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# THE COLLEGE COMPLETION AGENDA, GUIDED PATHWAYS, AND THE ROLE OF DATA IN INFORMING CHANGE: A CASE STUDY EXAMINING THE USE OF EARLY MOMENTUM METRICS TO ADVANCE STUDENT SUCCESS

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**THE COLLEGE COMPLETION AGENDA, GUIDED PATHWAYS, AND THE  
ROLE OF DATA IN INFORMING CHANGE: A CASE STUDY EXAMINING  
THE USE OF EARLY MOMENTUM METRICS TO ADVANCE STUDENT  
SUCCESS**

by  
Meghan Gara Alai

A Dissertation

Submitted to the  
Department of Educational Services and Leadership  
College of Education  
In partial fulfillment of the requirement  
For the degree of  
Doctor of Education  
at  
Rowan University  
March 30, 2022

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## **Dedication**

For my son, Sean. Everything I do is to be a good example for you. You inspire me to be the best person I can be as a role model for you and for our future.

## Acknowledgments

The journey to completing this dissertation came from hard work, persistence, and an amazing support network. Thank you to my husband, John, for seeing this path as an investment in our future as a family. You were a strong partner in each step of this journey, from brainstorming ideas to editing drafts and co-parenting when I needed to complete hours of writing. Thank you to my parents, Rich and Maureen, for your love and support, for always encouraging me to achieve my goals. I am also thankful for your help with watching Sean during my coursework and many weekends devoted to writing. Finally, to my son Sean, I love you so much and am so grateful that I am your mom. Thank you for your patience as I completed this dissertation. At this point in your life, you have only known a mom that has been in school, but I hope this investment in time shows you that the possibilities are endless and your future is bright.

A very special thank you to Richeleen, my writing accountability partner. From our very first class together and through to the very last edits on our dissertations, we have supported each other through celebration and commiseration. I am incredibly grateful for your friendship on this journey. Thank you to Team Middle from my CCLI cohort: Angelo, April, Richeleen, and Veronica. You each have pushed me to be a more thoughtful leader and student advocate. I am grateful to have walked this journey with each of you.

Finally, I would like to thank Dr. Nespoli for serving as my chair and Drs Kerrigan and Rose for serving on my committee. I am grateful for your wisdom, support, resources, and feedback. You each have played a role in strengthening this study, and for that, I am grateful.

## **Abstract**

Meghan Gara Alai

THE COLLEGE COMPLETION AGENDA, GUIDED PATHWAYS, AND THE ROLE  
OF DATA IN INFORMING CHANGE: A CASE STUDY EXAMINING THE USE OF  
EARLY MOMENTUM METRICS TO ADVANCE STUDENT SUCCESS  
2021-2022

Lawrence Nespoli, D.Ed.  
Doctor of Education

The purpose of this qualitative multiple case study was to understand how leaders at two community colleges that participated in Guided Pathways used early momentum metrics (EMMs) to change institutional policies or practices to improve student success and degree completion rates. By focusing on EMMs as short-term indicators, leaders could track the effectiveness of institutional changes for the planning, implementation, and evaluation of Guided Pathways. The results of this study contributed new understanding to how leaders can better use EMMs to shape institutional changes that improve student success. This study provided leaders with tangible examples of EMMs in action and tools for how leaders can be prepared to support their institution to move forward with data-informed decisions around Guided Pathways. This study found that having access to data tools and a strong relationship with Institutional Research was important to develop a culture of inquiry and improve data-informed decision-making. Knowledge and financial resource support aided to streamline the implementation of Guided Pathways and the use of EMMs in practice. EMMs should be used early and often by community college leaders to monitor change on campus and remain focused on helping students achieve success and completion.

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## **Chapter 1**

### **Introduction to the Study**

Community colleges have entered the era of student success, and it has changed how we approach students, learning, and connections to the community we serve. This paradigm shift began with the College Completion Agenda, where community colleges were spotlighted to help more students receive college degrees and help close the skills gaps in the labor market through degrees and training. As community colleges wrestled with ideas on how to balance expectations, the most significant transformational student success initiative entered the scene. Guided Pathways for Success altered how community colleges could make a difference in approaching student success. The Guided Pathways initiative requires community colleges to break the mold and to rethink how institutions approach student success and student completion. Data-informed decisions play a major role in understanding student needs and helping to support the vast overhaul of changes needed to successfully implement such large-scale transformational change. Early momentum metrics (EMMs) have been identified as an approach to improving and evaluating institutional practices. More research is needed to understand the convergence of the College Completion Agenda, Guided Pathways, and data-informed decisions and how it works in practice on a college campus with college leaders.

This chapter contextualizes the key elements that led community colleges to explore stronger options for data-informed decision-making, specifically around the use of EMMs for student success. I begin by introducing the call to action set forth by national leaders in the College Completion Agenda to increase the number of students completing higher education degrees to support our country's labor market demands. I

will then explain how success is currently measured and how data-informed decisions are changing how leaders in community colleges are approaching decision-making. Guided Pathways for Success, an integrated framework that supports transformative institutional change currently being embraced by many community colleges, will then be introduced. Finally, I will situate EMMs, suggested in Guided Pathways, into prior research that has examined the use of early indicators. This study will be grounded in the Tinto and Pusser (2006) Model of Institutional Action. The principles of this theory illustrate that there are conditions an institution can set and engage in that can help lead colleges to increased student success.

### **Background of the Study**

Over the past 50 years, the demand for higher education degrees has increased dramatically as a more skilled labor market evolved. Evidence in 2009 indicated that by 2018 63% of US jobs would require at least some postsecondary education and at the current college completion rates, US employers would be short an estimated 3 million workers (American Association of Community Colleges, n.d.). Despite the increase in demands, graduation rates from community colleges remain low.

In January 2009, before a joint session with Congress, President Obama addressed the need to bring American higher education back to the forefront of educational dominance in the world (Baldwin, 2017; Bailey, et al., 2015). President Obama cited that three quarters of the fastest growing occupations required some postsecondary education (Baldwin, 2017). In July 2009, President Obama unveiled the American Graduation Initiative, an investment of \$12 billion to help community colleges innovate and improve student outcomes (National Archives and Records Administration, 2009). Recognizing

the challenges students face while completing a higher education degree, six national organizations that all had a shared interest in student completion partnered to set the stage of carrying out what would become known as the College Completion Agenda (McPhail, 2011). These organizations included the American Association of Community Colleges, the Association of Community College Trustees, the Center for Community College Student Engagement, the League for Innovation in the Community College, the National Institute for Staff and Organizational Development, and the Phi Theta Kappa Honor Society (McPhail, 2011; Mullin, 2010). In April 2010, these organizations participated in an unprecedented joint signing ceremony and a joint statement that committed to increasing the number of high quality degrees by 50 percent by the year 2020 (College Completion Challenge Fact Sheet, n.d.; McPhail, 2011). This would be achieved without compromising their commitment to access and quality education (Mullin, 2010). The college completion initiative, if successful, would result in an additional 5 million students obtaining degrees from community colleges (College Completion Challenge Fact Sheet, n.d; McPhail, 2011). Over the years, support for President Obama's American Graduation Initiative diminished due to partisan politics, but the foundation for increased degree completion kept community colleges at the national focus (Andrews, 2021). Free community college and a movement to improve the student experience through reform initiatives such as Guided Pathways are levers to improve degree completion (Andrews, 2021).

The current method for measuring and comparing institutions of higher education across the country is through the Integrated Postsecondary Education Data System (IPEDS), the federal postsecondary data reporting system for the National Center for

Education Statistics (NCES). IPEDS requires all colleges that participate in federal financial aid programs to submit a suite of interrelated surveys that are used to measure institutional effectiveness at postsecondary institutions (About IPEDS, n.d.). These surveys provide policymakers and the public with enrollment, completion, and student success measures for higher education. Much of the completion data primarily focuses on evaluating traditional first-time, full-time degree-seeking undergraduate students (About IPEDS, n.d.; Stuart, 2013) and on the national stage is the primary means for measuring institutional effectiveness (College Completion Challenge Fact Sheet, n.d.). While these metrics may seem like an obvious comparison across all institutions, the vastly different levels of college access, selectivity, and missions mean that the current IPEDS accountability metrics are of less value to the decision-making of student success on community college campuses (Goldrick-Rab, 2010).

IPEDS outcome metrics are based on traditional students, found primarily at baccalaureate institutions. Community colleges serve a large number of nontraditional students, including adult, transfer, and part-time students (Engle, 2016). Students also attend community colleges for a variety of reasons, and enrollment patterns and course-taking patterns vary much more than they do at traditional baccalaureate institutions (Bahr, 2013). Community colleges need metrics that more accurately reflect the successes of the many different students attending these institutions (Engle, 2016). Advocates of community colleges argue that the very nature of community college education makes graduation rates a misleading outcome measure (Bailey et al., 2006).

Increasing the traditionally low IPEDS graduation rates held by community colleges would require a substantial reframing of the approach community colleges take

toward student success. Guided Pathways for Success emerged as a model for advancing students through community college enrollment to successful completion or transfer, supporting students to make and achieve well-informed goals, and to help close equity achievement gaps (Bailey et al., 2015; Jenkins & Bailey, 2017). The Guided Pathways model creates an intentional, structured approach for students that connects their educational experience with their end goals (Bailey et al., 2015). It is essential for colleges to engage in transformational work that aligns learning pathways with labor market needs, to help students understand and choose an appropriate path that engages them in deep learning, and to see the path through to completion (Bailey et al., 2015).

A tenet of the Guided Pathways model is to increase data-informed decisions so institutions can make the most influential decisions for student success. Research shows that early credit momentum, the achievement of milestone courses, and program momentum are correlated with higher student completions (Adelman, 1999; Jenkins & Bailey, 2017). Momentum metrics should be used early and often to provide community college leaders with useful feedback so that college policies and practices can be improved to strengthen Guided Pathways and better promote student success. This is in contrast to long-term indicators such as graduation rates or transfer rates that only show results, of a limited cohort of students, at a future point in time and primarily serve as government accountability measures (Jenkins & Bailey, 2017; Phillips & Horowitz, 2017; Stuart, 2013). As community colleges pivot in transformational design, the need for robust metrics to assess their current and proposed institutional policies and practices becomes more relevant than ever before to generate buy-in during this change (Bailey et al., 2015). Institutions need a variety of metrics including both short-term leading

indicators and long-term lagging indicators that help show the successes and failures of change initiatives on campus (Jenkins & Bailey, 2017).

### **Problem Statement**

The role of the community college is changing as institutions fully immerse into the student success agenda. Currently, there is a lack of meaningful metrics that evaluate community college student success initiatives. Long-term measures are of importance in evaluating student success; however, they can take many years to demonstrate the positive or negative aspects of college reform initiatives (Jenkins & Bailey, 2017). Guided Pathways is a model for advancing the success agenda for community college students and emphasizes the use of data, beyond completion measures, to evaluate institutional effectiveness (Bailey et al., 2015). EMMs provide an opportunity for institutions to remain agile and make early adjustments when assessing their effectiveness at increasing student success (Jenkins & Bailey, 2017). The Guided Pathways model advocates for the tracking of EMMs, but how can leaders best use these early indicators to adapt to the changing needs on campus?

While research exists on the benefits of measuring EMMs (Adleman, 1999; Belfield et al. 2019; Philips & Horowitz, 2018), little known research has explored how leaders at community colleges undergoing Guided Pathways use EMMs to guide decision making for policy and practice around student success.

### **Purpose of the Study**

The purpose of this qualitative multiple case study was to understand how leaders at two community colleges that participated in Guided Pathways used EMMs to change institutional policies or practices to improve student success. At this stage in the research,

EMMs are defined as metrics that illustrate student progress and allow institutions the opportunity to intervene to support student success (Jenkins & Bailey, 2017; Phillips & Horowitz, 2017). Knowledge generated informs how leaders can better use EMMs to shape and develop institutional policies and practices that improve student success and more effectively evaluate change initiatives.

### **Research Questions**

The following research questions guide this qualitative case study:

- 1: How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to improve student success?
- 2: How do leaders at Guided Pathways institutions use EMMs to help identify barriers to student success?
- 3: How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to close achievement gaps among different student groups?

### **Theoretical Framework**

The theoretical framework guiding this study is Tinto and Pusser's (2006) Model for Institutional Action for Student Success. Research shows there are a variety of factors impacting student retention and success. Many retention and persistence models examine retention from the perspective of student attributes that lead to student success (Spady, 1971; Tinto, 1975, 1993; Bean, 1980; Pascarella & Terenzini, 1980; Astin, 1984; Bean & Metzner, 1985; Cabrera, et al., 1993). Student success models also exist that closely examine the relationship between student success and student engagement and steps

institutions can take to increase student engagement (Kuh, et al., 2005). The Model for Institutional Action takes a closer look at student persistence and student success from the institutional perspective and attempts to provide higher education leaders with a framework to increase retention and completion rates through several factors (Tinto & Pusser, 2006). The Model for Institutional Action examined specific areas that support student outcomes within the institution's control. Institutional practice and the institutional environment play a significant role in shaping student success (Tinto & Pusser, 2006). This model attempted to provide institutional and state action guidelines to increase student success. It builds upon many existing retention and attrition studies to identify effective institutional practices that link actions and policies institutions can adopt to support increased student outcomes.

Tinto and Pusser (2006) identified five conditions within an institution that contribute to student success. These conditions are institutional commitment, institutional expectations, support, feedback, and involvement/engagement (Tinto & Pusser, 2006). This model sought to determine which institutional actions and state actions contribute the most to these areas and, in turn, to student success (Tinto & Pusser, 2006). This study focused only on institutional policy and practices and aimed to illustrate the role EMMs play in identifying and informing change on campus to increase student success. This study used the five conditions identified in this model as a student success lens for institutional change toward Guided Pathways.

The model for institutional action was chosen for its strong influence on student success from a variety of perspectives and the role of college leadership in supporting student success. This aligned with the Guided Pathways movement, where institutions are

engaged in deep transformational change to improve student success through college completion, transfer, and labor market alignment. This model focuses on specific institutional actions that create an environment that promotes student success and college completion.

### **Significance of the Study**

The results of this study help inform community college practice and help college leaders better understand how to increase student success through the use of EMMs. Our country has experienced a decline in the number of college completions compared with our global peers (Organisation for Economic Co-operation and Development, 2018). Nationwide by the year 2020, 65% percent of jobs will require at least some college education (Carnevale, et al., 2013), in fact, recent research states that 95% of jobs added to the United States economy during the post recessions recovery went to workers with at least some college (Carnevale, et al., 2016). Community colleges enroll nearly 9 million credit students at 981 institutions (IPEDS Data Center: Trend Generator, n.d.). However, only one in four students that start as a first-time, full-time, degree-seeking student completes within three years of starting a degree (Baldwin, 2017; IPEDS Data Center: Trend Generator, n.d.). President Obama's American Graduation Initiative of 2009 aimed to increase the number of community college graduates by fifty percent by 2020 (American Association of Community Colleges, n.d.). College completion reform initiatives, such as Guided Pathways, have started to address ways colleges can increase the number of individuals with a value-added credential to support an evolving skilled labor market. Community colleges need a stronger set of metrics to help evaluate student success initiatives. EMMs are grounded in research that shows a connection between

early milestone achievement and increased student completion (Adelman, 1999; Jenkins & Bailey, 2017). These indicators can inform changing policies and practices so community colleges can remain agile and responsive to students' needs.

Understanding how reform changes impact students can also affect community college leadership. This case study aimed to provide leaders with more proactive ways to measure student success and serve as a guide for tangible practices tied to EMMs. As leaders embark on change initiatives, they can use EMMs and early indicator data to communicate with the campus community about the need for change by creating a sense of urgency around the need to change, building a guiding coalition, and celebrating short-term wins (Kotter, n.d.).

### **Limitations and Delimitations**

**Limitation:** Many Guided Pathways colleges have only been actively implementing the reform model since fall 2017. Schools have committed to Guided Pathways with varying approaches to implementation. Some schools engage in highly structured, cohort-based models, while others have chosen a more individualized, unstructured approach. Regardless of the style, comprehensive institutional change initiatives take planning and time. Given the relatively short amount of time to implement institutional policy and practice changes, institutions may not have fully developed or operationalized their Guided Pathways framework on campus.

**Delimitations:** I delimited the study to college leaders that implemented Guided Pathways. I selected two institutions engaged in Guided Pathways with contrasting approaches. One institution was enrolled in the American Association of Community Colleges (AACC) Pathways cohort and actively worked with an AACC Pathways coach.

This is a very structured cohort approach. The second institution is engaged in a state-level cohort model but not the highly structured AACC Pathways model. The second institution is provided with resources and support, but the reform implementation is less structured. The study will only include college leaders and faculty actively part of the institution's Guided Pathways team. All study participants were involved in the recommendations and decisions on how the institution is moving toward Guided Pathways policy and practice changes.

### **Definition of Terms**

***Cohort:*** A specific group of students established for tracking purposes, generally the initial cohort only includes full-time, first-time students.

***Credit Momentum:*** An EMM that examines the number of college credits earned by the end of the first semester and the first year.

***Early Momentum Metrics (EMMs):*** Early indicator measures that can predict long-term success. Helpful in evaluating large-scale reform initiatives. The EMMs examined in this study include Credit Momentum, Gateway Momentum, Persistence, and Program Momentum (see definitions in this section).

***Gateway Momentum:*** An EMM that examines the enrollment and completion of college-level math and English in a student's first year.

***Graduation Rate:*** The rate required for disclosure and/or reporting purposes under the federal Student Right-to-Know Act. The rate is calculated as the total number of completers within 150% of normal time divided by the IPEDS adjusted cohort.

***IPEDS:*** The Integrated Postsecondary Education Data System. Federal higher education data collection system.

***KPI:*** Abbreviation for Key Performance Indicator. A quantifiable measure of performance over time.

***Persistence:*** An EMM that examines the percent of first-time students who continue into term two.

***Program Momentum:*** An EMM that examines the number of college credits earned in students' program of study in the first year.

## Chapter 2

### Literature Review

Community colleges are experiencing a paradigm shift from a mission that focused strongly on access toward a need to provide access while at the same time demonstrating student success. Contributing to this shift was President Obama's Completion Challenge of 2009. Higher education was challenged to increase the number of college completions that meaningfully contribute to our country's knowledge center and workforce by 50% by 2020 (American Association of Community Colleges, 2012; McPhail, 2011). This call was for all colleges, yet a bulk of the work falls to community colleges to provide high quality, affordable options to students. As community colleges have begun to embrace this reform change, various new initiatives have emerged. This study will focus on the convergence of three primary themes: the college completion agenda, Guided Pathways, and the role of data to inform change. Each of these themes contributes a portion to overall student success. The college completion agenda challenges the traditionally low completion rates of community colleges. Guided Pathways challenges the traditional unstructured model for community colleges, where students navigate the college process with less intentional structure from the college (Scott-Clayton, 2011). Furthermore, data-informed decisions for community college leadership, specifically the use of early indicators, as opposed to the traditional suite of long-term indicators, challenge the variety of data metrics needed to measure and support student success (Offenstein, et al., 2010).

## **Community College Education**

The community college is one of America's most unique aspects of higher education. This section provides the foundation for how the community college began supporting a changing workforce demand by offering the opportunity to leverage education as a driver for social mobility through the mission of open access and affordability. This also includes limitations in how this model has not fully succeeded and why a new perspective may be necessary to accomplish student success that continues to meet the needs of the labor market.

### ***The American Community College History and its Mission***

The American community college was born out of a demand to support a variety of changing dynamics in the United States during the early twentieth century, including expanding industries with a need for a skilled labor force, a demand for social equality, and the drive for greater access to higher education (Cohen, et al., 2014). Further, society had increasingly placed demands on schools, including postsecondary schools, to help solve societal problems, including racial integration, teenage pregnancy, and drug or alcohol abuse. These demands furthered the need for a community college system to educate and train individuals to help tackle these issues (Cohen et al., 2014).

Prior to the twentieth century, families and the workplace were responsible for developing and training youth (Cohen et al., 2014). In 1910, only five percent of adults aged eighteen entered higher education; by 1960, this percentage had increased to forty-five percent, and this growth trajectory has continued nationally until present times (Cohen et al., 2014). This significant increase was partly attributed to a growing belief among Americans that more education is beneficial (Cohen et al., 2014), along with the

massive growth in the proportion of young college-aged adults in the mid-twentieth century (Doyle & Gorbunov, 2011). This shift led to massive expansion into higher education, which set the foundation for modern public community colleges (Cohen et al., 2014).

The cornerstone of a community college's mission is open access to education and low-cost tuition (Cohen et al., 2014; Dowd, 2003). These two tenets are what supported the massive expansion of community colleges in the mid-twentieth century. Open access to education allows the community college to serve as a gateway for many underserved and underrepresented groups in the community, including first-generation, low-income, and minority students (Dowd, 2007; Baldwin, 2017). In fact, many of these students traditionally enroll at a community college as the first step in pursuing their higher education goals (Dowd, 2007; Baldwin, 2017). Dowd (2007) further explains the political appeal for community colleges to serve in the gateway function. Community college education provides a democratic perspective to higher education and "appeals to the principles of meritocracy, equal opportunity, and social mobility" (Dowd, 2007, p. 408). In other words, community colleges are a path of upward mobility for many students who may not have access to education at four-year institutions.

One of the most appealing and unique features of a community college education is the focus on affordability. Community colleges operate utilizing a low tuition model subsidized by federal and state funding (Dowd, 2003). Even in the face of rising college tuition and reduced government aid to postsecondary institutions, community colleges remain an affordable opportunity for students to pursue higher education (Dowd, 2003).

Looking ahead, as our country faces a need for a more college educated and skilled workforce, community colleges are seen as the first step in providing that opportunity.

Nationwide college promise or tuition-free community college programs are on the rise as community colleges are called upon to meet the demand and help solve this country's labor market skills gap (Buchanan & Wilson, 2017). Tuition-free community college programs are of public policy interest to help reduce student debt burdens around the rising costs of higher education and to increase college attendance among those who might not have otherwise enrolled with the message of clear affordability (Mishory, 2018). America's College Promise Act of 2021 was introduced as legislation to create two years of tuition-free community college for all Americans through federal-state partnership grants (Association of American Community College Trustees, n.d.). This legislation remains in the House of Representatives and has not gained traction (GovTrack.us, 2022). This public policy focus and investment in community colleges further demonstrate the value of education and the cost-effective solution community colleges offer in helping achieve student success and degree attainment for our country. Again, the unique mission of the community college is thrust into the spotlight and strong data beyond outcome metrics is needed to illustrate student progress and student success.

In 2021, President Biden introduced the American Jobs Plan, a national infrastructure proposal that would invest \$2.25 trillion toward jobs and reviving the economy (Dembicki, 2021). The proposal included \$12 billion for community colleges' physical and technological infrastructure and \$100 billion invested in workforce development (Dembicki, 2021). President Biden called this proposal a "once in a generation investment in America," designed to create millions of good-paying jobs that

will help grow the economy (Dembicki, 2021). Though the plan did not move forward with the infrastructure investment in community colleges, there is still a tremendous amount of attention on the role community colleges play in higher education access to underserved populations (Ngo, 2021).

### ***Traditional Community College Structure***

The traditional community college model offers students broad access and comprehensive support services available at a local institution through a self-service model (Bailey, et al., 2015). Open access is one of the unique strengths that sets community colleges apart from other postsecondary institutions. With the commitment to access, community colleges offer a variety of choices to draw students in and meet their needs. Community colleges pride themselves on this piece of their mission (Cohen, et al., 2014). The traditional model offers student services, many mirroring the services that would be available to students at a four-year institution, but it is left up to the students to seek out these services and navigate much of their college experience on their own (Bailey et al., 2015; Scott-Clayton, 2011). This serves the mission of the community college by keeping costs to the student low and remaining accessible to all (Bailey et al., 2015; Cohen et al., 2014).

There are negative aspects of the traditional model. For example, because students are largely navigating a complex system on their own, the retention and completion rates at community colleges tend to be lower than completion rates at a four-year institution (Bailey, et al., 2015; Scott-Clayton, 2011). Many students attending a community college may be new to college and not fully understand the expectations and norms of navigating classroom dynamics and available support services (Karp & Bork, 2012). Part of this

problem stems from one of the greatest strengths of community colleges – open access. While community colleges are focusing on providing students access and quick registration for classes, less attention is paid to creating academic plans with students and preparing them for the educational work ahead (Cohen, et al., 2014). Without these institutional controls in place, community colleges see a very high number of students that drop out, stop-out, or swirl between multiple institutions (Cohen et al., 2014). The complex system reaches all aspects of the student lifecycle, including program structure, intake and student supports, instruction, and developmental education. The cafeteria-style leads to inefficiencies in helping support students to achieve success in further education and employment (Bailey et al., 2015). While one of the primary missions of the community college is access, the traditional, so called cafeteria-style model fails to adequately support the students' intended goals to advance in employment or to transfer to a baccalaureate institution.

### **College Completion**

Over the past several decades, many education reforms and public policies were focused on the instruction and outcomes of the K-12 sector. This could be because K-12 is compulsory education primarily supported by tax dollars, and thus a certain level of accountability is expected. Many reform initiatives, such as No Child Left Behind, have contributed to the need for strong K-12 education. When evaluating the education sector as a whole, higher education was often excluded or limited from the public policy discussion. This, in part, is because higher education was considered a student choice and many prestigious, highly selective colleges and flagship public universities had generated a strong public image and international reputation for quality education (Bailey, et al.,

2015). By the 1990s, our country's labor market had evolved to require more careers that needed at least some level of college. Students also recognized this demand and more frequently began enrolling in higher education.

Simultaneously, the Student Right-to-Know and Campus Security Act were enacted, requiring all colleges to report extensive institutional information to the Department of Education including measures of student success (Bailey et al., 2015). This Student Right-to-Know Act evolved several years later to specifically require institutions to report graduation rates as part of their accountability measures. The inclusion of graduation rates was controversial but a starting point for standardizing, through what has come to be known as the Integrated Postsecondary Education Data System (IPEDS), how colleges' performance is measured (Bailey et al., 2015).

IPEDS is a collection of surveys by the National Center for Education Statistics that is mandatory of all institutions that participate in federal financial aid programs authorized by Title IV of the Higher Education Authorization Act of 1965 as amended (About IPEDS, n.d.). IPEDS collects data on a variety of characteristics of postsecondary institutions including enrollment, completion, outcome measures, and financial data. IPEDS graduation rates measure student outcomes of a cohort of first-time, full-time students that successfully complete a degree within 150% of the time from enrolling at the institution (IPEDS Data Center: Survey Components – Graduation Rates, n.d). For community colleges this would be three years; for baccalaureate institutions this would be six years. The first release of graduation rates, as public data, provided a look across all sectors. Community colleges, with their mission of access, open admissions, and non-

traditional students, showed numbers ranging from single digits to less than twenty percent graduation rates (Bailey et al., 2015).

Worldwide, many of our peer countries continue to place a strong emphasis on expanding postsecondary degree attainment (Offenstein, et al., 2010). When comparing our completion rates with those of other international countries, the United States is no longer the most educated (Organisation for Economic Co-operation and Development, 2018). If college completion rates remain low or continue to decline, the United States could lose its competitive edge in global markets (American Association of Community Colleges, 2012).

Over the past fifty years, as the drive for higher education has increased, community colleges have been praised for leading the way in providing opportunities and open access to higher education (Baldwin, 2017). From a political perspective, this access agenda opened the doors for a more skilled workforce and community colleges excelled at meeting the demand and enrollment students. The access agenda turned into the success agenda where providing access was no longer enough; now, community colleges needed to ensure students were successfully achieving their goals. This evolved into the college completion agenda, where metrics were used to determine if colleges were meeting completion goals (Baldwin, 2017). As of 2015, approximately a quarter of students that begin their education as a first-time, full-time degree-seeking student in a public community college successfully complete an associate degree within three years (Baldwin, 2017, IPEDS Data Center, n.d.), which is a 2% increase from the previous year cohort and the second consecutive year to see growth in national graduation rates (Juszkiewicz, 2017).

## **The College Completion Agenda**

In January 2009, President Obama addressed Congress and the nation with the harsh reality that the United States was falling behind in college degree attainment compared with the rest of the world. Intentional work would be needed to bring American higher education back to the forefront of educational dominance in the world (Baldwin, 2017; Bailey, et al., 2015). President Obama challenged higher education, specifically community colleges, to increase the number of degrees by 50 percent by the year 2020, resulting in an additional five million students obtaining degrees that contribute and support the labor market (College Completion Challenge Fact Sheet, n.d; McPhail, 2011). To help achieve this work, President Obama proposed spending \$12 billion dollars to help community colleges implement and scale programs aimed at improving student outcomes (Kelderman, 2020).

The College Completion Challenge would require significant work from a variety of stakeholders to achieve this goal. Having a deep understanding of the challenges community colleges and students enrolled at community colleges face in degree completion, six national organizations all with a shared interest in student completion committed to supporting the effort of the College Completion Agenda (McPhail, 2011). These organizations included the American Association of Community Colleges, the Association of Community College Trustees, the Center for Community College Student Engagement, the League for Innovation in the Community College, the National Institute for Staff and Organizational Development, and the Phi Theta Kappa Honor Society (McPhail, 2011; Mullin, 2010). This is a necessary national goal to reduce barriers to

student success and increase degree completion that supports our labor market and generates innovation.

President Obama's College Completion Challenge aligned nicely with college completion initiatives that philanthropic organizations had begun in the year prior to President Obama's election (Kelderman, 2020). The Lumina Foundation and Bill and Melinda Gates Foundation had identified college attainment as a problem and began working with states to set completion goals around helping colleges increase their attainment rates for all students with special attention to low-income students and workforce certificates (Kelderman, 2020).

The College Completion Challenge was a bold step in addressing a problem that has a broad impact across the US economy and in the lives of US citizens. In the years since President Obama first introduced the College Completion Challenge, progress toward the completion goal has been slow but steady. Though we did not achieve an increase of 50 percent more degrees awarded by 2020, the Lumina Foundation showed an increase of ten percentage points in national degree attainment between 2008 and 2018 (A Stronger Nation, 2019). This increase did not make the US a world leader in postsecondary degree attainment (Kelderman, 2020). However, the College Completion Agenda shed light on a problem and shifted a political focus onto the work of community colleges and the role of policymakers in supporting college degree attainment efforts (Kelderman, 2020).

In a data-informed world with more access to education, it became apparent that on a national level, measures of student success needed to be evaluated. The data that set the stage for the Completion Agenda only evaluated cohorts of first-time, full-time

freshmen (Engle, 2016). This includes only a fraction of the students that community colleges served and did not take into account a large number of nontraditional students and the developmental education needs that come from open access missions (Engle, 2016). New models and metrics for student success need to be considered to illustrate the quality and relevance of postsecondary education and to inform better policy and practice that impact overall student success (Engle, 2016). Higher education, specifically community colleges, needs additional data frameworks to measure early indicators that show how students progress and achieve along the way (Moore, et al., 2009). Understanding how students advance through a degree program can be essential to gaining insight into why students are not completing degrees.

