

An Ecological Analysis of Post Traditional College Student Success

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## **Abstract**

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In the context of U.S. higher education, post-traditional students—those who may be older, work full-time, or have caregiving responsibilities—face unique challenges that are often overlooked by policies designed with the "traditional" student in mind. This dissertation explores how predictive metrics, policy interventions, and stakeholder perceptions influence college outcomes for post-traditional students, using Bronfenbrenner's ecological systems theory, adapted by Perna and Thomas, as a framework. It presents three complementary studies that address the diverse challenges faced by students who do not fit the traditional college student profile. Chapter 1 evaluates novel predictive metrics for older community college transfer students, emphasizing the role of both post-transfer academic momentum and program momentum in predicting college outcomes. Chapter 2 assesses the impact of various interventions on credit accumulation – considering their effects on both parents and non-parents. It finds that on average, interventions have similar impacts on post-traditional students such as parents compared to traditional students. Chapter 3 examines faculty and administrator perceptions of post-traditional students, highlighting how societal and institutional beliefs shape faculty and student interactions and policy implementation. Taken together, the findings demonstrate interdependencies across ecological policy layers. This work contributes to the literature by illustrating the multiple, interconnected factors that should be considered to serve post-traditional learners more effectively and improve their outcomes in higher education.

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## **Dedication**

To all post-traditional college students—the parents checking homework on the train and submitting their own term papers after bedtime, the middle-aged transfer student restarting a journey or building a new life for themselves, the student who faced setbacks against a system not designed for them and still decided to try again—you are seen, and you are valued. Thank you for inspiring this work.

## Preface

Historically, students from marginalized backgrounds faced significant challenges in predominantly white, Christian, and wealthy colleges and universities. Yet in the face of barriers, many persisted, leaving legacies that continue today (Ogren, 2003, Remenick, 2019). Despite a long-standing presence of students who are not white, not Christian, and not wealthy attending and succeeding at institutions across the U.S., popular culture and dominant narratives often frame the “traditional” or “normal” college student as a newly independent young white adult without caregiving or work responsibilities. This misconception distorts how we conceptualize and address barriers to college access and success for a broad range of students. When policymakers and practitioners fail to recognize the varied experiences of students who do not fit this narrow definition, they risk reinforcing the idea that interventions "don't work" for certain populations. This perspective treats student differences as problems to be solved rather than assets that can inform better policies and strategies. Importantly, policy design and strategic practice implementation occur within non-neutral settings. Individuals and organizations develop and carryout policies informed by their own histories, experiences, and beliefs, shaping both the goals and effectiveness of interventions (Baumgartner & Jones, 1991; Ng & Sears, 2020). Empirically examining how these perspectives influence policy decisions is essential to understanding persistent inequities in college access and success, particularly for students who fall outside of the framing of the “norm” like post-traditional students.

This dissertation brings together three complementary studies to examine how predictive metrics, policy interventions, and stakeholder perceptions collectively impact college outcomes

for post-traditional learners. Findings from this work contribute to the literature on college success and diversity in several ways:

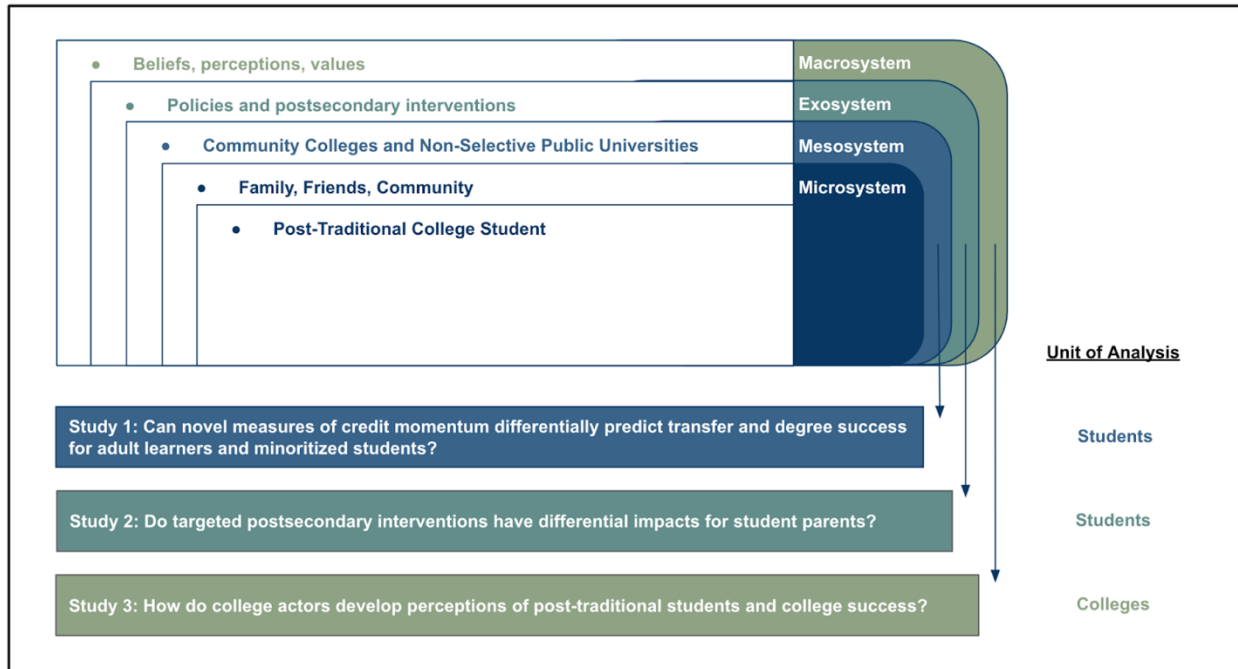
- **Chapter 1** builds on research in academic momentum by introducing novel indicators of post-transfer programmatic progress. Using descriptive quantitative methods, it evaluates whether new measures, derived from administrative data, enhance understanding of heterogeneous outcomes among older community college transfer students.
- **Chapter 2** employs meta-analytic methods to assess whether broadly implemented community college interventions have differential effects on student parents—a post-traditional population that is difficult to consistently identify and has been historically underrepresented in research.
- **Chapter 3** uses qualitative methods to examine how faculty and administrators perceive post-traditional students and the policies designed to support their success after transferring from community college. It explores the role of policy actors in shaping interventions and uses thematic analysis to contribute to the growing literature on policy agents' positionality in higher education (Karlsson & Rytberg, 2016; McKay & Robson, 2023; Natow, 2016).

