in 2005 and 2006 and who took cooperative learning courses in their first semester had both graduation rates and transfer rates to four-year institutions that were markedly higher. Graduation rates were reported as 19.4% for non-participants compared to 24.7% for participants in the 2005 cohort and 18.8% for non-participants compared to 23.2% for participants in the 2006 cohort. Transfer rates were reported as 15.6% for non-participants compared to 22.1% for participants in the 2005 cohort and 14.4% for non-participants and 22.3% for participants in the 2006 cohort (Eastern Community College, 2010b, see Appendix J).

Eastern has accelerated approaches for developmental education. To facilitate accurate placement of students into accelerated courses, Eastern Community College developed a statistical model using specific student characteristics that predict success. Implementation began in July 2010.

> The purpose of the pass probability measure is to reduce numerous academic and social characteristics of the student and provide a single unified estimate of success in a specified remedial course. The advisor combines this computer-driven decision with his/her own intuition and the student voice in order to make a proactive decision that is in the best interest of the students. (Eastern Community College, 2010c, p. 1, see Appendix J)

Fall 2010 data indicated that pass rates for math students who were placed into accelerated courses based on the predictive model were higher than for those students who were

not advised based upon the model: 82.2% compared to 65.4%. (Divens-Moore, Nelson, & Shropshire, 2011, see Appendix J).

Guiding Question Three: How do the state educational policies support increasing success of underprepared students? A state-wide developmental education taskforce released a report in 2009 containing recommendations for improving success of students who are not college-ready upon entrance to the community college. The recommendations included the following:

1. The [state's] Community College System must redesign English, mathematics, and reading developmental education.
2. [The state's] Community Colleges must collaborate with its K-12 partners to reduce the need for developmental education.
3. [The state's] Community Colleges must provide and require academic support and student support services that cultivate the cognitive, affective, and behavioral domains for developmental education students.
4. [The state's] Community Colleges must collect comprehensive and accurate placement data for all first-time-in-college program-placed students.
5. The [state] Community College System must develop mechanisms and methodologies to hold colleges accountable for the success of developmental education.
6. [The state's] Community Colleges must provide adequate support to ensure that developmental education faculty is [*sic*] highly effective in achieving goals for developmental education.
7. The [state's] Community College System and its colleges must build the administrative infrastructure to improve accountability and communication.
8. The [state's] Community College System must conduct a comprehensive review of policies that directly or indirectly affect developmental education success. (Developmental Education Task Force, 2009, pp. 14-17)

The recommendations from this state-wide task force have been the impetus for major changes across the 23 community colleges in the state. "I've been on other taskforces before in the state. But, this is one that they've actually implemented" (Eastern, Core Team Leader). A redesign of developmental math was first. "Every developmental math course in the state has been thrown out and a new placement test will replace COMPASS" (Eastern, Core Team

Leader). It was piloted in Spring and Summer 2011 and full state-wide implementation is scheduled for Spring 2012. Establishment of state-wide placement scores for math and the selection of a diagnostic tool to identify specific areas of deficiencies have been recommended.

The new developmental math curriculum is comprised of nine modules "that allow students to focus only on those math concepts they haven't already mastered rather than taking a series of semester-long math courses" (Gonzalez, 2011, p. 2). State-wide learning outcomes articulate the minimum content to be covered in each module. Although the learning outcomes are clearly articulated, the individual colleges determine appropriate delivery methods and textbooks. At Eastern, there was initial concern that the state's nine one-credit modules would not be conducive to a cooperative learning format "but we got [*sic*] a way . . . we can make this work and still use our cooperative learning. We'll have three different approaches for developmental math and . . . advising is going to be key . . . to basically how we place them" (Eastern, Core Team Leader).

Question Four: Are the effective strategies replicable for large, system-wide implementations? State recognition of Eastern Community College's collaborative learning approaches as a training model has assisted in the acculturation of collaborative learning. "We're getting a lot of recognition. . . . We're doing training throughout [the state]. . . . It's really been latched on from other . . . colleges" (Eastern, Core Team Leader). As an extension of that reputation, a training institute was formed that brings collaborative learning approaches to other colleges and, in return, revenue is brought back to a foundation account to continue to support such initiatives. "We're trying to go after more grants for the . . . institute, not only for us here, but because we believe in it so much" (Eastern, Core Team Leader).

This reputation has not only helped embed cooperative learning into the culture of the college, it may also assist with attracting others to the campus. Leadership was mentioned as the first priority in sustaining effective strategies across the college. As retirements occur in the administration, it is critical the leaders are hired with expectations to support programs such as the collaborative learning initiatives.

Involvement of the faculty in creating the learning environment was noted as critical. It cannot be mandated; "it definitely went from the bottom . . . up" (Eastern, Core Team Leader). Continued internal professional development and internal recognitions for outstanding accomplishments were noted as critical elements for sustaining faculty involvement, such as the annual distinguished faculty awards that use active learning strategies as a selection component and faculty evaluations that assess the use of active learning.

Enhancing critical thinking through cooperative learning has been embedded into Eastern Community College's Quality Assessment Plan for its accreditation process. The intended outcome is that every classroom is impacted. "This semester when I. . . visit the classrooms, the thing that struck me was how engaged the students were. . . . You want to create an environment where everybody does it. . . .You're creating an environment where everyone feels part of the group" (Eastern, Core Team Leader).

The major challenge to embedding and sustaining effective strategies was noted as the high reliance on adjunct faculty. "The big factor . . . is the large number of adjunct faculty. . . . Last semester . . . 69% of our courses in Developmental were taught by adjunct faculty" (Eastern, Core Team Leader). Although adjunct faculty members are encouraged with incentives to attend the annual institutes and selection criteria in hiring new adjuncts emphasize cooperative

learning approaches, engaging adjunct faculty with cooperative learning was still noted as a consistent challenge.

Guiding Question Five: What are the best practices and recommendations? Four criteria were noted as critical for a strategy to be labeled a best practice:

1. Student-centered. "It has to be in the best interest of the student" (Eastern, Core Team Leader). There needs to be evidence that the strategy is effective in improving educational achievement.
2. Replication. The strategy has been replicated multiple times, on one campus or multiple campuses. There must be some evidence that it will continue to work overtime and in other environments.
3. Fiscally responsible. The strategy must be able to be implemented on a large scale within reasonable budgetary limits.
4. Takes on life of its own. The strategy motivates and energizes. "Sometimes we do things if we're told; sometimes we do things because it's the right thing. . . . I think when it becomes a part of their subconscious…it takes a life of its own" (Eastern, Core Team Leader).

In recommending strategies for the best practice label, the classroom was the focus. In particular, active cooperative learning was identified. However, it was noted that appropriate support systems must accompany the classroom focus. "It's what happens in that classroom [that] is imperative; but you've got to get them to the classroom to be able for that to happen" (Eastern, Core Team Leader). A strong math lab and integrated advising systems were noted as key supports to an effective learning environment. It was suggested that intentional efforts

should be made to identify ways to increase the success of low-income students and students of color. It was noted that the special needs of these populations on a majority campus can be often overlooked. It was recommended to "be more proactive with getting more faculty and staff to focus on addressing students of color . . . to have more courageous conversations" (Eastern, Core Team Leader).

Southwestern Community College

Prior to joining the Achieving the Dream (ATD) network, the majority of students entering the doors of Southwestern Community College (Southwestern) were underprepared for college. Nearly 100% of first-time-in-college students needed remediation in math; more than 67% needed remedial reading, and more than 46% needed remediation in three subjects in Fall 2003. "It does not matter at all whether the student just graduated from high school or has been away from high school for some time. They still came to us needing developmental work, remediation" (Southwestern, Core Team Leader). Southwestern had mandatory assessment and various developmental courses in place, but in 2004 the College began to openly work with its secondary and university partners to find new effective solutions.

> We do attribute it entirely to Achieving the Dream because not until then did we decide to start pulling out information. . . . to delve deeper into the data as to what are these data telling us. And more than that, with whom do we share these data, so that we have partners . . . together with us for the solution. (Southwestern, Core Team Leader)

Conscious not to point blame, Southwestern created a Community Advisory Group comprised of a university president, school district superintendents, a local newspaper publisher, chairman of the local bank, chamber of commerce representative, accreditation board member, and other representatives of community businesses and organizations. The president of

Southwestern Community College presented the data and asked for a partnership in finding solutions to improve the future of the community.

> Let the data speak for itself. We're not saying it's anybody's fault. We're saying we're all in this together, and we're all sharing in the situation . . . and it shows that at least 50 percent of our citizens that are age 25 or over don't have any college or just barely have the high school diploma. . . . This is what we would love to do to be able to improve those figures and have more results at the end - more graduates. But, as they're coming in, they're tied up in remediation before they can progress into college level courses. And because of that, sometimes we lose our students. (Southwestern, Core Team Leader)

Guiding Question One: What strategies were implemented to improve success of underprepared students? As a result of the Community Advisory Committee, an Area College-Readiness Consortium (the Consortium) was created. According to the Core Team Leader at Southwestern Community College (Southwestern), this working partnership between the community college, the high schools, and the university remains the key to the effective strategies implemented since 2004.

College-readiness assessment in the high schools. In response to the data that indicated that the majority of first-time-in-college students were not college-ready and were generally unaware of the placement test process, the Consortium recommended a major shift in the assessment of college-readiness process. The first strategy, recommended by the superintendents, was to move assessment testing into the high schools in order to increase the amount of time for remediation before the students graduate. The 12 districts agreed to administer the exam beginning with the junior year of high school. Initially, Southwestern administered the tests in the high schools. Within a year of the pilot, the high schools took ownership of the initiative and each became registered ACCUPLACER test sites. About 10,000 students take the test each year and nearly all students test before finishing high school (Kerrigan

& Slater, 2010, see Appendix J). As a result of the testing, the high schools determine those in need of remediation and, based on their own diagnostics, pinpoint areas of remediation. "Each school district was able to develop [its] own intervention. . . . We wanted to go into this as a true partnership. And you don't take over on a partnership" (Southwestern, Core Team Leader). Southwestern worked in tandem with the high schools as interventions were considered and individual adjustments were made that best fit the specific high school. "All of them came up with their own interventions, but we all did it together. . . . They kept bringing it back to the Consortium to share information. And then, of course, it continued to breed more interventions" (Southwestern, Core Team Leader).

A college-readiness assessment protocol was developed and agreed upon by the 12 districts:

1. Before testing is administered, an orientation for parents and students reinforces the importance of the test;
2. Scores are personally interpreted;
3. Post-interventions are implemented based on a diagnostic of deficient areas; and
4. Retesting occurs after interventions.

It was agreed that the high schools could retest students but an intervention must be implemented between testing periods. Typically, students are tested in the junior and senior years. Assessment scores from the high schools are honored at Southwestern for placement into coursework. Alignment and data sharing are intended outcomes of the protocol. To facilitate, students complete joint applications to Southwestern and a state university during the process.

Additionally, if students remain in developmental placements upon retesting in the senior year, they are recruited into a summer bridge program.

Project Dream. The Core Team Leader indicated that for those students who remain in need of remediation after the senior year, Southwestern works with the high schools to recruit them into a five-week bridge program, Project Dream. The curriculum consists of reading, writing, and math for 100 clock hours. Students retest with ACCUPLACER at the end of the five-week program. Other objectives of the Project include accessing college resources, developing a college-going attitude, developing success strategies, enrolling in fall, and completing the fall semester in good standing. Through the Project, Southwestern discovered that significant components of college-readiness include "believing that I can do this and believing that I belong . . . feeling connected . . . [and] not learning about resources, but rather accessing them and using them" (Southwestern, 2011, see Appendix J).

PREP program. Students who remain in developmental education after Project Dream or have not attended the summer program may participate in Southwestern's Pretesting, Retesting Educational Preparation program (PREP). This semester-long program incorporates a case management approach toward college-readiness. Students are assigned a specialist who assesses the students' needs, prescribes individualized interventions, and monitors progress. The PREP specialist assists with degree and career planning and serves as a primary resource person for needed services. A primary goal of PREP is to assist the students in preparing for the placement test and to successfully start in college-level coursework. "While multiple aids are available, including instructional workshops and tutoring, students increasingly use computer-

based instructional modules to refresh or boost skills in order to achieve better placements" (Kerrigan & Slater, 2010, p. 12, see Appendix J).

University partnership. A state university has been a partner with Southwestern and the high schools since the inception of the College-Readiness Consortium in 2005. The purpose of the consortium was to "enhance collaboration on the college readiness issue . . . and an agreement was made to share student data" (Kerrigan & Slater, 2010, p. 8, see Appendix J). Working jointly, Southwestern and the university created a joint application for students. "The student can fill out the form once, and it goes to both . . . directly to us and to the university" (Southwestern, Core Team Leader). Students are admitted and the transfer process is seamless; "they even use our school ID number . . . it just moves with them" (Southwestern, Core Team Leader). The core curriculum guarantees that Southwestern credit transfers automatically.

To assure degree laddering for students, the university and the community college have designed a reverse transfer agreement (Southwestern, Core Team Leader). When students transfer before completing the associate's degree, the university will track their progress and notify the community college when the requisite hours for the degree have been completed. Southwestern confers the associate degree and notifies the individual student. Electronic sharing of information from the high schools through the community college and to the university allows for ease of tracking and intervention.

Dual credit. One objective of the Consortium projects is to encourage college attendance. Southwestern in partnership with the high schools encourages college attendance through an expansive dual-credit program offered on-site in the high schools. "The growth of our dual credit [program] . . . is also attributed to the fact that we've got a lot more of the college-

readiness going into the high schools at much earlier ages" (Southwestern, Core Team Leader). Parents are informed about the option for college credit and encouraged to support their students in enrolling in dual credit, even if they are not planning to attend Southwestern or the University. Dual credit courses have transfer credit and the tuition is free to the high school student. Southwestern credentials the instructors in the high schools based on the state policies. When a high school does not have a credentialed instructor, Southwestern offers the course online with the high school instructor as co-facilitator. The online course may also include Southwestern students.

Math Emporium. The Core Team Leader noted that Southwestern has implemented its own version of a Math Emporium model. Math labs are equipped with MyMathLab software. The three developmental math courses are structured in 16-week semesters. However, students receive two syllabi: "You follow this syllabus . . . you'll finish one developmental math course in the 16 weeks. If you want accelerated, look at this next syllabus" (Southwestern, Core Team Leader). The accelerated version allows the student to move through two developmental courses in one semester using the self-paced lessons, testing options, and the individual support available in the lab setting. The lab is staffed with one instructor and two tutors available for 30 students. The multiple campuses use the same software and approach.

Mentoring. In 2011, Southwestern capitalized on the case management features of its semester-long PREP program and are "expanding it beyond PREP into a mentoring program" (Southwestern, Core Team Leader). It has been piloted on two campuses. The mentoring project will be offered to students who are in developmental placements in all three areas, which involved about 1,600 students in Spring 2011. The mentors are faculty and staff who volunteer

to take up to 20 at-risk students. Trained and equipped with resource guides, mentors connect with their assigned students in a variety of ways: phone, internet, and person-to-person. The mentor does not duplicate the advisor or case manager. The focus is not on the academic content but on the life issues that might interfere with students' success. "The mentor is going to take a more personal approach" (Southwestern, Core Team Leader).

Guiding Question Two: What is the impact of the selected strategies on the success of underprepared students? Southwestern produces consistent comparative studies that examine student achievement prior to and after the implementation of its college-readiness strategies. As an overall indicator of increased achievement, Southwestern has tracked enrollment and graduation rates. The College has experienced steep enrollment growth of 51%, from 2003 to 2011. In that same time period, it has experienced 145% increase in the number of degrees and certificates conferred.

The College-Readiness Consortium focused on increasing the number of students who enter college-ready. The vast majority of students continue to enter Southwestern underprepared in math; however, "through college readiness initiatives we have reduced the number of developmental education areas that students are placing into" (Southwestern, 2011, see Appendix J). Table 8 demonstrates that the growth in the number of students who place into only one developmental education course and a decrease in the number who placed into three.

Table 8: Reduction in multiple developmental education placements at Southwestern

Developmental Ed Areas	**2003**	**2009**
1 Dev Ed placement	17%	29%
2 Dev Ed placements	36%	37%
3 Dev Ed placements	46%	31%

"Through interventions to elevate placement, we have reduced the time required to complete developmental education course work" (Southwestern, 2011, see Appendix J). Table 9 demonstrates increases in overall college-readiness since the implementation of the College-Readiness Consortium interventions.

Table 9: Increased college readiness by subject at Southwestern

Subject Area	**2003**	**2009**
Math	2%	6%
Reading	32%	45%
Writing	35%	62%

Dual credit enrollments in the high school have increased over 374% between 2003 and 2010, climbing from 844 in 2001 to 4,000 in 2010. The steepest climb has occurred since 2006, after the college-readiness initiatives began: 1,985 in 2006 to 4,000 in 2010 (Southwestern, 2011, see Appendix J).

As a newer program, the Math Emporium model has shown promising results. "It has allowed our students to master the subject matter better because they're getting on-time delivery.

. . . Before they were retaking and retaking and . . . getting caught in . . . ongoing remediation" (Southwestern, Core Team Leader). The 560 students enrolled across four campuses in Fall 2010 had fewer withdrawals and increased completion rates compared to classroom models; however, existing space issues are challenging the scale of the project.

Guiding Question Three: How do the state educational policies support increasing success of underprepared students? The state is perceived as the third partner in supporting the college-readiness initiatives. Southwestern has been on the receiving end of state funded demonstration grants. "They [the state] see that we've got the ability to share and to work with others" (Southwestern, Core Team Leader). The state has supported initiatives to decrease developmental education and has funded Project Dream based on the results of the program.

State-wide standards such as core curriculum and faculty credential statements have assisted in easing the implementation of intervention projects such as dual credit and joint applications with the university. State-wide policy on core curriculum eases the transition of students who have successfully moved through intervention programs to college credit. "They're guaranteed automatic transferability to any [state] university or college" (Southwestern, Core Team Leader).

The acceleration of developmental math embedded in the Math Emporium model was noted as an area in need of policy change on the state level. State funding does not support progression to the next course in one semester. If a student accelerates through to the next developmental course in one semester, the funding for the second course does not follow. It would follow if the student waited until the next semester to take the course. State support for non-course remediation and other acceleration methods were recommended by Southwestern.

Question Four: Are the effective strategies replicable for large, system-wide implementations? Faculty involvement is the critical success element to system-wide implementations at Southwestern. "We feel very strongly that it was not a top down [approach]. . . . It was a true broad base involvement by our faculty very much supported by our top administration" (Southwestern, Core Team Leader). Faculty members were involved in the original Achieving the Dream Core Team that launched the project in 2004 and were subsequently involved in all six of the discipline-specific committees and the Developmental Education Council that investigated and piloted intervention strategies. The faculty examined practices at other institutions "but we didn't just take them and make them our own. We had to look at what our students' needs were [and] the demographics we had" (Southwestern, Core Team Leader). The faculty recommended programs for the pilot and what data were needed to assess the impacts of the pilots. Southwestern developed a faculty data team. "We truly need our faculty at the table with our IR [institutional research] folks to decide what type of data we need" (Southwestern, Core Team Leader).

At Southwestern the basic level of institutionalization involves finding an organizational home and funding for strategies to fully develop. The next level involves a culture shift. "Institutionalizing is not just funding. . . . It's perspective. The perspective of the individuals is such that now, to them, that's the normal course of action. . . . We know there's such buy-in from them [the faculty], that we know it's the right thing to do for our students" (Southwestern, Core Team Leader). When that level of institutionalization is reached, program momentum outlives budget shortfalls and personnel changes. "What has happened here is that we have not even lost

any momentum at all. It did not matter to us when Achieving the Dream funding ended" (Southwestern, Core Team Leader).

The college-readiness initiatives with the high schools were cited as fully implemented. Initiated in 2005, the college-readiness assessments and interventions are embedded across all the districts, with more than 10,000 high school students testing each year. Enhanced data sharing between the institutions was noted as an area of improvement for the future. Two other college-readiness projects, Project Dream and PREP, were both identified as institutionalized projects across the multi-campus college.

Although the program has only been piloted for two years, the Math Emporium was also noted as an embedded strategy. "We're hoping that it will expand beyond what we're doing right now. . . . We continue to tweak — they're [the faculty] coming up with their own ways of doing this" (Southwestern, Core Team Leader). With about 80% of the faculty invested in the Math Emporium, "for us to tell the math folks right now . . . we're short of funding, we're going to take away your Math Emporium, we'd probably have a riot" (Southwestern, Core Team Leader).

Both PREP and the Math Emporium projects were identified as projects embedded across all five campuses. However, funding and space were noted as concerns. A grant is currently being used to adjust physical spaces and funding is being sought for the expanded number of tutors needed. However, the projects have become college priorities.

> Funding always becomes an issue. And we know that in our state, we've got critical budget deficits coming up. And we know that this is going to have a big impact. But, we also feel strongly that these are initiatives that are not short-lived, that they're the right thing for the right reason. So, when we need to, we're just going to have to tighten our belts. But we're still going to move forward with the initiatives the way we planned them, because we feel that strongly about it. (Southwestern, Core Team Leader)

Guiding Question Five: What are the best practices and recommendations? The Southwestern Community College Team Leader did not identify specific best practice programs but did stress criteria for the best practice label. Best practices require the involvement and support of stakeholders within and outside the community college. Seeking solutions to joint problems requires transparency with the data. "Partnerships are key . . . a very strong partnership." The second criterion mentioned was broad engagement. "No one level of an institution can carry it to . . . scale" (Southwestern, Core Team Leader). It was noted that a strategic approach is needed in order to involve as many across the campus as possible. An identified key to engagement is to "give them the ownership" (Southwestern, Core Team Leader). Lastly, the development of best practices requires a balance between free flowing idea generation and coordination. "I think structure is needed, even though we all fight structure sometimes. . . . It's almost like doing an organizational chart. . . . How are all these things going to flow back and forth" (Southwestern, Core Team Leader). The creation of coordinating councils was observed as a tool in coordinating the flow up and down the organization.

Southeastern Community College

Southeastern Community College (Southeastern) joined the Achieving the Dream (ATD) network in 2004. Persistence, particularly of students entering underprepared for college-level work, was cited as an area of concern.

> A persistence analysis of students placing into the lowest levels of developmental coursework indicated that most are not being retained and progress slowly. Only 17% of students placing into both reading and English at the lowest level ever make it to college-level coursework. . . . Adding low math placement to a student's obstacles decreases that to less than 10%. (Southeastern Community College, 2009a, p. 1, see Appendix J)

The Southeastern Core Team Leader indicated that addressing the needs of the whole person was a guiding philosophy. To effectively impact student success the focus is two-pronged: academic and non-academic needs of students.