### **Guided Pathways for Success**

As students show up at community colleges on their first day to register for classes, they arrive with a variety of expectations and knowledge about what college will hold for them. Some arrive fully prepared with an understanding of how classes are structured and what supports are available to help students if they struggle. Others arrive with not a single notion of what to expect and where to go for help. Students arrive with a goal in mind and the hope that they will successfully graduate. This is the reality of community college life, a sometimes ambiguous place filled with opportunity (Scott-Clayton, 2011).

In the traditional cafeteria-style model, the students are left to discover this process on their own. Students can receive ample support from a variety of support offices at a community college, but they need to seek out and navigate the process on

their own first. Without a roadmap, it can be difficult to successfully navigate through the process toward completion without substantial obstacles (Scott-Clayton, 2011).

Guided Pathways emerged as a model for advancing students through community college enrollment to successful completion or transfer while supporting students to make and achieve well-informed goals, and to help close equity achievement gaps (Bailey, et al., 2015; Jenkins & Bailey, 2017). The Guided Pathways model creates an intentional, structured approach for students that connects their educational experience with their end goals (Bailey et al., 2015). The four pillars of Guided Pathways are to design structured pathways that connect education with employment, help students understand their options and choose a path, help students stay on a path, and help students engage in deep learning while on the path (Bailey et al., 2015). Guided Pathways encourages institutions to focus on planning, implementation, and evaluation (Bailey et al., 2015).

Colleges are redesigning how students experience their education. Institutions are moving away from the less structured cafeteria-style self-service model to a more thoughtful, prescribed approach where students take the courses they need to successfully graduate or transfer along an intentional pathway (Bailey et al., 2015). These prescribed paths are designed by faculty and advisors to provide students with a default curriculum. This default curriculum is not set in stone; it allows students the latitude to work with an advisor to create custom curriculum plans and self-discovery while working toward the completion of educational goals (Bailey et al., 2015). This preserves student choice but takes away the overall confusion from a potentially complicated and overwhelming process that can lead students to delay educational plans (Bailey et al., 2015).

Community colleges play a disproportionate role in providing access and opportunity to students from underrepresented groups including low-income, first-generation, and ethnic minority groups (Bailey, et al., 2015). While community colleges suffer from low completion rates for all students who attend, careful attention to equity and achievement gaps among various groups is an important aspect of Guided Pathways in helping promote equity in student outcomes. When evaluating institutional practices and using data to inform institutional policies, community colleges should focus on all aspects of the student experience and monitor for unintended outcomes (Bailey, 2018). Utilizing predictive analytics, early alert systems, and disaggregating data by student characteristics help institutions make careful decisions around helping all students meet their goals (Bailey, 2018). It is important for institutions to build equity conversations into the foundation of all aspects of Guided Pathways, including the planning, implementation, and evaluation to promote equity in student outcomes (Bailey, 2018).

The Guided Pathways model aims to take a holistic look at supporting the student experience. Each area of the college is redesigned to consider how that perspective affects student persistence and completion. The redesign supports the local labor market by offering programs that align with area needs while helping students achieve their goals within those programs.

### ***Key Elements of Guided Pathways***

Undertaking Guided Pathways requires institutions to manage and sustain large-scale transformational change systemic throughout the institution (Bailey, et al., 2015). Guided Pathways is not a band-aid on a problem but rather a complete redesign of major components of a typical community college. The four pillars of Guided Pathways focus

on the student experience and include clarify the path, enter the path, stay on the path, and ensure student learning (Bailey et al., 2015). Each of these four areas requires institutions to evaluate current institutional practices to align with the Guided Pathways framework (Bailey et al., 2015). The sections below discuss how those areas would look in a Guided Pathways environment (Bailey et al., 2015).

**Program Structure.** Guided Pathways colleges create clearly defined roadmaps for students to meet their educational goals successfully. Career exploration is offered to students that may lack clear program or career goals. Colleges will redesign academic programs to start students in broad fields of interest, often called meta-majors, and then narrow the focus of coursework as students master the skills of the program. This will also help support students who enter a path and decide it is not appropriate. The students can then move to another path with limited disruption to meeting their end goals (Bailey et al., 2015).

**Developmental Education.** Developmental education is redesigned to support students in the successful completion of college-level gateway courses (Bailey et al., 2015). These types of redesign correlate with other studies on developmental education that indicate the cafeteria model approach is ineffective. Crisp and Delgado's (2014) study on developmental education performed a quantitative analysis with matched groups of students and determined that developmental education has no impact on persistence and potentially decreases the odds that a student whose initial intention was to transfer to a four-year school, will ever actually transfer. This research is in contrast to previous research that suggests developmental education is beneficial and helps students persist in meeting their goals (Crisp & Delgado, 2014). The Guided Pathways model advocates for

integrating developmental education into the co-requisite coursework of the student's major rather than the current model of separating developmental coursework prior to the start of college-level courses (Bailey et al., 2015). By eliminating the stand-alone developmental education sequence, students are exposed to developmental coursework that is relevant to their field of study, enabling them to recognize the applicability in their field of study.

**Intake and Student Supports.** Academic advising is redesigned to be proactive in supporting students through their college experience. E-advising programs and early warning systems are used to track student progress and provide feedback to the student and advisors to ensure students are staying on track to meet goals. If students are not on track, colleges can easily identify and support those students (Bailey et al., 2015).

**Instruction.** Faculty play an important role in shaping the student experience on campus. The classroom experience helps the student build academic motivation and develop the skills, concepts, and habits necessary to complete an academic program (Bailey et al., 2015). Courses are designed to build upon one another to create the skills and habits needed in the path toward program completion. Instructional support and co-curricular activities will align with classroom learning and build upon career interests (Bailey et al., 2015).

### ***Student Success Practices***

Within the Guided Pathways model, there are a number of student success practices or policies recommended to improve the student experience and lead to increased degree completion. These practices may directly engage students or indirectly focus on the institutional environment to affect student success. Both categories require

institutions to take a close look at barriers to student success by reflecting on practices at the institution.

Direct practices focus on the student experience at the college. Institutions need to examine clearly defined academic pathways with advising and support for at-risk students including early alert systems (Jenkins et al., 2014). Early guided pathway adopter institutions introduced pre-academic program exploration areas for students to try out majors before committing to the pathway (Jenkins et al., 2014). Students were able to explore the expectations of the academic pathway as well as the career options upon graduation (Jenkins et al., 2014). The classroom experience is another area that directly contributes to the student experience. Innovative teaching practices aimed at improving student success along with small class sizes are both examples of student success focused practices (Jenkins, 2011). Finally, the connection between the student academic experience and student support experience is key to increasing student outcomes (Jenkins, 2011). Institutions need to engage in proactive student support services and engage with students, especially first-year students, to create a sense of belonging on campus (Jenkins, 2011).

Indirect practices also need to be examined to increase student success on campus. Of most importance in advancing a student success agenda is strong institutional leadership commitment to student success (Jenkins, 2011). This commitment will then drive the culture on campus and lead to other indirect practices that support student success including committees that are focused on monitoring success, using data to monitor student progress and guide program review improvements, and collaboration across departments to support student success (Jenkins, 2011; Jenkins et al., 2014).

Jenkins and Cho (2014) found that in order for colleges to implement Guided Pathways successfully, institutions need to rethink a variety of practices. Some examples of these practices include how institutions approach professional development for faculty and administrative staff, committee structures, institutional research activities, and budget practices.

### ***National Initiatives***

Across the country, various institutions are implementing the pathways model in different capacities and structures. The American Association of Community Colleges' Reclaiming the American Dream (2012) report provided the foundation and demonstrated the need for change, which included the reasons why the Guided Pathways movement was imperative. The report detailed steps necessary for a college or state system to embrace the Guided Pathways model including addressing the challenges and transitions that were necessary for successful implementation.

Since the Guided Pathways model was introduced in 2015, over 300 community colleges have adopted the framework and committed to large-scale whole institution reform to increase student success (Jenkins et al., 2018). Yet, implementing Guided Pathways into practice can be challenging for some institutions. Many national organizations, already committed to the work of helping community colleges increase completion rates through the College Completion Agenda, support Guided Pathways implementation through a group called the Pathways Collaborative coordinated by the AACC Pathways leadership (Pathways collaborative, n.d.). The organizations include a partnership with the Bill & Melinda Gates Foundation and collaboration with Achieving the Dream, the Aspen Institute, the Association of American Colleges and Universities,

Carnegie Math Pathways, the Center for Community College Student Engagement, the Community College Research Center, Complete College America, Dana Center, Jobs for the Future, the National Center for Inquiry and Improvement, the Office of Community College Research and Leadership, Sova, and the United Negro College Fund. The result is the creation of resources and support aimed at helping colleges design and implement Guided Pathways that lead to scaled programming and increased degree completion (Pathways collaborative, n.d., ). Providing resources and structure will help institutions more quickly develop vision, campus buy-in, capacity building, and financial implications that lead to increased student success (Pathways collaborative, n.d.).

### ***Concerns about Guided Pathways***

The Guided Pathways model requires whole institution reform that leads to a comprehensive and transformational shift in how institutions are approaching students and student success. Yet, how do we know that Guided Pathways is the answer to help solve the completion issues experienced at community colleges? Will this fundamental redesign help ensure more students can achieve their educational goals and earn family-sustaining wages (Johnstone, 2015)? These are some of the questions that leaders at community colleges are grappling with as they think through the college completion agenda problem and understand how to best move forward. The four most pressing areas of concern toward adopting Guided Pathways focus on institutional culture, compromising the values of higher education, issues of control and enrollment, and issues on student learning and development (Johnstone, 2015).

The Guided Pathways model requires a comprehensive cultural and institutional commitment toward student success and inclusion (Hope, 2017). This reform model is

long-term and large-scale institutional change and should not be undertaken by institutions looking for the latest fad in higher education (Hope, 2017). Deep systemic change and institutional investment in robust technologies are needed to support students and their completion goals (Hope, 2017). This widespread, potentially expensive, reform requires buy-in and collaborative engagement from the entire campus (Hope, 2017). Yet one area Guided Pathways as a model does not fully address is the structural features of politics within an institution (Rose, 2016). A college's organizational chart can include varying dynamics of power and status as well as turf protections that can weaken the implementation of the Guided Pathways model (Rose, 2016).

Some skeptics of Guided Pathways are concerned about the traditional values of higher education being compromised where the vast amount of choice in college offerings is seen as the conduit for exploration and self-discovery (Johnstone, 2015). This belief sees the strongest and smartest students rise to the top, while the weaker students do not. To each of these points, Guided Pathways is seen as the answer to advancing student success. Though Guided Pathways is still a newer model, early evidence shows that when colleges put in the effort to change conditions and structures to better support students, the improvements in outcome measures are there as well (Johnstone, 2015). Furthermore, Guided Pathways is designed to actively help students approach their choice of studies in a more direct and focused way rather than passively allowing the students to explore which path they want to take. Colleges are taking a more active role in career exploration and academic advising to ensure students are on the correct path that leads to meaningful opportunities and college completion (Johnstone, 2015) While many faculty like to teach a wide range of elective courses, research shows that offering so

many choices is not good for students (Hope, 2017). Recent research about student perceptions of Guided Pathways indicated that the majority of students show a positive opinion of program maps and education planning (Fink, 2017). However, some students felt stifled by the lack of choices a structured environment provided and felt it was only suitable if you knew exactly what you wanted to study (Fink, 2017).

Another area of concern is the potential for enrollment to decrease with the increase in structural guidelines (Johnstone, 2015). Community college funding is largely driven by tuition; therefore, concerns about decreases in enrollment are warranted (Johnstone, 2015). Advocates of Guided Pathways feel that many of the required structures such as orientation or mandatory advising do not significantly impact enrollment (Johnstone, 2015). Furthermore, these structures will ultimately lead to an increase in student persistence (Johnstone, 2015). With more students staying to complete their degree, more tuition dollars are captured.

The final area of concern includes apprehensions about how Guided Pathways impact student development and student learning. This area focuses mostly on college as a time to develop independence and how the Guided Pathways model might impact that development as students complete postsecondary education and move into careers (Johnstone, 2015). Johnstone (2015) addresses this by demonstrating the overly complex structure of navigating the cafeteria-style, self-service college model. Is this complex structure necessary and does it advance the goals of the students or serve as a barrier? If the conditions serve as a barrier, then how does it also impact equity in student success and student outcomes (Johnstone, 2015)? Colleges should focus on developing a strong curriculum that helps students on their educational path and future career rather than

teaching students how to navigate complex bureaucratic structures (Johnstone, 2015). An early Guided Pathways adopter institution in Florida implemented a tiered advising strategy that supported students in understanding the college process from high schools through college completion. The result was a marked increase in completion rates for all student groups but especially among Hispanic and African American students (Hope, 2017).

The Guided Pathways initiative showed promising results for student completion at early adopter community colleges across the country. However, this transformational, whole-institution reform movement is still new and more research is needed to understand how the Guided Pathways model is applied in practice to increase completion rates and other lagging indicators. Additionally, since completion rates are highly correlated with student progress on EMMs (Jenkins et al., 2017), focused research on college use of EMMs can provide more insights into the guided pathways model as well.

### **Data-Informed Decisions**

Data-informed decisions exist in most industries and are not a new concept in education. The use of a variety of data points can lead to actionable decisions that can inform a scenario and lead to an act of change (Marsh, et al., 2006). Due to national policies such as No Child Left Behind, the K-12 sector has rich information about the use of data to help inform decisions. Given the length of time that data-informed decisions have been in use in the K-12 sector, more research exists on effective and ineffective conditions for understanding the practice of data in that sector (Coburn & Turner, 2012).

In higher education, offices of institutional research have been around for at least fifty years. For most of the offices' existence, the main clients were executive-level

leadership and government compliance (Swing & Ross, 2016). The primary function was to provide data analysis for leaders to gain a sense of institutional health as well as for federal, state, and accreditation compliance reporting. As data-informed decision making in higher education grows, so does the need for institutional research capacity. Stronger data analysis is needed to meet accountability requirements for the federal government and regional accreditation standards including demonstrated evidence of student outcomes and institutional performance (Morest & Jenkins, 2007). However, beyond accountability, there has been a growing need for institutions to build a culture of inquiry, which recognizes the value of evidence on student progression and outcomes to support program review, strategic planning, and resource allocation (Morest & Jenkins, 2007).

A tenet of the Guided Pathways model is to increase data-informed decisions and to make the strongest decisions toward student success. This requires institutions to carefully examine and define metrics to be studied that drive the change toward increased completions. Yet no model or roadmap has been provided to achieve such a change in data-informed decisions. While the traditional suite of federally reported enrollment characteristics and outcome data can be useful in understanding some institutional metrics such as retention rates, often the outcome data, such as graduation rates, look too far into the future to make meaningful decisions. Institutions need to remain proactive and agile to affect change while students are still enrolled.

### ***Integrated Postsecondary Education Data System***

As previously noted, the Higher Education Act of 1965 was reauthorized as amended in 1992 to create the Integrated Postsecondary Education Data System (IPEDS), a federal data collection center (About IPEDS, n.d.). IPEDS is a collection of interrelated

surveys coordinated by the National Center for Education Statistics as part of the US Department of Education. All institutions of higher education that participate in Title IV federal financial aid programs are required to participate in these federally mandated surveys (About IPEDS, n.d.). Data from IPEDS is used to collect basic college information, student demographics, and overall degree completions but also to analyze industry trends for student outcomes including retention rates and graduation rates (About IPEDS, n.d.). Due to the consistency in data collection methods and defined metrics, the data is comparable across all institutions. Government officials, school administrators, foundations, and the general public use the data to make informed decisions regarding institutional effectiveness.

**IPEDS Limitations.** While IPEDS is an established model that is widely used, some limitations should be considered to gain a clearer picture of student success. For student success metrics, the IPEDS model traditionally has only included first-time, full-time students in a cohort (Juszkiewicz, 2017). This cohort is then used for all standard outcomes measures including retention rates, graduation rates, and transfer rates. The cohort model was developed through the lens of four-year institutions as a reasonable way to track traditional students. Students 18-24 years old that attend college on a full-time basis with little distraction to meet that goal are generally characterized as the traditional student (IPEDS Data Center: Survey Components – Graduation Rates, n.d.). Community colleges and other institutions with flexible schedules or extensive online learning tend to have more nontraditional students. These nontraditional students are not captured and reported as part of the institutions' successes.

**IPEDS Student Success Measures.** IPEDS student success measures include retention rates, graduation rates, and transfer-out rates. These metrics are reported for all entering students of an institution as a cohort. Evaluating student success based on the new student cohort is an important first step in identifying a clear starting point for tracking students and evaluating how long it takes them to achieve their goals. This also helps institutions assess if they are meeting the needs of their students. However, by only collecting data on cohorts, there are a large number of students that are not included, such as students that began college elsewhere and transferred to a community college, students enrolled primarily part-time, and adult students with prior college experience, especially at institutions with large nontraditional populations.

Furthermore, the IPEDS model does not consider the student's college readiness. In community colleges, a large number of students, as many as 70%, require developmental education. Developmental education delays the student's degree completion since developmental credits are not typically counted toward academic degree credits. Depending on the amount of remediation required, this delay could be extensive (Committee on Measures of Student Success: A Report to Secretary of Education Arne Duncan, 2011).

**Committee on Measures of Student Success.** The Higher Education Opportunity Act of 2008 proposed a new set of disclosures for all colleges to report in a more transparent way to the students served and prospective students. In response to the Higher Education Opportunity Act disclosures, the Committee on Measures of Student Success was formed to help community colleges meet the graduation rates disclosure requirements (Committee on Measures of Student Success, 2011). The committee was

also granted the latitude to suggest new metrics that better capture the mission and role of two-year community colleges. The committee was comprised of college administrators and policy experts (Committee on Measures of Student Success, 2011).

**IPEDS Recommendations.** After one year of extensive discussion and research, the committee made several recommendations that would help to better evaluate community colleges (Committee on Measures of Student Success, 2011). They proposed expanding the transfer definitions to better capture the community college experience, developing a Federal Student Unit Records system, and providing states and institutions with financial incentives to develop their own comprehensive reporting systems (Committee on Measures of Student Success, 2011).

Part of the mission of community colleges is to prepare students for transfer to a four-year institution. This solid foundation helps students transfer and succeed in their baccalaureate degree. However, not all students go through the process of achieving an associate degree before transferring. Students fall into four major categories of transfer status that should be assessed and evaluated differently than traditional four-year institutions. The Committee recommended four categories of transfer including students who complete an associate degree and transfer, students who transferred prior to completing an associate degree, students substantially transfer ready as well as a definition and threshold for all colleges to report how to measure substantially ready, and students still enrolled (Committee on Measures of Student Success, 2011). By tracking and evaluating the transferability of students, especially if students are enrolled in transfer education programs as opposed to career-oriented programs, we are able to assess better whether we are meeting our mission.

The second recommendation from the Committee on Measures of Student Success was to develop a federally supported and controlled student unit record system to track student progress and success (Committee on Measures of Student Success, 2011). Individual data systems are beneficial in helping understand general information about institutions such as enrollment or financial aid eligibility. A student unit record can help better understand the broader institutional, state, or national trends in college outcomes, including graduation rates and earnings after graduation (Student Unit Record Data System, n.d.). Currently, a provision is added to the Higher Education Opportunity Act of 2008 that prohibits any such data system from being created or expanded upon any existing data structure to include this granular of data (Miller, 2016). Lobbying by colleges who feared privacy issues persuaded Congress to enact the ban (Miller, 2016). The Committee on Measures of Student Success recommended lifting the ban to better serve students and institutions (Committee on Measures of Student Success, 2011). The current version of the Higher Education Act expired at the end of 2013 but was extended while Congress developed changes for a reauthorization (AACRAO Higher Education Act, n.d.). In October 2019, the House of Representatives proposed, within the College Affordability Act, the federal ban on student unit record systems be repealed, and the Department of Education be required to develop a system that evaluates student outcomes (AACRAO Higher Education Act, n.d.). While the measure was expected to move quickly through the House, it was unlikely to gain traction in the Senate (AACRAO Higher Education Act, n.d.). The bill did not receive a vote. Pieces of this bill were incorporated into other bills, but there has been no additional movement on the federal ban on student unit record systems (GovTrack.us., 2021).

The final recommendation by the Committee on Measures of Student Success was to offer states and institutions financial incentives to develop their own comprehensive reporting system in lieu of the above mentioned Higher Education Opportunity Act of 2008 ban on creating a federally maintained student unit reporting system.

In response to the Committee on Measures of Student Success, IPEDS implemented a new module (IPEDS, n.d.) for data collection called the Outcomes Measures survey. The new Outcomes Measures survey evaluates full-time and part-time students as well as non-traditional transfer students. The survey tracks students beyond the 150% and 200% time to complete rate, traditionally seen in the IPEDS Graduation Rate Survey. The new Outcomes Measures survey asks community colleges to evaluate and report outcomes at six years and eight years (Outcomes Measures, n.d.).

Table 1 shows the IPEDS Outcome Measures for the 2008 cohort year at two-year colleges; data is measured at eight years from the cohort start. As mentioned earlier, the national average for IPEDS graduation rates at 150% of normal time is 25.7% (Juszkiewicz, 2017). Table 1 shows that for first-time, full-time, degree-seeking students, 32.8% complete a degree within eight years. This is an indicator that students attending community colleges do continue to persist beyond the prescribed time of the initial IPEDS graduation rates. The IPEDS Outcome Measures survey also shows data for part-time degree-seeking students and non-first-time students who are often transfer students. Table 1 shows that these students as well persist to successfully complete their program of study or successfully transfer to another institution within eight years (Juszkiewicz, 2017).

**Table 1**

*Outcome Measures at Public 2-Year Institutions by Enrollment Status (first term),  
Cohort Year 2008*

Community College IPEDS Outcome Measures	Completed	Still enrolled in starting institution	Enrolled at another institution	Enrollment status unknown
Full-time, first-time	32.8%	2.1%	29.1%	35.9%
Part-time, first-time	17.0%	2.6%	31.7%	48.7%
Full-time, non-first-time	35.6%	1.3%	33.9%	29.2%
Part-time, non-first-time	20.3%	1.6%	42.4%	35.8%

Juskiewicz (2017)

While the addition of the IPEDS Outcome Measures survey is beneficial in providing the public with a broader view of student enrollment patterns and completion successes, it still lacks the whole story. More and varied perspectives of data need to be used to understand the student success experience at community colleges.

***Forward Thinking Data-Informed Decisions***

Due to the limitations of traditional student success measures, a number of organizations and researchers have presented alternative metrics for measuring the success of all students, including nontraditional students. Higher education student success metrics have expanded significantly, with institutions participating in data-informed reform initiatives, including the Student Achievement Measure, Achieving the Dream, Voluntary Framework of Accountability, Completion by Design, Complete College America, and American Association of Community Colleges Pathways Institute (Engle, 2016). Two programs are especially leading the community college sector in

identifying metrics and using data to help inform strategies that more accurately identify the successes of community colleges: Achieving the Dream and the Voluntary Framework of Accountability.

Achieving the Dream engages in whole college transformational change to create a student-focused culture that promotes student success for all students with a focus on achievement for low-income students and students of color (Achieving the Dream, n.d.). The reform is driven by a coaching model called the Institutional Capacity Framework that focuses on seven capacity areas that must be in place, including Leadership and Vision; Data and Technology; Equity; Teaching and Learning; Engagement and Communication; Strategy and Planning; and Policies and Practices (Achieving the Dream, n.d.). One of the core tenets of Achieving the Dream is to promote a culture of inquiry throughout the college (Kerrigan & Jenkins, 2013). Achieving the Dream encourages institutions to examine student progression data and outcomes data to understand student barriers to persistence and to inform improvements to institutional practice that support student success (Kerrigan & Jenkins, 2013). Achieving the Dream began in 2004 and, to date, over 300 colleges in 45 states have joined the network to implement proven student success strategies at scale to improve college completion rates (Achieving the Dream, n.d.). Achieving the Dream also recognizes Leader Colleges, those colleges that have completed at least three years of active network participation and have shown exemplar commitment to ensuring student success by narrowing equity gaps and successfully implementing strategies over time, and Leader College of Distinction. This more rigorous distinction recognizes sustained and proactive reform efforts with even greater student success and equity (Achieving the Dream, n.d.). In 2021, Achieving

the Dream received a \$20 million gift from philanthropist MacKenzie Scott (Achieving the Dream, 2021). This gift allowed ATD to continue to innovate and scale its work. The implications directly impact participating ATD colleges and contribute to equity and completion priorities for community colleges (Achieving the Dream, 2021).

The Voluntary Framework of Accountability (VFA) was designed by community colleges, for community colleges, and provides a comprehensive suite of early indicators and outcome measures that are more appropriate for community colleges. The goal of the VFA was to develop an accountability and improvement framework that encompasses the full breadth of the community college mission and the diverse student body community colleges serve (DRIVING SUCCESS: VFA Summary Report: Leading Indicators of Success and Student Outcomes for Community Colleges, 2019). By providing comprehensive metrics, institutions can strengthen their accountability and drive institutional improvement (Engle, 2016). The VFA defines a cohort differently than the IPEDS cohort definition and tracks student progress including credit thresholds and milestone course achievement, as EMMs in addition to student completion outcomes (DRIVING SUCCESS, 2019).

Charitable foundations are also investing in research on best practices for increasing the number of graduates from higher education institutions utilizing the Guided Pathways framework, including the Bill and Melinda Gates Foundation, the Lumina Foundation, and the Kresge Foundation (Engle, 2016). The metrics used by these initiatives challenge educational institutions to think beyond the suite of surveys available in the IPEDS data collection model. The Guided Pathways model explicitly advocates for the use of EMMs as a stronger measure of student progress and student success.

### ***Early Indicators***

Long-term indicators of community college student success consist of: (a) degree completion; (b) transfers to a four-year institution; and (c) job attainment post-college (Jenkins & Bailey, 2017). Evaluating the impact of newly implemented initiatives and reforms on student success can take several years (Jenkins & Bailey, 2017). Therefore, various early indicators can be used to better inform institutions of student progress, including milestone and momentum metrics. Research shows that meeting specific early indicators in a student's first year increases a student's likelihood to persist to completion (Jenkins & Bailey, 2017; Phillips & Horowitz, 2017). Early indicators can illustrate progress as soon as the student's first semester and are important in helping institutions shape, improve, and adjust reforms so students spend less time off track and more time advancing toward their goals (Jenkins & Bailey, 2017). Early indicators can also help institutions be more agile to student needs so that they can intervene when a student or group of students begin falling behind (Phillips & Horowitz, 2017). Further, keeping students on track saves time and money, as it prevents students from taking excess and unneeded courses (Jenkins, et al., 2018).

At the core of early indicators are EMMs. Individually these indicators provide valuable information for institutions, but collectively these metrics tell a far better story of the impact of policies and practices that shape reform (Jenkins & Bailey, 2017).

**Milestone Metrics.** Milestones are measurable educational achievements that include traditional measures of success such as completion or transfer but also extend beyond and include achievements such as the completion of English as a Second Language program or completion of a developmental education series (Leinbach &

Jenkins, 2008). Milestone metrics examine specific key successes that may be important to the student and play a role in the student's persistence from semester to semester. In community colleges, milestone metrics play an important role in understanding complex student enrollment patterns and student progression (Leinbach & Jenkins, 2008).

**Momentum Metrics.** Momentum metrics are measurable educational attainments that help institutions better understand student completion of milestones (Leinbach & Jenkins, 2008). Momentum points are credit accumulation benchmarks. Adelman (1999) describes momentum as a necessary metric when evaluating traditionally used retention and persistence measures. Credit momentum provides context to the retention and persistence discussion. Without credit momentum as a variable, retention and persistence metrics can be misleading (Adelman, 1999). There is no way for an institution to know if the returning student is making satisfactory progress toward the achievement of a degree without understanding the value of the credits a student has taken.

### **Guided Pathways and EMMs**

Research around Guided Pathways has identified four key EMMs: credit momentum, gateway momentum, program momentum, and persistence. These EMMs are grounded in milestone and momentum metrics. Credit momentum is defined as completing at least fifteen credits the first semester or at least thirty credits the first year (Jenkins & Bailey, 2017; Jenkins, et al., 2018; Phillips & Horowitz, 2017). Research indicates that students who can complete this number of credits are more likely to complete their degrees on time. However, credit momentum does not account for the content of the credit, and therefore may not provide much insight into reform changes (Jenkins & Bailey, 2017).

Gateway momentum is defined as enrolling in and passing college-level math and English in the student's first year (Jenkins & Bailey, 2017; Jenkins, et al., 2018). One aspect of Guided Pathways is reducing the barriers of developmental education (Bailey, et al., 2015), therefore evaluating gateway momentum is a way for institutions to evaluate changes made to their developmental education reforms to support Guided Pathways.

Program momentum is defined as completing at least nine-semester credits in college-level courses focused on a student's field of study in the student's first year (Jenkins & Bailey, 2017; Jenkins, et al., 2018). Evaluating program momentum provides institutions with a stronger understanding of the efficacy of redesigned program maps that support Guided Pathways.

Persistence is the percent of students that return for the second semester (Fink, et al., 2019). This measure is important to understand the number of students who continue on to achieve their goals. This measure is also similar to IPEDS retention rates. Though the cohort is defined differently, the purpose is similar in understanding retention and attrition rates.

Examining each of these EMMs contributes to a stronger understanding of the student experience. These metrics provide institutions with evidence that can support change around Guided Pathways while remaining agile to respond to student needs. Disaggregating the data by demographic and student need begins to illuminate key areas of institutional change around helping close equity attainment gaps (Belfield, et al., 2019). Gaining credit momentum is key to increasing college completion rates (Belfield et al., 2019).

## **Research Gap**

Research shows that early credit momentum and the achievement of gateway courses are correlated with higher rates of student success (Adelman, 1999; Jenkins & Bailey, 2017). Guided Pathways advocates for the tracking of EMMs as a near term indicator of student success initiatives. Community colleges are experiencing a paradigm shift in how they address and support student success. EMMs have been identified as key performance metrics in evaluating the effectiveness of pathways reform, but little is known about how to use these metrics to inform decisions that create conditions to support this institutional change.

## **Theoretical Framework**

In higher education, student retention is one of the most studied topics (Spady, 1971; Tinto, 1975, 1993; Bean, 1980; Pascarella & Terenzini, 1980; Astin, 1984; Bean & Metzner, 1985; Cabrera, et al., 1993). Institutions strive to understand the student experience and why a student may not stay at the institution from semester to semester or ultimately complete a degree. Retention studies focus on a variety of aspects of the student experience but most often focus on the student attributes, placing the challenges a student encounters on the student (Spady, 1971; Tinto, 1975, 1993; Bean, 1980; Pascarella & Terenzini, 1980; Astin, 1984; Bean & Metzner, 1985; Cabrera, et al., 1993). Research also exists on student engagement as an influence in the student success agenda and conditions institutions can create to ensure positive student interactions that lead to increased success (Kuh, et al., 2005). The theoretical framework guiding this study is Tinto and Pusser's (2006) Model for Institutional Action for Student Success. The Model for Institutional Action is a first attempt at synthesizing research ideas from known

retention models into a framework focused on direct actions institutions can take to influence student retention. Institutional practices and institutional environments play a significant role in shaping student success (Tinto & Pusser, 2006). The Model for Institutional Action is aimed at providing institutional leaders with the information they need to frame effective programs and policies that support student persistence (Tinto & Pusser, 2006).