There are countless reasons why students who intend to earn a college degree do not meet their academic goals. Institutional barriers, discouragement from administrative or academic challenges, familial and social obligations, prior traumatic experiences, and financial pressures all shape students' opportunities and decisions. While many narratives frame students as the primary decision-makers in their educational journeys, they exist within complex ecosystems that include institutions, policies, and societal structures—all of which influence their outcomes.

Bronfenbrenner's ecological systems theory of human development provides a useful framework for understanding how these overlapping environments interact to shape students' experiences with college success (Bronfenbrenner, 1994; Conrad & Serlin, 2011). This model outlines four interrelated components—person, process, context, and time—situated within concentric layers: the microsystem (immediate relationships and environments), mesosystem (interactions between individuals and institutions), exosystem (institutional policies and structures), and macrosystem (societal values and beliefs that evolve over time) (Bronfenbrenner, 1994).

Perna and Thomas (in Conrad & Serlin, 2011) later adapted this framework into a conceptual model of college success, centering college students within an ecosystem of people, place, and culture. Building on these foundations, I construct a theoretical model that integrates ecological theory, college success, and policymaking as a structural guide for this dissertation. The first two studies are situated within the mesosystem and exosystem. Both use quantitative methods to examine specific policy interventions and their impact on post-traditional student outcomes. The third study explores the interaction between the macrosystem (beliefs, values, and perceptions) and the microsystem, shifting the focus from students to colleges and college faculty and administrators' perceptions of post-traditional learners. With each study, I resize and reframe the ecological model, generating a more comprehensive analysis of how metrics, interventions, and implementation influence our understanding of post-traditional students and their success in college.

**Figure P.1: Theoretical Framework Adapted from Bronfenbrenner and Perna & Thomas**



**Figure Notes:** This theoretical framework integrates Bronfenbrenner’s ecological systems theory with Perna and Thomas's adaptation for higher education, illustrating how various layers of influence (microsystem, mesosystem, exosystem, and macrosystem) interact to shape post-traditional students’ experiences and outcomes (Perna and Thomas, 2011). The arrows represent the primary connection between each study and a different layer of the ecological model.

**A note about the term post-traditional:**

One way to conceptualize the student population at the center of this dissertation is to consider the opposite of a “traditional” undergraduate—someone over the age of 25, employed, caring for dependents, racially minoritized on their campus, or returning to school after a break or transfer. These are just a few examples, as post-traditional students represent a diverse array of experiences. By the most inclusive measures, they comprise more than half of U.S. college undergraduates, with the majority attending community colleges (Soares et al., 2017). There is no codified definition of “post-traditional,” however, and other researchers have estimated this population to be about one third of U.S. undergraduates (PNPI, 2025).

While post-traditional students have been referred to as the “new normal” in an acknowledgement of their perceived growth in population on campuses, this characterization is

also misleading. They have always been part of the academic landscape; what has changed is society's recognition of their presence and needs. In response to this shift, some scholars have moved away from the term *non-traditional*—which implies these students exist outside the norm—toward *post-traditional*, acknowledging both their historical presence and the evolving understanding of their experiences.