> We needed to take a holistic approach to our students. It wasn't enough to concentrate on what was happening in the classroom. . . . We often talk about life getting in the way. We had to make sure that we had enough services in place that would help. (Southeastern, Core Team Leader)

In an effort to maximize the holistic approach, Southeastern set out to merge the academic and student services under a single organizational unit in 2009. "Silos had actually erected themselves over a course of time. . . . They weren't communicating when we knew that we had to take a look at the student holistically" (Southeastern, Core Team Leader). A part of that reorganization also included the separation of counseling and advising. Counseling narrowed its focus to address growing trend lines in mental health, crisis intervention, and disability access issues. Advisors were assigned to assist students with course selection, career development, and orientation.

Southeastern wanted to establish a culture that encourages innovation. "I think it's creating an environment where people aren't fearful of trying something and it not working. . . . We learn as much from the initiatives that were not successful. That gives people the freedom" (Southeastern, Core Team Leader). Southeastern encouraged a broad examination of other approaches. The ATD grant afforded opportunities to attend national conferences and "benchmark ourselves with what was happening on the national level…all over the United States" (Southeastern, Core Team Leader). Using that national data, Southeastern modified approaches in order to address the specific needs of its own campus culture. "We couldn't use a cookie cutter approach" (Southeastern, Core Team Leader).

Since 2009, Southeastern has been involved in other grant-funded initiatives that have continued the work started under ATD. The College continues to focus on a pathway for developmental education students that consists of three elements: proper placement, clear objectives, and effective guidance.

Guiding Question One: What strategies were implemented to improve success of underprepared students? The identified strategies that Southeastern implemented to improve the success of underprepared students reflect the elements noted above. A student pathway that expedites remediation while assisting with transition and acclimation issues was the focus for strategy development.

COMPASS review. Entering students are tested using the COMPASS instrument to determine college-readiness and appropriate course placement. Students who do not test into college-level courses may retake the test after an intervention period. COMPASS Review has three format options: face-to-face, workshop, or online. The components of the Review include pretest, practice questions, instruction, and post-test. Significant improvement in student scores after the COMPASS Review sessions have led to the development of the online version with video instruction, launched in 2010.

Student Orientation, Advising, and Registration Program. The Student Orientation, Advising, and Registration (the Orientation) program was designed as a comprehensive orientation program for new students who have completed the COMPASS assessment. The four-hour program consists of four components: general information, academic success strategies, academic planning, and registration. The Orientation program allows students access to early course registration which encourages strong participation for this voluntary program. The

Orientation is available at each of the three campuses with some variability in presentations, structure, and group size. Additional program components include campus tours, parent sessions, and sessions for transfer students. An online version has also been piloted. There are plans to make the Orientation a mandatory program for all entering students.

A specialized orientation program targets students who test into two or more developmental education courses and is a mandatory intervention for this population. Specialized orientation includes components intended to increase understanding about the objectives of developmental education courses. "It's more one-on-one attention . . . with an advisor who has been trained by the Developmental Education faculty" (Southeastern, Core Team Leader). Many of the Developmental faculty serve as advisors and are familiar with the resources and programs available for developmental students. There are plans to transition the specialized orientation advising to a prescriptive intervention model based on success of former students with similar characteristics and risk factors. "Based on student characteristics... we suggest you take a look at these types of things" (Southeastern, Core Team Leader).

Academic student success courses. With a focus on increasing student persistence, Southeastern offers two success courses. ACA 123 is a one-credit-hour success course designed to assist with the transition to college and college resources. Competencies for the ACA course include learning styles, time management skills, college resources, goal setting, career awareness, and other items specific to the student's selected program of study. A cohort model was designed by linking ACA 123 with gateway courses in career programs. Continued modifications have occurred with ACA 123 and the career and technical programs have contextualized the student success elements within content courses. "The faculty in that area

have . . . taken components from the ACA and . . . integrated it into their introductory courses" (Southeastern, Core Team Leader).

Based on persistence and success rates, a second college study skills course, ACA 124, was originally developed for the general student population. The pilots were unsuccessful. "We didn't see that it had any impact whatsoever with regards to student retention or student success at the institution" (Southeastern, Core Team Leader). The College concluded that a cohort of students with like needs was a key factor. Policy changes were made to create cohort learners with the objective to increase persistence rates for developmental students. Students scoring into Math 070 and either Reading or Writing 080 are required to take the course. "[ACA 124] is a three-contact-hour course, using Skip Downing's OnCourse curriculum, focusing on affective skills as well as academic study skills" (Southeastern Community College, 2009b, p. 1, see Appendix J).

Echoing back to the underlying stated philosophy that a "cookie cutter approach" does not fit at Southeastern, the Student Success course curriculum has been modified to address needs of the Southeastern students, particularly in regard to rising mental health issues. Curriculum modifications were made by "individuals that have some sort of mental health background, because of the fact that I see a lot in that curriculum where wounds could be opened. And if not properly closed, we could be doing more harm than good" (Southeastern, Core Team Leader).

Supplemental instruction. In 2007, Southeastern created a peer-supported supplemental learning program using regularly scheduled study sessions held outside of class time. With the goal to improve retention and success rates, Supplemental Instruction (SI) began as a voluntary,

walk-in program for students in developmental Math 070, the second of three developmental courses. Successful results of the voluntary Supplemental Instruction program prompted a decision to make the program mandatory for Math 070 repeaters.

An SI Coordinator works with the faculty from the targeted sections, selects and trains the peer supplemental instructors, and assesses the program. The supplemental instructors are deemed content competent by the faculty and are trained in proactive learning and study strategies. The supplemental instructors attend course lectures and three or more study sessions per week. "Students can request assistance with homework, lectures that have taken place, developing organizational tools, and integrating course content and study skills" (Southeastern Community College, 2009c, p. 1, see Appendix J).

Through the National Center for Academic Transformation, Southeastern was a beta site for a Math Emporium model. It is a self-paced developmental math lab-based curriculum using MyMathLab software. The direction Southeastern takes regarding the implementation of the Emporium model may impact the future of SI. The Southeastern Community College Core Team Leader indicated that the positive results make SI difficult to eliminate. "One of the things that we learned is one size doesn't fit all. . . . I do believe for some students this is still a really good alternative" (Southeastern, Core Team Leader).

Learning communities and integrative assignments. Southeastern offers a Transition Learning Community designed to assist developmental reading students with success in college-level course work.

> Correlating grade data from RED 090 with grades in targeted courses (MUS 110, PSY 150, ENG 111, SOC 210) indicated that students who had a grade of 'C' in RED 090 struggled in subsequent courses, more so than those with higher grades and those who placed out of Reading." (Southeastern Community College, 2009d, p. 1, see Appendix J)

Successful reading students are invited to participate in a four-course learning community linking English with a structured supplemental instruction section, a success course, and a general psychology course. The learning community format is designed to offer the students transitional support to the college-level curriculum. Class size is capped at 20 students. Activities and assignments are coordinated across the courses and academic support is provided.

This program began in 2005 and has not been brought to large scale. "Learning Communities . . . are expensive by nature in order to maintain. . . . This is not necessarily a scalable initiative for us" (Southeastern, Core Team Leader). Noting the success of the learning community format, Southeastern has decided to continue them in limited scale. An alternative format being examined for system-wide implementation is integrative assignments, without the additional faculty load requirements of the full learning community format. "That's how we hope to carry forward with our Learning Communities" (Southeastern, Core Team Leader). Courses would continue to be linked with a cohort of students and with assignments integrated in topic and purpose.

Guiding Question Two: What is the impact of the selected strategies on the success of underprepared students? Since Southeastern joined the Achieving the Dream (ATD) network in 2004, it has also been involved in two other grant-funded projects: Developmental Education Initiative (DEI) and The Completion Agenda. All three projects focus on improving achievement of underprepared students. Embedded in each project is the examination of outcomes data to inform decisions. "We have become consumers of data. . . . We make data-informed decisions. . . . We're looking at data. That's never going to go away" (Southeastern, Core Team Leader). Two committees were formed in 2009 to address continued evaluation of

the impact of intervention strategies: Learning Evidence and Service Evidence. The Learning Evidence Committee was tasked with assuring that learning outcomes are measureable for the strategies. Additionally, the Service Evidence Committee was formed to assure "that we are meeting the needs of our students in a holistic manner" (Southeastern, Core Team Leader).

Through the COMPASS Review project, Southeastern has discovered that "students with just that little bit of brush-up, not only can they go to that next level course, but they're being successful" (Southeastern, Core Team Leader) in the next level course. Students who took a refresher workshop before retesting with COMPASS improved their scores by one or more levels: 59.1% improved in English, 59.3% improved in reading, and 35.4% improved in math (Southeastern Community College, 2011, see Appendix J).

The original goal of the Orientation program was to "give students information necessary to be successful at Southeastern and to improve fall to fall persistence above the previous average rate of 51%" (Southeastern Community College, 2009e, p. 1, see Appendix J). Although causation cannot be definitively determined in a voluntary program, trend data indicate that orientation to college had a positive impact on persistence.

> Using three fall cohorts of data and analyzing fall to fall persistence for [the Orientation] attendees compared to non-attendees, a chi-square analysis results in significant differences. In other words, fall to fall persistence differs for students who attend [the Orientation] (56.0%) than those who do not (40.0%). Even sub-setting the dataset to include only minority students, the results are the same. Persistence differs for minority students who attend [the Orientation] (53.4%) compared to those who don't attend (39.8%). (Southeastern Community College, 2009e, p. 2, see Appendix J)

Pilot data for specialized orientation program also indicated a positive impact on persistence: 81% persistence from Fall 2009 to Spring 2010 for attendees compared to 75% for non-attendees and 59% persistence from Fall 2009 to Fall 2010 for attendees compared to 48%

for non-attendees. Implementation of a mandatory requirement for students with two or more developmental education placements to attend a specialized orientation programs was planned for Fall 2011.

Performance data for developmental math sections with Supplemental Instruction indicate that students perform better with peer support. The original goal of the SI project was to increase success and persistence rates in Math 070.

> After two semesters of the voluntary SI, data results showed that SI students on average succeeded (68.8%) at a much higher rate than non-SI students (58.3%). Attrition rate for SI students during these two semesters was on average 18.8%, compared to 27.7% for the non-SI group. Since voluntary SI proved to help students be more successful, the Math department decided to pilot a mandatory SI for selected Math 070 repeaters in the spring of 2008. The students in the mandatory SI math course during Spring 2008 had a success rate of 68.8% and an attrition rate of 18.8%, while other Math 070 repeaters that same term successfully completed math at a rate of 45.6% with an attrition rate o 38.4%. (Southeastern Community College, 2009c, p. 1, see Appendix J)

The Transition Learning Community (TLC) was designed to support students completing Reading 090 with a grade of 'C' in being as successful in college-level courses as those who did not take developmental courses. The pilot results indicated positive improvement.

> The TLC students (18) were more successful in their English 111 course (83.3%) and PSY 150 course (77.8%) when compared to non-TLC students in English 111 (60.7%) and PSY (56.5%). The differences are even more pronounced when the success results are disaggregated by previous developmental course requirements: non-TLC students who had required developmental reading had an average success rate in ENG 111 of 50.0% and in PSY 150 of 56.2%. (Southeastern Community College, 2009d, p. 2, see Appendix J)

Guiding Question Three: How do the state educational policies support increasing success of underprepared students? Efforts to increase college-readiness and achievement of underprepared students at Southeastern are perceived as being supported by state policy efforts. "They [the state] really want to know what's impeding us in doing our jobs and helping students

to be successful. . . . They are looking at policies . . . to figure out what they can do to actually help us" (Southeastern, Core Team Leader). The state has a developmental education policy team that monitors the "lessons that we're learning here and how we can actually take those lessons and broaden them across the 58 community colleges that exist in the state" (Southeastern, Core Team Leader). Southeastern is involved with state efforts to redesign math curriculum. The state was also targeted as one of nine community college systems in the country to compete for a large Bill & Melinda Gates Foundation grant, Completion by Design. Southeastern was selected as the community college from the state to work on this achievement initiative (Bill & Melinda Gates Foundation, 2010).

Southeastern has identified areas in need of state policy review. State funding guidelines, originally designed to assist student success, were identified as a hindrance for accelerating developmental education. State prerequisite policies require that developmental education be completed before college-level work. This policy restricts state funding to learning communities that link developmental courses with content level courses. Similar funding concerns were identified for the Math Emporium model that accelerates completion of a sequence of developmental courses within a single semester. Lastly, limited state support for services was noted to impede the holistic approach because services are funded at a lower rate than instruction. "Funding just isn't there as readily as it is for instruction" (Southeastern, Core Team Leader).

Question Four: Are the effective strategies replicable for large, system-wide implementations? Continuous review of outcomes data and continuous improvement based on those data were noted as the keys to determining which strategies can be implemented on a large

scale. Southeastern has evolved its data gathering and analysis capabilities with a sophisticated research office. It is critical to be sure that the data collected are relevant to the research questions. "We put in place those research questions that really mean something…. we need to look at data . . . and then truly doing an analysis of that data. And we think that's hopefully the stage that we've progressed to at this point in time" (Southeastern, Core Team Leader).

Proactive policy changes were mentioned as a critical element in moving strategies to scale. Waiting too long to implement policy can delay progress and deter motivation. "Keep a better eye on policy changes. . . . Once you have something in place, you know it's proven, make it a policy" (Southeastern, Core Team Leader). Policy changes insure standard treatment and require that "people are actually going to . . . have to participate in a successful initiative. It's not punitive. . . . It's insuring or undergirding their success" (Southeastern, Core Team Leader).

Strategies cannot effectively operate on the margins. Integrating strategies into the day-to-day college operations assists with transitions "so people didn't see these as things that . . . might go away" (Southeastern, Core Team Leader). Linking these efforts to strategic planning and to annual plans raises the awareness and acceptance that these strategies are not temporary. In addition, long term results come from investing in professional development. "That's really paying off now for us as an institution, because you don't go from 0 to 60 overnight. . . . And we're seeing the depth of understanding that the faculty and the staff need" (Southeastern, Core Team Leader). Embedding strategies includes funding beyond grants or seed money. "Try to move it over to the college budget as quickly as you can" (Southeastern, Core Team Leader).

Engaging the college community through involvement and awareness of the positive impact of the strategies creates momentum that can be contagious and propel the campus through

the change process. Sustainability is a dynamic process. "You can't stop improving. There's no such thing as a status quo. If you're just maintaining, you're really falling behind" (Southeastern, Core Team Leader).

Understanding the importance of timing and how to strategically use momentum to move the campus through the change process was noted as a key element to successful implementation. To implement strategies across the college system, it is not necessary to wait for everyone to be on board with the changes being proposed.

> Get people involved and excited as quickly as possible by making sure that they understand the return on their investment. . . . Reach that point where you know that these folks have gotten on the train and the train's leaving the station. Don't worry so much about those people that haven't bought in yet; they're not the majority. And keep on going forward. Most of the time, those people who didn't get on the train are eventually going to get on anyway, or they're going to decide that this environment has just gotten to be too student-focused for them and go someplace else. (Southeastern, Core Team Leader)

Involvement and support by top leadership are important to the longevity of the strategies. Policy approvals and funding require leaders who are interested and willing to take up the cause. "Titles bring with them some ability to make things happen and to move things along. . . . Keep your movers and shakers involved and engaged in the work of the projects" (Southeastern, Core Team Leader). The qualities that leaders look for in new hires also impact the longevity of strategies. "Make sure that you hire those individuals who share that same philosophy with regards to student learning and success" (Southeastern, Core Team Leader).

Strategies that were identified as integrated and sustainable include COMPASS Review, the Orientation program, and the ACA Student Success courses. Each is tied to policy changes that have standardized or will standardize the strategies across the college system. "We're definitely going to continue [the Orientation program] because it is now policy at the institution"

(Southeastern, Core Team Leader). Taking a COMPASS Review before retesting is mandated by policy. In addition, requiring students to participate in a COMPASS Review is "going to be a requirement for all students coming in prior to . . . taking the test" (Southeastern, Core Team Leader). ACA success courses are currently mandated for students with specific developmental scores and are also contextualized within career program curriculum.

Although Learning Communities will not be taken to full scale, integrated assignments were noted as having the potential to help embed general education throughout the curriculum. "This is Gen Ed core across the curriculum. . . . I'm hoping that . . . will become firmly enough embedded" (Southeastern, Core Team Leader).

Guiding Question Five: What are the best practices and recommendations? In discussing criteria necessary for a project to be labeled a best practice, scale of the project, size of the targeted population, and proof of impact were highlighted. Southeastern has determined its own working definition for bringing a program to scale on its campus.

> Scalability means that it is something that impacts at least 50 percent or more of the target population and is a practice that we have been able to track over time, move students forward incrementally. . . . There isn't anything that says it has to be X percentage points, but it's moving students ahead towards success incrementally. (Southeastern, Core Team Leader)

When asked to select best practices that impact college-readiness, a substantial new student orientation was noted as a primary strategy. "I believe that everybody needs to have some sort of orientation to college" (Southeastern, Core Team Leader). Orientation programs have to be perceived by students as making a difference and having purpose. A distinction was made between surface programs and depth of experience. "It has to be enough where you've made a difference. It can't be so surface that it really doesn't matter. Students have to feel that

they've gained something. . . . There has to be some purpose with regards to their being there" (Southeastern, Core Team Leader).

Regarding underprepared students placed in developmental education courses, pre-assessment testing and content reviews were recommended. Community colleges have a responsibility to be sure students are correctly placed. It was advised that semester-long developmental courses can demotivate a learner who could have been successful in college-level course work after short "brush-up" skills sessions. Pre-COMPASS or other assessment review sessions, as standard practices, were placed in the best practice category.

> I think you have three types of Developmental students: I think you have the students who just need a little bit of brush-up because it's been a couple of years since they actually had math in high school. I think you have those students who maybe have little gaps with regards to their learning. . . . Then, I think you have those students who never got it at all. The pre-assessment review won't help that last category. It could help the middle category. It just depends on what it is they never got. But it will certainly help those students who just need a little bit of brush-up. (Southeastern, Core Team Leader)

Revamping math curriculum state-wide into pathways that are most appropriate for specific careers was a recommendation for the future. "We need to do a better job with diagnostics. I don't think we just need to teach a concept if it's not necessary" (Southeastern, Core Team Leader). Southeastern is interested in state-wide efforts to divide math curriculum into modules and then assign modules that are most appropriate for specific areas of study.

> All nine have to be taken for the science, engineering, technology students. One through six must be taken for the liberal arts. . . . Working shoulder to shoulder with their career and technical faculty . . . what modules must actually be mastered for somebody to be successful as a welder? I think it needs to be a little bit more specific. (Southeastern, Core Team Leader)

A holistic approach to student success was the overall recommendation. Southeastern considers the academic and non-academic needs of the students in developing individual success pathways for students.

Chapter Summary

An exploration of strategies designed to impact college-readiness of underprepared community college students was undertaken. Three sources were used for this exploration: a focus group, six individual in-person interviews, and relevant research documents and data referenced or provided by the interviewees.

A focus group of expert consultants who serve as strategy coaches and data research facilitators for the Achieving the Dream network was held for the purpose of identifying and exploring effective strategies and best practice criteria related to improving college-readiness of underprepared community college students. To provide a framework for capturing the perceptions of strategy coaches and data facilitators, three inquiry components were posed in a focus group format: identify effective strategies, identify challenges in moving strategies to best practices, and identify elements that define a best practice.

The focus group identified 20 effective strategies to improve college-readiness and achievement. The effective strategies impacted curriculum, services, and administrative areas. For each identified strategy, the group identified challenges that might interfere with it becoming a best practice. The 20 effective strategies are summarized below:

1. Develop clear college preparatory curriculum available for all high school students.
2. Establish well-defined programs of study with well-defined learning outcomes and common assessments to measure learning.

3. Accelerate developmental coursework for ‘cusp’ students who test just below college-level.
4. Implement case management approaches in advising students.
5. Offer learning community formats for team-teaching developmental math and student success courses with back-to-back schedules.
6. Collaborate with the high schools to assess college-readiness during the junior year of high school in time for senior year course selection.
7. Mandate student success courses for those who place into two or more developmental courses.
8. Address social development of students through specialized advising.
9. Integrate supplemental instruction into students’ schedules for development math.
10. Mandate new student orientation.
11. Eliminate late registration with alternative late-start course options with support resources.
12. Standardize processes that inform and elicit support of family in college-readiness and preparation.
13. Establish mentoring programs for campus culture acclimation processes.
14. Create alternative structures to replace 16-week semester format for developmental math with integrated support systems for students.
15. Schedule intensive, 5-day developmental math modules with increased contact hours.
16. Establish assessment test preparation for students prior to course placement.
17. Integrate success coaches into student success courses.

18. Implement early alert systems that capture and intervene with patterns of absence and academic deficiencies.
19. Contextualize curriculum to embed developmental learning within content courses.
20. Work with faculty to align curriculum and pedagogical practices between secondary and postsecondary education.

The focus group identified challenges and important criteria to be addressed in order for the identified strategies to become best practices. The challenges focused on the need to examine state policies to support wide-scale implementation, particularly for curricular alignment, core standards, and accelerated developmental education. The need for faculty engagement and professional development was raised as a critical factor to reform curriculum, delivery formats, and schedule changes. Reducing silo-mentality between secondary and postsecondary education was emphasized as a challenge. The costs of support systems, lack of facilities, limited referral resources, and high student-advisor ratios were also identified as barriers to implementing reform.

Finally, the focus group was asked to synthesize the information into key elements of "best practices." The participants identified the following 11 elements of best practice strategies (see Table 4):

1. Institutionalized and embedded into policies and practices.
2. Buy-in and attitude of all constituents.
3. Use of evidence based upon summative data and informative data to determine effectiveness.
4. Positive cost-benefit analysis.
5. Demonstrated trend of success.

6. Proven sustainability.
7. Clearly defined implementation plan that is followed.
8. Clearly defined characteristics that, when compared to other programs, identifies this as better/more effective.
9. Clearly defined processes/steps taken to design and implement the program, not just a model.
10. Understanding and addressing root causes, not just symptoms.
11. Having champions throughout the campus.

The in-person interviews were completed at six selected community colleges identified by the Achieving the Dream network as being Leader Colleges with at least three years of demonstrated student success improvement. Six individuals identified as core team leaders at the selected community colleges were interviewed using five Guiding Questions and 15 interview questions. Each individual core team leader responded to the interview questions from their own perspective and with regard to the unique characteristics of each campus. Summary findings for each guiding question are listed below and organized by the selected community college.

1. What strategies were implemented at the identified ATD Leader Community Colleges to improve success of under-prepared students?
    - Central Community College: paired math and study skills courses, learning communities for developmental students, extended orientation for delayed-entry students, required orientation, elimination of late registration, mentoring, college-readiness prerequisites, supplemental instruction, and ease of services
    - Southern Community College: supplemental learning, student success course, and learning communities

- Northeastern Community College: active learning methodologies, supplemental instruction, Black and Latino Resource Center, and organizational shift in developmental education
- Eastern Community College: cooperative learning and predictive model for advising
- Southwestern Community College: college-readiness assessment in the high schools, Project Dream, PREP, university partnerships, dual credit, Math Emporium, and mentoring
- Southeastern Community College: COMPASS review, the Orientation program, academic student success courses, supplemental instruction, learning communities, and integrative assignments

2. What is the impact of the selected strategies on the success of underprepared students?
    - Each of the selected sites has research offices that assess outcomes data on the impact of the implemented strategies and tracks trend data. A review of ATD annual reports, intervention reports, college data, and presentations uncovered success and persistence data relevant to the identified strategies.
    - Size and scope of the campus research offices was noted as an important factor in tracking effectiveness measures.
3. How do the state educational policies support increasing success of underprepared students?