Tinto and Pusser (2006) identify five conditions within an institution that contribute to student success. These conditions are institutional commitment, institutional expectations, support, feedback, and involvement (Tinto & Pusser, 2006). Prior research shows that each of these areas supports student success. This model seeks to determine which institutional and state actions contribute the most to these areas and in turn to student success. This study will focus only on institutional practices and aims to illustrate the role of EMMs in informing changes to institutional policy and institutional practices around student success. This study will use the five conditions identified in this model as a student success lens for institutional change through Guided Pathways.

The first area the Model of Institutional Action examines is institutional commitment (Tinto & Pusser, 2006). Institutional commitment is the value the institution places on advancing a student success agenda. This includes the willingness to invest resources to advance change toward increased student success. Furthermore, this investment in student success must include equitable outcomes for all students, including underrepresented students and low-income students (Tinto & Pusser, 2006). College leaders need a deep commitment to change; without it, most student success programs will fail (Tinto & Pusser, 2006).

Expectation is the second condition for student success. Expectation is focused on the idea that a student will rise to the level of expectation set by the institution and that students do not rise to low expectations (Tinto & Pusser, 2006). The first year of a student's experience in college is critical and too often, colleges are not setting high enough expectations for students or setting different expectations based on different student groups such as developmental education or different genders or ethnicities (Tinto & Pusser, 2006). Students adapt quickly to the expectation set for them, which can, in turn, have long-term negative effects on the student's college experience and ultimately on success (Tinto & Pusser, 2006).

The third condition of student success is support. There are three areas of support including Academic, Social, and Financial. Academic support focuses on the direct connection built with students in the classroom (Tinto & Pusser, 2006). This could be tutoring or study groups, as well as supplemental instruction built directly into a course to provide assistance and academic support to all students. This academic support helps students connect with the college on a deeper level. This is especially true of community colleges where students commute to campus and many attend in the evening. Intentionally creating environments for academic support helps students feel connected to the institution. Social support is also important in building connections for students with the institution. Social support includes counseling, mentoring, or ethnic student centers. These supports can play an important role in helping students feel a sense of belonging on campus (Tinto & Pusser, 2006). Financial support is the third area of importance for support. Financial support, especially for low-income students, has a strong influence on student retention and student support. Research suggests that larger financial aid

amounts, especially grants as opposed to loans, have a positive impact on student persistence (Tinto, 2010). Financial aid can also have an indirect impact on how deeply students can engage in both academic and social supports (Tinto, 2010). Overall, creating an environment based on support is one of the most effective ways to have a direct connection with students (Tinto, 2012b).

Feedback is the fourth condition in the Model of Institutional Action. Feedback is also directly connected with the classroom and the student learning experience. Providing students with frequent feedback about their performance increases their likelihood of achieving their goals (Tinto & Pusser, 2006). This feedback goes beyond entry assessments or testing within a course but instead connects with a variety of assessments that ensure student learning and requires continuous reflection on the faculty and student's parts (Tinto & Pusser, 2006).

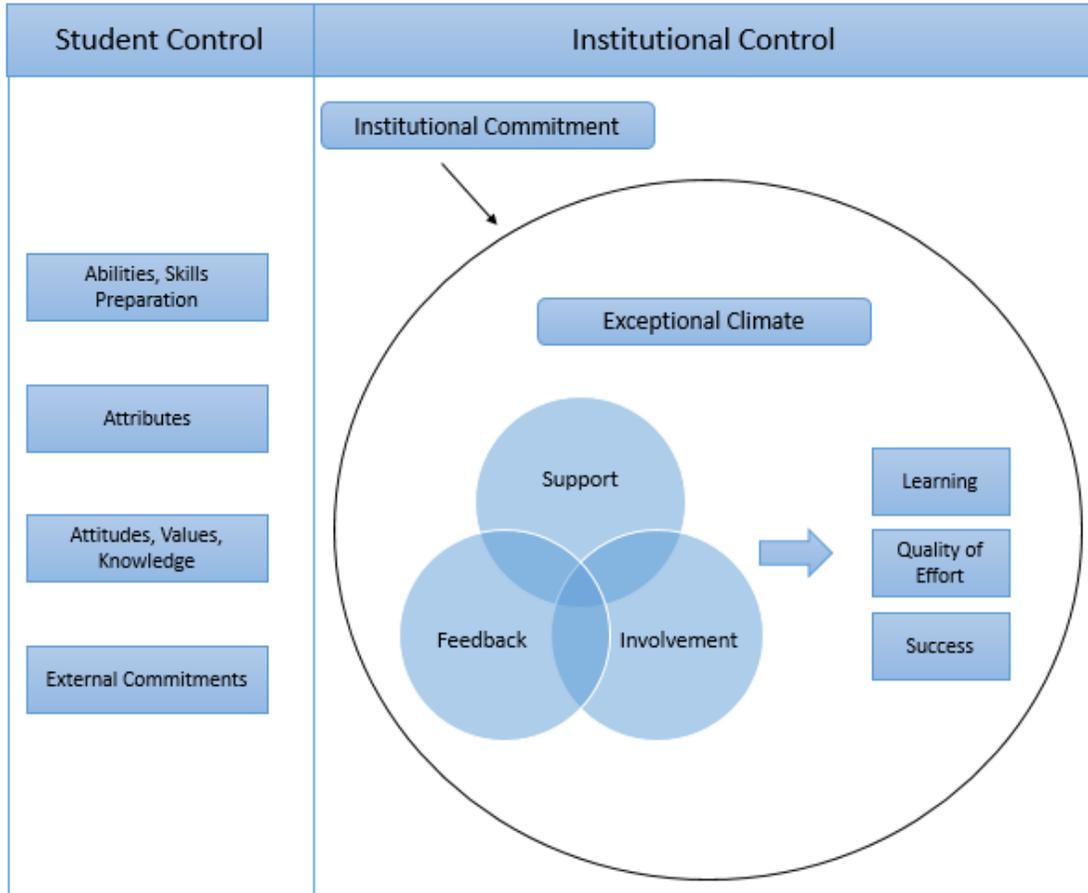
Finally, involvement is identified as the fifth condition for student success (Tinto & Pusser, 2006). Students who are academically and socially involved are more likely to successfully meet their goals (Tinto & Pusser, 2006). This condition requires students to be deeply involved in their classroom experience. This is especially important because the classroom is often the only place that students and faculty meet, creating an environment that promotes learning leads to greater quality of student effort (Tinto & Pusser, 2006). This, in turn, leads to more student interaction on campus outside the classroom. Students with rich interactions and a deep commitment to the college are more likely to persist and be successful (Tinto & Pusser, 2006).

Figure 1 shows the interaction between all conditions that comprise the Model of Institutional Action. The model focuses on conditions within the institution's control. The

items on the left, outside the circle, are student attributes that are outside of the institution's control. These attributes are what the student brings with them to college and are within the student's control. The circle is the all-encompassing institutional sphere of influence and the institution's leadership commitment to a student success agenda. Inside the circle is the exceptional climate described by Tinto and Pusser; this is the culture of the institution and aligns with the expectations for student success by constituents within the college including faculty and staff. The three overlapping circles demonstrate how the conditions of support, feedback, and involvement are deeply connected with student learning (Tinto & Pusser, 2006). When each of these conditions is engaged, student success is then more possible.

**Figure 1**

*Model of Institutional Action*



*Note.* Adapted from Tinto and Pusser, 2006.

The Model for Institutional Action was chosen for its strong influence on student success and the role the college and leadership play in supporting student success. This aligns with the Guided Pathways movement, where institutions engage in deep transformational change to improve student success through college completion, transfer, and labor market alignment. This model focused on specific institutional actions that create an environment that promotes student success. This study aimed to determine how

colleges use EMMs to improve student success. Using the conditions and the actions suggested around key institutional areas as a lens, this study explored how leaders at a Guided Pathways institution use EMMs to understand change management on campus.

In 2012, Tinto published a book entitled *Completing College: Rethinking Institutional Action* (Tinto, 2012b), where he builds upon the work of his original model. He further expands upon descriptions of each of the conditions and provides direct examples of these conditions in action. While the Model for Institutional Action places the primary action on the student learning experience in the classroom, Tinto's book also expands into administrative responsibility. For this study, I used the original Model of Institutional Action but added context and actions from more recent work set forth by Tinto.

### **Summary**

Community colleges are at a pivotal moment in their existence. Traditionally seen as gateway institutions that provided access to the communities they serve, community colleges are now experiencing more pressure to show measures of success and increased completions. More focus is being placed on not just getting students in the door but also ensuring students successfully complete their programs of study or transfer to a four-year institution to advance their careers and improve the overall health of the national economy.

The College Completion Agenda served as the initial foundation for this shift toward increasing student completions. President Obama's Completion Challenge of 2009 aimed to increase the number of community college graduates by fifty percent by 2020 (American Association of Community Colleges, n.d.). The initial impetus for change was

that by 2018 63% of US jobs would require at least some postsecondary education and at the current college completion rates, US employers would be short an estimated 3 million workers (American Association of Community Colleges, n.d.).

The Guided Pathways model emerged as a stronger way to move students through community college to success (completion or transfer). The Guided Pathways model creates an intentional, structured approach for a student that connects their educational experience with their end goals (Bailey, et al., 2015). Colleges are redesigning how students experience their education; institutions are moving away from the cafeteria-style model where students can take whatever courses they want, to a more thoughtful prescribed approach where students take exactly what they need to successfully graduate or transfer (Bailey, et al., 2015). Guided Pathways is a new model, and more research is needed on the efficacy of implementing the reform.

This study will examine how community colleges are using data-informed decisions to improve their policies and practices in ways that have a positive impact on student success. Specifically, this study will examine colleges that have already committed to broad institutional reform by embracing Guided Pathways. The hope is that by examining how institutions are using data to inform their institutional policies and practices, more institutions will have a stronger understanding of how to use EMMs to shape institutional policy and practice around Guided Pathways. Institutions can also draw meaning from the use of EMMs to identify achievement gaps and provide an intervention that supports students in the completion of their studies. Finally, this study seeks to develop best practices for data-informed decisions on campuses as the pathways reform movement evolves to include more institutions.

## **Chapter 3**

### **Methodology**

This chapter provides a description of the qualitative case study research design and methodology as well as a rationale for the use of a qualitative case study. This chapter includes an overview of the problem, research questions with theoretical propositions and rival explanations to focus the study, unit of analysis, site, and participant selection strategy, data collection, data analysis, data quality, and validity. Other information will discuss the role of the researcher, limitations, and ethical considerations.

#### **Statement of the Problem**

The role of the community college is changing as institutions fully immerse into the student success agenda. Currently, there is a lack of meaningful metrics that evaluate community college student success initiatives. Long-term measures are of importance in evaluating student success; however, they can take many years to demonstrate the positive or negative aspects of college reform initiatives (Jenkins & Bailey, 2017). Guided Pathways is a model for advancing the success agenda for community college students and emphasizes the use of data, beyond completion measures, to evaluate institutional effectiveness (Bailey et al., 2015). EMMs provide an opportunity for institutions to remain agile and make early adjustments when assessing their effectiveness at increasing student success (Jenkins & Bailey, 2017). Suggested EMMs to measure Guided Pathways include credit momentum, gateway momentum, program momentum, and persistence. The Guided Pathways model advocates for the tracking of

EMMs, but how can leaders best use these early indicators to adapt to the changing needs on campus?

While research exists on the benefits of measuring early indicators (Adleman, 1999; Philips & Horowitz, 2018), little known research has explored how leaders at community colleges undergoing Guided Pathways use EMMs to guide decision making and policy around student success.

### **Research Questions, Theoretical Propositions, and Rival Explanations**

The following research questions, theoretical propositions, and rival explanations guide this qualitative study.

**RQ1:** How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to improve student success?

**Proposition 1:** College leaders are monitoring key institutional actions that promote student success and through the use of EMMs identifying institutional policies and practices that continue to support and improve student success. (Tinto & Pusser, 2006).

**Rival Explanation:** Data-informed decisions are of less importance; college leaders are moving forward with implementing the principles of Guided Pathways without analyzing institutional data or EMMs.

**Rival Explanation:** Leaders are aware of EMMs but not intentionally using all four collectively as a model to monitor student success and implement changes to institutional practices.

**RQ2:** How do leaders at Guided Pathways institutions use EMMs to help identify barriers to student success?

**Proposition:** EMMs are being used to identify trends and problem areas, giving leaders the ability to identify barriers to student success in a variety of key areas sooner than long-term metrics allow (Bailey, et al., 2015; Tinto & Pusser, 2006).

**Rival Explanation:** Institutional leaders are not monitoring EMMs; they are monitoring other traditional metrics to inform decision-making.

**Rival Explanation:** Institutional leaders are aware of EMMs and review them, but they continue to monitor traditional IPEDS measures when it comes to decision-making and barriers to student success.

**RQ3:** How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to close achievement gaps among different student groups?

**Proposition:** College leaders are disaggregating EMMs by demographics to better understand the institutional setting and evaluating conditions leading to student success and equity in outcomes (Bailey, et al., 2015; Tinto & Pusser, 2006).

**Rival Explanation:** Guided Pathways leaders are not disaggregating EMMs to identify achievement gaps; the changes to institutional setting and conditions for student success address the overall institution only with hopes that the changes carry forward for all groups.

## **Rationale for Qualitative Research**

The Guided Pathways model advocated for the tracking of momentum points as key performance indicators for the planning, implementation, and evaluation of Guided Pathways. Quantitative research dominates the literature on the use of early indicators, including propensity score matching (Attwell & Monaghan, 2016; Belfield, et al., 2019), growth curve modeling (Attwell, et al., 2012), and descriptive statistics aimed at illustrating the impact of credit momentum on student success (Davidson & Blankenship, 2017; Calcagno, et al., 2007). There is a clear lack of qualitative knowledge to contextualize and provide a deeper understanding of how the data works in practice and to help make sense of ambiguous findings that arise from quantitative research (Bahr, 2013). Further, much of the qualitative and mixed methods research on the Guided Pathways has stemmed from the singular focus of the Community College Research Center (CCRC), where the authors of Guided Pathways reside. A recent research brief, from the CCRC, defined and explained the importance of the use of EMMs in practice. Areas for further research suggested a need to evaluate strategies for how these EMMs can help shape changing practices and culture on campus (Jenkins & Bailey, 2017). Additionally, mixed-method research by CCRC has more recently been used with a state system to evaluate effective practices for implementing Guided Pathways. This study engaged in interviews with college leaders regarding reform changes but also evaluated student unit record transcripts to determine changes in early indicators (Jenkins, et al., 2018).

Case study research is important because it provides in-depth analysis and understanding through an empirical investigation that uses multiple data sources to

examine a contemporary phenomenon (Yin, 2018). Qualitative research focuses on asking questions and getting answers to those questions in a real-world context (Rossman & Rallis, 2012). The purpose of qualitative research is to learn from the participant's perspective about some aspect of the social world (Rossman & Rallis, 2012). To date, no known research has focused explicitly on how leaders on campuses implementing Guided Pathways are using EMMs as a guidepost for policy and practice changes necessary on campus.

### **Strategy of Inquiry**

The strategy of inquiry I used for this research was a multiple case study with a guiding methodological approach established by Yin (2018). Case study research is appropriate when you want to answer *how* and *why* questions about a phenomenon being studied and need the context of the setting to understand the problem (Yin, 2018) fully. Case studies provide an in-depth understanding of the problem in a real-world context (Yin, 2018) and explore the complexities and particularities of a case (Stake, 1995). This case study asked *how* community college leaders use data to inform change in Guided Pathways.

I utilized a holistic multiple case study design. A multiple case study is considered a stronger research design than a single case study because the results are more compelling and allow the researcher to make comparisons across findings between multiple cases (Yin, 2018). For this research, a multiple case study design allowed me to understand how two institutions, under differing Guided Pathways conditions, approach the use of data to inform policy or practice change.

Defining the unit of analysis is essential for qualitative research to understand the heart and bounded context of the study (Miles, et al., 2014). This study's units of analysis are leaders at two Guided Pathways institutions. Further, clearly defined research questions, propositions, and rival explanations were essential in carrying out a case study design as they bound and focused the research (Yin, 2018). Since the purpose of this research was to better understand how data was being used in practice to inform decision-making for leaders through the lens of increasing student success, a case study was the best choice as my strategy of inquiry. Case study research allowed me the flexibility to collect data through a variety of sources including interviews, documents, and field note observations (Rossman & Rallis, 2012) that helped me examine a clearer picture of the phenomenon being studied.

### **Setting**

The Guided Pathways model has spread across the country with over 300 community colleges participating in this paradigm change management shift toward student success and increased degree production (Jenkins, et al., 2018). Community colleges are engaged in Guided Pathways in a variety of ways ranging from intense programmatic support in a collaborative group setting to state consortium support through Student Success Centers to decentralized individual college implementation (Jenkins, et al., 2018). All follow the same guiding principles of the Guided Pathways model that encouraged institutions to map pathways for all programs, help students choose and enter a pathway, stay on the pathway, and ensure student learning (Bailey, et al., 2015). The setting for this study was two Guided Pathways institutions.

## **AACC Pathways**

The American Association of Community Colleges (AACC), with support from the Bill and Melinda Gates Foundation, has been committed to increasing the capacity for community colleges to develop academic and career pathways. These pathways lead students toward increased college completion rates with high-quality degrees that align with labor market value. Particular attention was paid to low-income students and students of color to help ensure equity in outcomes (AACC Pathways Project, n.d.). The AACC Pathways Project and its national partners focused on supporting community colleges in the development and implementation of Guided Pathways. The AACC Pathways Project was initially developed in 2015 with a cohort of thirty institutions that were selected due to their established commitment to student success (AACC Pathways Project, n.d.). The AACC Pathways model provided these institutions with expertise in coaching and guidance in designing and implementing Guided Pathways at scale.

As Guided Pathways research and practice evolved, and in response to an expressed need, in 2017, AACC implemented a new cohort called Pathways 2.0 (AACC Pathways Project, n.d.). This second cohort was established through a competitive application process, which included a full fee-for-service model over three years, with coaching and required Institutes for college teams of five individuals (AACC Pathways Project, n.d.). Participating institutions were expected to have a strong commitment to transformational change at scale to improve completion rates including equity in student outcomes (AACC Pathways Project, n.d.). AACC Pathways teams were also expected to utilize a model developed by the Community College Research Center (CCRC) that established and monitored institutional EMMs (AACC Pathways Project, n.d.).

## **Jobs for the Future: Student Success Centers**

At the same time, statewide Student Success Centers were also developed as a way to provide community colleges with support and resources for implementing Guided Pathways. Jobs for the Future, a nonprofit organization focused on building economic and educational opportunities for underserved populations, led a nationwide network of fifteen state-level Student Success Centers. The Centers focused on providing colleges with proven, evidence-based practices that support the achievement of state completion goals (Clawson, et al., n.d.). Centers serve as a resource for community colleges across a state, offering a network of best practices that help implement strategic reform, at scale, to improve the college student experience (New York Student Success Center, n.d.) and help more students earn credentials that lead to good jobs (Clawson, et al., n.d.).

The fifteen state-based Student Success Centers worked with community college leaders across the state and with Jobs for the Future to create effective programming to meet the needs of the colleges within the state. The state examined in this study has designed a cohort model to support Guided Pathways implementation. Ten colleges were selected as part of Cohort 1 (New York Student Success Center, n.d.). The colleges attended six two-day Institutes over a fifteen-month period of time between 2018 and 2019. The Institute series provided a framework that focused on key areas that support transformational change across campus (New York Student Success Center, n.d.).

### **Case Selection**

Following the principle of replication logic, the institutions selected for this study were chosen using theoretical replication to predict contrasting results for anticipated reasons (Yin, 2018). In order to receive rich information about the phenomenon, several

criteria were used to determine case selection. Both institutions have a history of participation in Achieving the Dream (ATD), which utilized data-informed decision-making as a core tenet; this may have influenced the culture of the institution toward data-informed decision-making (Achieving the Dream, n.d.). Both institutions have participated in the Voluntary Framework of Accountability (VFA), which offers community colleges a more comprehensive suite of metrics to examine institutional accountability. The VFA examines progress measures as early indicators and completion rates as a lagging indicator (DRIVING SUCCESS, 2019). Both institutions are also part of the same statewide Student Success Center through Jobs for the Future, and both institutions participated in the same cohort implementing Guided Pathways with support from the statewide Student Success Center. Finally, one of the colleges participated as an AACC Pathways 2.0 cohort institution; the college is received guidance from an AACC data coach and attended AACC Pathways 2.0 Institutes that support the implementation of Guided Pathways on campus. These criteria together created a strong argument for the implementation of Guided Pathways at scale and increased the likelihood of data-informed decision-making across the institution and Guided Pathways. Yet the institution that received additional coaching and resources as an AACC Pathways 2.0 cohort institution is likely to see stronger, more concrete results and scaled programming.

Site institution A's current credit enrollment was approximately 6,500. This was a predominantly white institution with 26% of the students identifying from underrepresented groups with African-American and Hispanic being the second and third largest groups at 8% and 7% respectively of the total credit enrollment (NCES College Navigator, n.d.). The institution was committed to equity and inclusion. The current

overall IPEDS graduation rate for the first-time, full-time cohort was 30%, however, there were attainment gaps among student populations. Specifically, the IPEDS graduation rate for White students was 35%, where the African American student IPEDS graduation rate was 16% and the Hispanic student IPEDS graduation rate was 18% (NCES College Navigator, n.d.).

Site institution B's current credit enrollment was approximately 11,000 students. The racial and ethnic makeup of the institution was more diverse, with 70% of the students identifying from underrepresented groups, with Hispanics being the largest population at 35% and African Americans the second-largest underrepresented group at 22%. The institution was designated an Hispanic Serving Institution (HSI) and had a strong commitment to equity and inclusion. The current overall IPEDS graduation rate for the first-time, full-time cohort was 18%, however, there were attainment gaps among student populations. Specifically, the IPEDS graduation rate for White students was 22%, where the African American student IPEDS graduation rate was 15% and the Hispanic student IPEDS graduation rate was 16% (NCES College Navigator, n.d.).

### **Participants**

The focus of this study was how leaders used EMMs to evaluate institutional policies and practices for Guided Pathways. Seven leaders at two institutions implementing Guided Pathways were recruited. Study participants were selected based on their level of experience and exposure to Guided Pathways implementation. In order to capture a full leadership perspective, participants ranged from the executive level to middle management leaders from both the administrative and academic units.

Specifically, I included the chief academic affairs officer, academic deans, enrollment management leader, and Guided Pathways committee leaders.

### ***Sampling Strategy***

Purposeful intensity sampling (Patton, 2002) was used as a way to view the variation among typical community college leaders and snowball sampling (Patton, 2002) was used to recruit additional study participants based on the recommendation of an existing interviewee. All participants were chosen based on the individual's role in leadership at the institution and experience with Guided Pathways for community colleges. Purposeful intensity sampling provided excellent, information-rich examples of the case without being extreme or highly unusual (Patton, 2002). This strategy was appropriate for this study because I was trying to identify key uses of data to inform practice around Guided Pathways. The participants were closely involved in reform at the institution and were able to provide rich detail about their institution's change management and the use of data to guide change. I also utilized snowball sampling, a strategy where research participants might recommend other individuals to participate and add value to the study (Patton, 2002). Snowball sampling (Patton, 2002) helped ensure I am not inadvertently missing an interview with a key stakeholder and helped ensure saturation of material that led to data satisfaction.

### **Data Collection**

#### ***Case Study Protocol***

In following a Yin (2018) case study methodology, one of the most critically important aspects was the development of a case study protocol. A case study protocol helped the researcher ensure they have sources including interviews, documents, or

observations that addressed the problem and answer the research questions of the study (Yin, 2018). The development of a crosswalk illustrating how each research question and source was used is an important data collection tool in keeping the researcher on track (Yin, 2018). A well-designed protocol can also be an effective way to deal with increasing the reliability of case studies (Yin, 2018).

### ***Interviews***

Interviews are an important data collection tool for a case study research as they are the conversations that lead to the how's and why's in explaining the human actions of the phenomenon of the study (Yin, 2018). In this study, interviews provided richer, more meaningful information about the experience each participant had in the implementation of Guided Pathways and the use of data, specifically EMMs, in shaping change on two community college campuses.

I utilized a semi-structured approach to the interview questions using Tinto and Pusser's (2006) Model of Institutional Action for Student Success as a guide for thematic interview questions, see Appendix A. The semi-structured interview approach was appropriate as it led to more of a guided conversation with well-designed questions that followed my line of inquiry in an unbiased manner (Rubin & Rubin, 2005). Semi-structured interviews were appropriate because I designed the main questions and probes to ensure I was reaching a clear understanding of my participants' knowledge of the topic (Rubin & Rubin, 2005). All interviews were scheduled virtually, via Zoom, and lasted approximately 45-60 minutes. The interviews were audio-recorded, with participant permission, and transcribed verbatim for data analysis.

Yin (2018) considers the development of the interview the heart of the protocol. The interview protocol involves guiding questions that keep the data collection on track and serves as the line of inquiry for the researcher. My interview protocol aligned with Yin's (2018) five levels of questions. Level one was the actual questions verbalized to interviewees, or my verbal line of inquiry (Yin, 2018), whereas level two were the overall themes that guided my questions to study participants (Yin, 2018). Level two questions represented my mental line of inquiry to address the case specifically (Yin, 2018). The data collection procedures ensured that the evidence collected, at each site, through interviews, focused on the participant's experience within that institution, the case being studied (Yin, 2018). The remaining three levels of questions were evaluated after the data collection of the two sites. Since I studied leaders at two institutions, these three remaining levels were important for cross-case analysis (Yin, 2018). Level three questions evaluated the patterns across the two sites. Level four considered the overall study including emerging literature that contributed to the understanding of the findings from both sites. Level five questions focused on the normative questions involving policy recommendations beyond the scope of this study (Yin, 2018).

### ***Documents***

Documents were an important part of data collection as they help substantiate evidence from other sources such as interviews and observations (Yin, 2018). It was essential to have a thorough understanding of the institution's perspective on approaching Guided Pathways including the mission, goals, and values to ensure alignment between perceived versus actual practices. To that end, I reviewed internal and external documents including the college website pages related to policies and procedures, strategic plan,

Guided Pathways meeting minutes, as well as Voluntary Framework of Accountability reports. Collectively these documents were valuable in telling the story of the institution and data use for Guided Pathways. Yin (2018) notes that a criticism of case study research in the modern technological age, where lots of documentation is easily available, is the overreliance of documents. Yin (2018) stresses the importance of understanding that the documents were written for a variety of audiences other than the present case study. It is important to continually strive to identify the original objective of the documents so as not to be misled by the documentation (Yin, 2018). Researchers must be cautious not to use a document in ways that are inconsistent with the original objective of the document.

### ***Field Notes***

Observational field notes are a way to see the phenomenon being studied in a real-world context (Rossman & Rallis, 2012). Field notes are also used as a way to help support an argument toward findings and conclusions drawn from my study. This is important because all knowledge claims need to be supported by data (Rossman & Rallis, 2012). Observational field notes described the setting, activities, people, and their interactions as well as comments about unexpected difficulties or surprises encountered in the field (Rossman & Rallis, 2012). The purpose of this data collection method was to intentionally observe the environment and take notes before, during, or after the interviews to provide a complete view of the case being studied and to corroborate findings from the study. Observations of body language or facial expressions during face-to-face interviews were recorded to add context to the overall tone and impression of the interview.

Table 2 shows the alignment of research questions, theoretical propositions, interview protocol questions, and document collection. The full interview protocol can be found in Appendix A.

**Table 2***Research Questions, Theory, Data Collection, Analysis Matrix*

Research Questions	Theory	Interview Questions	Document Review
Background		1, 2, 3	
RQ1: How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to improve student success?  Proposition 1: College leaders are monitoring key institutional actions that promote student success and through the use of EMMs identifying institutional practices that continue to support and improve student success.	Institutional Commitment, Support (Academic), Feedback	5, 6, 7, 8, 9, 13, 15	Strategic Plan Institution Goals VFA Reports Policy Manual Procedures Manual Institution webpages
RQ2: How do leaders at Guided Pathways institutions use EMMs to help identify barriers to student success?  Proposition 2: EMMs are being used to identify trends and problem areas, this gives institutions the ability to identify barriers to student success in a variety of key areas sooner than long term metrics allow.	Institutional Expectation, Support (Academic and Financial)	4, 10, 11, 12, 14	Strategic Plan, Advising Manual Shared Gov. Minutes Institution webpages
RQ3: How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to close achievement gaps among different student groups?  Proposition 3: College leaders are disaggregating EMMs by characteristic to better understand institutional setting and conditions leading to student success and equity in outcomes.	Support (Academic and Social), Involvement	16, 17, 18	Strategic Plan VFA Reports Policy Manual Procedure Manual Institution webpages

Yin (2018) recommends the use of a case study database as a way to organize and document observational field notes. This provides a clear system for collecting and analyzing the data from this study in a retrievable form (Yin, 2018). Creating a case study database also increases the reliability of the study since categorizing the notes can then be subject to secondary analysis by other researchers who can systematically review and replicate findings (Yin, 2018).

### ***Pilot Study***

Before entering the field, Yin (2018) encourages the use of a pilot study to test protocols for both content and procedures. The pilot can be useful in ensuring interview questions are clear and relevant; engaging in a pilot may also further clarify the research design (Yin, 2018). Commonly cited as the main criteria for a pilot case site selection, I used convenience and access (Yin, 2018) as my determining factors to test my interview protocol. I selected an institution that is local to me and involved with Guided Pathways but not currently part of the AACC Pathways 2.0 project or a state Student Success Center Guided Pathways cohort. I followed my participant sampling strategy to speak with key leaders beginning with the Chief Academic Affairs officer. I tested my interview protocol and based on responses and feedback, adjusted the protocol to ensure alignment with research questions.

### **Data Analysis**

My general strategy of analysis relied on theoretical propositions and examining plausible rival explanations as well as a cross-case analysis technique (Yin, 2018). Theoretical propositions and rival explanations were developed as part of the original case study design. Each stems from a review of the literature and points to relevant

contextual conditions derived from the study's theoretical framework (Yin, 2018). This case study employed rigorous data collection procedures, where I pursued reasons to reject my rival explanations and support my propositions (Yin, 2018).

Given that this research examined a comparison of two case studies, cross-case analysis procedures were also employed as part of the data analysis. Using a case-based approach, each case was holistically analyzed to best understand the phenomenon in its real-world context (Yin, 2018). Then I compared any within-case patterns from the two cases across both cases (Yin, 2018).