Given the diverse and intersectional identities of post-traditional students, it is critical to define the term carefully within each study. While my research interests span a broad range of post-traditional learners, this dissertation focuses specifically on two groups: adult community college transfer students and student parents. This focus reflects both the available data and my own research interests and positionality.

# **Chapter 1: Can novel measures of credit momentum differentially predict degree success for post-traditional student populations?**

## **1.1 Introduction**

This study uses descriptive quantitative methods to analyze differences in outcomes for older community college transfer students. It tests whether academic momentum measures that do more to capture their post-transfer experiences better predict bachelor's degree completion than traditional measures used in other research. Common measures, such as credit accumulation, enrollment persistence, and meeting course-level milestones, are widely used throughout higher education research to plan policy reforms, programs, and interventions, and assess their implementation (Bailey & Jenkins, 2017). Postsecondary institutions and systems often use these measures as indicators of progress towards institutional transfer and degree completion goals (Evans, et al., 2017; Chan, 2022). However, general academic momentum metrics like these may not be granular enough to inform stakeholders beyond aggregate measures of average students' progress. They may also mask persistent inequities among subgroups, such as older students, whose experiences fall outside of what may be considered "typical."

While the most widely used academic momentum metrics provide a broad framework for understanding student progress, their generalizability limits their utility in identifying barriers faced by specific student groups. Because they aim to describe students' experiences on average and draw from broad institutional data, they may not be constructed with careful consideration to specific structural and experiential differences that shape individual educational trajectories. This can make it difficult for broad metrics to be applicable for students whose pathways diverge from traditional models. Nonacademic factors—such as time a student may have spent “stopped

out” from college, employment responsibilities, and family obligations—play a crucial role in student experience but are mostly absent from most momentum-based analyses (Yanagiura, 2023). Conventionally broad momentum metrics may also fail to account for program-specific challenges and inequities that shape students’ post-transfer experiences. For example, older learners, who are overrepresented in community colleges, may not be adequately captured in broad indicators of persistence and credit accumulation that presume linear or sequential pathways. If an institutional goal is to measure student success with an equity lens, it is necessary to refine existing metrics or find new ones that can better capture the nuanced challenges faced by historically marginalized post-traditional learners.

This study asks whether more specific measures of academic momentum, particularly those incorporating progress in students’ programs of study, are stronger predictors of college success for older transfer students (i.e., age 24 and older). It addresses two research questions:

1. Can novel indicators of post-secondary progress such as program-relevant metrics effectively improve predictions of degree completion for post-traditional student populations such as older community college transfer students?
2. Are there differential associations in the relationship between momentum indicators and degree completion by age among community college transfer students?

To address these questions, I examine longitudinal student records provided to me by the Massachusetts Departments of Higher Education from 2009 – 2022. What follows is a review of literature I used to inform my study, a discussion of the Massachusetts policy context, an explanation of the methods I used, and a discussion of the findings.

## 1.2 Literature Review

### Motivation for Studying Community College Transfer

Transfer has long been central to the community college mission and state higher education systems, offering students a lower-cost pathway to a bachelor's degree (Bragg et al., 2009; Grubbs, 2020; Shaw & London, 2001). For example, the California Master Plan for Higher Education, adopted in 1960, exemplifies this design by establishing a clear transfer function within the state's higher education structure (Douglass, 2007). Under the plan, California's community colleges were tasked with providing open-access, affordable education and serving as a primary entry point for students seeking to transfer to a four-year institution. The University of California and California State University systems were expected to prioritize qualified community college transfers for admission. This design aimed to expand educational access, control costs for students and the state, and develop the state's workforce (Douglass, 2007; Johnson, 2016; Oxendine, 2017).

Research consistently shows that only a small fraction of community college students who intend to earn a bachelor's degree ever transfer or succeed in doing so (National Student Clearinghouse, 2025). This persistent gap highlights the need to better understand the barriers transfer students face and the factors that support their success. Statewide transfer systems have been developed across the country, reflecting the broader recognition of transfer as a key equity and efficiency strategy. For example, Texas has established transfer pathways through its Texas Direct program, while Florida's 2+2 Articulation Agreement guarantees admission to a state university for community college graduates with an associate degree (Bailey et al., 2017; Garcia Falconetti & Jones, 2009). Massachusetts' MassTransfer program offers structured transfer

pathways and credit articulation agreements to minimize credit loss and improve degree completion (de la Torre, Jr. & Wells, 2014).