    Each community college in this multi-case study resides in states that have initiated state-wide public education policy reform efforts. State-wide initiatives are listed below, per institution.

- Central Community College: standard assessment tests and placement
- Southern Community College: standard assessment tests, placement, developmental curriculum, and a state-wide database
- Northeastern Community College: standard assessment tests, placement, state-wide transfer articulation, and financial awards in recognition of success rates
- Eastern Community College: redesign of developmental curriculum state-wide
- Southwestern Community College: core curriculum, faculty credential statements, and transfer articulation
- Southeastern Community College: developmental education state policy team and state-wide math curriculum redesign

4. Are the effective strategies replicable and scalable for large, system-wide implementations?

   Each core team leader interviewed shared perspectives on the criteria needed to bring programs to full scale. The strategies listed below were identified as full or nearly full scale programs at each site.

   - Central Community College: paired math and study skills and supplemental instruction
   - Southern Community College: learning communities and Student Success course
   - Northeastern Community College: active learning methodologies, supplemental instruction using MyMathLab, centralization of developmental education, and the Black and Latino Male Resource Center
   - Eastern Community College: cooperative learning

- Southwestern Community College: college-readiness assessment in the high schools, Project Dream, PREP, and Math Emporium
- Southeastern Community College: COMPASS Review, the Orientation program, and student success courses

5. What are the best practices and recommendations?

   Core Team Leaders were asked to identify criteria and make recommendations of things that might move an effective practice to a best practice. Subsequently, Core Team Leaders were asked to identify strategies for improving college-readiness of underprepared students that fit the best practice label. The recommended best practices are listed below:

   - Central Community College: required first year experience programs and accelerated developmental sequences
   - Southern Community College: learning communities and mathematic curriculum redesign-quantitative literacy
   - Northeastern Community College: active learning
   - Eastern Community College: cooperative learning, strong math lab, and integrated advising systems
   - Southwestern Community College: none identified
   - Southeastern Community College: orientation, COMPASS Review, and mathematics curriculum redesign, modularized by career focus

CHAPTER 5

FINDINGS: CROSS-CASE ANALYSIS

The purpose of this study was to explore and analyze reformative strategies that effectively address college-readiness issues of underprepared community college students. A purposeful, criterion-based site selection process (Johnson & Christensen, 2008) was used to select six case studies that examine effective strategies that impact college-readiness of underprepared community college students. This purposeful selection process identified six comparable community colleges recognized as Leader Colleges within the Achieving the Dream (ATD) network, an association of 160 community colleges focused on improving student success and achievement (ATD, 2011b). The collective case exploration was framed by the five Guiding Questions intended to gain greater insight into effective strategies impacting college-readiness (Johnson & Christensen, 2008). This exploration included strategies implemented at the six community colleges identified by ATD as leaders in educational reform initiatives and located within state-systems involved in public education policy reform. In addition to the six case studies, ATD coaches and data facilitators participated in a focus group to ascertain collective expert opinions on effective reformative strategies and best practice criteria.

A within-case analysis and a cross-case analysis were used to examine the case study findings (Creswell, 2007). The within-case analysis focused on each individual case, separately preparing interview data and independently reporting findings (Merriam, 2009). Each case study was individually examined using the Guiding Questions and individual case findings were reported in Chapter Four. In addition, focus group findings on effective strategies and best practice criteria were examined and also reported in Chapter Four. Finally, document reviews

were used to gather case study profile information and impact data on the effectiveness of implemented strategies. Again, these relevant findings were reported in Chapter Four.

Chapter 5 presents the findings from the cross-case analysis of the cases studies. Cross-case analysis provides an integrative exploration in search of similarities, patterns, and differences across the multiple cases (Johnson & Christensen, 2008). A two stage cross-case analysis was selected. First, a general comparative analysis was performed across the case studies. The cross-case analysis served to synthesize the data, "aggregating findings across a series of individual studies" (Yin, 2009, p. 156). Second, an embedded comparative analysis of the commonly identified effective strategies was made (Yin, 2009, p. 59). This disaggregated examination focused on key issues (strategies) across the cases to better understand them and for comparative insight (Creswell, 2007). The Guiding Questions were used to organize the cross-case examinations and assess comparisons across the case studies.

This chapter concludes with a "thematic analysis across the cases" (Creswell, 2007, p. 75). The Guiding Questions helped to identify the common themes related to characteristics and criteria for improving college-readiness. With an overall focus on characteristics and criteria, the examination of the cross-case responses to the Guiding Questions revealed seven emergent and a priori themes for improving college-readiness of underprepared community college students.

Guiding Questions

Five Guiding Questions were employed to help frame the two-stage cross-case analysis in this study. These included:

1. What strategies were implemented at the identified ATD Leader Community Colleges to improve success of underprepared students?
2. What is the impact of the selected strategies on the success of underprepared students?
3. How do the state's educational policies support increasing success of underprepared students?
4. Are the effective strategies replicable and scalable for large, system-wide implementations?
5. What criteria and/or strategies are recommended for the best practice label?

Aggregated Cross-Case Comparisons

A cross-case comparison of the six case studies was completed and findings organized in accordance with the five Guiding Questions (GQ). This aggregated examination formed a contextual picture of identified effective strategies (GQ 1), impact of strategies (GQ 2), supportive state policies (GQ 3), fully scaled strategies (GQ 4), and best practices recommendations (GQ 5). This section documents the aggregated comparative findings from the cross-case analysis, beginning with a brief comparative overview of the case study sites.

Site Profiles

The case study selection process intentionally sought both similarities and differences to allow for both literal and theoretical replications (Yin, 2009). Contained within the selected case studies are similarities and differences in size, type, and organization affiliation.

The selected case studies were community colleges across six states representing five regions of the country. According to the Carnegie classification system, the selected community colleges range in size from small to large and represent urban, rural, and suburban institutions (Carnegie Foundation, 2010).

Each of the selected community colleges was given Leader College status by the Achieving the Dream (ATD) organization and had been associated with ATD for over five years at the onset of this study. Each of the six colleges created an implementation plan with ATD describing strategies to address the achievement gap of underprepared students. Each college is located within state-systems involved in public education policy reform.

Comparison of Identified Strategies

Each of the six community colleges identified effective strategies designed to improve college-readiness and achievement of underprepared students, in accordance with Guiding Question One. There were similarities and distinctions found among the strategies selected across the six community colleges, as noted in Table 10.

The dominant commonality was developmental education reform. Each of the six community colleges examined and made changes in its organization and/or delivery of developmental education curriculum.

There were four strategies implemented by half or more of the six community colleges.

- Four of the six community colleges selected supplemental learning as a strategy to support the achievement of underprepared students in developmental courses and/or gatekeeper college level courses.
- In addressing college-readiness upon entry, four of the six have required students to demonstrate college-readiness before taking college-level curriculum.
- Three of the community colleges have implemented some form of learning communities to support underprepared students.
- Three institutions required a success course for some or all underprepared students.

Among distinctive strategies, Central and Southwestern Community Colleges have employed more programs that are unique to their campuses. Central Community College (Central) was unique in its focus on improving services that support student success, particularly in relation to financial services and drop for non-payment. It focused on standardizing services across multiple campuses. Related to ease of services, Central was also distinctive in its elimination of late registration in order to enforce required orientation.

Southwestern Community College (Southwestern) is distinguished by its formal partnerships on the high school and university levels. Southwestern has focused on college-readiness prior to college-entry with ACCUPLACER testing in the junior year of high school and through its Summer Bridge program, Project Dream. Southwestern has bookended its support system by partnering with its local university with joint applications and data sharing agreements. Another unique feature found at Southwestern was its PREP program, which focuses on a case management and academic skills approach to supporting developmental students.

Table 10: Comparison of Identified Strategies by Case Study

Strategies	Central	South	North-east	East	South-west	South-east
Learning Communities, Links, Integrated Assignments	X	X				X
Orientation	X					X
Mentoring	X				X	
Supplemental Learning	X	X	X			X
College-readiness Prerequisites	X	X			X	X
Cooperative/Active Learning			X	X		
Success Course	X	X				X
Summer Bridge-Project Dream					X	
Dev Ed Reform	X	X	X	X	X	X
High School Partnerships-College Prep, Dual Credit,					X	
COMPASS/ACCUPLACER Review					X	X
Predictive Advising Model				X		
PREP Case Management					X	
Ease of Services	X					
University Partnerships					X	
Black and Latino Resource Center			X			
Math Emporium					X	X
Elimination of Late Registration	X					

The comparison of the six community colleges yielded two other unique programs. Eastern Community College's predictive advising model uses characteristics of successful students to determine a student's candidacy for accelerated developmental learning, while

Northeastern Community College provides a specific resource and mentoring center for its highest at-risk students - black and Latino males.

Strategies identified by the case studies were compared to those identified through the focus group process. Ten field experts who serve as strategy coaches and data facilitators for community colleges affiliated with the Achieving the Dream (ATD) network participated in a focus group. The participants were asked to identify effective strategies that impact college-readiness of underprepared community college students, and the focus group identified 20 such strategies. Similarities and differences were found between the strategies identified by the focus group and those implemented at the six community colleges in the study. Table 11 demonstrates these general similarities and differences.

Some correlation was observed between the effective strategies identified by the case studies and those recommended by the experts in the focus group. The focus group recommended five of the effective strategies implemented at half or more of the six community colleges: supplemental instruction/learning, required orientation, student success courses, mentoring, and learning communities.

The focus group also identified strategies that were noted as unique to individual case studies. The focus group recommended: collaborations between colleges and high schools to assess college-readiness and college-readiness preparation in high schools, both of which were distinctive programs identified by Southwestern Community College. Additionally, the focus group recommended accelerated developmental coursework as an effective strategy. Although none of the case studies identified this strategy by name, three included accelerated

developmental education within other strategies: Math Emporium at Southwestern, Math Emporium at Southeastern, and the predictive advising model at Eastern.

Table 11: Comparison of Success Strategies Identified by Focus Group (FG)

Success Strategies Identified by FG	Central	Southern	Northeastern	Eastern	Southwestern	Southeastern
College preparatory in High School					X	
Accelerated developmental coursework/alternate semester structure				X	X (Math Emporium)	X (Math Emporium)
Case-management advising		X (Success Coach)			X (PREP)	
Learning Communities	X	X				X
Collaboration with the high schools to assess college-readiness					X	
Mandatory student success course		X				X
Advising to address social development		X (Success Coach)	X (Black/ Latino Center)			
Supplemental instruction	X	X	X			X
Orientation	X					X
Elimination of late registration	X					
Support of family in college-readiness					X	
Mentoring programs	X		X		X	
Assessment Test Prep					X	X

Comparison of Strategy Impacts

Each of the six community colleges examined the impact of its implemented strategies. In accordance with Guiding Question Two, data were gathered individually on the reported impact of the strategies by case study, via case study interviews with the core team leader and by examining research documents referenced during the interview process, such as annual intervention reports filed with Achieving the Dream. The cross-case examination of impact data did not assess variability in research processes between the case studies nor evaluate or compare research methods. The cross-case examination served solely to gather reported impact data by case and search for similarities, patterns, and differences (Johnson & Christensen, 2008).

The reported impact of the strategies focused primarily on improvement in academic success rates and persistence rates. Success rates were defined as course completion with a grade of A, B, or C. Persistence was defined as Fall to Spring and/or Fall to Fall retention of students (see Table 12). Some success data were reported in aggregate, not by strategy, such as overall improvement in success rates of a target population over time. In particular, Southwestern reported on the overall increase in degree and completion rates and the decrease in the number of developmental courses required of students since the implementation of the College-readiness Consortium interventions. Eastern similarly reported success and persistence as degree completion.

The case studies were asked to report on strategies that were perceived to be effective in improving college-readiness of underprepared students. Across the case reports, most strategies improved success rates and/or persistence of student participants compared to non-participants.

Table 12: Comparison of Impact Strategies by Institution

Strategies by Institution	Success Rates	Persistence	No Change
Central:			
Paired Math and Study Skills	X		
In-person Orientation		X	
Supplemental Instruction	X		
Mentoring		X	
Developmental Learning Communities (three/four course)			X
Southern:			
Supplemental Learning	X		
Success Course	X	X	
Success Course requirement with three Dev Ed placements			Inconclusive
Learning Communities	X		
Northeastern:			
Developmental Education	X	X	
Active Learning			Inconclusive
Black and Latino Males Resource Center		X	
Eastern:			
Cooperative Learning	X	X	
Predictive Advising Model	X		
Southwestern:			
College-readiness Consortium Initiatives	X	X	
Math Emporium	X		
Southeastern:			
COMPASS Review	X		
Orientation		X	
Supplemental Instruction with Math 070	X	X	
Transition Learning Community	X		

As noted in Table 12, there were three strategies with no conclusive impact. Two of these focused on developmental education strategies. Central reported that learning communities

involving three to four courses for developmental students did not show consistent improvement in success over non-participating developmental students. Lack of improvement and the costs associated with learning communities were cited as reasons for not expanding this strategy. Southern reported inconclusive results of requiring students with three developmental education placements to take a student success course, and recommended further study. At Northeastern, improved success rates for active learning for developmental reading and English as a Second Language were reported as inconsistent but still promising; participant success rates were generally the same as or greater than non-participants.

Comparison of State Policy Efforts

Each community college in this multi-case study resides in a state that has state-wide public education policy reform efforts underway. In accordance with Guiding Question Three, core team leaders at each community college were asked to identify policy efforts deemed supportive of increasing success of under-prepared students. Data on the perception of effective policies were gathered and tabular results indicate similarities and differences in effective state policy efforts reported across the case studies. Table 13 demonstrates a comparison of supportive state policy efforts identified by institutions.

Two state policy efforts were identified by half or more of the case studies as being supportive of efforts to improve success of underprepared students: a) state-wide standards for assessment and placement scores and b) standardized curriculum for developmental education. All six case studies selected one or both of these two state efforts. Unique state policy efforts were identified by three of the case studies: Southern Community College noted that its state-wide database was a significant factor, Northeastern Community College noted that state-

provided financial recognition of success was supportive, and Southwestern noted that standardized faculty credential statements supported college-preparation efforts in the high schools.

Table 13: Comparison of Identified Supportive State Policy Efforts by Institution

State Policy Efforts	Central	Southern	Northeastern	Eastern	Southwestern	Southeastern
Standard Assessment Tests and Placement Scores	X	X	X			
Standard Developmental Curriculum		X		X	X	X
State-wide Research Database		X				
State-wide Transfer Articulation			X		X	
Financial Awards for Success Rates			X			
Standard Faculty Credentials					X	

Note: There may be other state policies in effect but not identified by the core team leader as supportive.

Comparison of Scaled Strategies

In accordance with Guiding Question Four, each case study identified strategies that had been brought to full scale or were in the process of being scaled within its community college. The terms, full scale or scaled, were not defined in the interview and were left to the interpretation of the respondent. Some interpretations included the following: embedded into the culture of the college, impacting more than 50% of the target population, demonstrated patterns

of success over time, institutionalized within a departmental 'home,' and survived beyond leadership changes. Table 14 shows the comparison of the identified scalable strategies.

Table 14: Comparison of Scaled Strategies

Scaled Strategies	Central	Southern	Northeastern	Eastern	Southwestern	Southeastern
Learning Community/Links	X	X				
Student Success Course	X	X				X
Supplemental Instruction/ Learning	X		X			
Active/Cooperative Learning			X	X		
Centralized Developmental Education			X			
Black/Latino Male Resource Center			X			
Area College-Readiness Consortium					X	
Summer Bridge-Project Dream					X	
PREP-Case Mgmt.					X	
Math Emporium					X	
Orientation						X
COMPASS/ACCUPLACER Review					X	X
College-readiness Prerequisite		X				X

Note: Strategies with different names but similar intent were combined.

Commonalities across institutions were noted in the scaled strategies. The student success course strategy was identified by half of the case studies as a scaled strategy. Four other strategies were common between two of the case studies: learning communities/links, supplemental instruction/learning, active/cooperative learning, and COMPASS/ACCUPLACER review.

Across the cases, there were more commonalities in identified effective strategies than commonalities in scaled strategies. Of the 10 commonly identified effective strategies, five were identified as scaled strategies by two or three case studies: learning communities, supplemental instruction, active/cooperative learning, success courses, and COMPASS/ACCUPLACER review. Although six institutions identified developmental education as a common strategy, only one selected it as scaled. Northeastern Community College identified its centralized organizational structure (Developmental Education Reform strategy) as scaled for system-wide implementation. Additionally, mentoring was the only common strategy not identified as scalable among any of the participating institutions. See Table 15 for comparisons of common and scaled strategies.

Table 15: Comparison of Common and Scaled Strategies

Common Strategies	Scaled						Not Scaled
	CCC	SCC	NCC	ECC	SWCC	SECC	
Learning Communities/Links	X	X					
Orientation						X	
Mentoring							X
Supplemental Instruction	X		X				
College-Readiness Pre-req		X*				X*	
Active/Cooperative Learning			X	X			
Success Course	X	X				X	
Dev Ed Reform			X				
COMPASS/ACCUPLACER Review					X	X	
Math Emporium					X		

Note. CCC = Central Community College; SCC = Southern Community College; NCC = Northern Community College; ECC = Eastern Community College; SWCC = Southwestern Community College; SECC = Southeastern Community College. * denotes a state requirement.

Comparison of Best Practices

In five out of the six case studies, best practices for improving college-readiness of underprepared community college students were recommended. Table 16 notes the similarities and differences among strategies recommended for the best practice label.

Table 16: Comparisons of Best Practice Recommendations by Case Study

Best Practices	Central	Southern	Northeastern	Eastern	Southeastern
Learning Communities		X			
Active/ Cooperative Learning			X	X	
Required First Year Experience/Orientation	X				X
Accelerated Dev Ed	X				
Math Redesign		X			X
COMPASS Review					X
Strong Support Systems: Math Labs and Advising				X	

Disaggregation of Cross-Case Strategies

Cross-case analysis uncovered similarities and differences in type of strategies employed. Identified across the six case studies were 18 strategies designed to improve success of underprepared students. Of the 18 strategies, 10 were common between two or more case studies. A disaggregated examination of the 10 strategies revealed common characteristics for improving student success and achievement of underprepared students as well as some differences. This closer examination of the common strategies was intended to gain greater clarity and understanding of the similarities and differences among them and identify characteristics and patterns of effective strategies (Johnson & Christensen, 2008).

This disaggregated examination of the 10 strategies was organized in accordance with the Guiding Questions to determine the similarities and differences.

- Guiding Question One: *What strategies were implemented at the identified Achieving the Dream Leader Colleges to improve success of underprepared students?* Of the 18 strategies identified, the 10 strategies common among two or more Leader Colleges were examined for similarities and differences.
- Guiding Question Two: *What is the impact of the selected strategies on the success of underprepared students?* Identified effectiveness indicators in the case findings were included in the disaggregated examination of the 10 strategies
- Guiding Question Three: *How do the state educational policies support increasing success of under-prepared students?* Where Leader Colleges identified state policy support for any of the 10 common strategies, it was noted in the disaggregated analysis.
- Guiding Question Four: *Are the effective strategies replicable and scalable for large, system-wide implementations?* Where an identified strategy was in the process of being or had been brought to scale, it was noted as such in the disaggregated cross-case examination of the 10 strategies.
- Guiding Questions Five: *What are the best practices and recommendations?* Where any of the 10 strategies was recommended for the best practice label, it was so noted in the disaggregated cross-case examination of the ten common strategies.

The results of the disaggregated analysis are summarized below under each of the 10 common strategies. Each strategy is briefly summarized, followed by a description of the

similarities and then the differences noted by the cross-case analysis. There is no priority intended by the order of the strategies.

Learning Communities

Learning Communities was identified as a rubric that includes linked courses and integrated assignments. A form of learning communities was implemented as a strategy to improve college-readiness of underprepared students at Central Community College, Southern Community College, and Southeastern Community College.

Similarities. Learning communities were noted as strategies scalable for widespread implementation within two case studies. The two-course linked format was identified as the preferred delivery method over the four-course learning community format. Each of the three community colleges transitioned away from the four-course format, noting cost and coordination issues. Block-scheduling and integrated assignments were common organizational features noted across the cases.

Although learning communities with reading and writing support are found at all three institutions, linking developmental math with a success course was found to be a more common format at Central Community College and Southern Community College. The math and success course links at both institutions were noted as implemented at full scale.

Academic success rates of developmental students participating in learning communities compared to rates of those not participating were common effectiveness indicators. Higher success rates (grades A-C) for developmental students in two-course linked learning community formats were noted at all three institutions. Additionally, Central noted that three- or four-course learning communities did not show improvements in success rates.

Differences. A unique feature to the linked developmental math and student success courses at Southern Community College is the inclusion of a Success Coach, who is a counselor or librarian. The Success Coach participates in three class sessions during the semester and works closely with the math and success course instructors in providing access to resources and personalized assistance to the students outside of class. Southern was the only institution to recommend the learning community's strategy for the best practice label.

Southeastern offers a learning communities option with transitional support for successful developmental reading students as they move to college-level English. It is a four-course learning community linking English with a structured supplemental instruction section. Although this option continues to be offered, it was noted that it will not be brought to full scale due to costs. Southeastern also noted that state policies requiring developmental requirements to be completed before entrance into college-level coursework has restricted the college's ability to offer linked developmental education courses with content-level courses.

Required New Student Orientation

Orientation was identified as an effective strategy for new students in conjunction with or immediately following assessment testing. Required new student orientation was identified as an effective strategy at Central Community College and Southeastern Community College.

Similarities. The identified purpose of orientation was to assist students in transitioning to college. Although it was strongly encouraged in the past, both Central and Southeastern cite new policy that requires orientation and extends to developmental and non-developmental students. The requirement brings this strategy to full scale at both institutions, across multiple

campus sites. Central and Southeastern recommended the required first-year experience strategy for the best practice label.

Orientation includes general college information, engagement activities, counseling/advising, and course registration. The length of orientation was between three and four hours.

Persistence rates from fall to spring and fall to fall were noted as effectiveness indicators. At both institutions, persistence rates were higher for new students who participated in in-person orientation as compared to those who did not participate.

Differences. Implementation of required orientation was noted to be complicated by new students who register after classes have started. At Central, it was noted that about 1,400 students registered the first day of classes or later. In order to fully implement required orientation, Central instituted a policy change to no longer allow registration after the start of classes. It was noted that state policy to support this change would be welcomed, since there is concern that the change may divert students to other community colleges in the state that do not have the late-registration restrictions.