Qualitative research encourages data analysis to begin with the first interview to ensure the project makes sense and the data collected answers the intended research questions (Rubin & Rubin, 2005). Yin (2018) suggests "playing" with early collected data to search for patterns, insights, or concepts that seem promising. Ideas may emerge when you view the data from different perspectives, reflect on different themes, and look at the data from different angles (Yin, 2018; Rubin & Rubin, 2005). This assists in creating meaning from the very first impressions and allows the researcher to remain agile to explore different ideas as they emerge (Yin, 2018). Coding the collected data helps structure the evidence of analytic thinking (Rossman & Rallis, 2012). Coding is a technique used to capture and categorize data by applying short words or phrases that capture the essence of what is occurring in the collected evidence (Rossman & Rallis, 2012). I used this approach as my first data analysis step with the hope that I could develop a preliminary early list of codes for data analysis.

Rev.com was used for transcription services. Dedoose, qualitative data analysis software (QDAS), was used for data analysis assistance. Dedoose is valuable in helping

researchers code and to categorize large volumes of data; however, the resulting output still requires the researcher to develop rich and full explanations of the results (Jackson & Bazeley, 2019). Coding is described by Rubin and Rubin (2005) as systematic labeling of the collected data for concepts, themes, and events. Coding provided the organization of collected data into a meaningful structure for data analysis (Rubin & Rubin, 2005; Saldana, 2016). Theming was utilized to look across interview transcripts, documents, and field observations to identify codes that can be grouped into meaningful findings (Saldana, 2016). Careful thought was given to the codes selected, as the results largely shaped the findings of the study (Rubin & Rubin, 2005). Coding was viewed through the lens of the study's propositions and rival explanations. I entered codes identified from interview transcripts, document collection, and field observations into Dedoose. Dedoose was used to help manage the data across all data sources, manage ideas including emerging themes, query the data to glean answers to complex questions, and report on the data (Jackson & Bazeley, 2019). I engaged in two major stages of better understanding my collected data, first cycle and second cycle coding (Saldana, 2016).

### ***First Cycle Coding***

First cycle coding provided the researcher with the opportunity to chunk the data by code into manageable pieces; second cycle coding was then be used to reorganize and categorize emerging concepts (Saldana, 2016). During first-cycle coding, I utilized *process coding*. Process coding uses gerunds to connote action around the dynamics of time and can be helpful for understanding change or implementation sequence (Miles et al., 2014). Because this research focuses on institutional action, process codes were useful in understanding change.

### ***Second Cycle Coding***

Drawing upon the codes from first cycle coding, I then utilized pattern coding to organize and analyze the data into more meaningful grouped themes. Pattern coding viewed emerging patterns through the lens of my propositions (Yin, 2018). Pattern coding took a closer look at the causes and potential relationships within the data and began to examine the major themes. This was also a useful way to condense large amounts of data into smaller analytic pieces (Saldana, 2016).

### ***Qualitative Codebook***

Developing an analytic codebook was essential to keeping my emergent codes organized (Saldana, 2016). I created a codebook using a table format with headings that identified the chosen code, defined the code, inclusion/exclusion criteria, and a quote from the interview transcripts that illustrated an example of the code in action. These parameters were useful in helping me delineate between codes and ensured I was consistently using them throughout the analysis of my interview transcripts, document analysis, and observational field notes. The codebook also provided a systematic and orderly way to build themes from first to second cycle coding

### ***Research Design Quality***

In carrying out a case study research design, it is essential to ensure that the research represents a logical set of statements since the quality of any empirical research design is evaluated according to certain logical tests (Yin, 2018). Logical tests, including construct validity, internal validity, external validity, and reliability, are common across all social science research methods and are applicable to case study research (Yin, 2018). Throughout my research, I engaged in various techniques recommended to increase my

research design's data quality and validity. Researchers that engage in these strategies increase the accuracy and reliability of their findings.

### ***Construct Validity***

Construct validity is how the case study's measures reflect the concepts being studied (Yin, 2018). For my study, I used multiple sources of evidence to triangulate my findings. By doing so, I developed converging lines of inquiry where each of the sources can corroborate across the different sources to generate findings for the study (Yin, 2018). Doing so assessed the strength and credibility of the case study findings (Yin, 2018). Furthermore, by connecting each data source back to the research questions, theoretical propositions, and rival explanations, I developed a chain of evidence that shows tight links between my data collection and findings (Yin, 2018).

### ***Internal Validity***

One of the strengths of a case study is to answer *how* and *why* questions about a phenomenon being studied (Yin, 2018). Internal validity focuses on the answers to the how and why questions and causal inferences in the findings. In this study, I used pattern matching and addressed rival hypotheses as analytic techniques described by Yin (2018) as a way to address internal validity. The study is strengthened by the rejection of the rival hypotheses (Yin, 2018).

### ***External Validity***

External validity focuses on how the study can be analytically generalized to other situations, not part of the original study (Yin, 2018). In this comparative case study, I used theoretical propositions from my research design to increase external validity through analytic generalization. This was achieved by corroborating, modifying,

rejecting, or otherwise advancing the theoretical propositions initially developed in my research design or by addressing new concepts that arose as part of the completion of the study (Yin, 2018).

The theoretical propositions of my study were developed using the literature and theoretical framework that guided my conceptual framework. The theoretical framework is Tinto and Pusser's (2006) Model for Institutional Action, which examines key practices and policies for institutions to consider when driving student success initiatives. This study's theoretical propositions and rival explanations focused on connecting the identified institutional actions with Guided Pathways implementation through the lens of institutional leadership. The results of this study aim to contribute theory to the use of EMMs in Guided Pathways at a higher generalization level than the specific case studied in this research (Yin, 2018).

### ***Reliability***

Reliability focuses on the consistency and repeatability of producing the case study findings (Yin, 2018). Yin (2018) recommended the use of a case study protocol and a case study database as design procedures to be set in place to increase reliability so other researchers could conduct a similar study. For this study, I utilized both of these validity procedures to increase the reliability of the study. A case study protocol is essentially a blueprint outlining the four major sections of the case study with clear procedures for the overview of the study, data collection procedures, protocol questions, and a tentative case study report. The protocol is of great use to the researcher in designing a case study research design as it forces you to stay focused on the designed plan and to anticipate potential problems ahead of time (Yin, 2018). The case study

database is another design tool used to increase reliability. The database was used to track and analyze observational field notes and analytic memos from the researcher while in the field. By including a systematic approach to collecting and analyzing my researcher notes, other researchers would be able to glean a stronger understanding of the impressions I encountered in the field (Yin, 2018).

### **Role of the Researcher**

In my professional life, I am a chief Institutional Research officer at a community college where my work focuses on campus-wide data-informed decision-making. This includes ethics and integrity in data use on campus, as well as methods implored to appropriately protect students and college data on campus from both the internal and external perspectives. I also serve as the Institutional Review Board chair for my college and I have completed the Collaborative Institutional Training Initiative (CITI) for Human Subject Research. I am aware of appropriate ways to ensure that academic research protects study participants.

My institution is also engaged in Guided Pathways, however, not through the AACC Pathways 2.0 support network or JFF Student Success Centers and my institution is located in a different state, New Jersey. I have served on the Guided Pathways core team at my school since year one; my institution is now in year five. Redesigning America's Community Colleges (Bailey, et al., 2015) is the seminal work outlining Guided Pathways and includes suggestions for how to approach change on campus through data and other evaluative tools. I have seen firsthand the need for more direct examples of Guided Pathways implementation in practice to help institutions move from concept to implementation. As the data leader on our Guided Pathways team, I can

provide the data but moving from data to change is more of a challenge. Community colleges need more research to help shape what the redesign might look like when applied to the operations of a college, where leadership, politics, and unions influence change management.

In qualitative research, the researcher interacts directly with participants in a face-to-face environment that can include complex and varied interactions (Rossman & Rallis, 2012). It is the role of the researcher to make interpretations of various interactions and collect data as seen through the unique lens of the researcher (Rossman & Rallis, 2012). I am aware of my assumptions, beliefs, and biases toward the topic of this study, as influenced by my work in community colleges, and I practiced reflexivity as a way to reduce my bias toward the research. Reflexivity is the practice of self-awareness and reflection throughout the research process to reduce researcher bias in the development of data collection protocols, data analysis, and identifying findings (Patton, 2002). Reflexivity reminds the researcher to be aware of social, political, and cultural perspectives that may differ from their own and may influence the research study (Patton, 2002). As a final way of reducing bias within my study, while still in the data collection phase, I plan on sharing preliminary findings with critical colleagues to test my tolerance for contrary findings by providing potential alternative explanations (Yin, 2018). This practice will ensure that I can set my bias and preconceived notions aside and allow the data to reveal what is occurring in the field.

### **Limitations**

Guided Pathways is a new reform initiative with emerging research around successes and failures of implementation at scale. This study examined two institutions

with differing approaches to implementing the Guided Pathways. Institution A participated in the AACC Pathways 2.0 initiatives, a highly supported cohort model that officially kicked off in 2017. The initiative was designed to support Guided Pathways implementation for Pathways 2.0 institutions through coaching, in-person training, and webinars until 2019. Institution B is not receiving that level of individualized support. Both institutions are associated with the same state-level Student Success Center and participate as part of the statewide Guided Pathways cohort 1. The state-level Student Success Center is offering Institutes over a fifteen-month period of time ending in June 2019. Given these parameters, the institutions are likely at differing stages of implementation, and therefore, results of data-informed decision-making are still emerging.

### **Ethical Considerations**

Guided Pathways is still a new initiative for student success reform. It is also comprehensive, impacting most aspects of the entire institution, and can be costly since many of the suggested changes require a substantial upfront cost to colleges (Bailey, et al., 2015). An area for ethical consideration is the need for institutions that have invested in this massive overhaul to show the successful implementation of Guided Pathways. The College Completion Agenda has put pressure on community colleges to increase student success and degree production; Guided Pathways has emerged as a way to help support that change. As colleges move toward Guided Pathways and as federal and state governments invest more into community colleges, this pressure to perform could lead to ethical dilemmas for community colleges.

In qualitative research, where the researcher enters the field and has direct interaction with participants, understanding the role ethics plays in carrying out the proposed research procedures is essential. Before beginning this study, I completed the Collaborative Institutional Training Initiative (CITI) training for researchers, which focused on the necessary protocols for protecting human subject research. Before entering the field, I will apply for Institutional Review Board (IRB) approval from Rowan University and my site institutions. Each participant in the study will be required to verbally confirm informed consent ensuring confidentiality and explaining the minimal risks involved in participating in this study. Participants will also be informed that they can voluntarily ask to be removed from the study at any time with no risk. Once the data collection begins, I will use pseudonyms to protect the identity of each participant for both the interview and field notes. All data will be labeled by a pseudonym and stored on a Rowan University electronic share drive for the requisite 5-years. Once the dissertation manuscript is complete, the study, including pseudonym referenced analysis, will be published on ProQuest through Rowan University.

### **Summary**

This chapter began by addressing the research problem and exploring the literature that indicated existing gaps for qualitative research around the student success agenda and data-informed decision-making. Then I explored the need for stronger evidence around how to use EMMs to take Guided Pathways decision-making from theory to implementation. This is needed because Guided Pathways is still in the very early stages of implementing at scale. This study will add value to the field by helping

community college leaders better understand how two early adopter institutions used data to inform decisions around policy and practice to implement Guided Pathways at scale.

This chapter described the methodological approach I used to capture the evidence from multiple sources needed to answer the research questions in this case study. Following the rigorous procedures described by Yin (2018), this case study design will allow me the opportunity to study my propositions and reject or explore my rival explanations. This chapter then addressed how I plan to approach data analysis including the use of my analytic strategy and coding techniques. Systematic protocols and the use of a variety of logic tests ensure rigor in this study (Yin, 2018). I also explored my role as the researcher, limitations of the study, and ethical considerations.

## **Chapter 4**

### **Findings**

The purpose of this multiple case study was to understand how leaders from two community colleges participated in the Guided Pathways initiative and used data to inform policy and practice changes for student success. Specifically, this study focused on how the institutional leaders used EMMs as progress measures to evaluate the implementation of the Guided Pathways initiative. The data collection consisted of interviews, institutional document analyses, and a researcher journal. The study had the following guiding research questions:

- 1: How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to improve student success?
- 2: How do leaders at Guided Pathways institutions use EMMs to help identify barriers to student success?
- 3: How do leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to close achievement gaps among different student groups?

This chapter presents an overview of the findings of the study. This multiple case study focused on two colleges. Analysis of each college occurred separately and included the setting, participants, documents, and the emergent themes and subthemes. A cross-

case analysis was done to explore all the data collected and address the themes that emerged from the two institutions.

### **Community College Institution A**

Institution A was a mid-sized community college with an enrollment of approximately 6,500 credit students. The college was a predominantly White institution, with 26% of the students identifying as underrepresented groups. Blacks and Hispanics were the second- and third-largest groups served among the total credit enrollment. The leaders at Institution A began implementing the Guided Pathways initiative in 2017. The institution's leaders also participated in the AACC Pathways Project, a selective cohort-based project with a strong commitment to transformational change at scale for improved completion rates and equity in student outcomes. The means of achieving these goals are coaching and required institutes for college teams. The AACC Pathways Project includes EMMs in the Guided Pathways framework.

The location of Institution A is a state with one of the Jobs for the Future Statewide Student Success Centers. The institution's leaders participated in an organized Guided Pathways consortium. In addition, the institution had a history of participation in Achieving the Dream (ATD), a model for a culture of data-informed decision-making. The institution regularly submits data as part of the Voluntary Framework of Accountability, which provides community colleges with a comprehensive suite of metrics for institutional accountability that includes EMMs as progress measures. Four leaders engaged in the interviews: two vice presidents, one assistant vice president, and a

faculty leader with the Guided Pathways initiative. Table 3 shows the characteristics of the interview participants.

**Table 3**

*Institution A Interviewee Characteristics Profile (n = 4)*

Alias	Leadership level	Area of focus	Years of career experience
Sean	Vice President	Academic Affairs	10–20 years
Maureen	Vice President	Student Affairs	10–20 years
Rich	Assistant Vice President	Academic Affairs	20+ years
Eleanor	Faculty Leader	Guided Pathways	5–10 years

***Sean***

Sean was the Vice President of Academic Affairs. Although he had worked in this role for 2 years, he had been at the institution for 16 years, primarily in academic affairs. As a member of the former vice president’s leadership team, he participated in the initial conversations on bringing Guided Pathways to the campus.

Sean described his role with Guided Pathways as a leadership coordinator, where he aided in facilitating conversation but was not involved in the daily activities of the Guided Pathways committee. Sean participated in AACCC Pathways 2.0 as a member of the core team. Although Sean admitted that he initially felt skeptical about Guided Pathways, he had seen firsthand the results and positive impact of many of the changes on students over the years of implementation.

***Maureen***

Maureen was the Vice President of the Student Affairs. She had been in that position for 10 years and had worked in community colleges for 18 years. Maureen participated in the decision to bring Guided Pathways to the campus. She described her role as one of three vice presidents leading the overall Guided Pathways initiatives on campus. She participated in AACC Pathways 2.0 and the state's Guided Pathways institutes.

***Rich***

Rich was the Assistant to the Vice President of the Academic Affairs. He had worked in this role for 2 years and had 25 years of experience in community colleges. He was the college lead between the state's Guided Pathways initiative and the campus Guided Pathways implementation working group. In a former role on campus, Rich participated in the initial discussions to bring Guided Pathways to the college. He was a member of the original team that presented the discovery document of the Guided Pathways for Success to the college. Much of the data collected and analyzed through the institution's involvement with ATD, including student persistence rates, led to the decision to bring the Guided Pathways initiative to the college. Rich had heavy involvement with data and analytics in his role.

***Eleanor***

A faculty leader of the Guided Pathways initiative, Eleanor was an assistant professor who had worked at the college for 6 years and had adjunct experience at another community college before joining Institution A. She was the team facilitator for the Guided Pathways committee. When the college decided to bring Guided Pathways to

the campus, the then-Vice President of Academic Affairs recognized the importance of faculty buy-in to the success of the initiative. The Vice President asked Eleanor to serve as the faculty lead.

Eleanor was not involved in the decision to bring Guided Pathways to campus and admitted that she knew little about Guided Pathways in 2018 when the initiative began. Eleanor participated in both AACC Pathways 2.0 and the state's Guided Pathways institutes. She described low student success rates as opening her eyes to the need for the Guided Pathways initiative on campus.

### **Institution A Themes**

Based on interviews with leaders and reviewed documents, the themes below emerged from the data for Institution A.

#### ***Theme 1: The Institution has a Culture of Inquiry, and EMMs are the Key***

##### ***Performance Indicators for Guided Pathways Evaluation***

Institution A had significant Guided Pathways experience due to the completion of both AACC Pathways 2.0 and the state's Guided Pathways initiative. The institution leaders had shifted toward clear, data-informed decision-making; as a result, the institution showed a strong commitment to the initiatives for student success via data-informed decision-making. EMMs were a key part of the suite of key performance indicators (KPIs) the leaders used to evaluate the Guided Pathways implementation. The use of KPIs emerged in the interviews with the institution's leaders, documents such as the 2015-2020 strategic plan, and noted by the researcher. When asked how EMMs contributed to the understanding of the barriers to student success, Maureen stated, "I

don't think there's any other way to get at it. You have to look at [EMMs] because otherwise, you're operating, which we did, on anecdote.”

Sean stated,

I think in many ways, a number of [EMMs] have become kind of key performance indicators for us with Guided Pathways. We're trying to build a Phase 2 move now, where we're trying to really work on our assessment practices with Guided Pathways.

The institution had integrated EMMs into the regularly monitored KPIs to identify and prioritize the areas requiring change. Sean considered the transition from the implementation of Guided Pathways into the evaluation of changes as entering the second phase of scaled Guided Pathways work.

The institution's leaders used data to inform many planning elements, understand the areas requiring intervention and change, and inform the intervention's progress. The participants discussed several aspects of how the leaders used data, specifically EMMs, for strategic and academic planning at the college. When asked about EMMs and planning, Maureen said,

Our strategic plan is full of [EMMs]. Our strategic plan is a 5-year plan. However, we have annual plans that augment it. We have the overall markers for student completion and student success. We have individual annual objectives that are intended to boost those markers on an overall 5-year period.

Our graduation rate has gone from 23% to 35% since 2014. Our retention rates are pretty much stable, [but] we're still finding that we still have a gap while

everything is increasing. To some extent, we still have a gap with our Black and Latinx students. So, we're still paying close attention to that to see why.

Sean added that department goals and objectives are linked to the strategic plan. The unit leaders remained aware of their units' role in institutional planning and improving the EMMs' KPIs.

Academic planning was a key component in the strategic direction of the academic affairs units. Sean, the Chief Academic Officer, described using data to inform the development of the academic plan:

It's really about what our students' success data is telling us. How are we going to drive that data toward greater success? What are we going to do with that? And that's what the planning process is, for the most part.

When asked about academic planning and data, Maureen said,

We are to the point where we don't make the determination without looking at the EMMs, without taking into account what datasets we need in order to be sure that this particular initiative, project, program, whatever it is, is telling us that this is an issue that we need to pursue. Again, it goes back to just becoming a more data-informed college.

While the primary responsibility of academic planning belonged to Academic Affairs, Maureen shared how the leaders in Academic Affairs and Student Affairs collaborated to advance planning and the Guided Pathways strategy. She said, "That collaboration has allowed us to think more creatively and to provide the services that students need."

Implementing Guided Pathways requires a cultural shift toward creating an exceptional environment for student success. By not working in silos, the institution's leaders remained agile to the cultural shift needed to implement the Guided Pathways framework. For example, the administration of many academic-focused support services, such as tutoring, is the responsibility of Academic Affairs. However, Student Affairs oversaw the annual plan subcommittee on student completion. When evaluating the student completion piece of the annual plan, Maureen said that she

Reach[es] out and asks [about] the metrics [and] the outcomes for any kind of thing that we set together as a part of that plan. That has just become part of the culture. It's not an "If we don't meet it, we don't meet it." It's, "Let's just understand why we didn't meet it."

The strong collaboration and communication between the two divisions produced a positive culture of change.

The Guided Pathways work on campus consisted of using data to inform academic planning as part of the curriculum committee's change to the program development process. Eleanor described how developing program maps to align with the Guided Pathways framework enabled the curriculum committee to make the program development process more data-informed:

Looking at program mapping, our curriculum committee is changing how they do things based on some of the information that we've gotten through our Guided Pathways work and looking at that data. We're actually changing our program development process. We're adding a council on [the program development process], and the goal is to make more data-informed decisions there.

Institution A's strategic plan included engaging in Guided Pathways curricular maps as an action item to increase the graduation rate. The program development process change described by Eleanor aligned with the institution's strategic plan for developing or redeveloping programs annually to meet community needs. The action item within the strategic plan entailed using Guided Pathways to generate a comprehensive evaluation of the alignment of academic programs with industry needs. This level of analysis would take a close look at enrollment and labor market data. The program development process change also helps leaders better understand program momentum since the curricular maps provide a clear structure for course sequencing. The leaders made the program development process more data-informed to achieve the Guided Pathways and institutional planning goals for student success.

Institution A had an active Guided Pathways committee with working groups to implement the framework on campus. The working groups developed charges that aligned with the Guided Pathways model. The 2021 documents located on the Guided Pathways committee website included the definitions of KPIs and other language aligned with EMMs (e.g., milestones) for working groups and institutional stakeholders. Raising these terms to the forefront of people's minds is a way to solidify the culture of Guided Pathways and EMMs on campus.

**Subtheme 1a: Campus Stakeholders had Access to Data that Improves Decision-Making.** In addition to using data more frequently for decision-making, the institution shifted how stakeholders approached and requested data. Having access to data is directly connected to fostering a culture of inquiry. Sean and Maureen discussed how they had changed their approach to data. Sean shared that the leaders improved access to

data across campus by allowing stakeholders full access to the Institutional Research (IR) Office to request reports and get the answers needed for decision-making.

A follow-up question produced additional details about the data availability on campus. Sean said,

I don't know if [stakeholders] know everything that's available [from IR], but they are requesting [data]. We have gotten to a point where we've all gotten, myself included, much better about not requesting specific data but going to IR and saying, "This is what I'm doing, and this is what I'm trying to figure out." And [IR is] able to give us what we need, and, that quite frankly, seems like a little thing, but it's made a big difference. There were many times in the past when I'd ask for the data [that] I thought I needed, but [the data provided weren't] exactly it.

This comment suggests that IR has access to institutional data that can be analyzed and presented in data reports. The IR office and stakeholders are empowered by leadership to work collaboratively to improve data-informed decision-making to improve practice.

Institution A was involved in initiatives, such as ATD, where core tenets focused on developing a culture of inquiry to support data-informed decision-making. IR professionals who understand the needs of campus stakeholders and are open to and empowered by college leaders to support those needs can provide timely data for decision-making.

Maureen also discussed how the institution's leaders had improved their ability to integrate data into the planning framework of an initiative. She stated,

We come up with a new initiative rather than [saying], “This sounds great, let’s try this,” and then, [asking] a year later, “Well, did it work?” [We] push to be better to identify how we’re going to measure [the success]. [We ask], “What are those benchmarks going to be? And at what point in time?” So that we can actually have the data to look at.

Campus documents aligned with Maureen’s statement. Clear, measurable objectives were found in Institution A’s 2015-2020 Strategic Plan and the companion annual plans that augment the 5 year strategic plan. Documents from grant-funded projects such as the Fall 2015 Title III project also had clear measurable objectives. Setting a clear understanding of and expectations for institutional goals from the start of a project is an effective way to determine the success of an initiative and create an institutional climate of student achievement.

The ease of data access and literacy provides a strong foundation for broad institutional buy-in and data usage. When asked how she thought the institutional culture on campus had changed the use of metrics outside traditional IPEDS graduation rates, Eleanor said,

I really think that probably one of the most important things that’s happened is [that] people actually [have] started using that data. Faculty and staff actually know what a lot of those acronyms mean now. Or, if they don’t know what the acronym means, they know what the data mean. I don’t think that happened in the past.

[Now], we just talk about that data more and how to use [the] data. I’m a science person, so I really appreciate data. In program-development-type settings,

I've heard a lot more people say, "Well, how do you know that? How do you know that happens in your program? What data do you have to support that?" And I think that's like a really cool thing that's happened from all the data talk that happens with Guided Pathways.

Eleanor continued, saying that there is still a battle on campus with anecdotal information. However, the leaders sought to address this battle, contribute to practices, and improve acceptance by conducting consistent data discussions and assessments.

#### **Subtheme 1b: Institutional Leaders Used Data to Inform and Monitor**

**Guided Pathways Practices.** Institution A had many examples of having a culture of inquiry. The institution's leaders regularly consulted data in the decision-making process. Rich discussed an example of data analysis for the implementation of the integrated learning model, looking at the students who entered developmental education courses and eventually passed gateway courses:

We went from [a] 32% passing [rate] in [over an average of] 2.3 [semesters] to [a] 47% passing [rate] in one semester, and that was a 5 year analysis. Initially, [we found that] 54% of the students placed in developmental [integrated learning] passed. Then we went to 91% [of students passing with the integrated model].

In an email on January 6, 2021, Rich shared the document summarizing the 5 year data analysis from math and English gateway courses. The document aligned with his response illustrating the transition from low pass rates to high pass rates for English and math gateway courses over 5 years. The integrated learning model was an indicator of academic support for an institutional environment that supports student success. Leaders

at Institution A studied the gateway momentum metrics to understand if changes made to the integrated learning model were working.

Another example of a culture of inquiry at Institution A was shared by Maureen, who discussed how Student Affairs focused on the connection between student engagement and improved student outcomes. She said,

If we are seeing that there is more retention [of] students who have been involved in one to two clubs [or] three to five [clubs], whatever that is, we need to take a look at that, and we need to illustrate that for the college community. We have done some work very deliberately on that in the last year and a half.

Maureen's response suggests the holistic framework of Guided Pathways and the connection of research to practice. The leaders of the Student Affairs division analyzed the data to illustrate the connection between campus activities involvement and persistence, sharing this finding with the campus community at an annual data summit as leverage for increasing student success and completion measures.

The Academic Affairs division leaders also analyzed data in various ways to enhance efficiency and understand the students served. One of the key areas of Guided Pathways is the development of meta-majors and academic program maps so that students can understand the courses needed and in what sequence they should take them. Institution A had access to course scheduling software with predictive analytics capabilities. Rich said he used the analytics in the scheduling software to make stronger decisions about course scheduling:

[For] Guided Pathways, [the] actual pathways for each program are put into [the software]. So, as far as planning, [the software] tells me how many sections of

every class I need based on some projections. I mean, it's not 100% accurate. It's analytics, it's predictive analytics, so it's as predictive as it can be. [But] it absolutely helps when I'm [asking], "Do I hire? Do I offer classes that only four students need? [Should I add] classes that are off programs?"

Predictive software for addressing some of these questions is a valuable tool for understanding institutional needs. College completion is a student priority; therefore, understanding how course scheduling can hinder student degree completion could contribute to student success.

The institution's leaders used data to inform and monitor many of the Guided Pathways practices. The practices provided the institution with a foundation of support during the tumultuous COVID-19 pandemic. Sean said,

I would [have] expected to see more students withdraw [because of the pandemic]. I would [have] expected to see students do worse academically. We didn't see that. Our withdrawal rate stayed very steady. It was about the same as it always [was], but actually, we had more students achieve As [and] more students achieve Bs than we would [have] otherwise.

I have a feeling, and I can't prove it yet, and I'll need [more time] to get more data to understand it, but I have a feeling that the practices that we put into place through Guided Pathways assisted in this massive interruption [caused by the pandemic]. The [practices helped the] engagement of students, [provided] one-on-one connection, and made sure that they had someone [whom] they could reach out to. The resources that we had in place made it [happen]. Although

things didn't continue to skyrocket, we didn't take the hit that we might have otherwise when we went remote [because of the pandemic].

Sean's assessment of the institutional status during the pandemic demonstrates the value of making sound, data-informed decisions before crisis. By developing and supporting comprehensive student support along with practices that improve the student experience, Institution A was well situated heading into the crisis of the pandemic. Additional data analysis will be needed to see how beneficial the changes were but the short-term preliminary findings are promising.

The Academic Affairs division also made changes to a policy based on evidence shown in the data. Maureen discussed a policy change to late registration based on data analysis.

We stopped late registration and what we showed through an analysis was that prior to stopping it, we would have hundreds of students coming in during that first week of classes. And what we learned [from the data analysis] was that hundreds of students did not complete those classes. So we stopped and made a policy that there would be no late registration beyond an exception... The faculty were much happier because they weren't trying to catch up on a week's work with someone who had entered on a Friday when they should have been there on a Monday. [The change was] significant. We did an analysis of that for several years to make sure it wasn't just a fluke and it wasn't.

Identifying potential barriers to student success and then using the data to explore if a change was needed provided Institution A with valuable insights into the student experience. Institution A made a change to a policy that better supported students to

achieve their goals and then assessed the change to ensure continued viability of the policy.

In summary, Institution A showed a culture of inquiry that included involvement with ATD. The leaders made a culture of inquiry part of the institutional philosophy, integrating data into many aspects of the planning and decision-making framework. Leaders at all levels could access data through institutional research and ask questions to improve effectiveness on campus. The institutional leaders provided several examples of how they valued EMMs and used the data to inform their practices.

***Theme 2: Data Analysis Plays Key Role in the Implementation and Evaluation of Developmental Education Reform***

As part of Guided Pathways, Institution A focused on the placement of students into a developmental education sequence. According to Rich, the institution's leaders had previously required traditional standardized testing. The lowest-level developmental education sequence could take four semesters to complete before a student could take credit-bearing gateway math and English courses. Thus, the institution's leaders began exploring measures for evaluating student learning and placing students in alignment with Guided Pathways. Sean stated,

[Multiple measures] was a huge success for us to kind of begin to move away from the standardized testing [required for students] to get in [to the institution]. But we really almost flipped it instead of multiple measures. We went from one measure to one single measure to another single measure. We moved from a test to a GPA. Then we had to refine that, but it was looking at [the] data and tracking

how the students were doing to help us refine what the multiple measures would be. Now we have a true multiple measures system.

According to Rich, students with the lowest math and English needs could still access a two-course noncredit sequence providing foundational, necessary skills. However, for all other students, the leaders replaced the traditional developmental education sequence with a corequisite model. Students could enroll directly in credit-bearing math and English courses with academic support.

Maureen identified developmental education reform as a significant change for advancing Guided Pathways on campus:

It became very apparent that our students were hitting that hurdle of being stuck in developmental education. [The students were] utilizing financial aid [and] getting zero credits for [developmental education] because it's non-credit. That was an incredible barrier to student success.

The institution's leaders identified the problem and analyzed the developmental education data to determine efficient ways to support students. Sean also described redesigning developmental education as a major change on campus for Guided Pathways. He spoke candidly about the surprising change to move completely away from developmental education:

I looked at what was happening with students when they [took] the classes and the success rates of those classes and the number of times [students passed]. I got down to [the data]. I don't remember the exact percentage, but it was like 4% of the students coming in [were] actually getting to the end of their math trails in their degrees. It was all data. It was a cultural change. It was a lot of

conversations, but if we didn't have that data in front of us, I don't know that we would've made the change we did, [The data were] just impossible to argue with.