### **Motivation for Focusing on Older Transfer Students**

**Transfer Students.** Many students enroll in multiple postsecondary institutions before completing a degree, making it difficult to track their academic progress overtime, as data are not always adequately linked or updated. Adelman (2006) estimates that nearly three-quarters of undergraduates attend multiple institutions before earning a bachelor’s degree. For transfer students, ensuring that the credits they accumulate apply toward a degree is crucial for accurately assessing their progress, especially if this occurs across multiple institutions. However, credit loss, transfer misalignment, and differences in institutional policies can make this complicated (Grote et al., 2023).

Community college transfer students also face unique financial, academic, and social challenges. Compared to students who begin at four-year institutions, transfer students are more likely to rely on financial aid, be older, and attend college part-time (Velasco et al., 2024). These factors influence their ability to persist and graduate. In the face of these challenges, significant research has focused on understanding barriers and developing supports to help community college starters matriculate to four-year institutions, but literature focused on how students persist once matriculated has been less explored (D’Amico et al., 2013; Melguizo & Dowd 2009; Umbach et al., 2018).

When it comes to developing appropriate and specific predictive metrics, models focused on transfer as the outcome for community college starters or degree completion for four-year

starters may not be the best for predicting four-year degree completion as a function of transfer—in other words, what happens *after* transfer students have matriculated? Additional metrics that account for transferred credits and post-transfer program persistence could help institutions and systems develop tailored supports that meet the needs of an under-recognized group of post-traditional students. Moreover, as states continue to invest in transfer-related interventions, ensuring that students make it all the way to graduation is critical to evaluating the success of their efforts. Ultimately, if increasing community college transfer is included as part of a degree completion goal, it's necessary to know what happens to students once they matriculate—transfer status alone is unlikely to yield the results states and institutions hope to see.

**Older Students.** In addition to considering the unique experiences of transfer students who have matriculated to four-year programs, my study further disaggregates this widely diverse population of students by age. Older learners (those older than 24) are more likely to face unique experiences or circumstances that traditional momentum measures could understate or overlook. Unlike younger students, they commonly juggle employment and caregiving responsibilities, which may impact their course load, engagement, and persistence (Matus-Grossman & Gooden, 2002; Perna, 2023). Financial barriers also play a significant role, as older students—despite some being eligible for aid—often have fewer financial resources or are reluctant to take on student loans, affecting their enrollment patterns (Chen & Hossler, 2017; Seftor & Turner, 2002). Additionally, many older students follow nonlinear academic paths, returning to college after stopping out, which complicates traditional momentum indicators that assume more typical enrollment patterns. Given that older students are disproportionately represented in community colleges, they are also more likely to face the same transfer barriers that disrupt degree progress

as their younger peers—resulting in a compounding effect of challenges to overcome once they matriculate.

While additional demographic factors such as race and gender are highly important for understanding disparities in academic outcomes, the relevance of any disaggregate will vary by state, system, or research application. In this study, age emerges as the main demographic factor for capturing the diverse experiences of transfer students, revealing gaps in traditional momentum measures that fail to account for the distinct challenges faced by older learners who transferred from community college. This is consistent with prior literature that analyzed degree completion as a function of momentum metrics for students in the southeastern U.S. and found that for every year of increased age, likelihood of graduation decreased by nearly two percent while no significant variation was observed across race and gender (Millea et al., 2018).

### **The Role of Metrics to Inform Transfer and Degree Completion Goals**

Nearly two decades ago, President Obama catalyzed a significant shift in how higher education success was defined, emphasizing a focus on college completion. The introduction of federal 2020 college completion goals fundamentally reshaped how states and institutions measured progress, ushering in what became known as the Completion Agenda (Boylan et al., 2017; Dougherty et al., 2014; Palmadessa, 2016). Central to this agenda was the American Graduation Initiative (AGI), which set an ambitious goal for the U.S. to achieve the highest degree attainment rate in the world by 2020 (Kuntz et al., 2011). Federal levers, such as the College Scorecard, which increased transparency around institutional performance, Lumina Foundation's Goal 2025, which set a 60% national attainment target, and the Gates Foundation

goal of doubling the number of low income students who earn a degree encouraged states to establish their own degree completion goals (Boylan et al., 2017; Moore & Bracco, 2018).

Some states responded by leveraging existing relationships between community colleges and four-year institutions, recognizing that improving transfer pathways was a crucial strategy for increasing bachelor's degree attainment. Many states implemented credit transfer and articulation agreements to reduce credit loss and improve time to degree, embedding early momentum metrics—such as credit accumulation and gateway course completion—into policy frameworks (Belfield et al., 2016; Alai, 2022). Examples include Tennessee's Drive to 55 and Ohio's Strong Start to Finish initiative, both of which incorporated early academic momentum measures into their strategies for improving student success (Belfield et al., 2019; Yanagaiura, 2023).