For students with two or more developmental education placements at Southeastern Community College, a specialized new student orientation program was designed to increase understanding about the objectives of developmental education. This orientation program is aligned with the Developmental Education department, with many of its faculty members serving as advisors for the program and offering one-on-one attention. Plans include moving toward a prescriptive advising model based on success of past developmental students with

similar characteristics and risk factors. Another specialized orientation was designed for online students and was in pilot stage at the time of this study.

Mentoring

Mentors were identified as assigned faculty, staff, or peers who serve as resource guides in a variety of ways to students. Central Community College and Southwestern Community College identified mentoring as an effective strategy.

Similarities. Mentoring programs at the two community colleges match 1,000-1,600 students at each campus with faculty and staff mentors. Mentors are trained as resource guides and referral agents on campus. Student participation is voluntary. Mentors connect with students in various ways: telephone, internet, in-person, or in groups. Mentors work in a collaborative way with other resource providers with a focus on personal rather than academic support. The focus is life issues that might interfere with student success.

In response to Guiding Question Four, mentoring was not recommended for wide-scale implementation by either institution. With regard to Guiding Question Five, neither institution identified mentoring as a best practice.

Differences. The PREP program at Southwestern Community College was designed for developmental students with a case management focus. At the time of this study, Southwestern was expanding its PREP program to include a mentoring component. In its pilot stage, about 1,600 developmental students across two of its campuses were involved in a mentor program.

In addition to a faculty and staff mentoring program, Central has launched a peer mentoring program. Instead of being assigned to individual students, peer mentors are assigned to developmental courses for in-class visits and out-of-class assistance.

Semester-to-semester persistence rates were identified as effectiveness indicators. Central has implemented mentoring across three campuses and has noted increased semester-to-semester retention compared to a control group. Effectiveness data were not available from the Southwestern pilot.

Supplemental Instruction/Learning

Supplemental Instruction (SI) describes an organized approach to offering additional course-content assistance to students, typically by a resource other than the instructor. Supplemental instruction was found to be available within and outside the classroom environment for both developmental and college-level coursework. Four of the case studies identified some form of SI as an effective strategy in addressing college-readiness of underprepared community college students: Central, Southern, Northeastern, and Southeastern.

Similarities. Peer leadership was the most common feature of supplemental instruction at three of the four institutions. Students who have successfully completed developmental work and were identified by faculty as good candidates were selected, trained, and paid as supplemental instructors at Central, Southern, and Southeastern. These peer-level role models are trained in such areas as study skills and test taking techniques. They are physically present within the class period and offer assistance during and after classes.

Supplemental instruction is offered for developmental math at all four community colleges. Required approaches to supplemental instruction were found at Southeastern in developmental math and Northeastern for all algebra classes, developmental and college-level. Courses with supplemental instruction are voluntary options for students at Central and Southern. However, at Southern, students who have previously been unsuccessful in their

developmental math course are strongly encouraged to enroll and avoid a financial penalty for repeating the course, if taken with supplemental learning.

Two of the institutions reported having separate organizational centers to coordinate the SI programs. Southern and Southeastern have SI coordinator positions with responsibilities that include working with the faculty from the targeted sections to select and train the peer leaders and organize the programs.

Effectiveness indicators were identified as higher academic success rates and lower attrition in course sections with supplemental instruction. Central, Southern, and Southeastern reported higher academic success rates (grades A-C) and lower attrition for those participating in supplemental instruction compared to non-participants.

Two institutions have identified supplemental instruction for wide-scale implementation. However, when asked to identify best practice strategies, supplemental instruction was not recommended by any of the participating institutions.

Differences. The Northeastern model of SI was found to be the most unique format. All algebra classes, developmental and college-level, use online software as a required out-of-class supplement. The computer lab is staffed with a professional math tutor and students are required to attend the lab to work on the software assignments outside of class.

Size of program varies across the four participating institutions. Central offers about 35 sections of SI in developmental math and English, serving about 800 students annually. Southern refers to its program as Supplemental Learning and offers 375 sections impacting over 8,500 students. Supplemental Learning focuses on courses with high enrollment and low success rates: three pre-college mathematics courses and three college-level courses with low pass rates

for incoming students. Due to successful results of a voluntary SI program, Southeastern moved to mandatory peer-supported supplemental learning for students who need to repeat Math 070, the second of three developmental math courses.

Cooperative/Active Learning

Cooperative or Active Learning involves the employment of learner centered methodologies in the classroom to create an engaged classroom environment. The focus is on pedagogy, not course content. Two of the case studies, Northeastern Community College and Eastern Community College, identified this strategy as effective in improving college-readiness of underprepared community college students.

Similarities. This classroom-based strategy uses activities, particularly problem-solving group work, to engage students in learning. The course content is contextualized with the use of active learning techniques. Both case studies used intentional, broad-scale professional development for full and adjunct faculty to encourage consistent use of this strategy. Developmental math and English courses are taught using this technique at both institutions.

Cooperative/Active learning was identified as a replicable strategy for large, system-wide implementation. Northeastern and Eastern also selected Cooperative/Active Learning as a best practice.

Differences. At Southeastern, the active learning techniques were first employed in English as a Second Language courses and then expanded into other developmental courses. At Eastern, cooperative learning is infused across the curriculum with 80% of the faculty being routine users of this strategy in developmental and college-level courses. Eastern has institutionalized cooperative learning and has become a training site for institutions across the

country. Effectiveness indicators at Eastern were higher rates of persistence and degree completion by students who took courses with cooperative learning than those who did not. These data indicated higher rates of semester completion, degree completion, and transfer rates. At Northeastern, effectiveness indicators were higher academic success rates in developmental courses with active learning. Disparate success rates were reported in developmental English and success rates were either the same or greater in English as a Second Language sections taught with active learning.

Student Success Courses

Student Success courses were described as college-level courses designed to assist students in understanding and managing the college environment, with a particular focus on study skills. These were found to be often linked as support courses with developmental courses. Three case studies identified student success courses as strategies that improve college readiness of underprepared community college students: Central Community College, Southern Community College, and Southeastern Community College.

Similarities. Skip Downey's (2011) *On Course* materials were attributed as the foundation for the success courses at Central and Southeastern. Although offered as stand-alone courses for general students, the majority of offerings at each of the three sites linked the success course with developmental courses. As noted above under Learning Communities, Central offers a linked study skills course with developmental math. The success course curriculum has a focus on math-oriented study skills, including such areas as math anxiety. Similarly, Southeastern links its success courses with a focus on reading, writing, or math. Southern blends the success course within a structured sequence for students with three developmental

placements; the first course required is developmental reading, the second is the success course, and the third is developmental math.

In accordance with Guiding Question Two, semester success rates were identified as effectiveness indicators, particularly in developmental courses. Central and Southern reported inconsistent patterns of success rates. Southern noted that the requirement to involve all students with three developmental education placements complicated the control study. Central studied the success course pairing across 13 semesters and noted some increase in success rates in developmental math but inconsistency across its multiple campuses. No success data were reported by Southeastern on this strategy.

Student success courses were noted as scalable for broad implementation by Central, Southern, and Southeastern. However, none of the participating institutions identified success courses as a best practice.

Differences. Although student success courses are college-level courses at the three community colleges, the amount of credit varies by college. At Central Community College, the success course carries two hours of credit. At Southern Community College, it is a three-hour course. Southeastern offers two student success courses - one for one credit hour and one for three credit hours. The one-hour course was linked to gateway courses in career programs. With modifications over time, the career and technical programs have contextualized the student success course contents within the gateway courses. Southeastern's three-credit success course has become a requirement for students with developmental level placement into math, reading or writing. In addition, Southeastern has modified the curriculum to address wellness, or more specifically, mental health issues of students.

At Southern, the student success course has been mandated for students with three developmental education placements since 2006. An incentive was added for developmental students; those who complete the success course and the developmental education course at the same time receive a $500 scholarship. Additionally, Southern noted that its state-wide database supported the wide-scale implementation of the success course. The state provided positive impact data on the various success courses offered across the 28-college system.

COMPASS/ACCUPLACER Review

COMPASS or ACCUPLACER assessment instruments were used by each of the community colleges in this multi-case study to assess college-readiness of incoming students in math, reading, and English. The results of these assessments were used to place students into college-level or developmental levels in math, reading, and writing. Two of the case studies employed a strategy that assisted incoming students with a review of subject matter and test-taking skills before the second (and subsequent) administration of the assessment instruments. The Review was identified by Southwestern Community College (ACCUPLACER) and Southeastern Community College (COMPASS) as an effective strategy for improving college-readiness of underprepared community college students.

Similarities. The Review strategies at the two community colleges are only similar in that students receive a review of skills and test-taking techniques prior to final placement in college-level or developmental level math, reading, or English courses. Although the Review approaches differ, the identified effectiveness indicator was similar; after the Reviews, students can move up or out of developmental placements upon retesting. Both community colleges reported significant improvement in students' assessment scores after participating in

COMPASS/ACCUPLACER Review interventions. This strategy was also noted as replicable for wide-scale implementation by the two participating institutions.

Differences. There is a noted difference in the coordination processes undertaken in the COMPASS/ACCUPLACER review strategies at the two community colleges. At Southeastern Community College, the initial assessment test is administered by the college to entering new students. Students who do not test into college-level courses are offered structured reviews in three formats: face-to-face, group workshop, or online. The review components include pre-test, practice questions, instruction, and post-test. Students are allowed to retest only after completing an intervention review session. In response to Guiding Question Five, Southeastern identified the COMPASS review strategy as a best practice.

At Southwestern Community College, the ACCUPLACER Review strategy is part of a collaborative effort between the community college and the local high schools called Area College-Readiness Consortium. As a result of the Consortium efforts, the 12 high school districts administer the assessment instrument in the junior year of high school. Each high school determines, in consultation with the Consortium, appropriate interventions based upon specific diagnostics of deficient areas. Students are tested in the junior and senior years, and retesting occurs at the high schools after intervention periods. Assessment scores received in high school are honored, within time limits, for placement into college-level courses at the community college. A bridge program is offered to those students who do not test college-ready in the senior year during the summer after high school graduation. Students retest with ACCUPLACER after the five-week review session.

Math Emporium

Named by its originator, Virginia Polytechnic Institute and State University, the Math Emporium model is a self-paced developmental math lab-based curriculum using instructional software packages, such as MyMathLab software (Twigg, 2011). The technology offers immediate solution-oriented feedback to math problems. Two of the community colleges in this multi-case study identified Math Emporium as an effective strategy to improve college readiness of underprepared students: Southwestern and Southeastern. Additionally, as noted above, Northeastern Community College reported using MyMath Lab software in a math lab setting but referenced it as its Supplemental Instruction model.

Similarities. The common characteristic of the Math Emporium model is the option for students to work on developmental math sequences in a self-paced progression. Southwestern and Southeastern use this model with the MyMathLab software to allow students to accelerate the demonstration of developmental math competencies. Students can access appropriate remediation based on diagnostic assessments of deficiencies.

The math labs are staffed by instructors and tutors. Southwestern, Southeastern, and Northeastern also use the MyMathLab software as supplemental assistance to the traditional classroom. Southeastern has noted that the future direction of the peer-led supplemental instruction may be modified based on the Math Emporium model and its demonstrated accelerated progression. Preliminary effectiveness indications at Southwestern Community College reported decreased withdrawals and increased completion rates compared to traditional classroom models.

Southeastern Community College and Southwestern Community College noted that current state funding policies do not support accelerated student progress through a sequence of courses within a single semester. Funding for course sequences is based on a one-course-one-semester model which does not encourage acceleration with a single semester.

Differences. The Math Emporium model allows for individualized approaches. Southwestern offers students two syllabi for the same developmental course, a 16-week and an accelerated version. Students can select the accelerated syllabus to possibly move to the next developmental course or to the gatekeeper college-level course within the same 16-week semester. Southwestern identified the Math Emporium as a replicable and scalable strategy for system-wide implementation. However, in response to Guiding Question Five, this strategy was not identified as a best practice by the participating institutions.

College-readiness Prerequisites

To assure that students are college-ready before taking college-level courses, community colleges have attached English or reading prerequisites to courses. Four of the case studies noted that this strategy has been implemented: Central Community College, Southern Community College, Southwestern Community College, and Southeastern Community College.

Similarities. Successful completion of requisite developmental courses in reading and writing prior to enrollment in certain college level courses is the common feature across the four case studies. Two case studies have implemented this strategy based on state-wide policies requiring the completion of developmental coursework prior to entrance into college-level curriculum: Southern Community College and Southeastern Community College. Although college-ready prerequisites are implemented at four of the leader colleges in this study, the

strategy was not identified by any of them as a scalable strategy in response to Guiding Question Four. Similarly, it was not identified as a best practice in response to Guiding Question Five.

Differences. Without a state-level mandate, Central Community College researched success rates and noted that English preparation was associated with success in entry-level gatekeeper content courses. Six disciplines assigned developmental English or its equivalent competency as prerequisites for their gatekeeper courses.

Since 2002, state mandate has required students at Southern Community College to complete developmental coursework prior to entrance into college-level curriculum. As noted above, Southern used this requirement as a foundation for its creation of a Learning Communities model, combining developmental coursework with its student success course.

Southeastern Community College recommended a review of the state-level prerequisite policy that requires developmental coursework to be completed before entry into college-level coursework. As a result of the prerequisite policy, state funding to community colleges is restricted for learning communities that link developmental courses with content level courses.

Developmental Education

Developmental education is the term used to describe coursework intended to address college-ready deficiencies in math, reading, and English. Each of the six community colleges has reformed its organizational structure and/or curricular design of developmental education through its strategy implementation work with Achieving the Dream. Many of the strategies noted above impacted the overall design of developmental education at the community colleges. These will be repeated below briefly in relation to how the strategies impacted the developmental education programs.

Similarities. A common feature among the case studies has been the creation of supportive structures to assist students in mastery of the course content in developmental education, particularly in developmental math. As noted above, examples of supportive strategies include supplemental instruction with peer-led structured sessions and learning communities with developmental courses linked with student success courses.

Additional preparatory options, such as the COMPASS and ACCUPLACER Review sessions, for students to improve skill levels and retest before placement into developmental education courses were noted as strategies. These have reportedly reduced numbers and time spent in developmental education.

Other accelerated options were reported by the case studies. Common among two of the case studies noted above and intended to reduce time spent in developmental math was the lab-based, self-paced Math Emporium model. Another option was Eastern's statistical model that used specific student characteristics to successfully place developmental students into accelerated developmental courses or college-level courses with supplemental instruction.

Differences. Two different approaches to redesigning the organizational structure of developmental education were observed at Northeastern Community College and Eastern Community College. At the conclusion of its Achieving the Dream grant, Northeastern created an administrative position to oversee developmental education and integrate success strategies across the developmental education programs in math, reading, and English. While the discipline-specific ties to the academic departments remained intact, the administrative role coordinated an interdisciplinary approach to strategies supporting developmental education.

Prior to its association with Achieving the Dream, Eastern Community College centralized Developmental Education into a single department. Changes included the hiring of credentialed faculty to specifically teach the Developmental Education curriculum. Support services were embedded into the new department, including counselors, writing and math labs, and tutors.

Following a state-wide review of developmental education (Developmental Education Task Force, 2009), the state system for Eastern slated 2012 for implementation of a new nine-module developmental mathematics curriculum (Developmental Math Curriculum Team, 2011). It replaces all of the current developmental math courses with nine one-credit units. A new state-wide assessment instrument and a diagnostic math tool for placement will be introduced. Students will focus on only those developmental concepts that are diagnosed as deficient.

Beyond the confines of developmental education, two of the case studies focused on a redesign of the college-level mathematics core curriculum. Southern and Southeastern are involved in a national movement toward greater emphasis on math skills linked closely to career and job fields. The Quantway and Statway projects supported by the Carnegie Foundation (2011) are examples of the math curricular reforms being examined at these institutions. Additionally, Southeastern Community College collaborated with the Bill & Melinda Gates Foundation on a state-wide math redesign project, Completion by Design (2011).

In response to Guiding Question Four, Northeastern Community College is the only institution that identified developmental education reform as a replicable for system-wide implementation. Specifically, Northeastern recommended its centralized organizational structure

for developmental education. Related to Guiding Question Five, the best practice label was recommended for accelerated developmental education by Central Community College.

Findings Related to A Priori and Emergent Themes

The cross-case analysis uncovered similarities and differences, as noted above, in the identification of effective strategies, evidence of impact, state support, scaled strategies, and best practice recommendations. An integrated examination of the findings revealed underlying themes that relate to the successful development and implementation of effective strategies that impact college-readiness and achievement of underprepared community college students. This section articulates six a priori themes that were revealed. Each was treated "as a family of themes with children, or subthemes…represented by segments of data" (Creswell, 2007, p. 153). Common strategies, policies, criteria, best practice recommendations, or related theories comprise subthemes. Additionally, an emergent theme was identified.

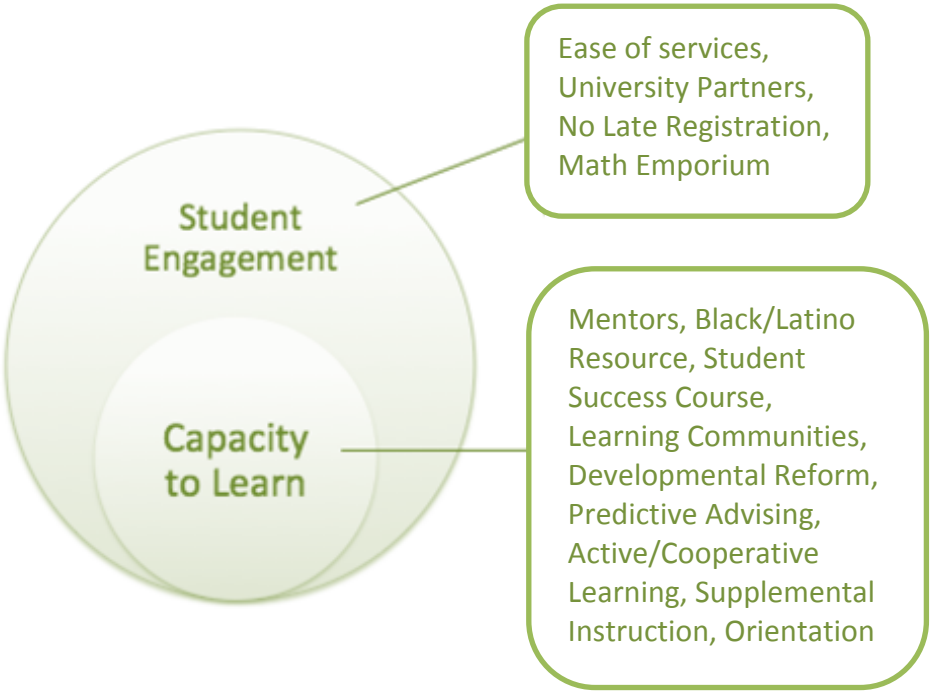
A Priori Themes

Student engagement. Alexander Astin's (1999) seminal work on Involvement Theory purports that student success depends on the level of student engagement within and outside of the classroom. Involvement Theory contends that interaction between the student and the faculty member strengthens the connection between the student and the course content. Tinto's (2009) Student Integration Model supports Involvement Theory and purports that "active involvement of students in learning activities . . . is critical to student retention and graduation" (p. A33).

Student engagement was an underlying theme in the cross-case strategies identified and criteria for best practices recommended. Of the 18 effective strategies identified, 13 were described to have some form of student engagement through activities and/or personalized

service or instruction (see Figure 3). These include: orientation, mentoring, Black and Latino Male Resource Center, no late registration, university partners, ease of services, student success courses, learning communities, predictive advising, developmental education reform, active/cooperative learning, supplemental instruction, and Math Emporium. Of these, learning communities, orientation, and active/cooperative learning were selected as best practices in improving college readiness and achievement.

Figure 3: Student Engagement



Strategies that connect students to each other were noted by Southern Community College as most likely to be successful in wide-scale implementations. Such engagement was identified as a characteristic of learning communities and a reason for its selection as a best practice. Similarly, Eastern selected the 'engaged learner' as the foundation for the best practice

label. Active learning was selected as a best practice by Eastern due to its focus on student and faculty engagement in the classroom.

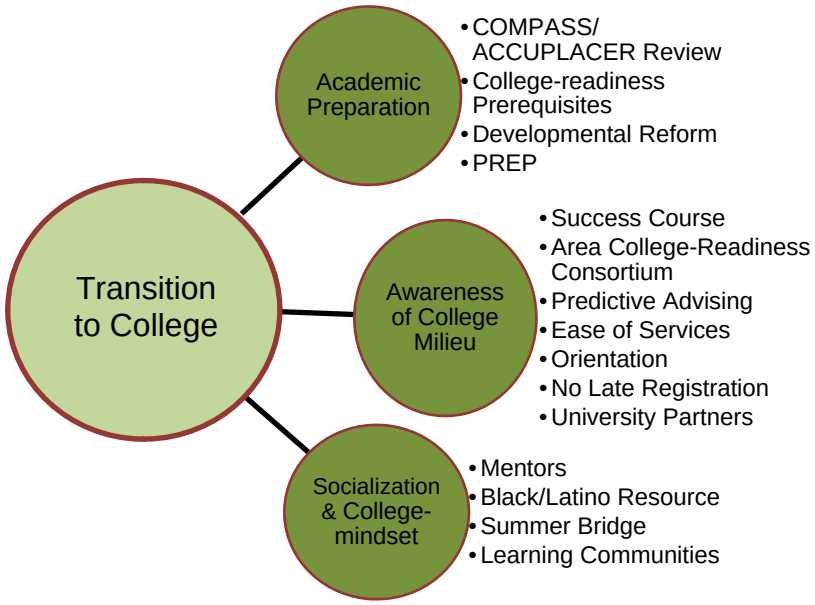
A revealed subtheme to student engagement involved helping students to perceive one's capacity to learn (see Figure 3). Dweck's (2009) self-identity theory supports capacity to learn. It is referenced as the incremental view or growth mindset. Those who believe that they have the capacity to learn are more engaged in the learning process and more willing to place themselves in challenging learning environments. Strategies that facilitate students' self-perceptions as capable learners may create more engaged learners. Examples include the mentor program at Central, the Black and Latino Male Resource Center at Northeastern, and the predictive advising program at Eastern.

Transition to college. Assisting students with the transition to college was a shared identified theme across the case studies. This was particularly apparent in the selection of effectiveness strategies such as orientation, success courses, Project Dream-Summer Bridge, and the Area College-Readiness Consortium.

Assisting students with their transition to college goes beyond academic preparation (see Figure 4). Engle and Tinto (2008) encourage implementation of bridge and orientation programs, particularly for first generation students, to assist with socialization aspects and to familiarize students with college-level expectations. Engle and Tinto (2008) further encourage mentoring by faculty and peers for additional support in easing the transition. Similarly, Conley (2010) identified cognitive strategies, self-management behaviors, and cultural awareness of the college milieu as factors involved in college-readiness.