Maureen spoke similarly about analyzing course data:

We rely a lot on, obviously, our IR department. But it was all of the analysis of success in those courses, success in subsequent courses, and [of the] students not making it through and just dropping off. We would see [the students] stop out.

These points aligned with the four EMMs tracked as part of the Guided Pathways implementation, which were credit momentum, gateway momentum, program momentum, and persistence.

Eleanor shared her perspective of the change in developmental education as a faculty member and the co-lead of the Guided Pathways committee, saying,

The biggest [change], to be honest, if we're talking about the data, is developmental education. We looked at a lot of the benchmark data, and we found that students [who] come in at developmental level don't meet those benchmarks. It caused us to really dig further into our developmental education data.

We realized that, often, students [who] are put in a math [class] that's a prerequisite for another math [class] aren't necessarily more successful than [the] students put into that math without the prerequisite. [These students are] actually sometimes less successful. That one was a big [realization] for a lot of people. So, we have made huge changes with developmental education because of that.

The developmental education change was a dramatic intervention that elicited both support and skepticism across campus. Eleanor reported that the decision

Was bitterly fought over because you have math and English [faculty], and the faculty aren't bad, but they really feel they [had] a visceral reaction to that [change]. They really feel that their students needed [prerequisite courses]. We [leaders] had to use a lot of data to show [the faculty and say], "You may feel that way, but that's actually not supported by the data." [The data] made that conversation much easier. Probably what's helped more is we now have, since we've made those changes, data that show that students have been much more successful.

The institution's leaders implemented many of the best practices they had learned from ATD. Data summits were a practice that had a particular impact on data literacy. The institution's leaders conducted an annual data summit to review new or different aspects through the data lens.

After implementing reform with multiple measures and developmental education, the college presented the results to the community at an annual data summit. Rich said, "We had the opportunity to actually roll out the data that showed how much of an improvement we've made with these things, [like the corequisite model]. I think people were taken back a little bit." The institution's leaders also implemented sweeping placement and developmental education reforms, seeing positive results in gateway math and English courses and increased credit accumulation as students began their academic programs sooner. Overall, Rich shared that, at the college, "Initially 54% of the students placing in developmental passed. Then we went to 91%" over a 5-year analysis period.

In summary, the Guided Pathways model presents developmental education as a barrier to student success. Institution A's leaders completely redesigned the placement

and course sequencing models to help students master the topics needed to move forward. Redesigning the models had a dramatic impact on academic credit accumulation, gateway momentum, and program momentum, as the traditional developmental education sequences were non-credit-bearing. Changing how and when students advanced into gateway math and English courses and providing support to ensure learning resulted in a shorter time to degree completion. Data summits were the platforms used to engage with and share information with the campus community to foster a data-informed culture at the institution. The data summits also contributed to the success of the multiple measures and developmental education reforms.

### ***Theme 3: Equity is an Institutional Priority***

After establishing a mature Guided Pathways structure, Institution A began focusing on equity practices throughout the institution and equity in student outcomes. The institution began disaggregating EMMs to monitor differences in student success among different student characteristics, remaining mindful of antiquated or disenfranchising language that contributed to equity gaps. For example, Sean mentioned that some members of the institution preferred the term “opportunity gaps” to “achievement gaps,” which included positive rather than deficit language.

Sean shared that Institution A had recently established an official equity statement and an antiracism statement approved by the board of trustees. The goal of the institutional equity statement was to foster meaningful, inclusive learning environments for the success of all students. The institution’s leaders also approved the antiracism statement to keep equity at the center of the classroom. Page 11 of the 2021 College

Catalog references the website where institutional statements including the equity and antiracism statement are located.

Sean and Rich shared how leadership addressed the gaps in student success by hosting yearly data summits as a means to take a close look at specific data topics. In 2021, the institution had a data summit focused on equity for which the leaders compiled data, including EMMs, to share and understand the gaps in student success disaggregated by student characteristics. Leaders presented the data through a growth mindset lens of how the institution could fix the problems and help students succeed. Minutes from the March 2021 Board of Trustees meeting shared details about the Data Summit including a presentation by Institutional Research.

At the time the research was collected for this study, the leaders had begun developing and testing a dynamic report for faculty to compare the disaggregated equity data of courses. The hope was to provide faculty with a tool and training on how to use the tool to access the data and better understand their students. Sean shared that leadership had not set expectations for how the faculty would use the data from this report, as, culturally, they did not want to force the faculty into using the data in specific ways. Instead, they wanted to let the faculty produce ideas for change as experts in their fields. The institution's leaders knew that they needed to accomplish institutional changes for equity to help more students achieve their goals.

Sean and Rich discussed how the academic division showed an institutional commitment to providing faculty and students with support inside the classroom. Sean spoke about the development of academic support tools for online teaching and learning so that the faculty could provide equity-focused classrooms. Rich shared that the leaders

had taken steps to help the faculty produce an equity syllabus and teaching tools with an equity mindset.

Sean also discussed the changes made to the hiring process for new faculty, as the faculty characteristics did not match the student body. The leaders were mindful of the need to ensure the awareness of newly hired faculty to the varying needs of a diverse student population. Thus, they adjusted the application process for newly hired faculty to include writing a statement on what equity in the classroom meant to them. Sean, the Vice President of Academic Affairs, oversaw this part of the hiring process, which he reported changing to make it more meaningful and align it with the institution's broader equity goal. The goal of altering the hiring process was to ensure that new hires were good fits for the future of the institution.

All the participants discussed how the institution's leaders disaggregated the data by student characteristics and prioritized supporting the students at risk of not completing college. Sean reported that a shift had occurred in the institution's culture in recognition of the problem and the need for buy-in to implement change across stakeholder groups. He stated,

[The change] is being brought forward by the faculty and staff, and not from me, necessarily, or from the president down. [The faculty and staff] are bringing it forward to us and saying, "We have to do something about this. This is what we think we should do." It has changed the locus of control at the institution [so that] it is much more collaborative. I'm seeing a lot less of the faculty-administration dichotomy, and I'm seeing a lot more teams happening around something that needs to get done. And that is a big change.

Eleanor provided an example of faculty-led data usage while discussing the academic program development process and program review process. She described the disaggregation of the data and the faculty-driven use of the results for goal-setting within academic programs, saying, “[We ask faculty], ‘What happens in your program? Are you serving the students in your program? How can you change what you do in your program to better serve those students?’” Disaggregating the data and focusing on at-risk populations resulted in a shift in the institution’s culture and provided a foundation for change.

In summary, the leaders at the institution felt comfortable using the data to support decision-making on equity issues. The Guided Pathways framework provided effective strategies for disaggregating the data to identify at-risk groups and make changes to provide student support. The bottom-up approach focused on collaboration and the democratization of the need for continuous change around equity. The institution took significant steps to advance equity in the classroom and across the campus, and the disaggregated EMMs showed those changes.

***Theme 4: Financial and Knowledge Resources that Align with EMMs Contributed to Leaders’ Ability to Evaluate Guided Pathways Implementation***

Institutional leaders with access to financial and knowledge resources may have increased ability to implement the Guided Pathways model at scale. Prior to engaging in Guided Pathways work, Institution A applied for and received a Title III Strengthening Institutions grant. The institution also began participation in ATD where the stakeholders engaged in deep analysis to identify institutional concerns that served as a barrier to student success. Most of the Guided Pathways framework aligned with Institution A’s

Title III Strengthening Institutions grant and the groundwork already done through ATD. Institution A also had access to substantial resource support as an AACC Pathways 2.0 institution.

Institution A's leaders applied for a Title III grant at the same time that they began working with ATD, prior to their involvement with Guided Pathways. Title III institutions receive federal funding through the U.S. Department of Education over 5 years. Title III Strengthening Institutions grants are designed to build institutional capacity to improve support for low-income students by strengthening academic quality, institutional management, and fiscal stability (US Department of Education, 2021).

Institution A received a Title III grant for \$2.3 million from Fall 2015 to Fall 2020. A grant project description on the college website in 2021 identified the goal to establish a path toward graduation that included a gateway course overhaul and a student success portal. Both elements align with suggested practices of the Guided Pathways model and the EMMs for tracking and measuring student success. Institutional documents on the institutions' webpage in 2021 related to the Title III grant focused on increasing second-semester spring persistence, fall-to-fall retention rates, student graduation rates, and student achievement rates in gateway courses. Those goals aligned with EMMs and Guided Pathways implementation.

Maureen discussed how the gateway course overhaul provided a fresh perspective on student success. Analyzing the data in new ways enabled the leaders to address a gap they had not known existed. She said,

[The Title III grant] required us to go back and identify all of the gateway courses that were high-stakes [and] low success. We identified 18 of those [courses]. That

was really the first step that we started to take in terms of where our were students walking into the wall, so to speak. The success rates of some of those [students] were just abysmal. But we [didn't] do that kind of analysis to say, "Okay, how are we pairing these courses up for our students, and how can we do that differently?"

I think that initial work was looking at those gateway courses.

Monitoring the gateway courses for the Title III grant provided a foundation and aligned with the EMMs the institution would ultimately use when they began Guided Pathways implementation. Accordingly, addressing the barriers of the gateway courses prepared Institution A to frame the Guided Pathways model successfully.

Another area addressed as part of the Title III grant was the hiring of academic completion coaches. Both Rich and Sean discussed the need for completion coaches at the institution due to an advising gap indicated in the Title III grant. Cross-division collaboration occurred through a Learning Commons model between Academic Affairs and Student Affairs, ultimately resulting in changes that aligned with the advising redesign. However, the precursor existed because of the Title III grant.

Another area of resource support for the institution was membership in ATD, which provided support for improving completion rates at the college and using the data to inform practice. The ATD resources contributed to the overall cultural change on campus. Maureen stated,

We had the good fortune before we ever got involved with Guided Pathways to be involved in Achieving the Dream. [ATD] really set the stage for us. We began [ATD] in 2014 and followed that prescription of data coach leadership for several years. And, as I said, that really laid the foundation for all of that data work. If we

had not done that, I don't know that we would be where we are now because [ATD] allowed the whole college to start to understand what those data points were [and] why they were important, and whether we were satisfied with where [we] were.

In our very first year with ATD, we did a data summit, [and it] was not recommended for us to do it. We did it anyway because we felt that it was incredibly important to show our fall to spring [retention], fall-to-fall [retention], graduation rates, and then disaggregate [the data] among our populations. It was incredibly powerful.

And we had, at that point in time, a 23% graduation rate, and the question was just, "Are we satisfied with that?" And it [was] very easy to say, "No, no one is satisfied with that." I think it was our foundational work and participation in ATD that really helped provide us with the foundation to do and advance our Guided Pathways work that much more quickly.

Institution A was selected as one of fourteen colleges nationwide to participate in the AACC Pathways Project 2.0. This intensive coaching program provided Institution A with knowledge resources to accelerate the review and implementation of many aspects of the Guided Pathways framework. One of the core tenets of the AACC Pathways Project 2.0 was the use of EMMs as a tool for identifying problem areas and monitoring implementation changes. Colleges that joined AACC Pathways 2.0 were expected to develop an action plan that included EMMs in consultation with project leaders and pathways coaches. The institutions' 2015-2020 strategic plan and the annual plans that augment it very clearly describe institutional expectations throughout participation of

AACC Pathways 2.0. Minutes from October 2017 faculty governance revealed that this project would be faculty-led and require extensive collaboration between Student Affairs and Academic Affairs, with restructuring occurring across the institution to improve the student experience. The action plan designed with a focus on equity and economic mobility was to be scaled by fall 2020. Institution A's involvement with AACC Pathways 2.0 placed the institution on an accelerated path toward Guided Pathways implementation. During interviews, both Sean and Rich commented how the planning and implementation phases were completed and the institution was focused on the evaluation of Guided Pathways in practice. Leaders were focused on monitoring EMMs to assess the practices of Guided Pathways initiatives.

In summary, institutions with access to financial resources to subsidize some of the costs of implementing Guided Pathways may be better positioned to scale initiatives. However, funds are not the only resource. Institutions with knowledge resources (e.g., ATD and AACC Pathways 2.0) that support data-informed decision-making also contribute to the implementation and evaluation of Guided Pathways initiatives.

***Theme 5: Redesigned Advising Strategies are a Necessity for Better Monitoring Student Progress in Alignment with the Guided Pathways Framework***

Student advising was another area of redesign that aligned with Guided Pathways and impacted EMMs at Institution A. The move toward a more centralized, holistic advising model and the utilization of technology provided the groundwork for a stronger, more engaged student support structure. These tools also allowed for rich data analysis to better understand and support the student experience.

Before Guided Pathways, there was a decentralized advising model where students could receive support from various area advisors across the two divisions of Academic and Student Affairs. Maureen described the past model as

Silos of faculty advisors, completion coaches, and [professional] advisors, and they were in two different divisions. Last June, we did a reorganization of both Academic Affairs and Student Affairs and developed holistic [student] support. Now, [we] have student support advisors, and we embedded the completion coaches from academic affairs into that cohort. Now we have the professional advisors, plus the completion coaches, plus some new hires, and they all come under one umbrella [within] Student Affairs under holistic student support.

The institution developed 11 Student Support Advisor positions, with the individuals in these roles serving as the primary contacts for advising groups of students. As single points of contact, the student support advisors could significantly impact communication with students across the institution.

The new advising model provided the groundwork for stronger student support. Maureen described the shift in workload as student support advisors meeting with first-year students and faculty mentors engaging with second year students. The student support advisors helped first-year students enter academic pathways, register for classes, find various services on campus, and acclimate to college. The second-year students transitioned to meeting with faculty mentors for help with career planning and readiness. Maureen described the faculty mentors as providing “discipline-specific mentorship and support for the students that are in their particular schools or disciplines.” Rich said, “The faculty mentors [ask students], ‘Why are you here? What college could you want to

transfer to? What are you looking for in a career?” Rich also explained that the faculty mentors had a strong understanding of transfer agreements with other colleges and helped students take the correct math courses and other requirements for seamless transfers. Institution A had a faculty union, and at the time of interviews, the parameters of the advising redesign were under negotiation with the faculty union. Sean explained, “We're really working together, understanding we have to bargain this, but we're going into [negotiations] with a joint understanding of what it is we're trying to get done. So I don't see it really being an obstacle.” The confidence of this statement speaks to the institutional campus culture to create a positive, supportive environment for students to be successful. A redesigned advising model provided the structure for stronger student support via clear advising roles and communication with students so they could achieve their goals.

Institution A had access to several tools that advisors and students could use together to make strong, data-informed advising decisions. Advisors could also access Starfish and DegreeWorks to track student academic progress. Starfish, a communication platform for students, faculty, and support service professionals, allowed faculty to refer students to different services and track whether they followed through on the referrals. Advisors at all levels could see the communication on Starfish and offer holistic support to students with clearer pictures of students' experiences. The advisors could also access the EMMs of students' progress in milestone and gateway courses. Institutionally developed Starfish Procedure documents for Advisors, Faculty, and Students from 8/20/2020 were available on the advising website and confirmed functionality to support the student experience. In addition to accessing academic data on Starfish, the advisors

used DegreeWorks to monitor degree completion maps and track academic progress, engaging both tools when counseling students.

The institution is committed to improving the student experience by analyzing the characteristics data produced by Starfish. Rich shared how they had begun examining the data from Starfish in conjunction with other institutional data to understand the students better:

We have attributes, which are credits attempted and credits completed. We find out if [students are] athletes, if they are international students, if they are in our [Educational Opportunity] program, if they're dorm students, [and] their GPAs by semester. We see all their schedules. [Starfish] actually pulls in all the grades from the grade center out of Blackboard into the students' Starfish.

So, if you look at students' records, you [can] see where [students] are, and you don't just see [the] midterm and final grades. You can actually say, "Hey, [for] the last two assignments you submitted in your class, you got Ds. What's going on?" And [we have] a full gamut of flags. We [can] set up auto alerts. If a student hasn't logged into Blackboard in 7 days, they get a flag [that] automatically says, "Hey, you haven't logged in." It brings in financial aid status. It brings in if they have had laptops, if they're veterans, [and] a lot of [other] attributes. That's all through Starfish. [Starfish] pretty much [provides] a holistic view of what students [are] all about.

Rich described how the institution's stakeholders, including advisors, could use the attributes of Starfish in practice to support students. He mentioned instances of student referrals to tutoring or academic support as well as social or financial support through the

Campus Community Connection, a program designed to provide students with basic needs resources for a successful college experience, by analyzing student characteristic data and Starfish attribute data together. The Starfish feedback produced a proactive student success environment that supports student persistence by contributing to a support network for students that included academic, social, and financial support.

However, although advisors could access the Starfish data, the systems did not clearly show EMMs when they counseled students. Eleanor considered the data available but not always obvious. She said, “You have to really look for [the EMMs].” From a faculty perspective, Eleanor reported,

Program mapping was really instrumental in looking at advising [and] finding out when students are taking certain courses, what courses they’re not succeeding in, [and] why they’re not succeeding in those courses. That’s kind of helped the faculty advising piece a little bit more. This is a work in progress. We have lots of recommendations that are currently being negotiated with our union and administration that will change faculty advising.

We’re [also] seeing [advising] happen earlier. Historically, faculty advising would happen after a student went through an entire first semester, at least [at our college]. Then, we would leave it kind of up to the student to reach out to [the] faculty. We’re seeing a change [with that]. We have faculty reaching out to students within the first few weeks of a semester rather than waiting until the end of the semester.

Both faculty and professional advisors could access the Starfish data. However, Eleanor's response indicates that providing the most effective advising may require improving the structure of where to find the data.

Another piece of the redesigned advising model was support for student persistence. Rich shared an example of monitoring data in practice and assessing the roles of student support advisors. He looked at students with academic warnings (e.g., restriction and probation) and studied whether they stayed on or moved off academic status. He described his analysis as examining

the percentages of students [on academic status] based on the total student population and the trends of how many [students] go to intervention, how many on intervention go into probation, how many [on] probation end up [on] dismissal. One of the things I'm finding is [that] the student support advisors were supposed to be a little more intrusive [with] academic support, but the numbers haven't changed.

When asked how this data analysis connected with the work of Guided Pathways and EMMs, Rich connected the discussion to the institutional goals of retention and persistence. He stated,

If we want to retain more students, we can't be losing the same percentage of students through academic attrition. We need to retain [students], not just make sure they have schedules. In fact, [we have] to make sure they're academically successful.

Rich's statement indicates the need for the college to support students with academic success and degree attainment. The college advisors must do more than enroll students; they must also invest in helping students achieve their goals.

In summary, redesigning and streamlining the advising model impacted how Institution A provided students with support. Tools for communicating and tracking academic progress, such as Starfish and DegreeWorks, enabled an understanding of students' experiences. Integrating robust elements into analysis provided a richer, more holistic picture of students and how the institution could provide academic, social, and financial support. A proactive approach to advising was the strategy used to connect with students early in their academic careers and provide feedback on academic progress. Support and feedback allowed faculty and leaders to foster the EMM of student persistence.

### **Institution A Summary**

Institution A had a well established culture of inquiry. For many years, the institution focused on strategies aligned with data-informed decision-making and provided many examples of data in practice to inform change. The change culture on campus started with the installment of the current president and the institution joining Achieving the Dream. Undertaking Guided Pathways provided a framework to embrace the redesign of many areas, specifically placement into developmental education and academic advising. The institution utilized resource support to advance their Guided Pathways agenda. This was accomplished through the application and selection to participate in the AACC Pathways 2.0 cohort, where they received Guided Pathways coaching and implementation support as well as used EMMs to monitor change.

Institution A was also able to apply federal grant resource support to use EMMs to identify problem areas and monitor change as leading indicators toward improvements in their completion rate. The institution prioritized closing persistent equity gaps and took significant steps to examine institutional policies and practices.

### **Community College Institution B**

Institution B was a large community college with an enrollment of approximately 11,000 credit students. The institution was a diverse college, with 70% of the students from underrepresented groups and Hispanic and Black students representing the largest and second-largest populations among the total credit enrollment. Institution B was located in a state with a Jobs for the Future Statewide Student Success Center. The institution's leaders participated in an organized Guided Pathways consortium; in addition, there was a history of participation in ATD, a model for encouraging a culture of data-informed decision-making.

The institution regularly submitted data as part of the Voluntary Framework of Accountability, which provides a comprehensive suite of metrics for community colleges to examine institutional accountability, including progress measures as early indicators. Three leaders, including one vice president and two deans from different areas of the college, participated in the interviews. Table 4 shows the interview participants' characteristics.

**Table 4***Institution B Interviewee Characteristics Profile (n = 3)*

Alias	Leadership level	Area of focus	Years of career experience
Traci	Vice President	Academic Affairs	20+ years
Sara	Dean	Academic Affairs	20+ years
John	Dean	Enrollment Management	20+ years

***Traci***

Traci was the Vice President of Academic Affairs and the Provost, serving in this role for just over 3 years. She had worked in community colleges her entire career, first as a researcher studying the elements that align with the Guided Pathways model and then as a practitioner. Traci described her role with Guided Pathways at Institution B as leadership. She was the driving force in participation in the state’s Guided Pathways initiative, which she perceived as an opportunity to shift how the college stakeholders worked collaboratively to approach students. One of the stipulations of joining the state’s Guided Pathways initiative was agreements from the faculty senate, which Traci gained to move forward with the implementation.

***Sara***

Sara was the Assistant Dean for Learning Initiatives and Success. She had served in this role for 2.5 years and had approximately 30 years of experience in higher education. At Institution B, Sara was the co-team lead of the Guided Pathways team, becoming involved with the campus team and state institutes upon her arrival at the

institution. Sara was a leader who served as a coach for the next cohort of Guided Pathways colleges in the state program.

### ***John***

John was the Associate Dean of Enrollment Management, a position he had held for 2 years; however, he had worked in higher education for 25 years. He participated in the decision to bring Guided Pathways to Institution B. John participated in several required meetings of the core team for the state Guided Pathways initiative. In addition, John was a leader with the national organization Compete College America and is committed to the transformational work of Guided Pathways.

### **Institution B Themes**

Based on interviews with leaders and reviewed documents, the following themes emerged from the data for Institution B.

#### ***Theme 1: The Institution has a Culture of Inquiry, and EMMs are Valued for Guided Pathways Evaluation***

Institution B had substantial Guided Pathways experience. There had been institutional changes made to develop a culture of inquiry aligned with the Guided Pathways framework. The leaders were aware of the value of EMMs; however, access to institutional data remained a barrier to decision-making. The institution had completed the state-based Guided Pathways initiative and now serves as an alumni college, providing support with Guided Pathways implementation for other colleges. The institution had begun implementing many projects in accordance with the various facets of the framework. Institution B's leaders focused on changing institutional culture and prioritizing students when considering the work of the college. Traci described the

widespread agreement in the college to put students first; however, this cultural change was a challenge that required time.

All the participants knew about EMMs and provided examples of the data used to inform practice. When asked how EMMs led her to change how she approached or thought about Guided Pathways, Traci shared how she used EMMs to situate conversations and help people see the areas requiring change:

I use [EMMs]. I think they're an incredibly useful tool for communicating and demonstrating to people what the problem is and helping people to understand that these are not [just] one-offs. When you can very systematically see the same results year after year, even sometimes when you're trying to make [a] change, you see [that] those early momentum data metrics are surprisingly steady and difficult to move. It's often shocking to people, you know? So, I like to use [EMMs] as a way of getting people focused and away from anecdotal conversations.

Sara and Traci provided rich examples of understanding the student body due to analyzing the data, specifically credit momentum data. Sara said, “[We’ve] got a lot of students who start and don’t earn a darn credit. A lot of zero-credit students. I think we could be doing a better job of doing a deeper dive on them.” Traci also discussed the alarming information about student academic progress found in data analysis. She discussed how diving in and focusing on one area of EMMs, such as academic-earned credits, could affect the perceptions of campus community stakeholders and how they serve students. Traci said,

If we could get this number, like academic-earned credits in the first semester, if we could get [that number] up one credit, we would actually be accomplishing something. People don't believe me, but it's very difficult to move [EMM] numbers. People are often really surprised to find out how many students earned zero credits in the first semester. That is always a shocker.

And that information really gets lost very easily in the hubbub of working with students. Unless you step back, you don't realize that's happening. And then when you show people, it's not just happening this semester, it happens almost—like you can set your clock to it—every semester. And then people start to realize like, “You know, we need a big intervention [or] a scaled intervention if we're going to do anything differently. That's [what], I think, [EMMs are] useful for.

One of the barriers to fully embracing a culture of inquiry is a lack of consistent access to data. Institution B's leaders worked through various channels to get the information needed for decision-making. Although stakeholders had access to institutional data, the IR office had evolved substantially over the past 3 years, resulting in more consistency. Sara said, “Our use of technology on the campus is not really where it needs to be.” The institution's leaders sought to improve access to data on campus by purchasing new technology.

The institution recently acquired Tableau, a data visualization and dashboard software, through a Title V federal grant. The IR professionals had begun developing dashboards to provide broader access to institutional data and make EMMs available to users through Tableau in an easy-to-use and on-demand environment. Sara said,

The problem right now is that getting access to data is really hard. We've got one of our people in IR creating Tableau dashboard reports so that we can have access to the data at our fingertips. I think part of the reason we're not really using these EMMs is because we don't readily have access to them when we're trying to make decisions.

Sara raised an important issue: Data not readily accessible are less useful in the decision-making process. Sara and Traci both commented on recent changes to a strengthened IR office. IR now has the personnel and technology tools needed to improve access to on-demand data, including EMMs, for decision-making.

The institution was also part of a state system and thus had access to data from the state system office. Analytics included some EMMs, such as retention rates, and lagging indicators, such as graduation rates. Traci said, "[The system office] has developed dashboards for all of the campuses. We have [the system office] analytics that we can look at also, which may be another reason why we don't use IPEDS all that much."

When asked about using EMMs for annual institutional goal-setting, Traci stated, [We don't use EMMs] as much as I'd like. I think [that] part of that has to do with the data. We have institution-wide EMMs, but I think in order [for those] to [be] really useful for goal-setting, we need to be able to disaggregate them a little bit more easily.

We have recently put all our program review data into Tableau, and we're introducing EMMs through Tableau [so] that people at the department level will be able to look at specific programs. That's also brought some challenges because looking at cohorts, it reduces the *N* a little bit when you get down to the program

level. But, for planning at the department level, we know what we're focused on. But I think we [could] do even better in terms of being able to break [the EMMs] down into subcategories.

The leaders had incorporated several EMMs into the institutional metrics for monitoring the strategic plan. Providing access to EMMs could enable more ready use for decision-making.

While waiting for increased access to Tableau and other internal data sources, the institution has focused on data from external sources. Both Sara and Traci discussed collaborating with the Postsecondary Data Partnership (PDP) as a means of acquiring reliable data. The PDP is a service of the National Student Clearinghouse that provides institutional leaders assistance with transforming how they measure and track student progress. Specific to disaggregating data among various student characteristics, Traci said,

[Institution B is] supposed to be part of the postsecondary data partnership, and that would make it even easier for us to disaggregate [the data]. We're sort of hoping that will come into place, and then we'll definitely be disaggregating [the data] by a number of different variables. We do [disaggregate by] race and ethnicity and gender the most; sometimes, we [include] age categories. But I think that we could do more [disaggregation]. It's really just about having easy access to data.

Sara said,

We're supposed to be participating in the PDP also. Once we get access to the data on a regular basis, my hope is that we would be able to be better informed about things, [like] how things are going, and make decisions accordingly.

The use of PDP could provide rich, meaningful, and reliable data to support decision-making focused primarily on support around student momentum, outcomes, and equity.

The institution also participated in research studies that provided analysis useful for informing practices. Through the state system and in collaboration with MDRC, a nonprofit education and social policy research organization, the institution participated in the Accelerated Study of Associate Programs (ASAP). Over multiple years, the ASAP provided the institution with data informing practices for degree completion strategies. Traci discussed using the information from the ASAP program to inform institutional practices and provide the counseling staff with clear, easily accessible data.

The institution also participated in a study on multiple measures by the Center for the Analysis of Postsecondary Readiness (CAPR), including data analysis on the program's effectiveness that contributed to campus practices. Traci said, "[We] worked with CAPR and [knew] that they could give us data, which they did. We essentially had an external organization providing us with feedback on the impacts of the implementation." The ASAP and CAPR studies provided Institution B with the data resources needed for informed decision-making.

In summary, Institution B's leaders sought to develop a culture of inquiry. Leaders at the institution valued data-informed decision-making and provided several examples of analyzing the data and exploring areas of need with the data. The leaders understood the importance of EMMs and provided examples of EMMs in action.

However, access to quality data was a challenge for Institution B. The institution's leaders compensated for the lack of data access by acquiring Tableau to improve accessibility to the campus community and utilized external research as a source of rich data analysis. The institution will continue to develop Tableau into the future.

***Theme 2: Data Analysis Plays Key Role in the Implementation and Evaluation of Developmental Education Reform***

One of the key aspects of the Guided Pathways framework is addressing developmental education as a barrier to student success. Guided Pathways requires institutional leaders to rethink how they assess students' knowledge upon enrollment to eliminate the developmental education barrier. Eliminating the developmental education barrier could have an institutional impact, as shown in EMMs, particularly with regard to credit momentum, gateway momentum, and persistence. Developmental education reform has two components: find a new way to place students and find a new way to present courses in the developmental sequence, including providing corequisite support. Institution B's leaders addressed both areas with positive results.

When asked about a significant change on campus used to advance Guided Pathways, both Traci and Sara mentioned developmental education reform. Institution B had traditionally used a standardized placement test, Accuplacer, for all students entering the college. Regarding the changes to placement strategies, Institution B had participated in a study with the Center for the Analysis of Postsecondary Readiness (CAPR) that utilized multiple measures placement, which had an experimental design for testing multiple measure algorithms for placement. Traci said,

[The CAPR study] was an experimental design, and it didn't place all of our students. It only placed half [of the] randomly [selected] students to either the experimental group or the control group. The experimental group was placed by the algorithm, and the control group was placed by traditional methods. We saw a huge shift in where students were being placed, [but] we didn't see a huge shift in terms of outcomes. We've reduced the proportion of students going into developmental.

The success of the placement changes from the CAPR study enabled Institution B's leaders to reevaluate using multiple data sources to place students. Traci shared that the institution's leaders continued using Accuplacer but moved to a new model of using multiple data points to place students. John shared how research on multiple measures and practice followed the CAPR study:

The best predictor of success in college is what you're doing in high school. So, the kid is getting a B, so Number 1, we started doing waivers. We never used to do that. Incorporating waivers for people [who] pass their [state exams] with [a score of] 80 for English.

This change in practice was the first step toward developing a redesigned placement model.

Institution B's leaders used both Accuplacer and multiple measure data placement until the COVID-19 pandemic. At that point, the leaders did not know how the students would take the Accuplacer and which data points the state would provide for multiple measures. Thus, the institution moved to a self-directed placement model. Traci said, "Now, we're using a directed self-placement methodology, which uses Qualtrics to take

students through a pretty complex decision tree that ultimately gives them a placement recommendation that they would then work with their counselor to register [for].”