As completion goals gained traction, predictive analytics emerged as a key tool for evaluating progress. Research on early momentum metrics demonstrated that critical milestones—such as credit accumulation, persistence, and first-year program course completion—could predict long-term success, leading states and institutions to embed these indicators into their policies (Chan & Wang, 2017; Wagner & Longanecker, 2016; Wang, et al., 2019). Given the historical mission of community colleges to prepare students for four-year universities, transfer student success became central to completion efforts, with institutions tracking pre-transfer indicators to assess whether students were on a path to earn a degree.

However, while early momentum measures have been widely used to predict transfer readiness, what happens after students transfer remains less understood. There are several reasons for this. First, student progress post-transfer can be difficult to track as they move between institutions and systems. The National Student Clearinghouse, a nonprofit research

organization, enables student ID matching and tracking across systems over time, but accessing their data linkages is costly and requires a high level of technical expertise (Dynarski et al., 2015). Another reason post-transfer students' experiences are opaque is because the paths that students take are not always linear—students may swirl between community colleges and four-year institutions, complicating how their records are tracked. Finally, it is possible that between the goals of the completion agenda and transfer articulation programs, states, systems, and institutions, made assumptions that students who transferred to four-year colleges from community colleges were not different than those who began at a four-year college, despite research suggesting otherwise (Attewell & Monaghan, 2016; Clovis & Chang, 2019).

This is the challenge currently unfolding in Massachusetts, where policy efforts have focused on increasing community college transfer through an equity-driven agenda, but much less work has been done to systematically analyze post-transfer outcomes. A key question the state has been trying to answer is whether traditional predictive metrics work well for community college transfer students, or if other factors should be considered that could better contextualize transfer student experiences and help explain their outcomes.

### **Community College Transfer and Degree Completion Policy in Massachusetts**

**Community College Transfer in Massachusetts.** The Massachusetts public higher education system is comprised of 15 community colleges, nine state universities, and five University of Massachusetts campuses. In 2023, the system served about 150,000 students with slightly less than half attending community colleges. Similar to many other systems, the Massachusetts higher education system enables students to earn terminal two-year degrees at community colleges and terminal four-year and graduate degrees at universities (MA Dept of Higher Education, 2023). Compared to its neighbors in New England, students are more likely to

transfer within state in Massachusetts; about 67% of students transferred within state in 2024 (National Student Clearinghouse, 2025).

**Transfer and Degree Completion in Massachusetts.** Since 2012, Massachusetts has undertaken a multi-year effort to redesign and strengthen its commitment to equitable postsecondary achievement and mobility. Between 2017 and 2019, the Department of Higher Education (MA DHE) developed an Equity Policy Agenda and the Strategic Plan for Racial Equity to guide institutional growth and program development over the next ten years (MA Dept of Higher Education, 2022). These initiatives were shaped through participatory governance and convenings, ensuring collaboration among policy representatives, college leaders, and community stakeholders in defining a shared vision for postsecondary equity.

The Strategic Plan for Racial Equity serves three key functions. First, it establishes statewide goals for each postsecondary sector. Second, it outlines and standardizes processes for tracking progress across institutions. Third, it sets guidelines for periodic reporting on progress toward 2030 enrollment, transfer, and degree completion targets.

In 2019, Massachusetts officially adopted an equity agenda, using the Strategic Plan for Racial Equity as a framework for implementation and evaluation. A critical measure of success in this agenda is its impact on community college transfer rates and bachelor's degree completion for those who transfer. This is based on a theory of change focused on promoting equitable higher earnings and stronger economic mobility for degree completers (Baker, 2016; Ortagus & Hu, 2019).

A key pillar of the Massachusetts equity agenda is MassTransfer, a statewide initiative designed to streamline credit transfer and degree completion between community colleges and four-year institutions. Within this framework, the A2B Pathways (Associate to Bachelor's Pathways) program allows students to take articulated courses that directly apply toward a bachelor's degree. Originally launched in 2014 with six program areas—Biology, Chemistry, Economics, History, Political Science, and Psychology—the program expanded in 2016 to include additional STEM, humanities, communications, social sciences, and education pathways (MA DHE, 2022). Additionally, students can complete the MassTransfer Gen Ed Foundation Block, which enables them to transfer up to 34 general education credits to satisfy most general education four-year degree requirements at Massachusetts public universities.

While these transfer initiatives aim to remove barriers for students, they may also inadvertently imply a traditional degree path for most students, which does not accurately reflect the realities of older, post-traditional, or part-time transfer students. This is why it is important to investigate whether current predictive metrics—those already in use in Massachusetts and other states and systems—adequately capture the experiences of older transfer students and how these metrics might be improved.