The cross-case analysis revealed positive impacts of strategies focused on transition to college. Central showed improved persistence with in-person orientation and mentoring. Southern experienced increased success rates and persistence with success courses. Involvement with the Black and Latino Male Resource Center improved persistence at Northeastern. Interventions supported by Southwestern's Area College-Readiness Consortium, including ACCUPLACER preparation and Summer Bridge sessions, improved success rates and persistence. Another objective of the Area College-Readiness Consortium was developing an early understanding of the college milieu. Southern, Southeastern and Central also focused on the importance of assisting students with understanding the college milieu and developing a college-mindset.

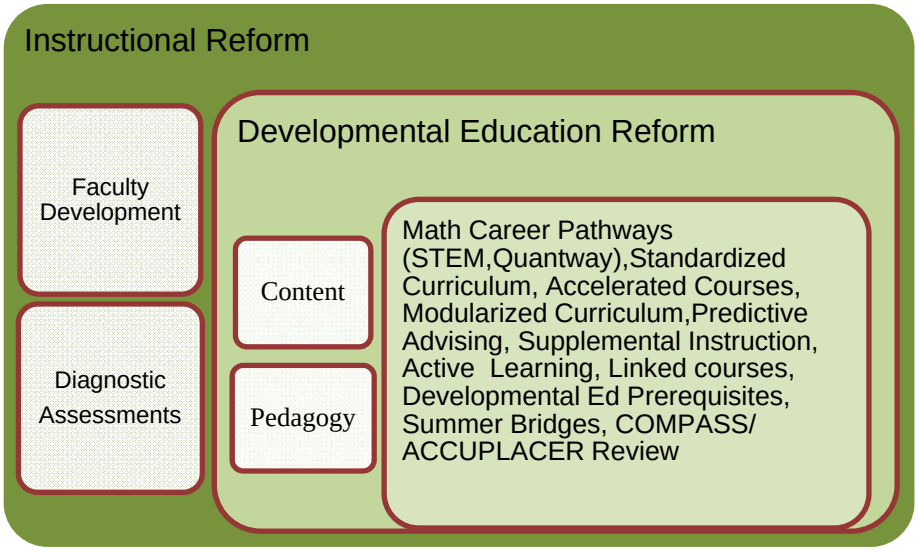
Figure 4: Transition to College



Instructional reform. Cross-case recommendations focused on the classroom as a major arena for improving college-readiness of underprepared students. Of the 18 effective strategies identified across the case studies, seven were directly involved with instruction: learning communities, cooperative/active learning, supplemental instruction, success courses, Math Emporium, developmental education, and college-readiness prerequisites. Four focused on instruction with academic preparation for students: Project Dream/Summer Bridge, COMPASS/ACCUPLACER reviews, Area College-Readiness Consortium, and PREP case management. The remaining seven were supportive strategies that assist students prior to entering or while in the classroom: orientation, mentoring, predictive advising, ease of services, Black and Latino Male Resource Center, and the elimination of late registration.

The cross case analysis revealed a common instructional reform theme that extended into the classroom and beyond it. Figure 5 depicts the instructional reform theme and the multiple subthemes revealed in the analyses.

Figure 5: Elements of Instructional Reform



Bettinger and Long (2007) studied the state of underprepared students entering higher education nationally and the impact of developmental education. The results of their Ohio-based research calls for more focus on determining which types of instructional practices are most effective. Bailey's (2009) research on the effectiveness of developmental education concluded that current practices are "not very effective in overcoming academic weaknesses, partly because the majority of students referred to developmental education do not finish the sequences" (p. 12). Bailey concludes that broad-based instructional reform, based on experimentation and research, is needed.

> I suggest a broad developmental education reform agenda based on a comprehensive approach to assessment, more rigorous research that explicitly tracks students with weak academic skills through their early experiences at community colleges, a blurring of the distinction between developmental and 'college level' students that could improve pedagogy for both groups of students, and strategies to streamline developmental programs and accelerate students' progress toward engagement in college-level work. (p. 12)

Developmental education served as an umbrella theme for instructional reform across the case studies. Each of the six community colleges impacted its developmental education program in organizational structure and/or curricular design through its strategy implementation work with Achieving the Dream. Developmental Education is the primary curricular strategy intended to improve college-readiness and achievement of underprepared community college students with 60% of first-time community college students taking one or more of these courses (Zachry, 2008). However, college-readiness and achievement outcomes are limited with less than half of developmental students earning a credential or transferring within eight years.

Each of the community colleges in this multi-case study is located in a state that is involved in the Developmental Education Initiative (DEI), an effort to reform developmental

education (ATD, 2010a). Reform in curricular content and pedagogy is recommended. "The most prevalent areas of innovation include acceleration, modularization, and math and English course redesign" (p. 3). Across the case studies, each of these strategies was present. Most particularly, Southern, Northeastern, Eastern, and Southeastern recommended a new math paradigm with an alignment of math skills needed for career pathways. A specific example of a career pathway approach was math curriculum with specific modules for STEM (science, technology, engineering and math) students that differ from quantitative literacy modules for liberal arts majors. Southwestern and Southeastern use Math Emporium to accelerate developmental math. Eastern uses a predictive advising model to determine students who can benefit from accelerated developmental education and advanced placement into college-level courses. The model uses predictive analytics to determine recommendations for placement based on student-specific characteristics that predict a likelihood of success. Pedagogical reform involving active learning strategies was recommended as a best practice by Eastern and Northeastern.

A subtheme under instructional reform was the examination of diagnostic assessments that better identify the specific academic deficiencies in need of remediation. This was noted as a prerequisite to accelerating developmental education. Current assessment instruments were not perceived as diagnostic and caused students to take semester-long developmental courses, when a shorter intervention would have been sufficient.

Another subtheme under instructional reform was professional development for faculty. Five of the six case studies recommended faculty development as critical to implementing effective reform strategies. Central noted that professional development changes the focus away

from the need for more resources and toward doing things differently. Southern and Eastern highlighted the importance of professional development for adjunct faculty, who often teach a majority of the courses. Eastern established formal ongoing professional development for internal and external faculty with its Center for Cooperative Learning. Southeastern indicated that widespread professional development is a key to long-term results. There was caution that without deep integration of concepts, strategies can appear to be passing fads.

Committed leadership. The cross-case analysis revealed committed leadership as a central theme in successfully implementing a college-wide focus on student success. In response to Guiding Question Two, commitment from executive leaders was credited as the primary reason for success. It was also mentioned as a criterion for a strategy becoming a best practice. Demonstrated commitment from community college leaders is stressed in the Achieving the Dream model; 'Committed Leadership' is one of the four principles of the ATD network. Community colleges within this network adhere to the principle of committed leadership which means that "senior college leaders actively support efforts to improve student success . . . and staff leaders demonstrate a willingness to make changes in policies, programs and resource allocations to improve student success" (ATD, 2011d, para. 2). Each of the community colleges in this study has been involved with Achieving the Dream for more than five years.

At the time of this study, each institution was involved in reform or change processes designed to improve college-readiness of underprepared students. Change Theory, the seminal work of Kurt Lewin (1997), identifies a three-step change process: 1) inducing actions that unfreeze the status quo, 2) working together to formulate new views, and 3) integrating the new

values by institutionalizing change. The three-step change process aligns with the leadership theme highlighted in the cross-case analysis.

The thematic analysis revealed that effective reform was contingent upon leaders having strong commitment to improving success of underprepared students and willingness to move the college in the direction of necessary change. Aligned with Lewin's (1997) first step of the change process, unfreeze the status quo, it was recommended that leaders involve the whole college in raising awareness and buy-in for making effective changes in current practices. Southern stated that leadership was needed to capture the attention of the whole college in large, campus-wide meetings and to unify the college with a success philosophy. Aligned with Lewin's second step, working together to formulate new views, Central noted the importance of involved leadership, such as getting out of the offices and not relying on representative committees. In working to formulate new views, Southeastern and Northeastern highlighted the importance of leadership in maintaining momentum and understanding the timing needed in making effective change. Southeastern observed that leadership needs to be sensitive to the fact that timing may not allow for full consensus before making needed organizational changes. Southern added that finding a home for strategies is a critical leadership role; otherwise, the programs die as soon as the leader leaves. Finding an institutional 'home' for new strategies aligns with Lewin's third stage, refreezing.

A subtheme that emerged under Leadership was culture shift. James MacGregor Burns (1978), known for his influential work on transformational leadership, positioned that real change must impact "felt existence, the flesh and fabric of people's lives" (p. 414). Southwestern stated that institutionalizing strategic changes required not only finding a home

and budget for new programs but it also required a new perspective to pervade the college culture. According to Transformational Leadership Theory, the leadership process must not stop at the decision-making stage but rather continue "to the point of concrete changes in people's lives, attitudes, behaviors, institutions" (p. 414). As such, Southern and Southeastern demonstrated that leadership was the driving force in nurturing a culture of innovation and a dynamic process of continual improvement.

Faculty leadership was also a noted subtheme. Rutschow et al. (2011), after completing a five-year review of 26 colleges involved in Achieving the Dream, recommended that institutions find "more definitive ways to involve larger proportions of faculty and staff in the change process" (p. ES-13).

Southern differentiated between faculty buy-in and faculty involvement, commenting that faculty must be involved in leading change. At Southern, faculty leadership was perceived as involvement in the creation of change. Similarly, Burns (1978) refers to "the mobilization of political opinion" (p. 259). Burns contends that communication and involvement with those connected to the change are needed in order to "break through the powerful psychological and intuitional barriers that enforce conformity, consensus, and stability" (p. 260). Central, Southwestern, and Southeastern commented on the need to support faculty-led ideas and involve faculty in grassroots task forces. Southeastern noted that faculty ownership is a key criterion to developing and implementing best practices.

Integrated systems approach. The Center on Education and the Workforce produced a report titled *The Undereducated American* urging education systems in this country to focus collaboratively on correcting the undersupply of Americans with postsecondary credentials

(Carnevale & Rose, 2011). In order to increase completion rates effectively, "it requires more productivity from our education system at all levels" (p. 10). Templin (2011), in the American Council on Education's journal, *The Presidency*, recommends actions for increasing community college graduates with emphasis on integrated approaches and partnerships. Promising examples include

> . . . several of the nation's community colleges (that) have created partnerships with their local school systems . . . to increase the number of high school graduates who are college ready. . . . Other promising efforts to increase the number of college completers involve partnerships between community-base non-profit organizations. (p. 8-9)

Similarly, Achieving the Dream (ATD) encourages its member colleges to follow a five-step process for increasing student success. Step Three involves "internal and external stakeholders in the development of strategies for addressing priority problems and improving student achievement" (2011c, para. 4).

External stakeholders were identified as state policy makers and educational partners. Each of the case studies resides within state-wide educational policy systems. Additionally, each of the six states is part of the Developmental Education Initiative (DEI) funded by the Bill & Melinda Gates Foundation and the Lumina Foundation for Education (Developmental Education Initiative, 2011). State systems are focused upon "setting and broadly communicating college-readiness standards" (Collins, 2009, p. v). Southern acknowledged that a state mandate on completing developmental education prior to taking college-level courses became the foundation for its work in creating integrated strategies to impact college-readiness. Northeastern and Eastern noted that consistent state-wide assessment of college-readiness, including instrumentation and placement scores, was an important integrative component. Eastern,

Southeastern, and Southern determined that an important integrated approach was the state-wide examination of a new math curriculum.

An integrated systems approach with other educational providers was especially apparent at Southwestern. Working with 12 high school districts, Southwestern formed the Area College-Readiness Consortium. Members of the Consortium collaborated to develop a college-readiness assessment protocol and requisite interventions in the high schools. Curricular alignment and data sharing were included in the integrated approach. Additionally, joint applications were created between Southwestern and the local university.

Tinto (1993) expanded upon his seminal work on involvement theory by stressing that institutional commitment to students must be campus-wide. "It is a pattern of activity that develops among all faculty and staff….It is a reflection of a campus-wide orientation to serve students that occurs in the various contexts in which students, faculty, and staff meet on a daily basis" (p. 149). Each of the institutions in this multi-case study took a college-wide approach toward improving college-readiness and achievement of students. None solely relied on one area of the college or one strategy. Although there was a focus on courses and teaching methods, each took an integrated approach by including supportive systems like mentoring, peer leaders, and orientation programs.

Administrative leadership and faculty were identified as internal stakeholders across the case studies. However, the importance of integration was recognized not only down academic units but across academic and student services areas. The importance of the collaborative relationship between experiences inside the classroom and outside the classroom was consistently stressed. Central referenced the need for services to "wrap figurative arms" around

the student and faculty to emphasize that effectiveness was contingent on whole system integration. Northeastern identified the silo-structure of academic and student affairs units, i.e. the lack of collaboration and integration, as a challenge to implementing strategies. To impact college-readiness, Eastern determined that the classroom must be central and, equally as critical, the campus must have administrative understanding and fiscal support of student services. Practices in some states to fund services at lower levels were cited as an impediment to successful interventions, according to Southeastern.

Evidence of effectiveness. The National Governors Association (NGA) produced a recommendations report on college completion in 2010. The report underscores the importance of "comprehensive, consistent performance metrics to shape funding strategies and pinpoint areas for improvement" (Reyna, 2010, p. 5). The NGA report encourages the states and their higher education systems to use performance data. "Collecting and reporting metrics at the campus, system and state levels is a necessary first step for states as they seek to improve completion rates and productivity in higher education" (p. 5).

Community colleges within the Achieving the Dream (ATD) network commit to institutional improvement through data-driven decision making. ATD encourages the use of a "five-step process for increasing student success . . . 1) Commit to improving student outcomes. . . . 2) Use data to prioritize actions. . . . 3) Engage stakeholders to help develop a plan….4) Implement, evaluate and improve strategies. . . . 5) Establish a culture of continuous improvement" (ATD, 2011c, para. 2-6). Four of the five steps focus on examining outcome effectiveness through assessment and evaluation.

Each of the case studies has committed resources and philosophical support to using evidence to identify achievement gaps among students and assess effectiveness of implemented strategies. Although research departments ranged from one-person offices to robust teams, recommendations to use data to track effectiveness indicators, make resource decisions, and review policies were observed across the cases. The use of evidence in decision-making and monitoring of effectiveness led to a culture of continuous improvement as noted by Northeastern and Southeastern. Becoming routine consumers of effectiveness data was cited by Southeastern and Southern as requisite for scaling strategies and for the best practice label.

Emergent Theme

Adapt to college culture. Guiding Questions Four and Five focused on criteria for successful wide-scale implementation and best practice recommendations. A clear emergent theme was the lack of universal best practices. No best practices were identified that fit all students or all community colleges. Although there are lessons to be learned and strategies to be considered based on evidence of effectiveness, the case studies revealed the importance of understanding the uniqueness of individual college cultures, traditions, and students. Adapting features of noted best practices was recommended but replication was ill-advised. Southern recommended that each college examine and "put their hands on it" in order for the practice to be a best fit on different campuses, possibly resulting in multiple versions depending on specific college cultures and student needs. Central cautioned against scaling projects without attention to specific needs of targeted students. Southeastern advised that its work with Achieving the Dream started from the perspective that a "cookie cutter" approach would not be successful. Having a clear assessment of students, beyond academic profile, was recommended in order to

appropriately modify approaches to most effectively address targeted needs. This was particularly apparent in Southeastern's approach to teaching its student success course with a focus on mental health and well-being. Eastern's predictive model for advising is another example of examining student-specific characteristics in the application of strategies. The model adapts standard approaches with consideration of individual factors. Allowing faculty to pilot and adjust practices based on college-specific characteristics, such as demographics and financial realities, was practiced by Southwestern and Northeastern, both with higher ethnic minority populations and lower socio-economic statistics. Additionally, variability in state support was another adjustment factor that effects strategy adoption, as noted by Northeastern and Southeastern. In essence, each college must adapt strategies to meet the fiscal realities of its campus.

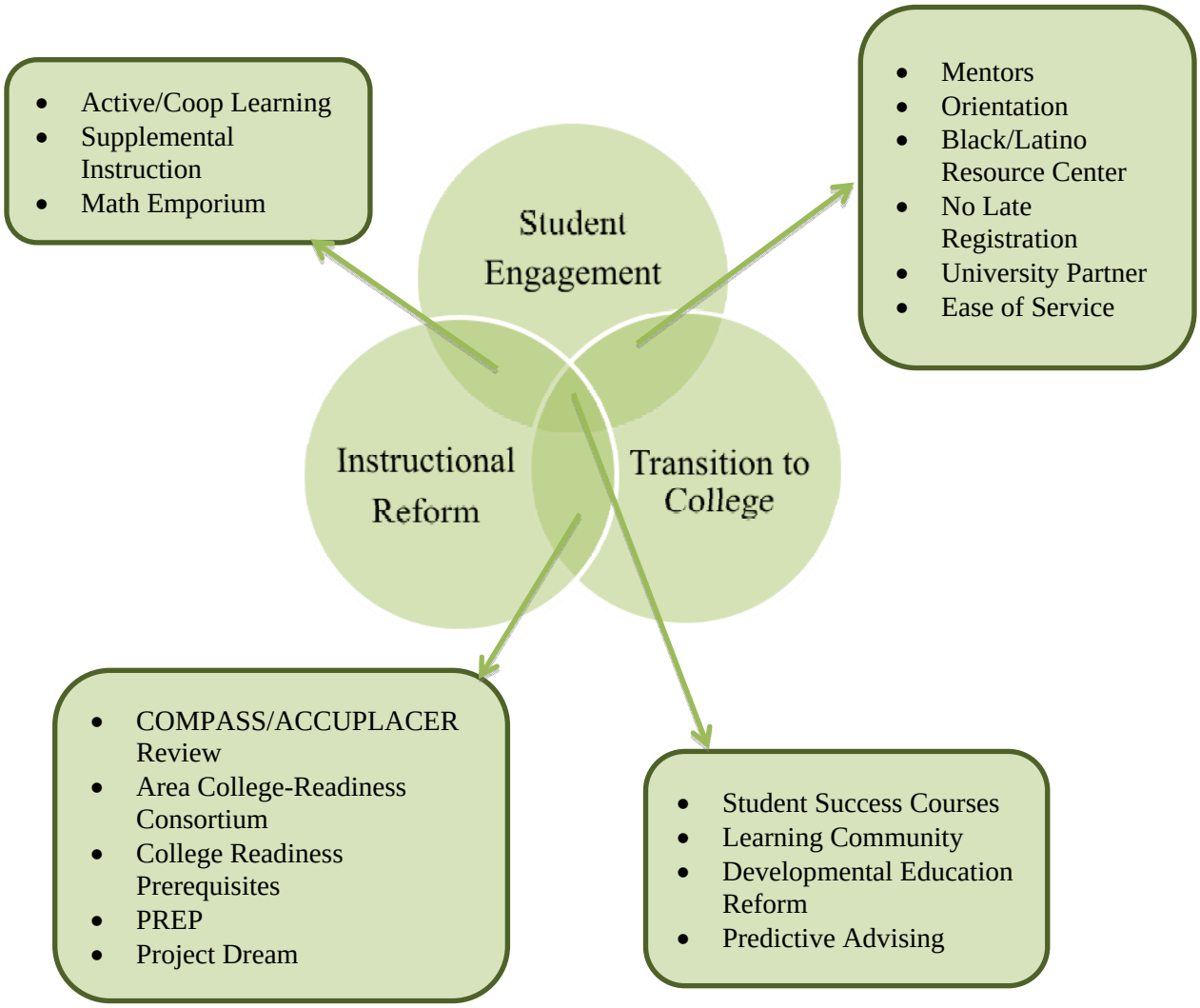
Interrelationship of the Themes and Strategies

A closer examination of the a priori and emergent themes revealed three areas of convergence around the intentionality of the strategies: student engagement, transition to college, and instructional reform. Such examination also revealed that four themes focused on elements needed for successful implementation of the strategies: adapt to college culture, evidence of effectiveness, integrated systems approach, and committed leadership.

Intentionality Themes

The six case studies identified eighteen strategies intended to improve college-readiness. The strategies were centered upon one or more of three core thematic intentions: student engagement; assistance with transition to college; and/ or instructional reform. Examining those strategies that address more than one intention reveals a convergence of themes. See Figure 6.

Figure 6: Convergence of Themes and Strategy Intentions

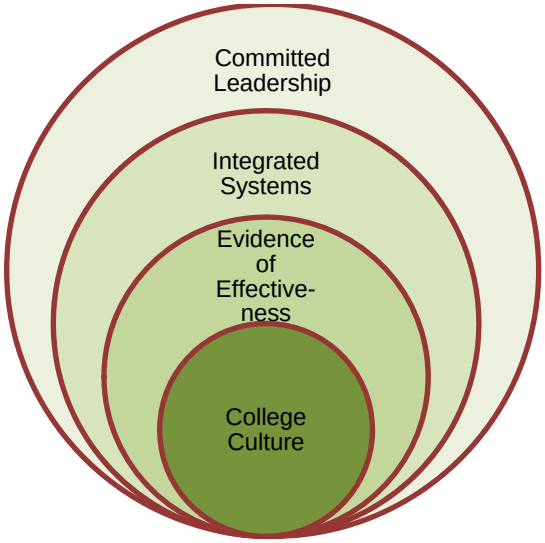


Implementation Themes

Four of the revealed themes address implementation criteria that the Leader Colleges in this multi-case study recommended in order to improve college-readiness. These themes involve elements that supported the effectiveness, scalability, and/or long-lasting impact of the strategies. As depicted in Figure 7, the rings of support begin with the need to adapt strategies to fit the unique college culture, followed by the continual use of evidence to determine and sharpen

effectiveness. The last two rings focus on support through an integrated systems approach involving multiple stakeholders across the campus and promoted by the vision and commitment of the college leadership.

Figure 7: Thematic Rings of Implementation



Chapter Summary

A cross-case analysis was completed to assess comparisons of effective strategies that improve college-readiness of underprepared community college students. The cross-case comparison was completed in accordance with the five Guiding Questions. The analysis revealed similarities, patterns, and differences across the multiple cases (Johnson & Christensen, 2008).

The cross-case analysis was done in two stages. The first stage was a comparative analysis of the case studies in accordance with the five Guiding Questions. The aggregated results formed a contextual picture of the effective strategies, impact of the strategies, supportive state policies, identification of fully scaled strategies, and recommendations for the best practice label.

The second stage of the cross-case analysis involved a disaggregated examination of the ten most common strategies. These ten strategies were individually examined in accordance with the five Guiding Questions and revealed similarities and differences across the cases.

The two stage analysis revealed six a priori themes and one emergent theme. The themes support the development and implementation of the effective strategies. There were six a priori themes: Student Engagement, Transition to College, Instructional Reform, Evidence of Effectiveness, Integrated Systems Approach, and Committed Leadership. The emergent theme was the need to adapt practices to fit the College Culture.