Institutional documents retrieved from the college website in Spring 2021 showed the change in framework for self-directed placement. The Fall 2021 College Catalog also revealed College Math and College English readiness requirements as a guide for placement strategies.

The second aspect of developmental education reform is eliminating developmental courses with credits that do not contribute to degree completion and creating corequisite courses as companions for college-level English and math courses. Institution B’s leaders adopted a corequisite integrated learning model. While still providing developmental courses, the leaders had begun moving toward the corequisite direction. Traci said,

I think 50% of our students were going into developmental English [classes], and now it’s 30% [of students]. Most of those [who] are going into developmental English are going into the English 101 [course] with corequisite support. Then, for math, we’re now placing 70% [of students] at [the] college level, and 30% are going into a corequisite model for math. So we’ve basically flattened developmental education.

This shift positively influenced students’ completion of gateway courses for accessing college-level English and math classes as early as their first semester.

One of the consequences of removing nearly all developmental education was that Institution B’s leaders had to work through new problems to support students in need of and enrolled in the few remaining non-credit bearing developmental courses. Traci said,

We've seen a steady increase in [the] failure rate [of] the developmental classes because [we're] isolating students in those classes. They used to be heterogeneous before, [with] some students who actually were able to do college-level work, and pulling those folks out [has caused] a different kind of problem. We really need to figure out how we can help those students [enrolled in developmental education].

It's not as huge [of an issue] as I almost would expect, but it definitely is an issue when you can't really watch success rates in those classes to say, "Oh, this is working." The success rates in English 101 and college-level math [courses] didn't decline, though, which told us that students were passing at the same rate. And so, we felt like we were on the right track. Now we're looking at the rate at which students complete English and math [courses] in the first year. We look at retention and academic credit-earning as leading measures [for] figuring out where things are headed.

The institution's leaders focused on creating an environment of academic support for increased student success. Analyzing the data and the changes to placement and developmental education have had a positive impact on many students. However, an important assessment finding is that barriers remain for some and changes are still needed to support their success.

Institution B's leaders also analyzed the multiple measures CAPR study results and institutional change data to discern the effects of the changes. Sara described how the institution's leaders analyzed and used the results of the CAPR study:

Looking at the data showed significant differences. Once the study was over, we just continued the use of the algorithm and developed our own multiple measures.

And that has gone over really well. I chair the developmental education advisory committee. The vice president of academic affairs sits on it, too. The committee is comprised of deans and department chairs and folks from testing placement, academic counseling, [and] disability services. It's a nice cross-section. We had a lot of great success with multiple measures.

Sara added that the institution's leaders took the results to the Developmental Education Advisory Committee to discuss and analyze the impact on student success through the lens of gateway courses.

Also discussing how the institution's leaders examined the data, John indicated the need to continue looking at course success rates to determine program effectiveness:

We noticed that there was an 11% increase in [the] students [who] were taking English 101. Some people were weary. I was like, "Go, team!" I was very excited about that, but we're also going to look at the success rates because it's not just a matter of higher placement. It's like, how are [students] doing? Again, if the success rates are the same or better, we've taken a giant step into getting these students through. I know right now, because of [the] Title V [grant], we are absolutely looking at the success rates of the gateway courses.

John's statement suggests that the institution's leaders have begun making broad placement changes to move students through gateway courses and support academic credit-earning. Additionally, Institution B's 2020-2023 strategic plan included measures for the number of students placed in developmental education and the number of students successfully completing gateway English and math courses in year 1.

In summary, Institution B took a systematic, data-informed approach to evaluate its placement strategies and developmental education sequences. Changes made aligned with the Guided Pathways framework. The institution was able to flatten developmental education, which can improve student academic credit momentum, gateway momentum, and persistence, all of which are institutional goals. The institution's leaders also leveraged the changes to create a student success environment focused on student academic support through the corequisite support model. Academic support is a key institutional factor of student success.

***Theme 3: Redesigned Advising Strategies are a Necessity for Better Monitoring Student Progress in Alignment with the Guided Pathways Framework***

The advising redesign was one of the largest and most significant changes discussed by all the participants. The broad change in practice enabled Institution B to provide better support for students to achieve their goals. Traci expressed the importance of the redesign:

We're trying to tighten up some of our rules to make sure that students get caught early, but then we can work with them. We have too many students who are just bubbling along, failing everything in the wrong major. We're really trying to tighten up that monitoring piece quite a bit, and that's really aimed at improving retention and academic credit earning.

The Guided Pathways model suggests providing intrusive advising for all students where institutions can monitor students' academic progress (Bailey, et al., 2015). The shift in advising strategy was evident in all four EMMs: credit momentum, gateway momentum, program momentum, and persistence. Traci shared that the institution's

leaders closely examined EMMs and changed advising processes based on those numbers. She stated,

We're changing our advising on the basis of improving [EMMs], too. So, it is very intentional to move those numbers. A lot has been focused on retention rate, but I don't actually find that [retention rate is] as important as earned credits.

The advising redesign focused on using institutional data to understand student risk levels and prioritize advising support. Traci described the shift as

having tools in place that will flag students so that you can direct attention toward [students] because we just don't have the bandwidth to meet with every single student. Thirty-minute one-on-one sessions with 11,000 people aren't going to happen. We really have no choice but to sift through the data and information [and] flag the ones who really need our attention and make sure [that] we have a strategy for reaching them. Then [we] follow up to see that there's been some follow-through with what needed to be done. So, that's where my focus has been.

Sara discussed the redesigned advising structure:

Academic counseling is now utilizing [the] case management system with at least first-time, full-time students. We've started building school-based success teams. Part of our advising redesign [is] counselors [who] are now aligned to schools, and they're advising students [who] are part of that first time full-time caseload in those schools. [The advisors are] working with the navigators [who] are aligned to those pathways as well, and they're working with the dean and the chairs and the curriculum chairs as a team.

The goal is for us to look at the data [and] at the flags [to] reach [out] to those students and identify who's falling through the cracks, who's not falling through the cracks, who's making progress, who's not making progress and developing protocols and acting upon them. Some of the stuff is still in its infancy stage. We know that if we can utilize [the] early alerts in the data along with other data, hopefully, we can preemptively address students who may not be earning as many credits as we know they need to earn in order to make it back the following year.

Part of the advising redesign shifted the workload of faculty counselors, which required faculty union negotiations. John shared how he saw the Guided Pathways framework as a paradigm shift focused on transformational change. As institutions look deeply at practices, such as advising, leaders are challenged by shifting old patterns, including union contracts, toward the student success agenda.

The advising redesign structure developed from institutional changes to produce a meta-major framework for Guided Pathways. John described the first step of program mapping and meta-major development as essential to the success of academic counseling. The data from student focus groups showed that students wanted a clear map to completion without too many choices. Institution B built program maps into an existing advising tool, DegreeWorks, a program that helps to easily track academic progress. John explained, "It was very important not only [to] get [program mapping] done, but then also make sure that [it] linked with our DegreeWorks and that our counselors are given the information so that the advisement is correct." Developing the program mapping and changing the advising strategy resulted in a more holistic approach.

The goal of the advising redesign was to help students gain program momentum and succeed in their gateway courses with academic counseling and advising. John, the enrollment management lead, said,

I think [what] is very important when it comes to [the] academic counseling I'm involved in is getting those students to those areas, getting them to the gateway classes, getting them to the first three credits [or] first three courses of their majors, and, of course, getting them through English and mathematics.

The areas mentioned by John aligned with the EMMs of gateway momentum and program momentum. The institution prioritized and changed its approaches to advising and closely followed the program maps to help students pass through the required gateway courses in a reasonable timeframe and progress toward their degrees. Both metrics correlate with increased student success and degree completion. These strategies were also part of the Strategic Enrollment Management Tracking tool and, in a broader sense, the goals in the institutional strategic plan. Scaffolding the framework increased student completion via the institutional strategies for supporting students.

Another strategy implemented at Institution B was advising new students into a first-year experience course. Traci described the course:

We've reorganized ourselves to have a first-year experience by having a first-year seminar and also having [each of our] counselors assigned to two students.

[We've taken] the case management approach [and] concentrated [it] in the first year with the hope that we can educate students about how to handle the barriers that they're facing and who to go to at the college for support.

The Fall 2020 College Catalog on the institutions website showed a one-credit elective course to acquire skills and behaviors and develop attitudes and strategies for academic success. The course included services from offices across the campus, such as the Academic Counseling Office and Academic Support Office. Sara said,

We launched the first-year seminar in 6 months. We're now in our second year, Fall 2020. We've been offering a few sections in the spring, too. I was just looking at the data. We're reaching about a little over a third of our entering students. It's still an elective course. We're shooting for hopefully bringing it closer to scale by enrolling at least 50% [of first-time students] in Fall 2021.

Traci shared that a drawback of the student success course as an advising strategy was that the course lasted only one semester. She said,

The problem is that you need a sustained effort, right? I mean, that's what the research tells us. You might see a short-term impact, but to see a long-term impact, you really have to have a sustained effort and do something in the second semester [to] help people move to the third semester. A big part of that is momentum. It's just [that for] every semester that goes by, there's a huge potential for loss of momentum.

Some drawbacks remained related to the sustainability of reaching all entering students. The first-year seminar was part of a larger advising strategy for supporting all enrolled students that included faculty, advisors, and student support services from across the institution. The goal of the seminar was to connect with students and use feedback and involvement to foster relationships and student persistence at the institution. The feedback and involvement produced a positive student success environment.

### **Subtheme 3a: Technology Supports Student Communication and Feedback.**

The institution's advisors and faculty connected the Starfish platform to the student information system as a communication tool to interact with students. Starfish was a communication platform designed to monitor student academic progress, flag barriers to student progress, and refer students to other areas for academic or social support.

Institution B's academic advisors also utilized DegreeWorks, a program for monitoring academic progress and performing degree audits.

The institution's advisors and faculty connected the Starfish platform to the student information system as a communication tool to interact with students. Starfish was a communication platform designed to monitor student academic progress, flag barriers to student progress, and refer students to other areas for academic or social support. Institution B's academic advisors also utilized DegreeWorks, a program for monitoring academic progress and performing degree audits. Together, the two software packages enabled the advisors to gain stronger pictures of individual students' progress.

Sara saw the value of using Starfish as a large-scale communication tool for taking advising practices and student support to the next level. She said,

We now use [Starfish] knowing the importance of getting students to certain benchmarks in terms of their credit accumulation. Earning [at least] nine college credits over the course of their first year is going to increase the likelihood that they'll be back the following year. But you can't work toward that if you don't know how a student is doing during the course of the semester. We've launched three different progress surveys throughout the course of the year. We're utilizing

our part-time staff—we call them navigators—[to] conduct the outreach to students with flags.

This strategy focused on near-term successes and results impact EMMs, particularly credit momentum, program momentum, and persistence. Each of these touchpoints with students produced feedback that contributed to the broad institutional actions for student success.

Students can also use Starfish to monitor their academic progress and access faculty and student support services. Having a clear understanding of students' needs, to whom students have spoken, and what faculty and advisors have suggested is a way to streamline the process for everyone involved and remove duplicate work. Institution B provides documents and how-to resources for students and faculty on making the best use of the technology. These resources were available in spring 2021 on the advising webpage. The institution appeared to have invested substantially in providing a clear communication channel stratified across the institution.

However, a drawback to Starfish is that the data produced by the tool, such as usage statistics, are not conducive to monitoring collegewide metrics. Traci noted that Starfish focuses on advising and support. Due to unwieldy backend data, she did not “see Starfish as having the ideal reporting platform at this point.” However, Starfish is still a strong communication tool for providing effective student support. In addition, Traci said, the “faculty are doing a great job of raising flags, [which] has been incredibly helpful during COVID.”

One of the benefits of the technology was that it enabled students to build their schedules from Day 1 through completion. John said, “We have our counselors advise

[students], and students make their own schedules, which also has changed a great deal of what we do. A student can sit down and actually take their time [to develop a schedule].”

In the past, making student schedules was a time-consuming process for advisors, as they had to both advise students and help them create schedules, which took time away from advising practices. Changing the technology enabled the students to speak with advisors and create program completion maps from beginning to completion. According to John,

Our [DegreeWorks] system was set up for [advisors and students] to [schedule] maybe one or two semesters, and we would rather [have] them [schedule] the full four [semesters], so that, as you’re going along, you can adjust what happens if a student failed the course or had to take remedial classes. [The students] have the maps versus [an advisor saying], “Take these classes and come talk to me next week.”

Planning a degree program for four semesters for full-time students and beyond for part-time students could facilitate clear conversations with students about the time needed to complete their academic programs. The two powerful technological tools enabled the institution to provide improved support to students. Whether used individually or separately, engaging Starfish for communication and DegreeWorks for academic monitoring enabled the institution to invest in technology to foster student success and completion.

**Subtheme 3b: “15 to Finish” is Important but is not yet a Systemic Practice.**

Complete College America provides the initiative “15 to Finish” to focus on concerted communication efforts to encourage students’ credit accumulation for on-time completion. Students are advised to complete 15 credits each semester for a total credit

accumulation of 30 credits per year. John was an affiliate of Complete College America and an advocate of “15 to Finish”, which he described as an unofficial campus policy at Institution B. John regularly presented national study data to his advising staff on the initiative’s effectiveness for increasing degree completion. John provided an example of data showing the progress of the initiative, breaking down the impact:

[The initiative is] about engagement. That’s really the key thing. The [fewer] courses you offer, the [fewer] credits attained, [and] the less likely students [are to] continue because they don’t feel like they’re finishing college, and that’s 100% right on the button [for the initiative].

However, from an Academic Affairs perspective, Sara did not consider “15 to Finish” a systemic practice. She said, “I don’t believe there is a buy-in [for] the whole [“15 to Finish”]. Every now and then, you’ll see “15 to Finish” popping up on a billboard or something like that, but it’s not embraced. It’s not practiced.” Sara described advising as a transactional process and that, given the number of students and advisors, she “would be surprised if [students] get more than 10 minutes with somebody.”

Traci indicated the difficulty of implementing this type of initiative, which included pushing students struggling to succeed with 12 credits to take 15 credits. While the initiative does have value for on-time degree completion, it presents challenges to students. However, Traci said she was a proponent of keeping students at full-time status taking at least 12 credits:

I see [that] students who are full-time do better. I think it’s better to kind of try to keep them full-time and find ways to engage them and keep them on campus. I think the more [students] disengage and go part-time [and] the more their work

schedules intervene, the [more their] priorities [are] different. [They] scramble to get to one class, and it's much easier to drop it. It's just [that students can] lose momentum. They're not making progress toward their degrees. I just see a lot of problems with that.

The institution's leaders sought to find a balance between supporting academic progress for degree completion and student success. 15 credits might not be feasible for all students but full-time enrollment is still encouraged for degree completion.

The "15 to Finish" initiative was not fully part of the institution's culture; however, it did have some traction in the enrollment services areas of advising and registration. John shared how he connected with full-time students taking fewer than 15 credits, informing them that 15 credits was full-time enrollment and that taking fewer credits could result in slower degree completion. He then circled back to students taking between 12 and 14 credits:

When I send communications to students, I go back, and whenever I see a student taking 12 [or] 13 [credits who's] in good standing, I send out CRM [constituent relationship management software] communications to them. I'm looking at it from an economic standpoint and also [as] a process. I send them the data from Complete College America [that] show that the students [who] are full-time and [have] stayed at 15 [credits] have a better chance of finishing. I show them [the] charts that they have. And again, I sometimes get a whole bunch of them, and, here's the thing, we [offer] flat rate [tuition] between 12 and 18 [credits].

John's final point about flat-rate tuition indicates that students can save money and shorten their time to completion by taking more credits. John reported working hard to

change the culture of the Enrollment Management department so that the advisors and counselors could understand the impact of students taking 15 instead of 12 credits. He shared success data, stating,

When we began doing this, about 26% of our students that were full-time were taking 15 credits or more. We began this initiative about 3 years ago, and we're averaging somewhere around 41%–42% of our students [who] are full-time [who are] now taking 15 credits.

The significant increase in the percentage of full-time students indicates that some had begun earning credits and completing their degrees quicker than before.

In summary, Institution B changed their advising model to align with the Guided Pathways framework. Institution B implemented a holistic advising model. The model improved EMMs with proactive strategies including program maps, case management, and course level advising support. Elements of the advising model aligned with the institutions' strategic plan and the strategic enrollment management plan. Institution B also used software to facilitate the student experience including tracking academic progress and communicating with students about their academic experience. Institution B also has explored advising strategies from Complete College America, an external agency with an initiative called "15 to Finish" where full-time students are encouraged to improve on-time completion rates by increasing credit accumulation each semester. Overall, the multiple strategic changes to the advising redesign have brought significant progress to institutional EMMs.

***Theme 4: Financial and Knowledge Resources that Align with EMMs Contributed to Leaders' Ability to Evaluate Guided Pathways Implementation***

Designing and implementing Guided Pathways reforms for whole-institution transformational change can be costly; as a result, Institution B capitalized on several funding sources and knowledge resources to support the endeavor. Institution B had access to funding sources, such as federal grants and participation in national research studies that provided knowledge resources. The resources had an impact on how the leaders situated the institution to improve student services.

The federal grants provided funds over 5 years, enabling the institution to dramatically expand services to students to align with the Guided Pathways model. The institution received a \$2.7 million Title V Developing Hispanic Serving Institutions federal grant for over 5 years, from 2018 to 2023. The grant focuses on strategies for increasing academic success and credit accumulation, improving student retention, and building technical capacity to support the efforts. The grant includes a supplemental instruction path for Anatomy and Physiology, an advising redesign and first-year seminar, and technology such as Starfish and Tableau.

Sara was the project lead for the Title V grant. Traci said, “We also have a Title V grant, which really picks up a lot of the components of Guided Pathways. We were awarded that [grant] about a year after we joined the state-based Guided Pathways [initiative].”

When asked how the institutional culture on campus had changed for the use of metrics outside of traditional IPEDS, Sara presented an example from Title V: “One of our measurable objectives is [to] increase from zero to 12 the number of developmental

gateway and pre-transfer courses paired with academic support, multicultural student engagement strategies, and early warnings.” She described these components as a package for student support, adding, “It’s not a measure of student success, but it’s a measure of us promoting student success.”

When asked about the inclusion of EMMs, Sara said, “We’re looking [to] increase from eight to 11 the average number of credits earned by first-time, degree-seeking students per semester. We are tracking that.” Sara also confirmed that the Title V measurable outcomes required analyzing the data to address the gap in the credit accumulation for students between eight and 11 credits. She explained that, within the Title V grant, “We have [had] to decide to disaggregate [outcomes] for Latinx students, but we’re also looking at all groups as a result when we get the data.”

One of the key areas identified for support with Title V funds was a supplemental instruction program for providing targeted support to students in key gateway courses. Sara described this piece as

looking at courses that historically have been problematic for our students. We have faculty leads who are working on designing academic support structures, connecting to those courses, looking at things like embedded tutors and recitations, and working with instructional design for enhancing those learnings. Hopefully, in combination, all those things that I’ve just [mentioned] will help [us] see changes in those early momentum markers.

As shown in the Title V documents on the institution webpage in spring 2021, Institution B identified Anatomy and Physiology as an important gateway course that has also

traditionally been a barrier for student success. Institution B's leaders hoped to see increases in all EMMs by designing and integrating support into the class structure.

Institution B also capitalized on the invitation to participate in a study on multiple measures by the Center for Analysis of Postsecondary Readiness (CAPR). The CAPR study provided the institution with a framework for scaling a multiple measures redesign, which was especially helpful at the start of the pandemic. The institution had already participated in the study, with positive results. Sara said,

When we went remote [due to COVID], it was boom. We [didn't] necessarily have access to test scores or SAT [scores], [and] it was all up in the air. So, we moved to directed self-placement. We developed our own instrument and launched it in June.

The knowledge from the CAPR study enabled the leaders to implement a successful, scaled initiative quickly. They already had experience using the data from the study to inform their practices. Therefore, they could continue the practice into the pandemic.

Finally, another knowledge resource useful for the Guided Pathways initiative was Achieving the Dream (ATD) involvement. ATD provides institutions with customized support for evidence-based practices for student success. Through ATD, Institution B had access to coaching and resources for data-informed decision-making, holistic student support, and equity in outcomes.

In summary, access to resources has tremendous value for institutions seeking transformational change to improve student success. Institution B had access to financial resources through federal grant funds for 5 years, which could profoundly impact

institutional practices. Many of the grant objectives fit into the Guided Pathways model, with many of the prescribed metrics for success aligned with the four EMMs that are the focus of this study. Institution B also had access to knowledge resources through participation in the CAPR multiple measures study and ATD. The knowledge resources were an important tool for advancing the student success agenda of Guided Pathways.

### **Institution B Summary**

Institution B was focused on making institutional changes needed to strengthen a culture of inquiry. This was accomplished by shifting from reliance on external data sources to an investment in internal institutional research, specifically the acquisition and deployment of Tableau. Redesigning other areas of the college to align with the Guided Pathways framework were in progress. The areas included a new placement and developmental education structure as well as changes to the Academic Advising process. The advising changes include stronger technology to aid in student support and a shift in advising strategies aligned with research to increase credit accumulation for full-time students. The institution was focused on using EMMs as benchmarks for monitoring changes made in alignment with the Guided Pathways framework. The institution was also supported through financial and knowledge resources from various external agencies that help support student success and student completion initiatives.

### **Cross-Case Analysis**

The two institutions in this study had several similarities and a few differences, which resulted in like and unlike findings. A cross-case analysis was done to examine the themes and findings of the seven interviews and institutional documents. The study had relatively consistent findings across institutions; however, a few factors contributed to the

similarities and variations. The cross-case analysis consisted of qualitative analysis comparing within-case findings as well as three additional topics that are central to the analysis of both institutions. Those topics include the role of three specific entities, including presidential leadership, the State Higher Education System, and the AACC Pathways 2.0 program.

### ***Within Case Analysis***

A within-case qualitative analysis was done to explore the similarities and differences in findings between the two institutions under study. The results follow. Table 5 compares the 9 themes and subthemes of Institution A and Institution B that comprise the study findings. The position of each theme was connected to where each institution was in its implementation and scaling of Guided Pathways.

There were 4 themes that were present at both institutions. Both institutions focused on establishing a culture of inquiry, analyzing data for the implementation and evaluation of developmental education reform, utilizing financial and knowledge resources to support Guided Pathways implementation, and redesigning advising to better monitor student progress.

Both institutions had a culture of inquiry for decision-making and EMMs were valued for Guided Pathways evaluation. Institution A appeared to have a more scaled culture of inquiry based on data availability and ease at access to data including EMMs for decision-making. However, I found examples of data-informed decision-making and data applied in practice at both institutions. The qualitative interview data showed that both institutions were moving away from anecdotes toward data-informed decision-making. Maureen at Institution A attributed the use of evidence-based approaches to the

ATD coach, stating, “Our very first data coach with ATD gave us the best statement that we use all the time, which is, ‘That’s a lovely hypothesis. Do you have data to back it up?’” The ATD data coach helped set the tone for an institutional shift in decision-making. Similarly, at Institution B, Traci discussed the value of using EMMs, saying, “I like to use [EMMs] as a way of getting people focused and away from anecdotal conversations. I really tried to use the data to help people focus.” Both institutions’ leaders focused on using data to inform decisions due to ATD’s focus on decision-making.

The comparative analysis showed that both institutions made significant changes to their placement strategies and developmental education sequences. The changes could be seen in several EMMs including credit momentum, gateway momentum, and program momentum. Though the approaches at each institution were different, the results were similar, students were able to take credit-bearing courses more quickly. Leaders used the data to determine the effectiveness of changes and evaluate the success of the implementation.

Resource support was another central theme for both institutions, specifically resources that aligned with EMMs. Access to financial and knowledge resources provided support for Guided Pathways implementation. Both institutions had access to financial resources through large federal grants: Title III for Institution A and Title V for Institution B. The money, goals, and objectives associated with the grants over the 5 year grant period provided the foundation for each institution to undertake the large-scale Guided Pathways reform. The institutions both used the grants to focus on initiatives that improved retention and graduation rates. Many of the focus areas within the grants at

each school aligned directly with EMMs including credit momentum and gateway courses. Both institutions used the funds to build institutional capacity including the expansion of technology capacity. In terms of knowledge resources, both institutions were ATD members, an initiative focused on completion strategies and data-informed decision-making to produce change. Nationwide there are 300 community colleges that are members of ATD among the nearly 2,000 community colleges. The knowledge resources are valuable at encouraging institutions to think deeply about reform that utilized data to improve student success. Finally, both institutions were part of the same state system where accountability standards and data reports are shared through the system office. This adds a layer of access to data for decision-making.

A final area of similarity between the two institutions studied was redesigned advising strategies to better monitor student progress. At both institutions, this included Starfish and DegreeWorks as technology tools for advisors to monitor academic progress as well as access to individual EMMs for advising. Another finding related the advising changes focused on contractual agreements within the advising redesign. Both institutions had union environments; thus, the participants discussed the need to negotiate changes with the union leaders. Some of the redesigns in advising resulted in completely changed operations among some positions. Therefore, the contractual negotiations were a small barrier to implementation timelines.

Interview questions aligned with various aspects of Guided Pathways implementation. Discussions with leaders informed the extent of implementation for each institution. Based on the qualitative analysis the resulting themes were not the same for both institutions and not all discussions rose to the level of an individual theme at each

institution. Having access to data was a prominent theme for both institutions. This theme consisted of having access to data reports and tools to support decision-making and inform change strategies. Institution A appeared to have more ease of access to internal data for decision-making through collaboration with Institutional Research. Institution B relied on many external data sources to support decision-making. Sarah characterized Institution B as, “the problem right now is getting access to data is really hard.” Institution B is making strides to develop a stronger Institutional Research office to access internal institutional data more efficiently.

Equity in student outcomes was another theme for both institutions. Based on conversations with interviewees and researcher field notes, it was apparent that Institution A was further along in the explicit development of equitable practices and policies than Institution B. This resulted in a theme at Institution A but not Institution B. Institution A participated in AACC Pathways 2.0, which explicitly focused on equity practices and economic mobility. As a result, Institution A provided more examples than Institution B, which was reflected in the analysis and theming of the data. While equity did not result in an independent finding for Institution B, there was evidence the institution was disaggregating data to inform decisions specifically in relation to the work on the Title V grant, which was also aligned with the guided pathways work and EMMs gateway courses and persistence.

Finally, Institution B had two subthemes that were present due to their advising redesign efforts that were not explicitly present at Institution A. The first was the use of technology to aid in their advising strategies. Institution B focused on using institutional data to understand student risk levels and prioritizing advising support. As a large

institution, scaling case-management student advisement would be challenging due to the advisor-to-student ratio. Institution B utilized Starfish with a focus on student achievement in credit momentum and gateway momentum EMMs.

Institution B also focused on the “15 to Finish” Complete College America initiative through the Enrollment Management division. This did not appear to be a systemic practice across the entire institution, but the efforts in Enrollment Management appear to be making progress at the institution. John shared a preliminary analysis during our conversation in February 2021 that showed improvements to the number of credits earned by full-time students. While the “15 to Finish” initiative may not be scaled, it still could be effective at helping students with credit momentum.

**Table 5***Qualitative Themes*

Themes	Institution A	Institution B
The institution has a culture of inquiry, and EMMs are valued for Guided Pathways evaluation.	X	X
Subtheme: Campus stakeholders had access to data that improves decision-making.	X	
Subtheme: Leaders provided numerous examples of data in practice to inform the Guided Pathways framework.	X	
Data analysis plays key role in the implementation and evaluation of developmental education reform.	X	X
Equity is an institutional priority.	X	
Financial and knowledge resources that align with EMMs contributed to leaders' ability to evaluate Guided Pathways implementation.	X	X
Redesigned advising strategies are a necessity for better monitoring student progress in alignment with the Guided Pathways framework.	X	X
Subtheme: Technology supports student communication and feedback.		X
Subtheme: "15 to Finish" is important but is not yet a systemic practice.		X

***The Role of Leadership in Plotting the Course***

Leadership is a key indicator of institutional commitment and the overall institutional climate of student success. Both institutions in the study had changes in the presidency that resulted in broad cultural changes in support of student success and the Guided Pathways initiative. Institution A's president was eager for the college to join

ATD and set the leadership course for cultural change and stronger accountability measures, this included data-informed decision-making and positive student success measures. Maureen explained how Institution A appeared to have changed since the arrival of the president and her leadership at the college:

[The Institution] looks fundamentally different. When I came [in 2011], the president was ready for ATD in 2011. [However], the institution was not ready for ATD in 2011. We had to hold [the president] back a little bit and say, “We’re going to get there, but we’re not quite there [yet].”

Fast forward from 2011 to 2014. [We] joined ATD, then joined Guided Pathways, then [became] part of a cohort that is leading Guided Pathways. This past January, [we had] a data summit that was focused entirely on equity that our faculty members delivered. So, that’s kind of the culture shift [we had]. You had the president doing the rallying cry in 2011, and in 2020, you’ve got the faculty doing that.

The leaders instilled cultural change to strengthen the institution’s commitment, vision, and trust from the entire campus community. These elements produced the exceptional campus environment needed for change.

In 2015, Institution B hired a new president to replace a long-standing president, with the new leader immediately focusing on the national student success movement among community colleges. From the enrollment management and advising perspective, John attributed the cultural change on campus, from access (getting students in the door) to success (understanding where students are in the success pipeline), to the new president. John described the cultural change as “taking the next step. We got [students]

through the door, and we are now being held accountable [for their success].” This shift occurred under the new president’s leadership.

Traci also discussed the new president’s role as the impetus for change and the adoption of Guided Pathways. She shared that many reforms occurred at the institution under the umbrella of Guided Pathways. When asked how the leaders used data to inform decisions, Traci said,

[Using data] really involves our president, who really wanted to see the graduation rates of the college increase. When [the president] started at [Institution B in] 2015, the graduation rate was lingering around 12%. We hit [a] 20% [graduation rate] this year. So, we’re making progress that we’re very proud of. But it was really the data point that triggered the response.

The new president helped align the institution with national initiatives and research projects on completion reform, including ATD, Guided Pathways, and the CAPR study that was the foundation for the institution’s college placement reform.

Strong leadership is essential in guiding institutions toward the necessary cultural change on campus, particularly Guided Pathways. The new presidents at Institution A and Institution B motivated change to support student success. Both leaders focused on data-informed decision-making and changed key institutional practices to improve long-term graduation rates.

***The State Higher Education System Office has a Role in Shaping how Institutions Embrace Student Success***

Both institutions were part of the same state system of higher education. Despite providing services for different populations and having different enrollment sizes, both

received support from the system office in the same ways. Part of the system office's mission was to provide support to all colleges and universities in the system via the adoption of evidence-based best practices, accountability, and performance to address challenges in the state. The support included the system office providing ideas on the best practices and data analytics practices so that all colleges and universities could have the same performance metrics for decision-making. Individual institution leaders have some local control to implement initiatives, including changes to policies and practices that serve students' needs.