### **What Are Common Momentum Metrics?**

**College Persistence.** A recent report published by the National Student Clearinghouse found that point-in-time persistence, or persisting to a second year of college in direct succession of the first regardless of gaps in term enrollment, was one of the strongest early indicators of degree completion (National Student Clearinghouse, 2024). This may be because students who return to college each term demonstrate that they feel comfortable and supported continuing on a

path towards graduation—research on the role of persistence as an indicator of student success has continued to point to the many factors that are associated with students remaining engaged from term to term, including belief in their abilities, demonstrated interest in college, and connections to institutional and social supports needed to stay continuously enrolled (Nora et al., 2005; Belfield, et al., 2019).

**Gateway Courses.** The last decade has seen a national shift in policies around course placement for community college students. Several states and commonwealths, including Massachusetts, have implemented strategies to reduce or eliminate non-credit bearing remedial education courses at their public institutions, instead requiring co-requisite support options for key gateway courses such as college-level math and English (Burdman, 2012; Fulton, 2012; Ngo & Melguizo, 2015). Students who attempt and pass college-level gateway courses in their first year are much more likely to persist in college and to complete a degree (Cohen & Kelly, 2019; Turk, 2019; Meiselman & Schudde, 2022). As an institutional metric, insight on gateway course-taking demonstrates how colleges are thinking about the content of courses and ensuring students are earning credit in subject areas that are foundational to their future success. Several studies have found that completing gateway math, English, and other entry-level program courses increases persistence and degree completion for college students (ibid.; Flanders, 2015; Harackiewicz et al., 2002). Other research has found that completing gateway courses increases college credit accumulation early on, but gains eventually fade out and have little impact on degree completion (Turk, 2019, Meiselman & Schudde, 2022). Park-Gaghan and colleagues (2020) conducted a causal evaluation of Florida’s adoption of placement reforms that enabled more students to attempt college level gateway courses in their first term. They found that

gateway course completion was positively associated with persistence for all students, with stronger effects for Black and Hispanic/Latinx students (Park-Gaghan, et al., 2020).

**Program Momentum.** In addition to gateway courses, students who attempt and pass courses related to their programs of interest or declared majors are more likely to persist and earn degrees in their programs. Wang (2017) finds that taking first-year courses in programmatically relevant subjects is more positively associated with STEM students persisting and graduating within their major compared to graduates who took fewer program courses early on (Wang, 2017). Additional research suggests that when students enter college with an expressed interest and can explore that interest in ways that are relevant to their academic and professional goals, they are better able to connect course subject matter with their pursuits and are more likely to persist (Graunke & Woosley, 2005). Metrics on early program course taking can help colleges and policymakers understand how students move between programs as well as patterns of major switching, which can be associated with excess credit accumulation and lower completion rates (Liu et al., 2019).

Understanding student completion rates at the course and program level may also serve as an important equity indicator. Students of color, low-income students, and female students (in certain programs) are more likely to switch out of majors when they don't perceive they can be successful in them, when they don't perform well in them academically, or when they don't see themselves represented in the learning community (Rainey et al., 2018). Erb & Drysdale (2017) looked at this phenomenon for adult learners and found that while older college students tended to have lower anxiety about grades and higher self-rated values of self-efficacy, they also demonstrated a lower sense of belonging on campus and in specific majors where younger students were concentrated, which implied lower persistence and degree completion rates long

term (Erb & Drysdale, 2017). Studies on the experiences of racially minoritized community college transfer students find similar results on the impact of major choice and first-year GPA with predicted degree completion; those who felt “othered” were less likely to persist (Clovis & Chang, 2019). In addition to general momentum indicators, metrics about which majors students are choosing, and how they are progressing in those programs via coursework, can help provide a more comprehensive picture on whether all students can access and succeed in their intended degree programs equitably.

**Overall Credit Momentum.** There is strong evidence to suggest that when students earn more credits per term or academic year, they are more likely to complete a degree within six years of entering a community college (Attewell & Monaghan, 2016). The literature also suggests that even among students who ultimately earn the same number of credits, frontloading them can have better long term payoffs for students and institutions (Linderman & Kolenovic, 2013). Attempting a full-time credit load of at least 24 credits in an academic year may be less feasible for community college students than traditional four-year college students because the former are more likely to work part time, commute to campus, and have caregiving responsibilities (Headlam, et al., 2019). However, identifying observable patterns as to which students are accruing more and earlier college credit, and in what programs, may be useful as a predictive metric of equitable student success. This may be especially true for adult learners who can face higher opportunity costs of attending college due to lost potential wages and higher rates of time poverty (Lundberg, 2004).