Three interrelated themes encompass the eighteen identified strategies. The three core themes address the intentionality of the strategies: Transition to College, Instructional Reform, and Student Engagement. Four thematic rings address the implementation of the strategies. These thematic rings represent the ideas that were perceived to be part of effective implementation and scalability of the strategies. These thematic rings are Adapt to College Culture, Evidence of Effectiveness, Integrated Systems, and Committed Leadership.

CHAPTER 6

CONCLUSIONS AND IMPLICATIONS

This multi-case qualitative study explored reformative strategies intended to improve college-readiness and achievement at six community colleges from various areas of the country. The community colleges selected for this study were recognized by the Achieving the Dream organization as Leader Colleges in implementing strategies that demonstrate student success improvement. The exploration followed five Guiding Questions and offered insight into the multidimensional aspects of college-readiness with relevant perspectives on effective strategies and the contextual nature of successful implementation. This final chapter begins with a brief foundational overview of the study followed by the conclusions. The conclusions section is organized in two parts: (a) a presentation of a Relational Paradigm that synthesizes the findings and brings conclusions into focus and (b) a detailing of specific conclusions drawn in accordance with the five Guiding Questions. This is followed by a discussion on the implications of this study for community colleges, specifically as they relate to the development and implementation of effective college-readiness strategies. Last, recommendations for further study are offered.

Overview of the Study

Context

"The United States has been under producing college-educated workers for decades" (Carnevale & Rose, 2011). Once a leader among developing nations in the number of college graduates, America has sunk to twelfth (Kanter, 2010) with about 38% of 25-34 year olds possessing an associate's degree or higher (National Center for Higher Education Management Systems, 2009).

The problem is not a lack of students entering college; rather, the issue is the number of students who finish. Larger numbers of students are accessing postsecondary education, but leave before completing degrees (Complete College America, 2011). Fewer than one in ten full-time community college students finish their degrees within three years. A lack of college-readiness skills has been reported as the biggest barrier to college graduation (Attewell, Lavin, Domina & Levey, 2006). Research from the Community College Survey of Student Engagement (CCSSE, 2008) revealed that being academically underprepared for college-level work puts students statistically at-risk of not completing a college degree. Nearly 60% of all first-year college students are not college-ready. The challenge in community colleges is greatest with estimates as high as 75% of incoming students needing developmental courses in English and/or mathematics (National Center for Public Policy and Higher Education and the Southern Regional Education Board, 2010).

President Barack Obama (2009a) put postsecondary degree completion on the national agenda with a goal to regain the lead in the proportion of college graduates by 2020. Community colleges were specifically called to action in the American Graduation Initiative. Obama (2009b) stressed the systemic breakdown in community colleges and urged reform, noting that 50% of degree seekers fail to reach their goals: “Let’s figure out what’s keeping students from crossing that finish line, and then put in place reforms that will remove those barriers” (p. 4).

Purpose of the Study

The purpose of this multiple case study was to explore and analyze reformative strategies that effectively address college-readiness and achievement of underprepared community college students. The six Leader Colleges selected for this study (a) represented a diversity of successful

reformative strategies that address college-readiness and achievement, (b) provided evidence of effectiveness, and (c) were located within state systems that have minimally begun state-wide public education policy efforts to impact college-readiness.

Overall, the intended purpose of the study was to (a) identify successful institutional strategies that improve college readiness, (b) determine common characteristics among the successful strategies that contribute to college-readiness, and (c) identify specific strategies and criteria suitable for the best practice label.

Methodology

This study employed a qualitative methodology to analyze effective strategies implemented at the selected community colleges. An instrumental multi-case study was designed to yield a greater understanding of the multiple approaches to improving college-readiness. Semi-structured interviews with identified Team Leaders who oversaw the development and implementation of effective strategies at each institution took place in-person at the six individual community colleges. The interviews generally followed the five Guiding Questions and the 15 interview questions. Demographic surveys and document reviews were additional data-gathering instruments utilized.

The interviews yielded in-depth insight into the strategies including effectiveness of impact, factors that supported effectiveness, and potential for wide-scale implementation. Cross-case analysis was organized in two stages. First, an aggregated comparative analysis of similarities and differences across the case studies was made for each of the five Guiding Questions. The second stage embedded a comparative analysis of the commonly identified effective strategies with a disaggregated examination that focused on key issues (strategies)

identified across multiple cases and allowed for greater comparative understanding and insight. The composite of these analyses revealed integrated themes that offered insight into the intentions of the strategies and factors that improve effective implementation.

A focus group was held with 10 strategy coaches and data/research experts from Achieving the Dream. The process yielded listings of (a) effective strategies designed to improve college-readiness and achievement of underprepared community college students, (b) challenges inherent in moving strategies to wide-scale best practices, and (c) definitional criteria for the best practice label. The focus group data contributed to the triangulation of evidence.

Findings

Core team leaders at the selected community colleges responded to the interview questions from their own perspective and with regard to the unique characteristics of each campus. Findings were summarized in Chapter 4, in accordance with the five Guiding Questions. Data from the six interviews provided a list of 18 strategies, which were each described and reviewed for evidence of impact. Additionally, each core team leader described their perceptions of state policy support. A listing of strategies that were implemented at full-scale was also compiled. Finally, the interviews helped to identify strategies and characteristics of strategies recommended for the best practice label.

Additionally, the focus group identified 20 effective strategies to improve college-readiness and achievement. For each identified strategy, the group identified challenges that might interfere with it becoming a best practice. The participants also identified 11 definitional elements for the best practice label.

Conclusions of this study were derived from the individual case findings and from the aggregated cross-case analyses and the disaggregated examination of common strategies. Chapter 5 presented comparative findings, including similarities and differences among the 18 strategies designed to improve college-readiness. Syntheses of findings from the case and cross-case analyses, along with corroborations from the focus group, were used to derive qualitative insights into the strategies designed to improve college-readiness. Chapter 5 also presented the results of a thematic analysis (Creswell, 2007) of the individual and cross-case findings that revealed a priori and emergent themes.

Conclusions presented in Chapter 6 are organized by a relational paradigm that emerged between the examined strategies in the study and the thematic analysis. The presented paradigm (Figure 8) defines the thematic relationship among the individual strategies and identifies the relationship between the strategies and thematic elements that impact effective implementation of the strategies. Chapter 6 also includes a review of conclusions in accordance with the five Guiding Questions. Following the review of conclusions, implications for practitioners and recommendations for future study are included in the final section of the chapter.

Conclusions

A review of the individual and cross-case findings has revealed the emergence of a Relational Paradigm that synthesizes insights and meaning surrounding the issue of improving college readiness and achievement of underprepared community college students. This Paradigm revealed that the relative success of strategic measures taken to impact college-readiness of underprepared community college students must be considered in relation to the interplay of the intentions of those strategies with other contextual factors that influence their

effectiveness. This relational interplay has brought the conclusions of this multi-case study into focus.

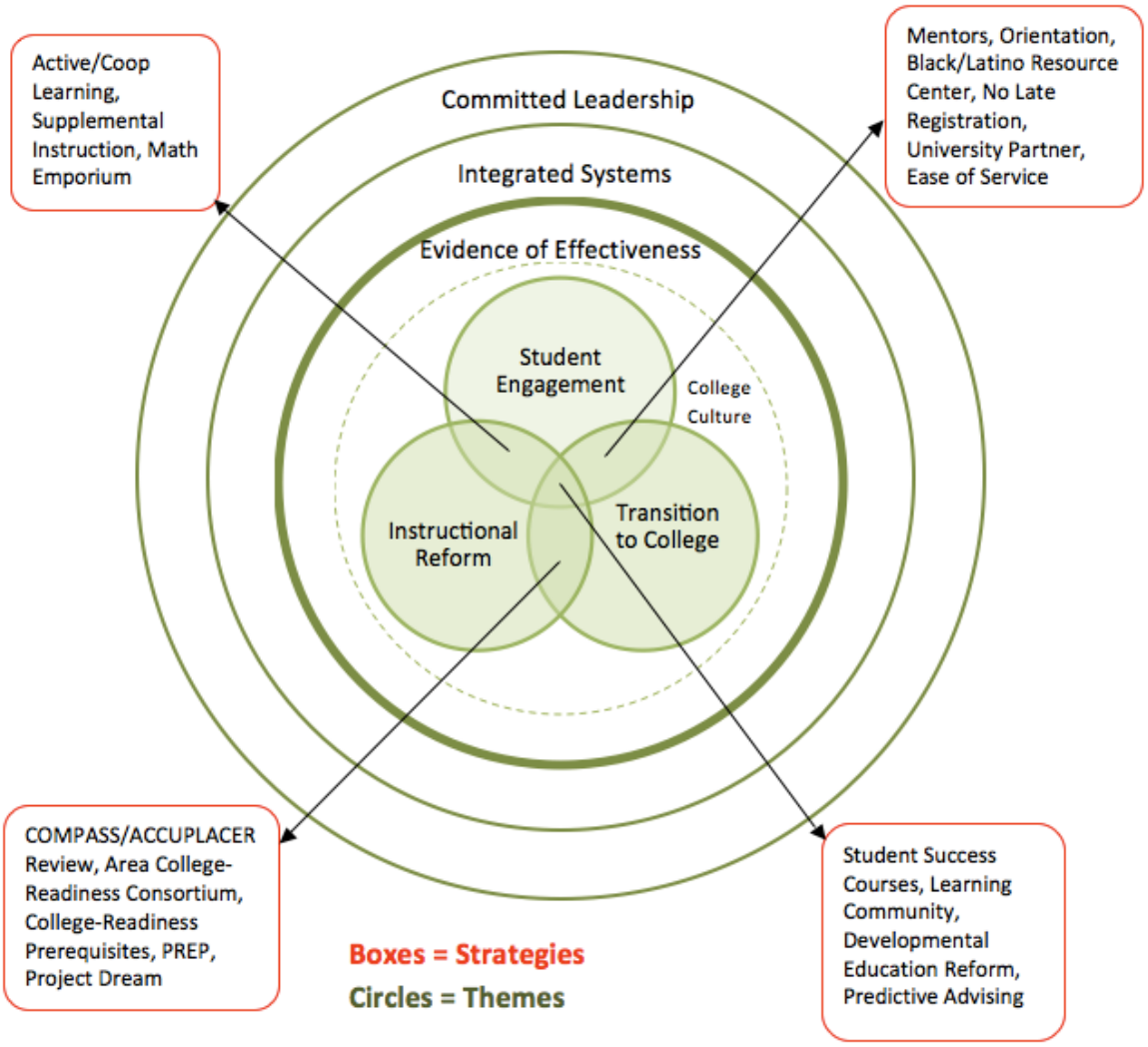
To expound upon the synthesis of conclusions, an overview of the Relational Paradigm will be presented. Later, conclusions are organized with a focus on each of the five Guiding Questions: (1) Effective Strategies, (2) Assessing Impact, (3) Public Policy, (4) Systemic Implementation, and (5) Best Practices.

Relational Paradigm

A Relational Paradigm for the development and implementation of reformative strategies that impact college-readiness and achievement of underprepared community college students has emerged from the individual case and cross-case analyses (see Figure 8).

The six community colleges in this study collectively identified 18 strategies in response to Guiding Question 1: *What strategies were implemented at the identified Achieving the Dream Leader Colleges to improve success of underprepared students*? Multiple analyses in accordance with the five Guiding Questions revealed a thematic relationship among the strategies. Three themes emerged as core purposes or intentions of the collective strategies: (a) to reform instructional pedagogy and content, particularly of developmental education; (b) to assist students in the process of successful transition to the college environment; and (c) to engage students' interest and commitment as a learner to achieving success and degree completion. These were identified in Chapter 5 as three of six a priori themes: Instructional Reform, Transition to College, and Student Engagement. These thematic purposes germinate the formation of strategies and form the core of the Relational Paradigm.

Figure 8: Relational Paradigm for the Development and Implementation of Reformative Strategies



The core themes overlap to form complimentary purposes. The strategies examined in the study were designed to fulfill multiple purposes in order to improve college-readiness. These strategies are depicted in Figure 8 at the intersection of the overlapping core themes in the relational paradigm. The very core of the paradigm is the intersection of all three purposes with strategies that reform instructional practices and focus on engaging the students and assisting with transitional issues.

It was repeatedly noted in the interviews and the focus group that none of the strategies, even those considered being best practices, can be universally applied to other community colleges. Success is contingent on contextual factors within the individual campus that influence the relative "fit" and the potential power of the strategies to effect lasting change. The first ring of the relational paradigm (Figure 8) addresses the fit of the strategy within the culture of the college. Strategy effectiveness is contingent upon the college culture that surrounds and influences the strategies. Adapting to a college's unique culture was noted as key to effective implementation. The disaggregated analysis of the 10 common strategies (Chapter 5) found that community colleges in this study employed strategies with similar names but with unique features which highlighted the need for cultural fit. Similarly, there were no turn-key operations with guaranteed results. Rather, the study showed a more fluid process of trial, assessment, and refinement was needed.

The dotted ring around college culture in Figure 8 denotes that college culture is also permeable and impacted by the strategies. The relational influences between the reformative strategies and the college culture flow both ways. As strategies are implemented, the culture of the college may also shift in response. For example, as instructional reform measures such as active learning, linked success courses, and MyMath lab take shape on campuses, the college culture may shift toward greater acceptance of innovative instructional models. This is reinforced when evidence of effectiveness (the second ring in the relational paradigm) is widely communicated. The demonstration of proof that change is making a difference reinforces a momentum for the change. Establishing embedded processes to gather and analyze evidence of effectiveness are necessary criteria for implementation. This aligns with the Achieving the

Dream principles that refer to the importance of developing a culture of evidence to advance continuous improvement (ATD, 2011d).

The need for an integrated systems approach with unified vision and investment by multiple areas of the college was strongly emphasized across the case studies. It was noted repeatedly that no single area of the college can effectively shoulder the full responsibility to improve college-readiness. Of particular note was the importance for academic teaching and student services areas to integrate efforts. Additionally, active partnership with the offices of research was strongly encouraged. Investment from faculty, services, and a broad spectrum of college leadership was needed to ensure the depth of implementation; the studies indicated that silo-driven efforts resulted in surface or short-term implementation.

The final ring that surrounds this relational reform process represents committed leadership. The community colleges in this study each noted the importance of having strong, active involvement by the executive officer(s) of the college in efforts to improve student success. Executive leadership involved with strategic visioning and implementation sets the priority for the college direction and the expenditure of human and fiscal resources. The term *Committed Leadership* is used by Achieving the Dream in its "Four Principles of Institutional Improvement" (2011, para. 2) and was reiterated by the colleges in this case study. Committed leadership was noted as the key to sustaining change and to creating a cultural shift. Having lost its top executive in the midst of implementing its strategies and experiencing serious financial constraints, Northeastern noted that committed leadership was the key success factor for sustaining a new strategic approach. Lending stability and structure to the reformative model, committed leadership is identified as the outer ring in the Relational Paradigm (Figure 8).

Conclusions by Guiding Questions

This study explored reformative strategies that effectively address college-readiness and achievement from multiple perspectives in accordance with five Guiding Questions. In this section, conclusions drawn by the researcher are organized by the primary concepts supporting the five questions guiding this study: (1) effective strategies, (2) assessing impact, (3) public policy, (4) systemic implementation, and (5) elements of best practices.

Effective strategies. As noted in the Relational Paradigm (Figure 8), the identified strategies in this study envelop three core thematic purposes. Conclusions drawn about the effective strategies have centered upon their intended outcome: to increase college-readiness and achievement of underprepared students by facilitating student transition to college, engagement of the learner, and/or reform of the instructional environment. This section will articulate conclusions drawn about effective strategies based upon their collective intents.

Instructional environment. Reform strategies that directly focus on the classroom environment and support of that environment are key pathways to improving achievement of underprepared students. All six community colleges had implemented changes in Developmental Education, including such strategies as modularization of developmental mathematics and accelerated delivery models. Of the 18 strategies studied, 12 focused on instructional pedagogical or curricular content changes and/or preparation of students to enter the instructional environment. Supplemental instruction, learning communities, and success courses were utilized by at least half of the community colleges. See Table 17 for the specific reformative strategies that focus on the instructional environment.

Table 17: Strategies that Focus on the Instructional Environment

Pedagogy and Content	Student Preparation
Cooperative/active learning	COMPASS/ACCUPLACER reviews*
Developmental Education reform*	College-readiness prerequisites
Learning communities*	Summer bridge
Math Emporium	PREP case management*
Success courses*	ACCUPLACER testing and instructional interventions in the high school*
Supplemental instruction*	

Note. * denotes a strategy also identified by focus group

Embedded in the focus on the classroom environment is involvement of the faculty. Faculty engagement in the reform process and in associated faculty development is key to successful implementation of strategies that improve college-readiness. Faculty engagement involves all disciplines and all types of faculty. As noted by Southern Community College, engagement of faculty is different from information sharing. Faculty across all disciplines must be engaged with effective strategies for improving college-readiness and achievement. For example, cooperative learning strategies, supplemental instruction, and learning communities all require faculty knowledge and involvement in order to implement.

Additionally, successful instructional reform measures cannot be limited to the involvement of full-time faculty. Eastern and Southeastern noted that the heavy reliance on adjunct faculty in community colleges requires new approaches to engage and integrate their involvement into the formulation of change.

Student engagement. Strategies that directly focused on active engagement of the student in the classroom and/or on acclimation of the student to the campus were key pathways for addressing achievement of underprepared students. Alexander Astin's (1999) Involvement Theory and Vincent Tinto's (2009) Student Integration Model support the notion that student

success is connected to the level of the learner's involvement within and outside of the classroom. Of the 18 strategies studied, 13 were described to have some form of student engagement through activities and/or personalized service or instruction. These strategies include orientation, mentoring, Black and Latino Male Resource Center, no late registration, university partners, ease of services, student success courses, learning communities, predictive advising, developmental education reform, active/cooperative learning, supplemental instruction, and Math Emporium.

Transition to college. Strategies that focus on the transitional needs of students were key pathways to supporting the success of the underprepared students entering the community college. Of the 18 strategies studied, 15 were used to assist in the transition of students, directly or indirectly. These strategies include services and activities that occur prior to college entrance such as orientation, ease of services, elimination of late registration, COMPASS/ACCUPLACER review sessions, PREP advising, summer bridge programs, college-readiness prerequisites, predictive advising for placement, and the work of the Area College-readiness consortiums. Other classroom strategies that assist with student transition include success courses and various forms of linked courses. Southwestern also offered dual applications to assist with the transition to the college setting.

Multidimensional strategies. The multiple case studies stressed the need for holistic approaches to address the academic and non-academic needs of underprepared students. This research concludes that strategies with a focus on the multidimensional aspects of student needs were key pathways to improving college-readiness and achievement of underprepared students. In examining the interplay between the strategies and the themes, it is important to note that each

of the strategies sits at the intersection of at least two themes. The strategies do not focus solely on academic skill deficiency of underprepared students; rather, they integrate academic learning through engagement and support. This suggests that addressing the academic skill deficiencies of underprepared students with attention to the engagement and transition issues of students may contribute to achievement. The reformative strategies implemented at the community colleges in this study focused on ways to improve academic skills through multidimensional approaches that assist in transition and engagement with motivational support systems. This is apparent when looking at the strategies that address Instructional Reform and Transition to College. These are transitional strategies designed to support the academic skill development prior to entering the community college. These include interventions prior to exiting high school, bridge programs during the summer, COMPASS/ACCUPLACER reviews prior to testing, and preparatory advising and case management. At the intersection of Student Engagement, Transition to College, and Instructional Reform are strategies that embrace all three intentions in addressing college-readiness. Such strategies include the success course strategy, linked courses and learning communities, developmental courses, and advising using predictive analytics. Instructional Reform with a focus on Student Engagement brings active learning into the classroom, personalized academic support in the form of supplemental instruction, and modular learning. Access to convenient services and out-of-class support systems merge Student Engagement and Transition to College with mentor programs, new student orientation, Black/Latino Resource Center, and university transfer connections.

Assessing impact. Determining the effectiveness of strategies was a key factor for all of the community colleges involved in this study. Routine assessment of the impact of these

reformative strategies is crucial and analyses of results need to be part of a continuous loop of improvement. The community colleges in this study emphasized the importance of engaging research departments in tracking effectiveness data and the use of the results in making decisions about the continuation, refinement, or elimination of strategies. Additionally, the community colleges in this study addressed the need to eliminate programs (strategies) that cannot effectively be used to impact a majority of the target population.

This study also concludes that committing resources and gaining philosophical support for using evidence to monitor effectiveness are integral components to creating a culture shift toward evidence-based decision making. This relational connection between the evidence of effectiveness and the culture shift is demonstrated in the Relational Paradigm (Figure 8) by the dotted line between culture and evidence, allowing influence to flow back and forth around the core themes. Although the impact of the strategies examined in this study revealed improvement of success rates (grades A-C) and persistence rates, none of the community colleges indicated that they reached the end of the process; that is to say, no final solution has been found. Rather, each indicated that the search for effective strategies was an ongoing process of continually examining outcomes and making improvements.

Public policy. State-wide public policies that focused on standardizing the assessment of college-readiness and aligning developmental curriculum were generally supportive of community college efforts to improve college-readiness in this study. All of the community colleges in this study expressed support for one or both of these public policy efforts. As part of the integrated systems approach in the Relational Paradigm, state policy makers are viewed as external partners in developing standards that support system-wide implementation of success

initiatives. This may be seen as a response to a criticism of assessment practices noted in the literature review (Chapter 2) around the lack of college-readiness standards (Bailey, 2009a; Attewell, Lavin, Domina & Levey, 2006). Current reformative trends include standardizing college-readiness assessment state-wide to assure performance alignment and provide state-wide data (ATD, 2011c; Collins, 2009; Hughes & Scott-Clayton, 2011).

Momentum for public policy reform has been encouraged by public and private-funded organizations actively supporting efforts for standardization on the state and national level. The community colleges in this study reside in states that are involved with Jobs for the Future (JFF, 2010a), an organization working with 43 states to improve the transition from high school to college to jobs and partnering with Achieving the Dream on state policy initiatives to align standards across educational systems within states. The community colleges in this study also reside in states involved with the Common Core Standards Initiative (2011) to address alignment of college-ready expectations between secondary and post-secondary education. Southwestern Community College was unique among the community colleges in this study with its active Area College-readiness Consortium with secondary partners to support curricular alignment and college-readiness assessment and remediation. The six community colleges in this study also reside in states involved in the Developmental Education Initiative (2011), funded by the Bill & Melinda Gates Foundation and Lumina Foundation, which proposes to develop state policy frameworks and strategies to align college-readiness expectations and redesign developmental education.

The community colleges generally perceived state-wide standards as supportive. However, this conclusion is qualified with caution expressed by those interviewed in the study.

Some noted that standardization may interfere with responsiveness to the unique culture of the individual community college and/or limit reasonable exceptions from being allowed.

Systemic implementation. In order to impact college-readiness and achievement of underprepared students, effective strategies must reach the target population. This study concludes that wide-scale systematized implementation of effective strategies was a universal goal but results varied across the community colleges.