Documents from 2015 showed details of the metrics developed collaboratively by leaders across the state for the performance funding framework. Performance funding provides community colleges with a portion of earmarked funds based on the meeting defined student success measures, rather than on enrollments alone. The institutions designed performance improvement plans with clear goals to indicate how they would address the five areas of the performance funding framework (access, completion, success, inquiry, and engagement). The institutions' improvement plans included the goals and action steps for achieving the objectives aligned with the Guided Pathways framework for improving students' time to degree completion and graduation rates. Some of the practices in the improvement plan include reforms for placement testing, developmental education, and advising strategies.

Both institutions participated in ATD and the Voluntary Framework of Accountability, and both presented the data-informed environment and metrics used to track students that aligned with the state higher education system-requested metrics. As of the time of this study, there were no updated documents addressing the effectiveness

of the improvement plans. However, much of the institutions' work suggests the leaders will continue to carry out the plans presented to the state.

The state higher education system office also houses the statewide Student Success Center. Professionals from the Student Success Center coordinated a cohort-based Guided Pathways program in which Institutions A and B participated. Institution A also participated in a national AACC cohort (AACC Pathways 2.0), with the Student Success Center subsequently modeling the state-based Guided Pathways program on the AACC Pathways 2.0. Many of the best practices and tools, including the focused use of EMMs, were also part of the state-based Student Success Guided Pathways initiative.

### ***The AACC Pathways 2.0 Improved a Scaled Guided Pathways Implementation***

#### ***Timeline***

Institution A participated in the AACC Pathways 2.0, an intensive cohort model requiring a strong institutional commitment and campus buy-in to effectively develop an action plan and scale the Guided Pathways model by fall 2020. Leaders received guidance from a data coach and attended institutes with support from members of the CCRC team on implementing Guided Pathways. The intense commitment to transformational change at scale increased the likelihood of seeing stronger, faster, more concrete results and scaled programming with positive completion rates. The AACC Pathways 2.0 model focused on EMMs to inform change resulting in more substantial adoption of data-informed decision-making across the institution and Guided Pathways.

Leaders at Institution A were able to accomplish the planning and implementation phases of the Guided Pathways framework and were now focused on evaluation. While both institutions participated in their state higher education system Guided Pathways

project during the same period, Institution A's overlap participation with AACC Pathways 2.0 accelerated their scaling of Guided Pathways. Interviews with leaders at Institution A showed a mature culture of inquiry and broad data use across the institution. Interviews with leaders at Institution B showed a developing culture of inquiry. Leaders at Institution B showed a strong desire to use data to inform and evaluate decision-making but were still developing tools to effectively access institutional data.

### **Cross-Case Summary**

A cross-case analysis commenced by comparing within-case patterns among the findings. Two compelling influences (presidential leadership and state system offices) created exceptional climates for student success at both institutions. The institution presidents were prominent leaders who set the course for institutional commitment and the cultural change needed to foster an environment of student success. The institutions shared many similarities in their approach and design of Guided Pathways, yet the resource support Institution A received from AACC Pathways 2.0 was an important difference that resulted in a scaled model.

### **Summary**

This chapter contained three main sections: Institution A, Institution B, and the cross-case analysis. The chapter provided the institutional context for each institution, including institutional and participant characteristics, and the compelling findings of the interviews and institutional documents. Each institution was analyzed using a case-based approach to holistically understand the phenomenon in a real-world context. I then applied a cross-case analysis comparing within-case patterns to share the similarities and differences between each case's findings.

## Chapter 5

### Discussion and Implications

The demand for higher education degrees has been rising as a more skilled labor market evolved. In 2009 research showed that 63% of US jobs would require some postsecondary education by 2018. If college completion rates did not improve, US employers would be short an estimated 3 million workers (American Association of Community Colleges, n.d.). Despite the increase in demand for college degrees, community college graduation rates remain low. In recent years, community colleges have been spotlighted as a vehicle for helping students across the country gain the college degree necessary to close the skills gap in the labor market and secure high-quality, skills-based jobs for a strengthened labor market. The College Completion Agenda, set forth by President Obama, has shifted the paradigm of community colleges from a focus on access to higher education to an expectation of access and student success. Yet, higher education lacks meaningful metrics to understand the community college experience and how that differs from traditional four-year baccalaureate institutions. Long-term measures such as graduation rates are important for evaluating student success and outcomes but are of limited value in understanding positive or negative aspects of college reform initiatives designed to improve completion rates (Jenkins & Bailey, 2017). Emerging research shows that leading measures, such as EMMs, are of value in helping institutions assess student success reform initiatives (Jenkins & Bailey, 2017). EMMs include first-year credit momentum, first-year gateway course completion, program momentum, and

persistence (Jenkins & Bailey, 2017). By monitoring EMMs, institutions can be agile and make adjustments to meet student needs (Jenkins & Bailey, 2017).

Guided Pathways for Success is a whole college transformational student success initiative designed to rethink how community colleges approach student success and improve completion rates. Data-informed decisions play an integral role in supporting the changes to policy and practice needed to undertake this kind of large-scale transformational change across an entire institution. This study focused on the convergence of these three themes, the College Completion Agenda, Guided Pathways, and data-informed decision-making, specifically how leaders used EMMs to inform their decisions around change needed to support student success and degree completion.

The findings in this study contribute a qualitative perspective to understanding how to use EMMs in alignment with Guided Pathways practices. Current research around the use of EMMs focuses primarily on quantitative and mixed methods research. Recent research compared the predictive power of EMMs using regression analysis with machine learning algorithm techniques that predict degree completion and found that both methods have similar results, predicting student completion for 80% of students (Yanagiura, 2020). This is excellent news for community college leaders and supports the argument made by Jenkins (2017) that using this set of EMMs is valuable to institutional leaders as an effective tool for assessing student success reforms in the short-term with the confidence that it will point to student completion in the longer-term.

Two community colleges were studied; both on a similar timeline for adopting the principles of Guided Pathways and both were part of highly selective resource rich initiatives that would yield positive, data-informed results. However, one was engaged in

an exclusive, supportive intervention, AACC Pathways 2.0. Only fourteen colleges nationwide participated in AACC Pathways 2.0. Both institutions in this study are making steady progress toward a scaled Guided Pathways model. Both institutions applied the knowledge and financial resources available to them to align institutional reform efforts with the Guided Pathways model and used EMMs to assess the changes to institutional policy and practice. The resources available to these institutions are unique among the total community colleges in the United States. Yet the lessons learned through these institutional policy and practice changes can help leaders at other community colleges across the United States learn and receive some guidance even if they are not receiving intense support from CCRC or other resource rich organizations.

This case study applied Tinto and Pussers' (2006) Model of Institutional Action to understand the institutional conditions necessary to support student success and improve completion rates. A case study allowed me to closely examine the phenomenon at each college in a real-life context through the lens of my theory and my theoretical propositions. Data was gathered through interviews with college leaders, institutional documents including webpages, and a researcher journal that documented study participants' affect and served as a source for capturing evolving ideas around the topic. Tinto and Pussers' theoretical framework provided a lens to explain various institutional factors needed to create an environment for students that is conducive to student success. The key elements for the Model for Institutional Action are institutional commitment, institutional expectations, support, feedback, and involvement/engagement (Tinto & Pusser, 2006). With the right environment, institutions can see positive changes to EMMs as well as lagging indicators such as completion rates.

This chapter addressed the research gaps found in the literature and answered the guiding research questions. The chapter begins with a discussion of each research question, proposition, and rival explanation through the lens of the findings from Chapter 4 and the existing theoretical framework. Many of the institutional actions related to transformational change on both campuses aligned with the Guided Pathways framework and the Model for Institutional Action. Both institutions demonstrated that having strong leadership invested in the institution, with a commitment to guiding change through the use of data to inform decisions, improved completion rates. Fostering a culture of inquiry, particularly around access to data and resource support, were identified as key findings to promote the change needed to implement Guided Pathways. I then discuss implications for leadership, practice, policy, and research, specifically how leaders can apply concepts from this study to their practice as they implement Guided Pathways on their community college campuses. I will then discuss study limitations, recommendations for future research, and my conclusion.

### **Research Question 1: EMMs in Practice**

This study explored how leaders use EMMs to support decision-making that improves student success and completion rates. The study focused on two institutions engaged in the deep transformational reform initiative Guided Pathways and studied different aspects of applying EMMs to tangible practices aligned with Guided Pathways.

My first research question asked how leaders at Guided Pathways institutions used EMMs to identify and implement changes to institutional policies and practices that appeared to be necessary to improve student success. I found ample evidence that leaders at both institutions used data, including EMMs, to inform their institutional policies and

practices. Findings supported my proposition that college leaders monitor key institutional actions that promote student success. EMMs provide a way to monitor conditions within an institution's control to make changes that support the student experience (Tinto & Pusser, 2006). Both institutions demonstrated a commitment to improving student success and created an exceptional environment to support the student experience, leading to improvements in student outcomes.

Conversations with leaders revealed that EMMs were valuable to help situate the conversation and communicate the problem to approach a change in practice. Both institutions used EMMs to identify institutional practices supporting and improving student success. This aligns with existing research that shows that for broad reform initiatives, data can be used to define a framework for action (Chaplot, 2017). One of the key strategies both institutions used was to include EMMs in strategic plans and other institutional plans such as grant implementation and strategic enrollment management. Having EMMs in planning documents is an important strategy to support change; tracking and monitoring metrics keeps leaders focused on goal attainment (Trainer, 2004). EMM-based KPIs become a core tool for leadership by adding a measurement component for strategic college-wide goals. This commitment aligns with Tinto and Pusser's (2006) Model for Institutional Action and demonstrates the value an institution is willing to commit to advancing the student success agenda.

Cross-functional collaboration is another important tool for improving the institutional culture. Due to the many pieces of the student experience, leaders need to work collaboratively across divisions and units to ensure consistency and communication that benefits the student. This collaboration creates that exceptional climate that Tinto

and Pusser (2006) describe as impacting student success by creating a campus climate with expectations for student, faculty, and staff behavior that shapes how individuals respond to each other. Leaders provided examples of collaboration between units that led to innovation on campus. Moving away from silos and toward collaboration was key for advancing campus reforms. Guided Pathways research focuses on cross-functional and cross-sector collaboration to connect services such as advising with academic program meta-majors but also connecting the student experience at all levels of the college (Griffin et al., 2021; Jenkins, 2011; Jenkins et al., 2014).

To effectively use EMMs in practice, leaders and campuses need to have a culture of inquiry. Interviews revealed that both institutions fostered a culture of inquiry, though were at different stages of adoption. How data-informed an institution was depended on its access to quality data for decision-making. Both institutions discussed access to data as a key driver of data-informed decision-making and data literacy as the skill needed to interpret and apply the data to decision-making. Research around creating a culture of inquiry showed that many community colleges had built successful cultures of data and evidence where institutional data is consistently tracked and stored (Chaplot et al., 2017). However, leaders are challenged by a lack of time or space to engage in the deep data analysis necessary to make meaning of and apply data to their practice (Chaplot, 2017). Institution A focused on empowering stakeholders to work with the Institutional Research team to access the data needed to support decision-making. Institution B focused on strengthening the Institutional Research office with tools such as Tableau, business intelligence software, to aid in quickly getting data to decision-makers. In both cases, to create a culture of inquiry, institutions need a strong, empowered Institutional

Research office to provide access to the right data in a timely manner to support decision-making. Investing in developing a strong Institutional Research office generates the institutional commitment to student success that Tinto and Pusser (2006) describe. Institutional Research is also valuable for providing data analysis for other institutional conditions in the Model for Institutional Action, such as analysis of academic and social support services. A culture of inquiry for community colleges means taking the evidence available and applying it to practice (Dowd, 2005). Dowd (2005) describes this as the shift from having access to data to decision-makers being confident and empowered to interpret and apply data to change initiatives that support student completion. Institutional Research offices have broad access to institutional data, analytic knowledge, and a strong relationship with leadership to support decision-making which positions the unit well to have a primary role in supporting a culture of inquiry (Baxter, 2020; Morest & Jenkins, 2007).

Resource support, both financial and knowledge resources, was another key finding that set the stage for EMM use at both institutions. Federal Title III Strengthening Institutions and Title V Developing Hispanic Serving Institutions grants provided valuable financial resources to support the implementation and build institutional capacity for Guided Pathways. EMMs were used to plan and implement these large federal grant projects. Both institutions directly aligned grant outcomes with EMMs, such as improving credit momentum, success in gateway courses, and persistence rates. Both institutions also used the funds to secure costly software that might have otherwise been unavailable such as Starfish and Tableau. Having access to federal funds can influence how colleges can advance the Guided Pathways model. CCRC recently published a

resource for leaders about how to fund Guided Pathways. Large federal grant support was suggested as an effective means for building and implementing Guided Pathways (Jenkins et al., 2020). Institutions also received important knowledge resources from ATD that shaped how leaders thought about the student experience and how data-informed those thoughts.

This research question had two rival explanations. The first was that data-informed decisions were of less importance to institution leaders and that leaders were moving forward to implement Guided Pathways without analyzing data to support their decisions. I found no evidence to support this rival explanation. In fact, beyond discussing how leaders used EMMs in practice, leaders at both institutions were also forthright to discuss a variety of metrics that guide their decisions, including course scheduling analytics, institutional measures of success around developmental education, and analyzing output data from their communication platform, Starfish. This rival explanation is rejected.

The second rival explanation focused on leaders being aware of EMMs but not intentionally using all four collectively to monitor changes to institutional practices. While institution leaders were able to provide many examples of using each EMM tied to practice, it is still unclear, from this research, if leaders have a system to access data regularly to review EMM's collectively. Discussions with leaders mainly focused on using individual momentum metrics to demonstrate an argument for change or show the progress of a change in practice. This could be necessary for applying the use of EMMs to practice. If leaders focused on one institutional practice aligned with EMMs, they might be unlikely to use all four EMMs collectively as an evaluative tool. However,

discussions lead me to believe both institutions have plans to develop an easily accessible, potentially interactive report that would display all four EMMs collectively. I cannot reject this rival explanation however, accessing the data collectively is not necessary for informing practice. Leaders are routinely reviewing EMMs as means to monitor change.

### **Research Question 2: EMMs and Barriers to Student Success**

My second research question asked how leaders at Guided Pathways institutions use EMMs to help identify barriers to student success. Using the Model for Institutional Action, this study asked interview questions aligned with key areas institutions can monitor as barriers to student success. These areas include academic, financial, and social support, feedback, and institutional expectation (Tinto & Pusser, 2006). As institutions explore ways to improve student success and student completion, efforts can be focused on these key areas. I found substantial evidence to support my proposition that EMMs are used to identify trends and problem areas. This gave leaders the ability to identify barriers to student success in a variety of key areas sooner than long-term metrics allow.

One of the most significant barriers to student success discussed by all study participants was developmental education. The elimination of developmental education aligns with the Guided Pathways model and reduces a barrier to student success and timely degree completion (Bailey et al., 2015). Both institutions discussed large institutional changes to college placement strategies and the developmental education sequence. Both institutions also identified EMMs as a clear means for identifying the problem and monitoring those changes.

Data was used to determine the best placement model for each institution. Institutions studied their course outcomes for developmental education and gateway math and English as a basis for change. Both institutions adopted new placement strategies and academic support models, where students were placed in gateway math and English courses with supplemental instruction for academic support. As leaders monitored EMMs, improvements could be seen in completing gateway math and English courses in students' first year and sooner achievement of credit momentum. The academic support model aligns with Tinto and Pusser's (2006) academic support to help students connect more deeply with the institution and financial support since this action reduces the amount of financial aid used toward a degree resulting in cost savings for students pursuing their degree. Developmental education unintentionally keeps students from moving forward into other required classes based on the unachieved prerequisite in gateway math and English courses.

In addition to gateway math and English courses, Institution B also applied the co-requisite support model to their gateway biology course. This demonstrated a proactive awareness of barriers to student success and completion. Expanding support models into other gateway disciplines aligns with the current thinking of Guided Pathways implementation. Co-requisite support helps students understand positive academic behaviors as well as the norms and expectations of a college class (Jenkins et al., 2021). Current research also examined the achievement of EMMs for STEM majors and the alignment with program momentum and transfer rates from community college into a baccalaureate program. The research found that early achievement of calculus and

science, technology, or engineering courses in a student's first year are positive indicators of transfer outcomes (Fink et al., 2021)

EMMs were helpful to identify barriers to student success within Academic Advising. Both institutions focused on advising strategies to better monitor and support students. Implementing a holistic case management approach better aligned academic support and feedback (Tinto & Pusser, 2006). Both institutions utilized DegreeWorks as a tool for monitoring academic program maps and student progress as well as time to degree completion. Using a communication and feedback platform, Starfish at both institutions, was valuable in advising students and providing students feedback. Starfish was beneficial for faculty during the Covid-19 pandemic transition to remote learning to connect with students. Employing various advising strategies helped students gain program momentum and succeed in gateway courses. Advising strategies were also used in a first-year experience course. Redesigning how students experience academic advising can be seen in several EMMs and aligns with Guided Pathways as well as institutional conditions necessary to improve student outcomes.

Another example of barriers to student success came from an exploration of credit momentum and student persistence. Leaders at Institution B took a close look at students that earned zero credits but persisted from fall to spring and from fall to fall. This concern for student success demonstrates a level of institutional commitment to not letting students fall through the cracks. This data exploration stems from the quantitative research using student transcript data that showed increased credit attainment in year one contributed to improved completion rates (Belfield et al., 2017). The institution is

exploring why students are not making academic progress and can intervene with practices that can better support the student toward completion.

Research question two had two rival explanations. The first was that institutional leaders are not monitoring EMMs; they monitor other traditional metrics to inform decision-making. Interviews with leaders at both institutions point to the use of EMMs to identify barriers and monitor changes to policy and practices. Traditional measures such as retention rates and graduation rates may also be used for decision-making, but at the individual change initiative level, EMMs are monitored. This rival explanation was rejected.

The second rival explanation was that institutional leaders are aware of EMMs and review them, but they continue to monitor traditional IPEDS measures regarding decision-making and barriers to student success. Leaders are aware of IPEDS graduation rates, and the impetus for transformational change was, in part, to raise graduation rates for both institutions. Graduation rates are built into planning documents as a high-level institutional metric and leaders were proud of moving that lagging indicator in a positive direction. However, in practice, I found no evidence that graduation rates are the basis for decision-making. Graduation rates look too far into the future to effectively be used to identify barriers to student success. This rival explanation was rejected.

### **Research Question 3: Disaggregated EMMs**

My third research question asked how leaders at Guided Pathways institutions use EMMs to identify and implement changes to institutional policies and practices that appear to be necessary to close achievement gaps among different student groups. In alignment with the Model for Institutional Action, this research question affected all key

areas, including institutional commitment, institutional expectation, academic and social support, feedback, and involvement, to create a welcoming and supportive climate for all student groups (Tinto & Pusser, 2006). My evidence does not support the proposition that college leaders are disaggregating EMMs by demographics to understand the institutional setting better and evaluate conditions leading to student success and equity in outcomes. At the time of interviews, Institution A had recently begun disaggregating EMMs and exploring ways to share a dynamic report of disaggregated EMMs with faculty. The hope was to generate buy-in for change in closing persistent equity gaps by utilizing a bottom-up approach to equity in the classroom. But this practice was delayed due to the Covid-19 pandemic. There was evidence that equity in student outcomes is valued at each institution and that both institutions plan to disaggregate their EMM data. However, I cannot reject the rival explanation that Guided Pathways leaders are not disaggregating EMMs to identify achievement gaps; the changes to institutional setting and conditions for student success address the overall institution only with hopes that the changes carry forward for all groups. Institution A had just begun disaggregating EMMs and sharing the results to improve change. Institution A also had done intentional work around equity as a priority. Institution B disaggregated other metrics, but I did not find evidence that EMMs were being disaggregated to identify gaps at this time.

Equity is essential to uphold the mission of the community college. Being open-access institutions, community colleges serve as an opportunity for economic mobility for all students and serve as a gateway for many underserved and underrepresented groups, including first-generation, low-income, and minority students (Dowd, 2007; Baldwin, 2017). Tinto and Pusser (2006) place equity at the center of institutional commitment.

The institution must find ways to support all students and encourage equitable outcomes. Both institutions were focused on closing persistent equity gaps; sharing data, including EMMs, is valuable to the institution as it generates buy-in for change with faculty and administration. The institutions have taken significant steps to align practices and policies that support equitable student outcomes.

### **Implications for Leadership, Practice, Policy, and Research**

Community colleges need a new set of metrics to evaluate the effectiveness of changes made to institutional policies and practices. Graduation rates look too far into the future, but leading measures like EMMs are valuable in helping to monitor change. Using EMMs to identify trouble areas and monitor changes is valuable to determine if something is working in the short term. For practitioners to have a set of metrics to monitor changes in the first semester and the first year is essential for refining the approach as necessary to meet student needs. Since the introduction of EMMs as a companion dataset for Guided Pathways, quantitative research evaluating student transcript data has continued to illustrate the value and predictability of EMMs to practice (Belfield et al., 2019; Yanagiura, 2020).

#### ***Leadership and Practice***

The findings in this study help leaders better understand how to use EMMs in practice to improve college completion rates. The use of EMMs helps leaders establish baseline metrics, demonstrate a problem to the campus community, and then remain agile to assess change sooner. In higher education, leading indicators as a predictive way to measure change have been more readily discussed. Recent literature on leading indicators shared direct practices used by leaders at one community college to improve student

success (Thomas & Daniel, 2019). However, the article did not focus on which specific leading indicators were used as KPI's and the college discussed did not use the Guided Pathways model as the conduit for transformational change (Thomas & Daniel, 2019). The CCRC has studied the predictability of the suite of EMMs examined in this research and found through transcript analysis that these EMMs are valuable in predicting longer-term student success (Belfield et al., 2019; Yanagiura, 2020). Therefore, understanding how leaders use EMMs in practice and in alignment with Guided Pathways planning, implementation, and evaluation provides valuable insight into change management.

Another finding from this study aligned with creating the right culture on campus that fosters change. At both institutions, when the president arrived, they brought a vision for the type of exceptional environment they wanted to implement. This attitude toward change led the way and opened the institution up to the possibility of change. This type of transformational change leadership is necessary for large-scale sustainable reform (Fullan, 2011). To foster deliberate change, Fullan (2011) described a change leader as being resolute to cultivate a commitment to change, being an empathetic relationship builder, collaborative, a confident learner, and measuring and learning from the impact. This change leader framework was present with leaders at both institutions. Leaders set the tone for a more collaborative approach toward decision-making and breaking down silos. This empowered other leaders to use data in different ways to support decision-making. Research from the Institute for Higher Education Policy (IHEP) focused on the importance and strategies needed for institutions to develop a culture for data-informed decision-making (Maldonado et al., 2021). Supportive leadership was essential for change, and data champions across leadership and units were also important to perpetuate

data-informed decision-making (Maldonado et al., 2021). Collaboration helped units across an institution make stronger data-informed policy and practice change decisions in alignment with Guided Pathways in an effort to improve student completion outcomes.

This study also found that trust between institutional leaders and their Institutional Research Office is important to generating the data necessary to support decision-making. Among the two institutions studied in this research, Institution A was further into their decision-making and data use model than Institution B. However, both institutions recognized the value of investing in and trusting their Institutional Research teams to get the data needed for decision-making. Having a good IR team and access to the right data is important to create a culture on campus where anecdotal evidence is not accepted as the only evidence. In addition to accessing quality data, leaders also discussed shifts in understanding what data is available and how to ask better questions to get the data needed for decision-making. Data literacy aligns with the American Association of Community College's Competencies for Community College Leaders. Senior leaders should have the skills to use data to improve efficiency and develop solutions that support student needs (American Association of Community Colleges, 2018).

Leaders at community colleges that lack the resources to expand their institutional research capacity could consider participation in the American Association of Community Colleges (AACC) Voluntary Framework of Accountability (VFA). The VFA includes progress measures aligned with Guided Pathways EMMs in their data profiles (DRIVING SUCCESS VFA Summary Report, 2019). Level one participation is free for AACC members' institutions; level two participation provides institutions access to comparative dashboards and costs just over \$1,000/year (About participation, n.d.).

Participation in a national organization's data collaborative would be a valuable benchmarking tool. Institutional leaders could access the necessary data for systematically tracking student progress and provide peer comparison, which is beneficial for institutional goal setting.

This study explored disaggregated EMMs to better understand changes needed to policies and practices that help close the achievement gaps among student groups. Findings revealed that equity was a priority for both institutions but, at the time of interviews, institutions were still in the early stages of exploring disaggregated EMMs to inform decision-making. College completion has a strong relationship with improved economic mobility for all student groups (Dowd, 2007; Baldwin, 2017). Community colleges are open-access institutions that serve as a gateway for many student groups, including first-generation, low-income, and minority students (Dowd, 2007). Guided Pathways commits to equitable outcomes for all students (McClenney, 2019). EMMs provide leaders with a way to evaluate change initiatives and, when disaggregated, can provide meaningful insight into previous blind spots of leaders. Implementation of the Guided Pathways framework alone will not close achievement gaps (Advancing equity through guided pathways series, n.d.). To help address this, the National Center for Inquiry and Improvement recently developed a series focused on equity and Guided Pathways. The guides encourage leaders to intentionally structure anti-racist policies and practices (Advancing equity through guided pathways series, n.d.). Intentionally examining policy and practices through the lens of equity, leaders can begin to minimize barriers to student success and close achievement gaps.

This study used Tinto and Pusser's (2006) Model for Institutional Action as a lens to understand specific actions institutions should take to improve student success. The areas of the Model align with the key areas of Guided Pathways and therefore serve as a meaningful lens for leaders. This study found the importance of having a transformational leader in the president's role to drive the institutional commitment defined in the Model for Institutional Action (2006). This study also found significant alignment with the role an institution plays in Support, Feedback, and Involvement (Tinto & Pusser, 2006). Leaders in this study provided examples of academic support through scaled corequisite models, social support through student resource centers, and financial supports through student grants. Data was analyzed to evaluate the effectiveness of changes to institutional policies and practices that aligned with these areas. Feedback aligned with the use of Starfish technology where faculty and staff could provide students with timely feedback. The Starfish data was also be analyzed to better understand and support student needs. Involvement aligned with student engagement on campus. Leaders at Institution A were analyzing student engagement data to understand the student experience. This study did not find significant alignment with Institutional Expectation except to create a climate that is conducive for student success.

### ***Policy***

Federal and state governments need to better support community colleges with financial resources to change how community colleges operate. Both of the institutions studied in this research applied for and secured large federal financial grants that contributed to widespread change across campuses. Without these resources, an institution would struggle to implement large-scale reform models such as Guided

Pathways. Community colleges serve a major role in providing open access education, especially for underrepresented groups, including first-generation, low-income, and minority students (Dowd, 2007; Baldwin, 2017), and generating college degrees that support local labor market demands. As pressures are put on community colleges to effectively feed the talent pipeline and drive economic mobility for underserved populations, many institutions have seen flat or reduced state support for operating costs (Andrews, 2021). Community college operating budgets rely on state, local, and tuition dollars. Community colleges need direct investment at the institution level to support transformational change (Cummings et al., 2021). When funding is flat or decreased from the state or county, institutions are forced to reduce costs related to instruction, academic support, and student support (Cummings et al., 2021). All of which are key drivers to supporting degree completion. The CCRC has also explored options for funding Guided Pathways at community colleges and suggests using federal grant funding to support change (Jenkins et al., 2020).

Another area for policy change is the expectation for 15 credits as full-time. The federal and state financial aid threshold is currently defined as 12 credits for full-time enrollment. 12 credits do not lead to adequate credit accumulation or momentum for on-time completion. Institutions need to shift how full-time enrollment is marketed or defined on individual campuses, but federal financial aid policies could aid in disseminating ideas and improving time to completion for students. This study found that 15 as full-time was not a systemic practice on either studied campuses. While there were efforts by some, primarily in the advising and counseling area, it was not scaled to the institution level. Changing this definition will be challenging as the post-pandemic

economy showed enrollment decreases at community colleges overall but especially decreases in full-time enrollment (Stay informed with the latest enrollment information, 2021). However, raising the threshold for full-time will magnify the image that students need to complete thirty credits a year to graduate on time, thus minimizing the time to degree completion (Adelman, 1999; Attewell et al., 2012; Attewell & Monaghan, 2016; Belfield et al., 2019).

A final area for public policy would be developing a national tracking system of student unit record data through higher education and labor market data. Developing such a tracking system would allow stakeholders, including policymakers, to better understand student progress and success in higher education and to more clearly understand the alignment between academic programs and the labor market. Such a data system would be valuable to college leaders in understanding student attrition. There have been attempts proposed under the College Transparency Act, but to date, Congress has approved no model (Committee on Measures of Student Success, 2011; GovTrack.us., 2021). In 2022, the College Transparency Act was attached to the America Competes Act, which would authorize funding in research investments for the United States to compete with China (Jaschik, 2022). The addition of a student unit record tracking system in this Act would empower students, policymakers, and employers to better understand the emerging talent pipeline and develop evidence-based federal policy (Jaschik, 2022; ). The America Competes Act passed the House and was moved to the Senate (GovTrack.us.,2022).

## ***Research***

As the Guided Pathways framework further develops and continues to take hold as a more effective model for community college operations, more research is needed to demonstrate theory to practice. The research in this study aimed to provide leaders implementing Guided Pathways with tangible examples of EMMs in action. The CCRC has thoroughly researched and developed numerous studies on aspects of the model in action (Jenkins et al., 2018; Jenkins et al., 2019, Jenkins et al., 2021). Yet the research primarily focuses on the states and institutions where CCRC supports implementation efforts. As the model is scaled to a variety of colleges, additional research is needed to best understand how implementation might look for institutions not being guided directly by the authors of the framework.

The findings in this study provided examples of EMMs in action. However, more research is needed on leaders' awareness of EMMs and their application of EMMs in practice, especially institutions outside the sphere of influence of the CCRC. There remains a gap in adopting EMMs on community college campuses and the use of EMMs as standard success metrics to inform change. The institutions in this study, which CCRC influenced through either AACC Pathways 2.0 or the state higher education system office, were well aware of EMMs but were still developing effective strategies to routinely track EMMs, disaggregate them, and share them with broader stakeholders. The Institute for Higher Education Policy found that institutions need data champions across many levels of leadership and units to continually apply data to practice (Maldonado et al., 2021). Further research should examine how leaders at all levels adopt EMMs and integrate them into standard measures of success.

## **Limitations**

This study focused on comparing two institutions both engaged in transformational changes under the Guided Pathways framework. However, only one institution was involved in AACC Pathways 2.0, a highly prescribed intensive cohort model. This difference between the two institutions provided interesting and important findings. Yet, a limitation of this study, unknown at the time of site selection, was that the state-based higher education system office was developing and hosting a Guided Pathways cohort model of which both institutions studied were participants in the same cohort. Additionally, the state modeled its Guided Pathways program after the AACC Pathways 2.0 Project model. The key metrics participating institutions studied and used in the AACC Pathways 2.0 Project were EMMs. While evidence exists, from documents reviewed, that the state higher education Guided Pathways initiative also examined EMMs, it does not appear to have the same emphasis or intensity of application as with AACC Pathways 2.0.