### 1.3 Developing a Policy-Relevant Momentum Model

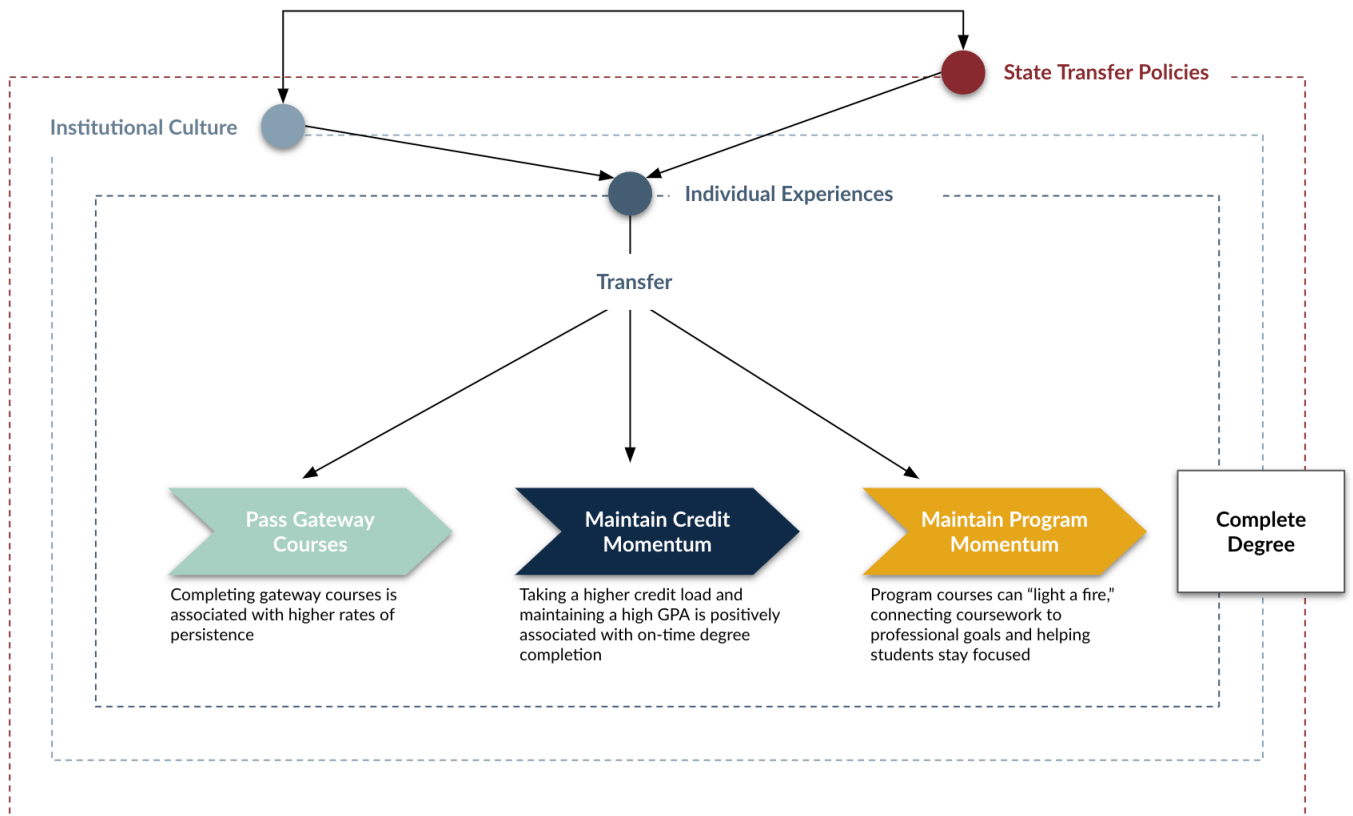
The administrative data for this study enable an analysis of course taking patterns and academic momentum within program majors, which is increasingly becoming a point of interest within college transfer research (Wang, 2017; Fink et al., 2021; Wickersham & Nachman, 2023). As the literature demonstrates, students who pass gateway math and English courses, take more credits earlier on, and persist term-by-term without gaps in enrollment are more likely to earn a degree (Bailey & Jenkins, 2017). Emerging findings also suggest that students who engage in program-related content early on (i.e. pass a major-specific course) are even more likely to persist and earn a degree (Fink et al., 2021). These milestones establish the basis for a novel theory of change that can be analyzed descriptively; if more transfer students earn programmatic credit and perform strongly in courses earlier in their academic trajectories, could we expect them to have higher likelihoods of degree completion? Asked another way, if no variance among more generalized measures of academic momentum is observed, yet heterogeneity in outcomes among subgroups persist, could looking at program-level academic momentum help explain why this is occurring?

It is equally important to consider that transfer students are not a monolith and that their identities, motivations, goals, and prior experiences are all likely to impact their trajectories—regardless of their academic momentum. Therefore, this study situates its theory of change within the ecological systems framework, acknowledging that students who transfer to a four-year institution with the intention of earning a bachelor’s degree exist and behave within a diverse ecosystem of personal experiences (e.g., age) and interactions (e.g. students and faculty) that no doubt impact their outcomes. Applying this lens helps illuminate that although students are responsible for meeting milestones, their actions do not occur in a vacuum; they are

influenced by a multitude of institutional and policy-level factors such as the previously discussed state agenda as well as institutional capacity for data analysis and decision-making. A good example of policy-driven institutional factors are placement policies, which may dictate whether and at what point students have access to college-level courses, impacting their likelihood of degree completion (Barnett et al., 2018). Another example of an institutional factor is early program engagement—are students introduced to major-related activities and content early on as a means of building academic momentum?