Each community college reported that at least one of its strategies was implemented at full scale, while four community colleges reported at least three strategies at full scale implementation. Success course was the single common strategy brought to scale at half of the community colleges. Learning communities, supplemental instruction, and COMPASS/ACCUPLACER review sessions were scaled strategies common among two community colleges. It should be noted that each institution determined its own requirements for scalability. For example, although supplemental instruction is widely implemented at Southern, it was not identified as a full scaled strategy due to a perceived lack of broad-based support by its Core Team Leader.

Harnessing resources and consistent evidence of effectiveness were noted as key factors to successful large-scale implementation. Additionally, the focus group commented on challenges and barriers to moving effective strategies to best practices. Challenges included costs in time, resources, and personnel; lack of effective professional development; lack of faculty engagement or support; silo-mentality or lack of collaboration; scheduling issues; lack of facilities; difficult in eliciting and maintaining student interest; general resistance to change; complicated technology requirements; and lack of leadership.

The Relational Paradigm (see Figure 8) identifies two implementation themes that respond to the challenges of bringing strategies to system-wide scale: integrated systems approach and committed leadership. An integrated systems approach that invests resources and purposely engages multiple internal and external stakeholders may support the wider scale implementation of new approaches to improve college-readiness. When implementation is isolated to single units or there is lack of support across the units, results tend to be surface and short term. Northeastern and Southeastern experienced this result. In addition, a significant part of committed leadership involves the ability to effectively lead change processes that unfreeze the status quo (Lewin, 1997) and move the college toward a new deeply felt culture of change (Burns, 1978). Such leadership was noted at Southern and Southeastern community colleges.

Elements of best practice. This study concludes that best practices in improving college-readiness are not necessarily individual strategies as much as they are a collection of common elements or criteria of various strategies. The Core Team Leaders interviewed at each community college were asked to identify strategies they considered to be best practices in college-readiness and to share criteria that were considered critical for the best practice label. Five of the community colleges in this study identified at least one specific strategy as a best practice. However, the Core Team Leaders at all six community colleges spent more time discerning elements that comprise the best practice label. The focus group of field experts, which consisted of strategy coaches and data facilitators from Achieving the Dream, also identified 11 criteria that form the best practice label. This section will synthesize conclusions about the elements that comprise best practices in addressing college-readiness.

Classroom environment. This study concludes that best practices in improving college-readiness focus on the classroom environment. Southern's Core Team Leader remarked, "If we're trying to figure out where to put our money to make a change for the majority of our students, we need to target classes." Northeastern and Eastern referred to student-centered approaches that improve educational achievement, specifically active/cooperative learning strategies in the classroom. Central's Core Team Leader indicated that "it's a best practice when you can demonstrate that people are using it and that it's impacting what's happening in their classes." Central recommended accelerated developmental course delivery models as such a best practice. Southern's Core Team Leader recommended broad-based approaches to developing learning communities that "can get students engaged in their learning."

This study concludes that best practices focus on an integrative classroom environment that includes an active relationship between student services and the classroom experience. This includes preparing students for college-level expectations and supporting the teaching and learning process in the classroom. Central's Core Team Leader summarized this integrative element by referring to services "wrapping their figurative arms" around the student and the faculty in the classroom. This integrated approach differs from more traditional models where services such as tutoring and advising exist as separate resources available upon student request. For example, Southern's Core Team Leader identified learning communities as a best practice. Southern integrates counselors into learning communities by using them as success coaches in the classroom. Similarly, at Central, Southern, Northeastern, and Southeastern, supplemental learning programs integrate course-specific academic assistance by bringing tutoring to the students. Success courses were not identified as a best practice strategy by any of the

community colleges, although elements of success courses were noted as key to transitioning to college, such as preparing students for college expectations. Southwestern referred to the importance of assisting students in developing a "college-going" attitude to support their transition to the college classroom. Required first-year experience/orientation programs were selected as best practices by Central and Southeastern. Central referenced the importance of first-year experience programs in addressing college expectations.

Developmental Education. Best practices in improving college-readiness focus on Developmental Education. This aligns with the fact that Developmental Education is the curriculum designed to prepare students for college-level coursework in English and mathematics. All six of the colleges discussed strategies in regard to their structure or delivery of developmental education, which aligns with the instructional reform theme.

A primary element of this best practice recommendation is acceleration of developmental education. Described as a best practice by Central, accelerated developmental education options were identified across the six community colleges. Accelerated developmental education options include the combination of other strategies, such as diagnostic assessments to discern specific areas in need of remediation combined with modularized curriculum (like Math Emporium) that allow students to focus on areas of deficiency while bypassing areas of proficiency. Eastern uses a predictive analytics approach to identify students with the propensity to benefit from accelerated curriculum. Other options include COMPASS and ACCUPLACER review sessions that allow students to brush-up on skills to increase the likelihood of college-level placement at Southwestern and Southeastern.

Another primary element of best practice is curricular redesign in developmental mathematics. Northeastern recommended that community colleges be creative in the search for a different system. Eastern was slated to begin implementing a new state-wide modularized developmental math curriculum using a diagnostic approach in 2012. Southern noted that 50-year-old curriculum in developmental mathematics education requires a "whole paradigm shift." Southern and Southeastern recommended state-wide changes to align mathematics curriculum with career field requirements rather than aligning all mathematics to the calculus sequence. Such an approach is supported by the Carnegie Foundation (2011). Its Quantway and Statway projects are considered to be the preferred direction for mathematics curricular redesign, allowing for separate sequences to be taken dependent upon major areas of study: science, technology, engineering and math versus liberal arts versus career and technical education.

Partnerships and broad engagement. This study concludes that best practices in improving college-readiness should also focus on forming partnerships with a broad engagement of various stakeholders, internal and external to the community colleges. Noted several times was the need for Academic and Student Affairs to partner in efforts to improve student achievement and goal completion. Silo-driven approaches were seen at Southeastern, Southwestern, and Northeastern as ineffective in addressing holistic needs of students and lacking in long-term impact. Universal buy-in was identified by the focus group as a key factor for maintaining student involvement, parent awareness, faculty support, and administrative priority. In addition, the study found that a key element of best practices in effecting college-readiness is having champions throughout the college.

This study concludes that faculty involvement is another key element of best practices in improving college-readiness. Eastern, Southern, and Southwestern emphasize that real engagement requires a sense of ownership. Faculty need to be engaged from the onset, not merely informed. Southern's Core Team Leader noted that faculty involvement in creating strategies makes implementation a natural part of "what they knew they were doing well." Eastern noted that sustaining faculty involvement requires ongoing professional development. Eastern has a well-developed example of embedded faculty engagement with its cooperative learning strategy; 95% of the full-time faculty have participated in faculty development on cooperative learning and 80% are routine users. Embedding incentives and recognitions for faculty involvement were emphasized at Eastern and Northeastern.

Broad engagement extends to human resource areas and hiring practices. Northeastern noted that this includes intentionally searching for faculty candidates who are interested in working in environments that encourage change and promote new approaches to improving student success.

Partnering with other educational providers to align efforts and enforce standards is a key factor in improving college-readiness. This was most notably demonstrated at Southwestern through its Area College-readiness Consortium, which formed a working partnership with the community college, secondary schools, and local university. The Consortium led to the development of college-readiness assessments and remediation in the high schools as well as summer bridge programs and case management for underprepared community college students. It also led to accelerated dual credit due to increased college readiness in the high schools as well as joint application and acceptance processes with the university.

Standards and structures. The results of this study indicate that strategies must be standardized and systemically integrated for best results. Best practices in improving college-readiness involve the development of college-readiness standards and embedded structures for implementation. The community colleges in this study exist within state-wide systems involved in establishing common core standards that align curricular expectations across educational levels. These community colleges are also involved in setting state standards for measuring college-readiness. Southern noted the importance of having a state-wide database for bench-marking effectiveness of its efforts. Such standards allow for state-wide collaborations on strategies that have the potential to increase the number of college-ready high school graduates, establish standard assessment and placement processes, and encourage implementation of effective strategies that increase achievement and completion of underprepared community college students (Collins, 2009).

A key criterion of moving a strategy to a best practice is embedding it in the institutional structure. In defining best practice criteria, Southwestern's Core Team Leader emphasized the need to create internal structures for transforming ideas into institutionalized processes. A functional organizational chart that pinpoints an institutional home is necessary in order for the strategic ideas to become embedded into natural operations. The focus group affirmed that an element of best practices was for programs to be institutionalized and embedded into policies and processes in order to avoid becoming a fading trend. It recommended that clearly defined processes are needed to transition a program from a model to an embedded best practice within the community college. The focus group defined institutionalization to include funding sources, faculty involvement, institutional policies, state policies, and professional development. The

community colleges in this study cited the critical need for finding funding sources beyond time-limited grants. The community colleges and the focus group indicated that local champions and leadership are necessary to move strategies to levels of accepted practices and long-term institutionalization.

Evidence and continuous improvement. Best practices in improving college-readiness are supported by summative data on effectiveness and continual adjustments in accordance with the data. The field experts in the focus group stressed the need for collecting evidence that verifies that practices are impacting root causes and that the selected practices are more effective than others. Southeastern, Eastern, and Central addressed the need to understand the target population and assure that practices were having intended impacts. Evidence of effectiveness was a prevailing theme throughout the study. The community colleges cited the importance of creating an environment that regularly monitors and uses evidence of effectiveness to continue, improve, or eliminate practices. It is important to note that the focus of these community colleges was on the process of improving college-readiness, not on the one best practice.

Positive cost-benefit analysis is part of evidence of effectiveness and was specified by the focus group as one of the elements of best practices in improving college-readiness. Criticism focused on strategies that impact only a small percent of the targeted population and/or were too costly to bring to full scale implementation. Central stated that in order for sustained change to occur, the community colleges need to recognize and address the implications of moving a strategy to full scale. Southeastern indicated that an element of best practice is the scalability of strategies to impact at least 50% of the targeted population with evidence of continued

incremental success. Eastern noted that best practices needed to be implemented on a large scale within reasonable budgetary limits that allow the strategy to "take on a life of its own."

Unique college culture. This study concludes that best practices in improving college-readiness reflect and attend to the unique qualities of the individual community college. Best practices provide insight into the issue of college-readiness and incorporate features that can be adapted by other colleges. Southern and Central suggested that best practices are not replications from other colleges but rather are adaptations that create different versions for different cultures. Southern's Core Team Leader best summarized this concept:

> What we are doing works for us because we've designed it. . . . We know who we are and what we want and what we can do. I do think that people can learn from us. I don't think they can take what we have exactly and do it.

Implications

This multi-case study explored 18 strategies at six community colleges that address college-readiness and achievement of underprepared community college students. The findings of the study included the identification of three common core purposes among the strategies: instructional reform, student engagement, and transition to college. In addition, four key thematic elements that support effective implementation of the strategies were identified: college culture, evidence of effectiveness, integrated systems, and committed leadership. As noted, a Relational Paradigm (see Figure 8) describes the multidimensional interplay between the core purposes of the strategies and the contextual factors that encircle and influence the effective implementation of the strategies. This study concludes that adoption of reformative strategies is not sufficient to effectively impact college-readiness of underprepared students. Rather, it is the

delicate interplay of multidimensional aspects of the learner and the college environment that determine the power of the strategies to effect lasting change.

This section will identify the implications of the conclusions drawn by the researcher for community colleges. These are organized according to (a) implications for strategy development and (b) implications for effective implementation of strategies by community colleges. In addition, recommendations for future study are found at the conclusion of this section.

Implications for Strategy Development

The list of strategies in this study was intentionally finite for practical purposes of the examination. However, it is likely that the potential list of effective strategies or combination of strategies may be unexhausted. It was noted that adoption of a specific strategy or set of strategies may not be the central key to college-readiness. Rather, the key is to understand the underlying characteristics and intentions of effective strategies that best address the multidimensional aspects of the learner and adapt these to the college culture.

Based on the conclusions, this section will identify implications for community colleges in developing effective strategies. The implications are organized by the three core purposes or intentions of the strategies explored in this study: instructional reform, student engagement, and transition to college.

Instructional reform. Under instructional reform, there are three implications for community colleges. These include (a) the possible dismantling of traditional developmental education models, (b) the determination of effective diagnostic tools to pinpoint skill deficiencies, and (c) the creation of time-sensitive delivery modes for remediation of skills.

Dismantle traditional developmental education models. One of the common purposes of the strategies in this study was to examine appropriateness of developmental curriculum and delivery. The implication is that community colleges need to determine effective ways to involve faculty in the review of developmental education curriculum in light of local, state and national data and take steps to dismantle current models, as needed. Such reviews should align with state and national discussions on standardization of common core curriculum (Common Core State Standards Initiative, 2011) and effective developmental education models (Developmental Education Initiative, 2011; Rutschow & Schneider, 2011; Zachry, 2008). Community colleges need to connect with national movements such as Getting Past Go with its 50-state database on developmental education systems including assessments, placement standards, regulations, funding, delivery and intervention strategies, accountability systems, and data collection requirements (Vandal, 2010).

Possible dismantling of traditional developmental education models involves mathematics. One such area of reform recommended by the community colleges in this study and supported by the Carnegie Foundation (2011a) is the alignment of mathematics requirements with career preparations. Community colleges should explore the redesign of mathematics requirements for different career fields that draws a distinction between science, technology, engineering, and mathematics (STEM) fields and other career fields. Students in non-STEM fields may benefit most from mathematics preparations in quantitative reasoning and statistics rather than traditional calculus sequences (Carnegie Foundation for the Advancement of Teaching, 2011a).

Determine effective diagnostics. To facilitate the identification of needed academic skills, community colleges need to implement effective diagnostic assessments that identify students' specific skill-area deficiencies. Current assessments in use are criticized for not being effective as diagnostic tools (Hughes & Scott-Clayton, 2011). The result is placement in semester-long, general developmental courses based upon a single cut-off score. The implication for community colleges is to research new diagnostic approaches that accurately pinpoint skill deficiencies and determine appropriate ways to deliver remediation directed at the deficient areas.

As noted in the literature review, there are multiple assessment models that combine cognitive, affective, and motivational aspects of the learner. The Targeted Intervention for Developmental Education Students (TIDES) is a model that uses multiple variables to triangulate accurate assessment (Boylan, 2009). Similarly, predictive analytic models, such as that used at Eastern Community College, determine academic and non-academic student characteristics, in addition to assessment scores, to inform accurate placement and possible acceleration of developmental students (Barkley, 2010; Boylan, 2009).

Additionally, early diagnosis of skill deficiencies has been noted as critical to improving college-readiness. The implication for community colleges is to expand efforts to effectively partner with secondary schools for early identification and remediation of skill deficiencies of underprepared students before college entrance. Fourteen states currently administer assessments to high school students allowing more time to remediate prior to exiting from high school (Achieve, 2011c; Collins, 2009; Kirst, 2007b; Rutschow & Schneider, 2011). In this

study, Southwestern Community College's model of diagnosing areas of deficiency prior to high school graduation is an example of such a partnership.

Create time-sensitive delivery modes. Traditional semester-long developmental education sequences increase time to completion, and data suggest that a lack of persistence is linked to longer sequences (Bailey, 2009a; Bettinger & Long, 2007; Collins, 2009). Conversely, accelerated approaches to knowledge acquisition have demonstrated success (Edgecombe, 2011; Rutschow & Schneider, 2011). The community colleges in this study focused on accelerated modes of delivering developmental education. The implication for community colleges is to change traditional semester structures that shape course length and pace as well as instructional practices. For example, community colleges in this study recommended mathematics review sessions and intense summer immersion courses that are shorter in length (Zachry, 2008). Other examples of restructuring include compressed curriculum with self-paced and fast-track courses that allow students to complete more than one developmental course in a given sequence within a single semester (Edgecombe, 2011; Epper & Baker, 2009; Rutschow & Schneider, 2011). In this study, the uses of Math Emporium at Southwestern Community College and Southeastern Community College are examples of such acceleration.

As noted previously, diagnostic tools can pinpoint students' academic skill deficiencies and allow for a more personalized intervention. The implication for community colleges is to create more personalized models that allow for faster remediation, particularly in mathematics. Modularization of mathematics curriculum is one such example of reform (Zachry, 2008). An example provided by Eastern is the nine-module developmental mathematics curriculum being implemented state-wide.

Student engagement. The core purpose of student engagement has three implications for strategy development in community colleges. These include (a) developing systemic processes that encourage student connections, (b) integrating academic and support systems that encourage growth mindsets, and (c) implementing "high impact" (Kuh, 2009) practices in and out of the classroom.

Develop systemic processes that encourage connections. Cognitive development and academic success in college have been linked to practices that increase active engagement in the learning process and out-of-class engagement with peers and faculty (Pascarella & Terenzini, 1991). Student engagement goes beyond a single program to the creation of an involving environment or culture that is consistently experienced within and external to the classroom (Karp, 2011). The community colleges in this study implemented strategies that stressed the development of such an environment.

The implication for community colleges is to remove roadblocks that interfere with students being able to get connected to the college, particularly financial, personal, or academic factors. To assist, the establishment of meaningful connections through mentors, social relationships, and important academic or career resource individuals are encouraged (Karp, 2011). This requires a commitment to shared responsibility in addressing students' needs through an engagement philosophy (Balog & Search, 2006). In order to remove barriers to student engagement, formal and informal assessments on the effectiveness of operational, instructional, and support practices are needed to determine where policies and practices do not flow with the student experience (Jenkins, 2007; Kuh, 2007). "Seamless integration of services from the student's perspective and collaboration among faculty, staff, and administration in

providing these services are what seem to contribute most to student success" (Jenkins, 2007, p. 959).

Removing roadblocks includes the creation of pathways that connect students with early career planning and monitoring progress to degree completion. Alignment between college goals and career interests contributes to college-readiness and success (ACT, 2007). Research analysis by Davis Jenkins (2011), from Columbia University's Community College Research Center, indicated that entering a program of study within the year of first-time college enrollment increases the likelihood of earning a credential. Systemic processes that connect students with meaningful programs of study facilitate a greater sense of direction and motivation. Such processes in this study included required success courses that expose new students to college expectations with a focus on major and career, streamlined developmental programs, and case management and mentoring processes that monitored the pathways to completion.

Design academic and support systems that encourage growth mindsets. As noted, many of the strategies in this study encouraged self awareness and supported students' capacity to learn (Dweck, 2009). The implication for community college is to create strategies that facilitate students' positive, growth mindsets as capable learners within and outside the classroom. This involves expansion of engagement activities that reach underprepared students. Examples of these strategies include supplemental instruction with faculty, staff, or peer tutors; success courses; case management; mentoring; and special resources such as the Black and Latino Male Resource Center.

Adapt "high impact" educational practices (Kuh, 2008). The conclusions in this study indicate that high levels of student engagement with subject matter and student- faculty

interactions are positively associated with learning and goal achievement (Community College Survey of Student Engagement, 2011). The implication for community colleges is professional development for faculty and staff in adapting "high-impact educational practices" (Kuh, 2008) into the student experience that encourage collaborative learning, group-problem solving, and integration of ideas and concepts across courses. Less prepared students benefit the most from high-impact practices (Kuh, 2008). The community colleges in this study had implemented active/cooperative learning classroom practices and cohort learning such as learning communities or paired courses involving college-level and developmental courses. Southern, Southeastern, and Central Community Colleges shared examples of these active cohort-based approaches. The cohort learning environment encourages social engagement, affords the student an integrated learning experience where the application of basic skills is reinforced, and is noted to have positive impact on retention (Barkley, 2010; Edgecombe, 2011; Tinto, 1993).

Transition to college. There are three implications for community colleges for developing strategies that address issues surrounding students' transition to college. These include (a) creating structured intrusive approaches that reach the majority, (b) replacing practices and policies that neglect or interfere with transitional issues of students, and (c) establishing partnerships for seamless transitional support.

***Create* intrusive approaches that reach the majority.** Familiarity with the college milieu and the norms associated with being a member of the college community increases the likelihood of successful completion (Conley, 2010). Without cultural capital, a student's interest, motivation, and confidence may be lacking. These non-academic factors contribute to a lack of college-readiness (ACT, 2007). The implication for community colleges is to adjust the open-

door philosophy with more intrusive approaches to welcoming and transitioning all new degree-seeking students to the college environment. This includes the reduction of options and the increase in prescriptive advising based on diagnostic assessments. Too many options were noted to overwhelm rather that assist with student acclimation. In this study, required orientation strategies and enforced college-readiness prerequisites address the need for a structured transition. Community colleges need to avail students to information and experiences that increase the likelihood for them to gain cultural capital, know how college "works," and have confidence in being able to transition to and through the system (Conley, 2010; Levine-Brown et al., 2008; Scott-Clayton, 2011).

Replace practices and policies that neglect or interfere with transitional issues of students. Traditional practices that support open-entry to community colleges may interfere with systems designed to smoothly transition underprepared students to appropriate programs of study and services they need to be successful. The implication for community colleges is to review practices and policies that neglect or interfere with transitional issues of new students, particularly for underprepared and first generation students. One example of neglect is the traditional community college practice that allows admittance and registration up to and beyond the first day of the semester with minimal contact with the student. In addition, voluntary orientation programs and practices that allow underprepared students to postpone developmental coursework create missed opportunities to smoothly transition the new student into the college experience with a greater chance of success. Community colleges in this study addressed transition issues through implementation of required orientation programs, required success

courses for developmental students, college-readiness prerequisites for entrance into college-level courses, and the elimination of late registration.

Establish partnerships for seamless transitional support. Conclusions of this study support that college-readiness strategies need broad engagement of various stakeholders, internal and external to the community colleges. This includes the work of local consortium between secondary education and community colleges as well as the collaborative work on the national level with the Common Core State Standards Initiative (2011) and Achieve (2011b) creating alignment between the educational systems. The implication for community college is to actively engage in national, state, and local efforts to build working partnerships with legislators, educational providers, parent associations, and community professionals to develop avenues for early college awareness, agreed upon college-readiness standards, aligned preparation programs, and education and career linkages. Southwestern Community College's Area College-Readiness Consortium is an example of a working partnership within the state and local community to inspire and prepare students for college attendance. College-readiness assessments in the high school, dual credit provisions, college-in-high-school, universal college applications, and shared databases between the secondary, community college, and university partners are key strategies that help with transitions from high school through to the baccalaureate.

Implications for Implementation

As noted in the Relational Paradigm (Figure 8), contextual factors influence the effective implementation of reformative strategies. This section will summarize implications that these contextual factors present for effective implementation of college-readiness strategies by

community colleges. The implications are organized by the four contextual factors identified in this study that support the effective implementation of the strategies: committed leadership, integrated systems, evidence of effectiveness, and college culture.

Committed leadership. The conclusions of this study support the need for community college leadership, particularly executive-level administration and faculty leaders, to demonstrate active commitment to improving college-readiness and achievement of underprepared students. The implication for community colleges is to establish college-readiness and completion as a college priority for action and resource allocation. This includes a strategic vision and action plan that involves internal and external constituents.