This study also focused on the senior leadership perspective of data use, specifically EMMs for decision-making; however the implementation of many projects falls to mid-level leaders such as heads of departments, including advising. The leadership perspective is essential in understanding the institutional expectations and sets the tone for a commitment to change, however, leaders might not always be aware of the exact application of EMMs in action. For example, questions in this study asked leaders about specific actions aligned with how academic advisors might use EMMs to advise students. While leadership oversees these areas, observing these nuances is outside their purview.

A final limitation is that while participants were asked questions specifically about using EMMs in practice, responses conflate all data for decision-making with EMMs used explicitly in practice. This often occurred when EMMs were used to evaluate a change in practice change to align with Guided Pathways, but other data analyses determined the impetus for change.

### **Recommendations for Future Research**

Seek additional perspectives, including the student perspective and other college administrators. Many of the changes to policies and practices discussed in this study were made to improve the student experience. Research on the student perspective would be valuable to understand if the changes were impactful to the students and timely degree completion.

This study focused on the senior leadership perspective of data use, specifically EMMs, for decision-making. However, the implementation of many policies and practice changes falls on administrators throughout the institution. Additional research is needed on the experience of administrators in the key areas of this study's findings.

One area this study found where leaders made changes to their institutions was the academic advising model. This included advisor access to student-level data on EMMs to better monitor individual student progress. Research is needed on the value of EMMs in the student/advisor relationship for academic advising offices undertaking Guided Pathways implementation. Other administrator perspectives would also be of value to determine the level of adoption of EMMs into the institution's decision-making and data use culture. Exploring director, academic chair, and curriculum coordinators' awareness and use of EMMs in practice would be important.

Examine changes in EMMs across multiple institutions. To add to the literature of EMMs, additional research should study the documents of multiple institutions that are actively using EMMs as a tool to implement guided pathways. Research could disaggregate the EMMs by student characteristics and see if implementing institutional changes impact all students equally. Addressing and attempting to close equity gaps early would positively impact student success and college completion rates.

Study additional institutions, both inside and outside of state systems. This study compared two institutions within the same state system. While some aspects of the institutions were different due to individualism on campuses, different leadership styles, and different student body characteristics, there were many similarities due to the statewide system. The system office conducted a highly structured cohort-based pathways model mirroring AACC Pathways. The result was similar changes and implementation strategies. Studying institutions within another state, whether they are independent or part of a system, would add value to the body of literature and help support leader practitioners seeking methods of measuring the effectiveness of changes across their campus.

### **Summary**

This study focused on the leadership perspectives of using EMMs to inform institutional policy and practice for the planning, implementation, and evaluation of Guided Pathways. The results of this study contributed new understanding to how leaders can better use EMMs to shape institutional changes that improve student success. This study provided leaders with tangible examples of EMMs in action and tools for how leaders can be prepared to support their institution to move forward with data-informed

decisions around Guided Pathways. Both institutions studied in this research experienced a level of support from a national organization or state-based support and both institutions were part of the same state higher education system. Yet, leaders at community colleges without any support need direction beyond the Guided Pathways book and subsequent research from the Community College Research Center (Jenkins et al., 2018; Jenkins et al., 2019). Leaders need examples of theory in action and the implications of that action in practice. This study helped leaders know what they do not know about the implementation and evaluation of Guided Pathways and how EMMs can be used in practice. It also allows leaders to learn through a qualitative experience directly from leaders, fellow practitioners, about their use of EMMs in the field. As community college leaders seek ways to improve college completion rates, they need a way to see problems, create solutions, and measure the success of initiatives. Community colleges have long sought ways to appropriately measure student success, and EMMs have proven to be effective at predicting long-term successes (Belfield et al., 2019; Yanagiura, 2020). EMMs should be used early and often by community college leaders to monitor change on campus and remain focused on helping students achieve success and completion.

## References

- AACC Pathways Project. (n.d.). Retrieved from <https://www.aacc.nche.edu/programs/aacc-pathways-project/>
- AACRAO Higher Education Act. (n.d.). Retrieved from <https://www.aacrao.org/advocacy/issues/higher-education-act.>
- About IPEDS. (n.d.). Retrieved November 20, 2017, from <https://nces.ed.gov/ipeds/about-ipeds>
- About Participation. Voluntary Framework of Accountability. (n.d.). Retrieved February 1, 2022, from <https://vfa.aacc.nche.edu/participation/Pages/default.aspx>
- Achieving the Dream. (n.d.). Retrieved from <https://www.achievingthedream.org/>
- Achieving the Dream receives gift from philanthropist MacKenzie Scott | Achieving the Dream. (2021). Retrieved March 13, 2022, from <https://www.achievingthedream.org/news/18536/achieving-the-dream-receives-gift-from-philanthropist-mackenzie-scott>
- Adelman, C. (1999). Answers in the toolbox: academic intensity, attendance patterns, and bachelor's degree attainment. Retrieved from <https://www2.ed.gov/pubs/Toolbox/index.html>
- Adelman, C. (2006). The toolbox revisited: Paths to degree completion from high school through college. *US Department of Education*.
- Advancing equity through guided pathways series. NCII. (n.d.). Retrieved February 1, 2022, from <https://ncii-improve.com/advancing-equity-through-pathways/#1585852122461-00fd4daa-3188>
- American Association of Community Colleges. (2018). AACC Competencies for Community College leaders. [https://www.aacc.nche.edu/wp-content/uploads/2018/11/AACC2018Competencies\\_111618\\_FINAL.pdf](https://www.aacc.nche.edu/wp-content/uploads/2018/11/AACC2018Competencies_111618_FINAL.pdf)
- American Association of Community Colleges. (n.d). The College Completion Factsheet. [http://www.aacc.nche.edu/About/completionchallenge/Documents/Completion\\_Toolkit\\_Complete.pdf](http://www.aacc.nche.edu/About/completionchallenge/Documents/Completion_Toolkit_Complete.pdf)
- American Association of Community Colleges (2012). *Reclaiming the American dream: A report from the 21st-century commission on the future of community colleges*. Retrieved from <http://www.aacc21stcenturycenter.org/>

- Andrews, K. (2021). Advancing the completion agenda: A snapshot of guided ... Retrieved January 22, 2022, from <https://ocrl.illinois.edu/docs/librariesprovider2/update-newsletter/advancing-the-completion-agenda-a-snapshot-of-guided-pathways-efforts.pdf>
- Association of American Community College Trustees. (n.d.). *Fact Sheet - America's College Promise Act of 2021*. Retrieved March 13, 2022, from <https://www.acct.org/files/ACP%20Act%20of%202021%20Fact%20Sheet.pdf>
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of college student personnel*, 25(4), 297-308.
- Attewell, P., Heil, S., & Reisel, L. (2012). What is academic momentum? And does it matter?. *Educational Evaluation and Policy Analysis*, 34(1), 27-44.
- Attewell, P., & Monaghan, D. (2016). How many credits should an undergraduate take?. *Research in Higher Education*, 57(6), 682-713.
- Bailey, T.R. (2018). Equity and Guided Pathways: which practices help, which hurt, and what we don't know. *CCRCCurrents*, *Community College Research Center*.
- Bailey, T., Calcagno, J. C., Jenkins, D., Leinbach, T., & Kienzl, G. (2006). Is student-right-to-know all you should know? An analysis of community college graduation rates. *Research in Higher Education*, 47(5), 491-519.
- Bailey, T. R., Jaggars, S., & Jenkins (2015). *Redesigning america's community colleges: A clearer path to student success*. Cambridge, Massachusetts: Harvard University Press.
- Baldwin, C. (2017). *The completion agenda in community colleges*. S.l.: Rowman & Littlefield.
- Baxter, K. S. (2020). *Accountability during Crisis: The Transformative Potential of Institutional Research and Effectiveness in the Struggle toward Racial Justice*. Feature: The Community College Context. Volume 6, No. 1. Office of Community College Research and Leadership.
- Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in higher education*, 12(2), 155-187.
- Bean, J. P., & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research*, 55(4), 485-540.

- Belfield, C. R., Jenkins, D., & Fink, J. (2019). Early Momentum Metrics: Leading Indicators for Community College Improvement. CCRC Research Brief. *Community College Research Center, Teachers College, Columbia University.*
- Buchanan, L. E., & Wilson, K. B. (2017). Free community college and merit scholarships. *New Directions for Community Colleges, 2017*(180), 67-74.
- Cabrera, A. F., Nora, A., & Castaneda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *The journal of higher education, 64*(2), 123-139.
- Calcagno, J. C., Crosta, P., Bailey, T., & Jenkins, D. (2007). Stepping stones to a degree: The impact of enrollment pathways and milestones on community college student outcomes. *Research in Higher Education, 48*(7), 775-801.
- Carnevale, A. P., Smith, N., & Strohl, J. (2013). Recovery: Job growth and education requirements through 2020. *Georgetown Public Policy Institute: Center on Education and the Workforce.*
- Carnevale, A. P., Jayasundera, T., & Gulish, A. (2016). America's Divided Recovery: College Haves and Have-Nots. *Georgetown University Center on Education and the Workforce.*
- Chaplot, P., Booth, K., & Johnstone, R. (2013). Building a culture of inquiry: Using a cycle of exploring research and data to improve student success.
- Clawson, S., Juncos, A., & Giffels, J. (n.d.). Student Success Center Network. Retrieved from <https://www.jff.org/what-we-do/impact-stories/student-success-center-network/>.
- Coburn, C. E., & Turner, E. O. (2011). The practice of data use: An introduction. *American Journal of Education, 118*(2), 99-111.
- Cohen, A. M., Brawer, F. B., & Kisker, C. B. (2014). *The American community college* (6th ed). San Francisco, CA: Jossey-Bass Inc.
- College Completion Challenge Fact Sheet. (n.d.). Retrieved June 12, 2016, from [http://www.aacc.nche.edu/About/completionchallenge/Documents/Completion\\_Toolkit\\_Complete.pdf](http://www.aacc.nche.edu/About/completionchallenge/Documents/Completion_Toolkit_Complete.pdf)
- Committee on Measures of Student Success: A Report to Secretary of Education Arne Duncan. (2011, December). Retrieved June 02, 2016, from <http://www2.ed.gov/about/bdscomm/list/cmss-committee-report-final.pdf>

- Crisp, G., & Delgado, C. (2014). The impact of developmental education on community college persistence and vertical transfer. *Community College Review*, 42(2), 99-117.
- Cummings, K., Laderman, S., Lee, J., Tandberg, D., & Weeden, D. (2021). Investigating the Impacts of State Higher Education Appropriations and Financial Aid. State Higher Education Executive Officers.
- Davidson, J. C., & Blankenship, P. (2017). Initial academic momentum and student success: Comparing 4-and 2-year students. *Community College Journal of Research and Practice*, 41(8), 467-480.
- Dembicki, M. (2021, March 31). Biden's infrastructure plan includes billions for two-year colleges. *Community College Daily*. Retrieved February 1, 2022, from <https://www.ccdaily.com/2021/03/bidens-infrastructure-plan-includes-billions-for-two-year-colleges/>
- Dowd, A. C. (2003). From access to outcome equity: Revitalizing the democratic mission of the community college. *The ANNALS of the American Academy of Political and Social Science*, 586(1), 92-119.
- Dowd, A. C. (2005). Data Don't Drive: Building a Practitioner-Driven Culture of Inquiry to Assess Community College Performance. Lumina Foundation for Education Research Report. Lumina Foundation for Education.
- Dowd, A. C. (2007). Community colleges as gateways and gatekeepers: Moving beyond the access "saga" toward outcome equity. *Harvard Educational Review*, 77(4), 407-419,528.
- Doyle, W. R., & Gorbunov, A. V. (2011). The Growth of Community Colleges in the American States: An Application of Count Models to Institutional Growth. *Teachers College Record*, 113(8), 1794-1826.
- DRIVING SUCCESS: VFA Summary Report: Leading Indicators of Success and Student Outcomes for Community Colleges. (2019). Retrieved from [https://vfa.aacc.nche.edu/Documents/VFA\\_Summary\\_Report\\_2019.pdf](https://vfa.aacc.nche.edu/Documents/VFA_Summary_Report_2019.pdf)
- Engle, J. (2016). Answering the call: Institutions and states lead the way toward better measures of postsecondary performance. *Bill & Melinda Gates Foundation*, 22.
- Fink, J., Jenkins, J., & Lahr, H. (2019) Metrics for Motivating and Measure Guided Pathways Reforms, AACC Pre-Conference Workshop, Orlando FL, April 13, 2019.

- Fink, J., Myers, T., Sparks, D., & Jaggars, S. (2021). Toward a Practical Set of STEM Transfer Program Momentum Metrics. CCRC Working Paper No. 127. Community College Research Center, Teachers College, Columbia University.
- Fullan, M. (2011). *Change leader: Learning to do what matters most*. San Francisco, CA: Jossey-Bass.
- Godin, E. (2019). *Developing guided pathways metrics in State Data Systems*. State Higher Education Executive Officers Association. Retrieved January 25, 2022, from <https://files.eric.ed.gov/fulltext/ED603953.pdf>
- Goldrick-Rab, S. (2010). Challenges and opportunities for improving community college student success. *Review of Educational Research*, 80(3), 437-469.
- GovTrack.us. (2021). H.R. 4674 — 116th Congress: College Affordability Act. Retrieved from <https://www.govtrack.us/congress/bills/116/hr4674>
- GovTrack.us. (2022). H.R. 4521 — 117th Congress: America COMPETES Act of 2022. Retrieved from <https://www.govtrack.us/congress/bills/117/hr4521>
- GovTrack.us. (2022). H.R. 2861 — 117th Congress: America's College Promise Act of 2021. Retrieved from <https://www.govtrack.us/congress/bills/117/hr2861>
- Griffin, S., Klempin, S. C., & Jenkins, P. D. (2021). Using Guided Pathways to Build Cross-Sector Pathways Partnerships.
- Hope, J. (2017). Follow this advice for an effective Guided Pathways program. *Successful Registrar*, 17(7), 1–4. <https://doi.org/10.1002/tsr.30336>
- IPEDS Data Center: Trend Generator. (n.d.). Retrieved September 18, 2018, from <https://nces.ed.gov/ipeds/trendgenerator/#/>
- IPEDS Data Center: Survey Components – Graduation Rates. (n.d.). Retrieved September 20, 2018, from <https://nces.ed.gov/ipeds/use-the-data/survey-components/9/graduation-rates>
- Jackson, K. & Bazeley, P., (Eds.). (2019). *Qualitative data analysis with NVivo*. Sage Publications.
- Jaschik, S. (2022). House Approves College Transparency Act. Retrieved March 13, 2022, from <https://www.insidehighered.com/news/2022/02/07/house-passes-college-transparency-act>

- Jenkins, D. (2011). *Redesigning Community Colleges for Completion: Lessons from Research on High-Performance Organizations*. New York, NY: Columbia University Teachers College, Community College Research Center.
- Jenkins, D., & Bailey, T. (2017). *Early momentum metrics: Why they matter for college improvement*. New York, NY: Columbia University, Teachers College, Community College Research Center. Retrieved from <https://ccrc.tc.columbia.edu/media/k2/attachments/early-momentum-metrics-college-improvement.pdf>
- Jenkins, D. & Cho, S.W. (2014). *Get with the Program...and Finish It: Building Guided Pathways to Accelerate Student Completion*. *Community College Research Center, Teachers College, Columbia University*.
- Jenkins, D., Brown, A. E., Fay, M. P., & Lahr, H. E. (2020). *Funding guided pathways: A guide for community college leaders*.
- Jenkins, D., Brown, A. E., Fink, J., Lahr, H., & Yanagiura, T. (2018). *Building Guided Pathways to Community College Student Success: Promising Practices and Early Evidence from Tennessee*. *Community College Research Center, Teachers College, Columbia University*.
- Jenkins, D., Lahr, H.E., Brown, A.E., Mazzariello, A. (2019). *Redesigning Your College Through Guided Pathways: Lessons on Managing Whole-College Reform From the AACC Pathways Project*. <https://ccrc.tc.columbia.edu/media/k2/attachments/redesigning-your-college-guided-pathways.pdf>
- Jenkins, D., Lahr, H., & Mazzariello, A. (2021). *How to Achieve More Equitable Community College Student Outcomes: Lessons from Six Years of CCRC Research on Guided Pathways*. Report. Community College Research Center, Teachers College, Columbia University.
- Jenkins, D., Lahr, H. E., Fink, J., & Ganga, E. C. (2018). *What We Are Learning About Guided Pathways*.
- Johnstone, R. (2015). *Guided Pathways demystified: Exploring ten commonly asked questions about implementing pathways*. California: National Center for Inquiry & Improvement.
- Juskiewicz, J. (2017). *Trends in community college enrollment and completion data, 2017*.
- Kelderman, Eric. (2020). *Happy new year, higher ed: you've missed your completion goal*. *Chronicle of Higher Education*.

- Karp, M. M., & Bork, R. H. (2012). " They never told me what to expect, so I didn't know what to do": Defining and Clarifying the Role of a Community College Student. CCRC Working Paper No. 47. *Community College Research Center, Columbia University*.
- Kerrigan, M. R. & Jenkins, D. (2013). A Growing Culture of Evidence? Findings from a survey on data use at achieving the dream colleges in washington state. New York, NY: Columbia University, Teachers College, Community College Research Center. Retrieved from <https://ccrc.tc.columbia.edu/media/k2/attachments/growing-culture-of-evidence.pdf>
- Kezar, A., & Posselt, J. (Eds.). (2019). Higher education administration for social justice and equity: Critical perspectives for leadership. Routledge.
- Kotter, J. (n.d.). The 8-Step Process for Leading Change - Kotter International. Retrieved August 1, 2019 from <https://www.kotterinc.com/8-steps-process-for-leading-change/>
- Kuh, G. D., Kinzie, J., Schuh, J. H., & Whitt, E. J. (2005). Assessing conditions to enhance educational effectiveness. *The Inventory for Student Engagement and Success. San Francisco*.
- Leinbach, D. T., & Jenkins, D. (2008). Using Longitudinal Data to Increase Community College Student Success: A Guide to Measuring Milestone and Momentum Point Attainment. CCRC Research Tools No. 2. *Community College Research Center, Columbia University*.
- Maldonado, M., Mugglestone, K., & Roberson, A. J. (2021). Developing a Data-Informed Campus Culture: Opportunities and Guidance for Institutional Data Use. *Institute for Higher Education Policy*.
- Marsh, J., Pane, J., & Hamilton, L. (2006). Making Sense of Data-Driven Decision Making in Education. Rand Education.
- McClenney, K. M. (2019). Guided pathways to college completion and equity. T. O'Banion (Ed.), 18, 85-103.
- McPhail, C. J. (2011). The completion agenda: A call to action. *American Association of Community Colleges*.
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). Qualitative data analysis: A methods sourcebook.

- Miller, B. (2016). Building a Student-Level Data System. Retrieved June 12, 2016, from <https://www.americanprogress.org/issues/higher-education/news/2016/05/23/137881/building-a-student-level-data-system/>
- Mishory, J. (2018). The Future of Statewide College Promise Programs. *The Century Foundation, March, 6*.
- Moore, C., Shulock, N., & Offenstien, J. (2009) *Steps to success: analyzing milestone achievement to improve community college student outcomes*. Sacramento, CA: Institute for Higher Education Leadership & Policy.
- Morest, V. S., & Jenkins, D. (2007). Institutional Research and the Culture of Evidence at Community Colleges. Report No. 1 in the Culture of Evidence Series. *Community College Research Center, Columbia University*.
- Mullin, C. M. (2010). Rebalancing the Mission: The Community College Completion Challenge. AACC Policy Brief 2010-02PBL. *American Association of Community Colleges (NJ1)*.
- National Archives and Records Administration. (2009). Remarks by the president on the American Graduation Initiative in Warren, MI. National Archives and Records Administration. Retrieved January 4, 2022, from <https://obamawhitehouse.archives.gov/the-press-office/remarks-president-american-graduation-initiative-warren-mi>
- New York Student Success Center. (n.d.). Retrieved November 17, 2019, from <https://nyssc.org/>.
- Ngo, M. (2021, October 22). After dropping Free Community College Plan, Democrats explore options. The New York Times. Retrieved February 1, 2022, from <https://www.nytimes.com/2021/10/22/us/politics/free-community-college-democrats.html>
- Offenstien, J., Moore, C., & Shulock, N. (2010). Advancing by Degrees: A Framework for Increasing College Completion. *Institute for Higher Education Leadership & Policy*.
- Organisation for Economic Co-operation and Development (OECD). (2018). *Education at a glance 2018: OECD indicators*. Paris, France: OECD Publishing.
- Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *The journal of higher education, 51*(1), 60-75.

- Pathways Collaborative (n.d.). Retrieved November 17, 2019, from <https://www.pathwaysresources.org/pathways-collaborative/>.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods*. United States: Sage Publications.
- Phillips, B. C., & Horowitz, J. E. (2017). *Creating a Data-Informed Culture in Community Colleges: A New Model for Educators*. Harvard Education Press. 8 Story Street First Floor, Cambridge, MA 02138.
- Rossman, G. B., & Rallis, S. F. (2012). *Learning in the field: An introduction to qualitative research* (3rd ed.). Washington DC: SAGE.
- Rose, M. (2016). Essay on challenges facing the guided- pathways model for restructuring two-year colleges. Retrieved from <https://www.insidehighered.com/views/2016/06/23/essay-challenges-facing-guided-pathways-model-restructuring-two-year-colleges>
- Rubin, H., & Rubin, I. (2005). *Qualitative interviewing : the art of hearing data* (Second edition.). Thousand Oaks, Calif: Sage Publications.
- Saldaña , J. (2016). *The coding manual for qualitative researchers* (3rd Ed). Thousand Oaks, CA: Sage.
- Scott-Clayton, J. (2011). *The Shapeless River: Does a Lack of Structure Inhibit Students' Progress at Community Colleges?* CCRC Working Paper No. 25. Assessment of Evidence Series. *Community College Research Center, Columbia University*.
- Spady, W. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, 2(3), 38–62. <https://doi.org/10.1007/BF02282469>
- Stake, R. E. (1995). *The art of case study research*. Sage.
- Stay informed with the latest enrollment information. National Student Clearinghouse Research Center. (2021, November 18). Retrieved February 1, 2022, from <https://nscresearchcenter.org/stay-informed/>
- Stuart, R. (2013). Dropout graduates: Under antiquated IPEDS measures, some graduates and transfers are still considered dropouts.(integrated postsecondary education data system). *Diverse Issues in Higher Education*, 30(18), 13.
- Student Unit Record Data System. (n.d.). Retrieved December 29, 2019, from <https://www.newamerica.org/education-policy/topics/higher-education-data-and-transparency/higher-education-data/student-unit-record-data-system/>.

- Swing, R. L., & Ross, L. E. (2016). A new vision for institutional research. *Change: The Magazine of Higher Learning*, 48(2), 6-13.
- Thomas, A. P., & Daniel, C. (2019). *Leading with Data*. What about leadership? Retrieved January 24, 2022, from <https://www.whataboutleadership.com/single-post/2019/08/21/leading-with-data>
- Tinto, V. (1975). Dropout from Higher Education: A Theoretical Synthesis of Recent Research. *Review of Educational Research*, 45(1), 89–125.  
<https://doi.org/10.3102/00346543045001089>
- Tinto, V., & Pusser, B. (2006). Moving from theory to action: Building a model of institutional action for student success. *National Postsecondary Education Cooperative*, 1-51. Retrieved on October 13, 2017 from [https://nces.ed.gov/npec/pdf/Tinto\\_Pusser\\_Report.pdf](https://nces.ed.gov/npec/pdf/Tinto_Pusser_Report.pdf)
- Tinto, V. (2010). From theory to action: Exploring the institutional conditions for student retention. In *Higher education: Handbook of theory and research* (pp. 51-89). Springer, Dordrecht.
- Tinto, V. (2012a). *Completing college: Rethinking institutional action*. Chicago, IL: University of Chicago Press.
- Tinto, V. (2012b). Moving From Theory to Action: A Model of Institutional Action for Student Success. In A. Seidman (Eds.), *College Student Retention: A Formula for Student Success* (pp. 222-234). New York: Lanham: Rowman & Littlefield Publishers.
- Trainer, J. F. (2004). Models and tools for strategic planning. *New directions for institutional research*, 2004(123), 129-138.
- US Department of Education (ED). (2021, October 12). Title III Part A Programs - Strengthening Institutions. Retrieved March 31, 2022, from <https://www2.ed.gov/programs/iduestitle3a/index.html>
- Yanagiura, T. (2020). Should Colleges Invest in Machine Learning? Comparing the Predictive Powers of Early Momentum Metrics and Machine Learning for Community College Credential Completion. CCRC Working Paper No. 118. *Community College Research Center, Columbia University*.
- Yin, R. K. (2011). *Applications of case study research*. sage.
- Yin, R. K. (2018). *Case study research and applications: Design and methods*. Sage publications.

## Appendix A

### Interview Protocol

Hello,

My name is Meghan Alai; I am a doctoral candidate in the Community College Leadership Initiative program at Rowan University. I am currently working on my dissertation research. The title of my study is *The College Completion Agenda, Guided Pathways Reform, and the Role of Data in Informing Change: A Case Study Examining the Use of Early Momentum Metrics to Advance Student Success Reform*. I would like to thank you for your participation today.

Today's interview will take approximately 45-60 minutes and will include 18 questions focused on your experience with implementing Guided Pathways on your campus. Specifically, I will be exploring how data is used to inform decision making around policy and practice changes to help increase student success. Many of the questions will focus on the use of early momentum metrics as leading indicators for change as well as aligning institutional conditions to improve student success.

Since Guided Pathways is still a new initiative, I am here to learn from your experience. All the information you provide here today will remain confidential and for the use of this dissertation research. Your participation in this interview is strictly voluntary. If at any time you need to pause or stop the interview, let me know and we will stop immediately.

Do you have any questions or concerns before we begin?

#### Introduction Questions

1. Can you tell me about your background specifically, what is your current job title? How long have you served in this current role?
2. How long have you worked in community colleges?
3. What is your role with Guided Pathways at your college?  
Probe: How long have you been involved with Guided Pathways on your campus?

Probe: Are you directly involved with the AACC Pathways 2.0 Implementation or the SUNY Guided Pathways Institutes, Cohort 1 team?

## Main Questions

4. Can you discuss a major change that advanced Guided Pathways on your campus?
  - a. How did you know the change was needed?
  - b. What evidence, if any, was used to support decision-making?
  - c. What was the result?

Now, I'd like to discuss the role of data informing decision-making, specifically, early momentum metrics. EMM's were specifically used as part of Pathways 2.0, SUNY Guided Pathways, and to some extent, the Voluntary Framework of Accountability.

EMM's include credit completion thresholds, completion of English and Math requirements, program momentum, and persistence.

5. How have EMM's changed how you approached and thought about Guided Pathways on your campus?
6. Can you provide an example of how EMM's refined your thinking?
7. Can you provide an example of a policy or procedure that was added or updated because what your institution's EMM's showed?
8. How, if at all, has the college used EMM's as part of an annual institution goal setting?
9. How, if at all, has the institutional culture on campus changed around the use of metrics outside of traditional IPEDS?
10. Understanding that advising resides in many different capacities including academic advising, faculty advising, counseling, or student success coaches, how have EMM's impacted your advising practices since implementing Guided Pathways?
  - i. Probe: Intrusive Advising
  - ii. Probe: Program Maps
  - b. Follow-up: Is there a culture for 15 is full-time?
  - c. Follow-up: Do all of these advising groups have access to utilize EMM's?
11. Community college students are often faced with financial and other academic challenges that make taking high credit course loads challenging. What, if at all, are some ways that your institution is helping to reduce "friction" that counteracts

momentum?

12. Using EMM's as a lens, how, if at all, do EMM's contribute to your understanding of barriers to student success?
13. Describe your most impactful change to integrating academic support into course structure?
  - a. Probe: Developmental Education, Academic Support Groups, Supplemental Instruction, Integrated Tutoring
14. What value do EMM's provide in your academic planning?
15. Can you describe a change your institution has implemented that provides students with feedback on their academic experience?
  - a. Follow-up: Can this change be seen in institutional EMM's as a leading indicator?
16. Have you disaggregated your EMM's by different groups to understand achievement rates and equity in outcomes?
  - a. Probe: Race/Ethnicity, club or activities involvement, mentoring programs, ethnic centers, modality, day vs. evening.
17. Can you provide an example of a policy or practice you changed as a result of trends identified by reviewing disaggregated EMM's?
18. What changes, if any, have been adopted to ensure student engagement and momentum of nontraditional students?

## Appendix B

### Consent to Participate in Research

You are being asked to participate in a research study.

Before you agree, the investigator must tell you about

- (i) the purposes, procedures, and duration of the research;
- (ii) any procedures which are experimental;
- (iii) any reasonably foreseeable risks, discomforts, and benefits of the research;
- (iv) any potentially beneficial alternative procedures or treatments; and
- (v) how confidentiality will be maintained.

Where applicable, the investigator must also tell you about

- (i) any available compensation or medical treatment if injury occurs;
- (ii) the possibility of unforeseeable risks;
- (iii) circumstances when the investigator may halt your participation;
- (iv) any added costs to you;
- (v) what happens if you decide to stop participating;
- (vi) when you will be told about new findings which may affect your willingness to participate; and
- (vii) how many people will be in the study.

If you agree to participate, you must be given a signed copy of this document and a written summary of the research.

You may contact Meghan Alai at [alaim7@students.rowan.edu](mailto:alaim7@students.rowan.edu) or you may reach the principal investigator, Dr. Monica Kerrigan, at [kerriganm@rowan.edu](mailto:kerriganm@rowan.edu) at any time you have questions about the research.

You may contact Rowan University Institutional Review Board at (856) 256-4078 if you have questions about your rights as a research subject or what to do if you are injured.

Your participation in this research is voluntary, and you will not be penalized or lose benefits if you refuse to participate or decide to stop.

### Agreement to Participate

I have read this entire form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form or this study have been answered.

Subject

Name: <sup>[1]</sup><sub>SEP</sub> \_\_\_\_\_  
\_\_\_\_\_

Subject Signature: \_\_\_\_\_ Date: \_\_\_\_\_

To the best of my ability, I have explained and discussed the full contents of the study including all of the information contained in this consent form. All questions of the research subject and those of his/her parent or legal guardian have been accurately answered.

Investigator Obtaining

Consent: <sup>[1]</sup><sub>SEP</sub> \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Rowan University Institutional Review Board  
Audio/Videotape Addendum to Consent Form**

You have already agreed to participate in a research study conducted Meghan Alai. I am requesting your permission to allow me to audio record your interview as part of that research study. You do not have to agree to be recorded in order to participate in the main part of the study.

The recording(s) will be used for interview transcription, data analysis, and citation by the researcher.

The recording(s) will include a full transcription of the interview however an alias will be used to protect the identity of the interviewee.

The recording(s) will be stored on a password protected electronic drive and on the researchers personal hard drive. Only the researcher will have access to the information being stored.

Your signature on this form grants the investigator named above permission to record you as described above during participation in the above-referenced study. The investigator will not use the recording(s) for any other reason than that/those stated in the consent form without your written permission.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_