Without leadership's commitment, the study concludes that strategies to improve college readiness will have limited strength to impact lasting change. It is transformational leadership that is needed to impact attitudes and behaviors (Burns, 1978). Commitment of executive leaders was noted by the community colleges in this study as a primary driver for change in policies and processes that promote student success. Involvement of executive leadership with internal constituents to align values, determine philosophical direction, and take strategic action is needed for long-term change (Burns, 1978). It is not a top-down approach but rather a unifying call to action that is needed.

Faculty must be engaged as committed leaders in addressing college-readiness. This implies full participation in the assessment of needed academic content, the development and implementation of pedagogical reform, and partnering with support services in the classroom. Implications for community colleges include hiring practices, faculty development, and

recognition and incentive systems. This also includes the need for community colleges to find ways to engage adjunct faculty in this reform process.

Integrated systems. As noted under the transition to college section, the conclusions of this study support an integrated approach to college-readiness that involves internal and external constituents. There are three implications for community colleges for implementing strategies with an integrated systems approach. These include (a) the elimination of silo-driven approaches in Academic and Student Affairs, (b) greater alignment between secondary and postsecondary educational systems, and (c) institutionalization of strategies.

Integrate Academic and Student Affairs. The conclusions of this study supported the need for stronger partnerships between Academic Affairs and Student Affairs. The implication for community colleges is to examine changes needed in traditional organizational structures and working relationships. A systemic approach that requires the involvement of the full cross-section of the community college is needed for wide-scale impact on the college-readiness of underprepared students. This study concluded that it is particularly important for Academic Affairs and Student Affairs to overcome silo-driven approaches and become partners in efforts to impact college-readiness. Community Colleges need integrated approaches to the student experience with a focus on a student flow model from admissions to graduation (Jenkins, 2007; Myran, 2009). The recommendation for community colleges is to create an integrated college-wide response system with shared responsibility to address students' needs (Balog & Search, 2006). By finding ways to integrate supportive services and the classroom environment, the multidimensional needs of the student are met through such strategies as supplemental

instruction, linked courses with advisors, progress monitoring/case management, and required orientation.

Align secondary and postsecondary educational systems. As noted previously, the study concludes that community college leaders, inclusive of faculty, must reach out to educational, civic, and political partners to align efforts, establish common objectives, create core standards, identify needed policy changes, and determine funding sources that support college-readiness and achievement. The implication for community college is greater involvement and leadership in state-wide educational reform projects that incentivize disparate educational systems to align and work as one. One example is *Race to the Top*, a national competitive grant initiative supporting state-wide reform (U.S. Department of Education, 2011). Other suggestions for community colleges include establishing local consortiums with secondary systems to align college-readiness efforts before and after high school graduation; involvement with state efforts to establish common core standards between secondary and postsecondary systems; working on local, regional, and/or state levels to standardize assessment of college-readiness; and linking internal mathematics content experts with national discussions on redesigning mathematics sequences such as Quantway and Statway (Carnegie Foundation for the Advancement of Teaching, 2011a).

Institutionalize strategies. The conclusions of this study indicated that effective implementation of strategies required institutionalization with embedded structure and funding. The community colleges in this study had been supported by grants from external constituents. With recognition of tightening support from state and local sources, each expressed concern for the ability to find resources needed to support wide-scale implementation beyond grant funding.

The implication for community colleges is the need to restructure and dismantle some existing programs and traditional systems to allow for the reallocation of resources. Again, there are implications for creating partnerships for additional revenue from corporate sponsorship of programs. Such partnerships can assist with resources as well as capitalize on field expertise to better align skill development with work requirements. Northeastern Community College noted a corporate mentor program with such linkages. Eastern Community College found a source of additional revenue by establishing its Center for Cooperative Learning that brings faculty from across the country for professional development.

Beyond funding, there are other restructuring implications for community colleges. Wide-scale implementation requires restructuring the organization to institutionalize and find a structural home for such strategies as supplemental instruction, required orientation, success courses, learning communities, Math Emporium, and COMPASS/ACCUPLACER reviews. Embedded institutionalization implies that the implementation persists despite changes in leadership.

Evidence of effectiveness. The importance of gathering data to determine the success of efforts to improve college-readiness has been widely supported by the community colleges in this study. The implication for community colleges is the creation and maintenance of robust research offices. The scope of responsibility of institutional research offices needs to expand beyond the delivery of reports to being active members in a continuous improvement model. The size of research offices in this study varied from one-person offices to large departments. There was no ideal size but there was a partnering relationship regardless of size. The implication for community colleges is a shift in the level of involvement of the research area

with those involved in the implementation plans for the strategies. The research office needs to be an involved partner in establishing a culture where data gathering, evaluation, and decision-making are routine processes.

College culture. One of the conclusions of this study is that community colleges must understand and honor their own unique cultures when adapting strategies that impact college-readiness. Culture is permeable and may change with the impact of wide-scale implementation of effective strategies. The implication for community colleges is to find the balance between adapting to culture and managing needed change that may also impact cultural norms. There are implications for leadership to understand the college culture, astutely guide implementation of new strategies, and help transition through potential cultural shifts.

Recommendations for Future Study

Economic forecasts indicate that a growing majority of jobs will require postsecondary education credentials (Carnevale & Rose, 2011). As noted in the literature review (Chapter 2), there are several public and privately funded initiatives that are launching or have been launched since 2004 to increase student success and college completion rates. Some of these include U.S. Department of Education's (2011) Race to the Top, Achieve's (2011b) America Diploma Project, the Common Core Standards (2011), Getting Past Go Initiative (Vandal, 2010), Completion by Design (2011), and the Developmental Education Initiative (2011). The relative newness of these initiatives presents opportunities for future studies. It is recommended that the results of these initiatives and others like them be studied to determine trend lines of effectiveness.

The conclusions of this study also revealed four areas recommended for more in-depth study. These include the success of full-scale implementation, perspectives of committed leaders, the role of adjunct faculty, and the impact of state-wide public standards.

Full scale implementation. As selected members of the Achieving the Dream network, the community colleges in this study received about $450,000 over five years to support research, strategy development, implementation, and evaluations. Each community college was no longer receiving those funds at the time of the study, although some had received new grants as part of other related projects. Concern about funding needed to bring strategies to full-scale implementation was a discussion point in each of the interviews. None had yet completed full-scale implementation of all of the intended strategies. The full-scale implementation stage offers room for further study. An in-depth examination of the processes undertaken at community colleges to enact full-scale institutionalization of effective strategies would provide insight for others. Such an analysis might include the processes for assessing budgetary priorities, decision-making, leadership issues, as well as sources of permanent funding. In addition, an assessment of the relative success of community colleges' efforts to institutionalize reformative strategies that were stimulated by external grant funds would provide input for shaping future initiatives.

Perspectives of committed leaders. This study focused on the perspectives of core team leaders who were involved at the grassroots level of strategy development and implementation. It was determined that committed leadership was a critical element of successful implementation, particularly around strategic planning and policy. It is recommended that a future study explore presidents' perspectives on effective strategic reform surrounding improvement of student success in community colleges. Studying the perspectives of presidents at community colleges

that have successfully improved achievement and completion rates would add a layer of understanding to the complex issues of college-readiness. In addition, examining characteristics and styles of presidents, and possibly board members, who have successfully implemented reform measures in the academy would provide insight into effective leadership styles and change management.

Role of adjunct faculty. Faculty involvement and leadership were found to be significant factors in strategy development and implementation in this study. However, the community colleges in this study expressed concern about the lack of participation and awareness by adjunct faculty about the reformative efforts underway to impact college readiness and achievement of underprepared students, particularly those directed at the classroom environment. There is heavy reliance on adjunct faculty to teach developmental and college-level courses; reported levels in this study were over 60%. An in-depth study of faculty development strategies that successfully engage adjunct faculty would provide insight for community colleges. Exploring the perspectives of community college leaders and full-time faculty, as well as adjunct faculty, on effective engagement strategies would provide important insights for the inclusion of adjunct faculty in the development and effective implementation of reform strategies.

Impact of state-wide standards. The community colleges in this study are among 16 states affiliated with Achieving the Dream working on state-wide public policy reform. Although policies vary between states, standard approaches reported in this study included assessment of college-readiness and placement scores, developmental education curriculum, state-wide databases, transfer articulation, faculty credentials, and performance-based incentives.

In addition, there are various state-wide initiatives focused on alignment of educational objectives and interventions across education levels. Although the community colleges in this study affirmed the value of state standardizations in efforts to improve college-readiness, there was some concern expressed about potential interference of standardizations with innovative responsiveness or needed exceptions for individual colleges.

With various state standards and policies in formative stages, there is opportunity and value to study trends as adoption and implementation take shape. Future studies on the effectiveness of the various state policies in improving college-readiness and completion rates across the country will be needed. Additionally, with the growth of standardizations, there will be a need to assess the perceptions of community college leaders about the relative benefits and/or hindrances of state-wide educational policies, particularly in relation to flexibility and responsiveness to unique college issues.

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BIOGRAPHICAL SKETCH

Joan L. Kindle has been in higher education administration since 1981. She has served as the vice president for Student Affairs for 11 years at William Rainey Harper College, where she also served as assistant to the President for eight years and held the office of dean of Student Development for 12 years. Joan started in higher education administration at Mundelein College in Chicago as the director of Career Services and later, assistant vice president for Student Affairs. Currently, she is associate provost at Harper College working on a college-wide focus to improve college-readiness, student success, and completion.

Professional recognitions include three Innovation Awards from the Illinois Council of Community College Administrators, an Exemplary Practices Award from National Academic Advising Association, the Diversity Award from NASPA IV-East, the National NASPA Powerful Partnership recognition, and the Exemplary Program Award. In 2010-2011, Joan was recognized by NASPA Region IV-East as the Community College Outstanding Professional and she received the distinction of Pillar of the Profession from the National NASPA Foundation.

Joan is an experienced presenter at professional association meetings, including NASPA, Chair Academy, ACPA, NACADA, ATD, and AACC. She held regional and national offices including the NASPA National Board (2006-2008). She was a contributing author to two New Directions for Student Service series; *Dealing with Behavioral and Psychological Problems of Students: A Contemporary Update* (2009) and *In Search of Safer Communities: Emerging Practices for Student Affairs in Addressing Campus Violence*, (2008). Her postsecondary degree credentials include a Bachelor of Arts from Northern Illinois University and a Master of Arts from Bowling Green State University, Ohio.

APPENDICES

Appendix A: Guiding Questions and Interview Matrix

Guiding Questions	Interview Questions
Guiding Question 1: What strategies were implemented at the identified Achieving the Dream Leader Community Colleges to improve success of underprepared students?	a. What concerns about college-readiness and achievement of underprepared students did XX Community College experience prior to membership in Achieving the Dream? b. What did you discover were the needs of the underprepared students? c. How did the identification of student needs direct your intervention strategies? What did you initially pilot? d. What process did you take in determining what strategies to implement on a larger scale? What are those strategies?
Guiding Question 2: What is the impact of the selected strategies on the success of underprepared students?	e. How do you measure the continuing success of the strategies you have implemented? f. What makes these strategies successful?
Guiding Question 3: How do the state educational policies (in states where Achieving the Dream Leading Community Colleges are located) support increasing success of underprepared students?	g. How have your state's public policies supported your efforts to increase college-readiness and success of underprepared students? Any hindrances? h. What state-wide support, not currently in place, would strengthen your efforts?

Guiding Questions	Interview Questions
Guiding Question 4: Are the effective strategies replicable for large, system-wide implementations?	i. Achieving the Dream addresses boutique programs versus full-scale programs. How would you describe your implementations at this point? j. What organizational resources are (or were) needed to bring programs to full scale? How were these acquired? k. What about sustainability? How do you plan to sustain these programs into the future? l. How do you envision others being able to replicate your success?
Guiding Question 5: What are the best practices and recommendations from the Leader Community Colleges related to the Achieving the Dream goals identified above?	m. In your experience how do successful strategies/programs become best practices? What criteria identify a best practice? n. Identify one or two best practices that you think should be universally implemented to improve college-readiness and success of unprepared community college students? o. Would you recommend these as state-wide policies? Why?

Appendix B: Demographic Survey

Community College Name and Location:

I. Participant Information

Name:

Title:

Role with Achieving the Dream Projects:

Length of time within current community college:

II. Community College Demographic Information

Headcount:

Full time equivalencies (FTE):

Number of degree seeking students:

III. Affiliation with Achieving the Dream

Joined Achieving the Dream in what year:

Number of current projects/strategies implemented for three years or more:

Names of current projects/strategies and brief descriptions:

Number of years of project implementation for each strategy (beyond pilot):

Approximate annual budget expenditures involved with Achieving the Dream strategies:

Current coordination system for the projects (what area(s) is responsible):

IV. Recommendations

Upon reflection on your experience with the Achieving the Dream project at your institution, what changes would you recommend in order to strengthen the process or the outcome?

Appendix C: Focus Group Process

The focus group consisted of three areas of inquiry to guide the process. To this end, the focus group facilitator encouraged the group to process the semi-structured question/directive within each area until the group appeared to be ready to move to the next section. Note-taking during each component took place in the room in order for the participants to visually review the results of their discussions. The process took approximately 60 minutes. An audio tape of the session was made and a transcription completed. The data was themed by the three areas of inquiry. The Focus Group participants were given an opportunity to review the collated notes from changes before they are used in the study.

Effective Strategies	Challenges and Barriers	Elements of Best Practice
Identify effective strategies that improve college-readiness and achievement of underprepared community college students.	Identify challenges or barriers that need to be overcome to make effective strategies into best practices.	Identify the elements that are needed to be labeled, a *best practice*.

Appendix D: Interview Questions with Prompts

Interview Questions	Potential Prompts
1. What concerns about college-readiness and achievement of underprepared students did XX Community College experience prior to membership in Achieving the Dream? 2. What did you discover were the needs of the underprepared students? 3. How did the identification of student needs direct your intervention strategies? What did you initially pilot? 4. What process did you take in determining what strategies to implement on a larger scale? What are those strategies?	• What prompted the involvement? • What concerns did you have about college-readiness and completion of underprepared students? • What did you hope to accomplishment? • What did you find out about students? • What groups of students had the lowest achievement rates? Completion rates? • Did you have widespread support for these efforts across campus? If so, how did you obtain that? If not, what did you do about that? • Did these initial efforts show promise in increasing college-readiness and achievement? • How did you get campus support for these implementations? • What process did you take to implement them? • What were the biggest stumbling blocks? • What made them successful implementations in your mind?
5. How do you measure the continuing success of the strategies you have implemented? 6. What makes these strategies successful?	• What do you know about the success of your targeted student populations? • Do you measure success according to the Achieving the Dream 5 goals? If so, what have you found? If not, how do you measure success? • What makes these strategies successful and others not successful? • Do you see a point where achievement gaps between the underprepared and the prepared will no longer exist? How? • What makes these strategies successful and others not successful? • Do you see a point where achievement gaps between the underprepared and the prepared will no longer exist? How?

Interview Questions	Potential Prompts
7. How have your state's public policies supported your efforts to increase college-readiness and success of underprepared students? Any hindrances? 8. What state-wide support, not currently in place, would strengthen your efforts?	• What came first, your strategies or state policy? • How involved with state policy efforts is X Community College?
9. Achieving the Dream addresses boutique programs versus full-scale programs. How would you describe your implementations at this point? 10. What organizational resources are (or were) needed to bring programs to full scale? How were these acquired? 11. What about sustainability? How do you plan to sustain these programs into the future? 12. How do you envision others being able to replicate your success?	• Who is responsible for the strategies in the organizational system? • How are the programs institutionalized? • How strong is support from across the college? From faculty? • How do you keep momentum going? • What areas will you not bring to full scale? Why? • Have you eliminated some programs in order to maintain these? • Are there others that have had success with your strategies?
13. In your experience how do successful strategies/programs become best practices? What criteria identify a best practice? 14. Identify one or two best practices that you think should be universally implemented to improve college-readiness and success of unprepared community college students? 15. Would you recommend these as state-wide policies? Why?	• What applicability do you envision for state-wide systems of these strategies? • Which strategies have the best chance of being replicated across state systems? Would these be mandatory to be successful? • What defines a best practice? • How best can we make a national impact?

Appendix E: Public Policy States

- Arkansas
- Connecticut
- Florida
- Hawaii
- Indiana
- Massachusetts
- Michigan
- New Mexico
- North Carolina
- Ohio
- Oklahoma
- Pennsylvania
- South Carolina
- Texas
- Virginia
- Washington

Appendix F: Informed Consent Forms - Interview Participant

Thank you for agreeing to participate in this study entitled, *Exploration and Analysis of Reformative Strategies to Improve College-readiness and Achievement among Underprepared Students.*

This form serves as your consent to participate in a semi-structured interview on _____. The information below outlines the purpose of the study, a description of your involvement and your rights as a participant.

I consent to participate in a research project conducted by Joan L. Kindle, a doctoral candidate at National-Louis University, located in Chicago, Illinois. I understand that this study will examine effectiveness strategies implemented at leading Achieving the Dream (ATD) community colleges. I have been selected to participate in this study due to my role at _____in leading an ATD project. My participation will involve a 90 minute interview, with a possible second, follow-up phone interview lasting 60 minutes. I understand that the interview will be recorded and I will receive a copy of my transcribed interview. I will have the opportunity to review, clarify and correct information captured in the transcription.

The purpose of this study is to explore and analyze reformative strategies that effectively address college-readiness issues and close achievement gaps in the community colleges. Specifically, the purpose is to examine Achieving the Dream Leader Community Colleges that (a) represent a diversity of successful reformative strategies that address college-readiness and achievement, (b) provide evidence of at least three years of sustained effectiveness as identified by outcome data, and (c) are within state systems that have minimally begun state-wide public policy efforts to align performance systems. The exploration will result in recommendations for systemic changes that can be duplicated more broadly to improve underprepared students' success within the community college system.

I understand that my anonymity will be maintained and information I provide is confidential. Only the researcher will have access to secured files and cabinets where transcripts, recordings and documents will be stored for this study. I understand that the findings may be published but my identity will not be revealed.

I understand that my contact person for this study and for any questions that I may have about my involvement in this study is Joan L. Kindle, 1200 West Algonquin Road, Palatine, Illinois 60067.

I understand that for any questions or issues before or during my interview participation that was not addressed satisfactorily, I may contact: Dr. Martin Parks, Dissertation Chair, National-Louis University, 122 S. Michigan Avenue, Chicago, IL 60603. Phone (312) 261-3019

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

Appendix G: Informed Consent Forms - Focus Group Participant

Thank you for agreeing to participate in this study entitled, *Exploration and Analysis of Reformative Strategies to Improve College-readiness and Achievement among Underprepared Students.*

This form serves as your consent to participate in a focus group session on _____. The information below outlines the purpose of the study, a description of your involvement and your rights as a participant**.**

I consent to participate in a research project conducted by Joan L. Kindle, a doctoral candidate at National-Louis University, located in Chicago, Illinois. I understand that this study will examine effectiveness strategies implemented at leading Achieving the Dream (ATD) community colleges. I have been selected to participate in this study due to my role as a Coach for a Leading ATD community college. My participation will involve a 60 minute focus group session with other ATD Coaches. I understand that notes will be taken and that the session will be recorded. I will receive a copy of the notes. I will have the opportunity to review, clarify and correct information captured in the notes.

The purpose of this study is to explore and analyze reformative strategies that effectively address college-readiness issues and close achievement gaps in the community colleges. The exploration will result in recommendations for systemic changes that can be duplicated more broadly to improve underprepared students' success within the community college system. The focus group session is intended to ascertain the following information:

- effective strategies that improve college-readiness and improve achievement of underprepared students;
- effectiveness and sustainability factors that make these strategies work;
- elements that make a strategy or system a "best practice"; and
- identification of best practice strategies.

I understand that my identity will be kept confidential by the researcher and that my identity will neither be attached to the data I contribute, nor stored with other project data. Only the researcher will have access to secured files and cabinets where transcripts, recordings and documents will be stored for this study. I understand that the findings may be published but my identity will not be attached.

I understand that my contact person for this study and for any questions that I may have about my involvement in this study is Joan L. Kindle, 1200 West Algonquin Road, Palatine, Illinois 60067.

I understand that for any questions or issues before or during my participation that was not addressed satisfactorily, I may contact: Dr. Martin Parks, Dissertation Chair, National-Louis University, 122 S. Michigan Avenue, Chicago, IL 60603. Phone (312) 261-3019

Participant's Signature: _____ Date: _____

Researcher's Signature: _____ Date: _____

Appendix H: Transcriptionist's Confidentiality Agreement

This form serves as the confidentiality agreement between Joan L. Kindle and _____ from _____.

I understand and acknowledge that the audiotapes provided to me by Joan L. Kindle involve confidential information about the research study participants. In providing transcription services, at no time will I reveal or discuss any of the information of which I have been exposed.

In addition, at no time will I maintain copies of the electronic or paper documents generated. Further, upon completion of each transcription, I agree to provide the electronic and paper documents to the researcher:

Joan L. Kindle
Harper College
1200 W. Algonquin Road
Palatine, Illinois 60067
jkindle@harpercollege.edu

I understand that a breach of this agreement may result in personal and/or professional harm to the participants and I will be held legally responsible.

Transcriptionist's Signature _____ Date: _____

Researcher's Signature _____ Date: _____

Appendix I: Focus Group Facilitator/Note Taker
Confidentiality Agreement

This form serves as the confidentiality agreement between Joan L. Kindle and _____ from _____.

I understand and acknowledge that my involvement as a focus group facilitator/note taker will involve confidential information about the research study participants. In providing focus group facilitation services, at no time will I reveal or discuss any of the information of which I have been exposed.

In addition, at no time will I maintain copies of any documents generated.

Joan L. Kindle
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1200 W. Algonquin Road
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jkindle@harpercollege.edu

I understand that a breach of this agreement may result in personal and/or professional harm to the participants and I will be held legally responsible.

Focus Group Facilitator/Note Taker Signature _____ Date: _____

Researcher's Signature _____ Date: _____

Appendix J: References from Participating Community Colleges

Those interviewed for qualitative data gathering in this instrumental multiple-case study were assured anonymity and the documents and information provided were assured to remain confidential. In order to preserve this level of anonymity and confidentiality, the community colleges in this study were given pseudonyms. These include Southern Community College, Southeastern Community College, Eastern Community College, Northeastern Community College, Central Community College, and Southwestern Community College. Therefore, documents that were reviewed and referenced in this study are identified with the pseudonym names given to the community colleges.

Citations within the text of this dissertation that refer in some way to either the interviewees or the community colleges are referenced in this appendix with the use of the pseudonyms. Should additional information about the references listed below be needed, the reader may make a request through the researcher's contact information herein. The researcher will contact those interviewed, as needed, for permission to release requested information.

Contact information: Joan L. Kindle, Harper College, 1200 W. Algonquin Road, Palatine, Illinois, 60067. Jkindle@harpercollege.edu.

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