While students navigate the institutional and policy layers of academic ecosystems, they simultaneously contend with individual layers that may influence their experiences and behaviors in college. The ecological framework is once again useful to articulate how these layers intersect and change for students with diverse identities and lived experiences. It provides a rationale for focusing on the outcomes of a subgroup like older transfer students as an indicator of institutional and systemic equity; if equitable parity in outcomes is observed by age, it may signal that the institutional and policy ecosystems are functioning well. Figure 1.1 demonstrates how the ecological model can be applied to academic momentum and college success.

**Figure 1.1: Ecological Model of Community College Transfer Student Academic Momentum**



**Figure Notes:** This figure shows how state transfer policies, institutional culture, and individual experiences are theorized to intersect to shape post-transfer student outcomes. It highlights traditional momentum indicators, such as passing gateway courses and maintaining a high credit load, while introducing program momentum as a new predictor, focusing on student engagement and progress within their transferred academic program as a potentially important factor for degree completion.

The theory of change shown in Figure 1.1 establishes the basis for a predictive model that is relevant to the policy-landscape where it might be used. For example, in Massachusetts, meeting the requirements of the Gen Ed Block may be an important and predictive milestone for transfer students. Similarly, since the average Massachusetts community college student transfers about forty-six credits when enrolling at a Massachusetts State University, the threshold indicator of earning sixty credits in the first post-transfer year is attenuated to the realities of credit articulation within that system. For other systems, different values, such as a threshold of forty-five credits or ninety credits might be more appropriate.

## 1.4 Methods

### Data and Population

The study includes unit record administrative data of 22,565 students who began college at one of fifteen Massachusetts community colleges and transferred to one of nine Massachusetts State Universities between 2009 and 2022. The data set includes student demographic and socioeconomic characteristics, term-by-term enrollment, detailed course transcript records, degree outcomes, and linked outcomes from the National Student Clearinghouse—which enables more representative counting of degree completion in cases where students moved to institutions outside of the sample. Table 1.1 presents sample characteristics.

**Table 1.1: Transfer Student Characteristics**

	N	%
<b>Gender</b>		
Male	9,843	43.62
Female	12,722	56.38
<b>Race</b>		
Asian	722	3.2
Black	2,375	10.53
Hispanic or Latino	3,078	13.64
White	16,390	72.63
<b>Pell eligible</b>		
No	6,350	31.6
Yes	13,742	68.4
<b>Age upon entry</b>		
Under 24	15,102	66.93
24+	7,463	33.07
<b>Entering major program</b>		
Stem	4,868	21.57
Humanities	3,632	16.01
Social science	3,873	17.16
Business	4,607	20.42
Other	5,585	24.75
<b>TOTAL</b>	<b>22,565</b>	<b>100</b>

**Table notes:** Table percentages represent the full sample with available data within each category. Cohorts included in the table are 2009 – 2022 with N sizes ranging from 1,006 to 1,974 students and a median cohort size of 1,707. Race is categorized using the MA DHE reporting standards, which are consistent with the Integrated Postsecondary Education

## **Momentum Measures**

**Identifying Predictive Blocks.** My primary outcome of interest is whether a student earned a bachelor's degree, conditional on transfer. In all models, controls for demographics and cohort-by-institution fixed effects are included to account for variations in educational experience, access, and location, and changes to relevant conditions over time such as policy environments and economic trends.

The predictive indicators included in the model are grouped into theorized subsets, or blocks of predictors, that represent general early academic momentum, post-transfer academic momentum, and the more novel post-transfer program momentum. These are detailed in Table 1.2. Post-transfer academic momentum is separated into two different blocks based on their policy relevance and generalizability: Block 1 includes more widely used indicators of degree completion such as those validated using national data (Belfield et al., 2016, Wang, 2019). These indicators are often used by state policymakers, including those in Massachusetts, when designing student attainment programs. Block 2 represents a series of indicators contextualized to the Massachusetts transfer policy environment, including a sixty-credit post-transfer threshold and an indicator for whether students met the conditions of the MassTransfer Gen Ed Block.

Building the model piecewise using a block design helps compare the added value of different predictors. For example, I can compare whether predictors that are already well established in the literature and deployed in the field, such as general early academic momentum metrics, to more specific metrics that build off policy-relevant theories of practice, such as transfer credit articulation and program momentum. It also provides a framework for further

disaggregating metrics for different subgroups, enabling robust testing of their utility in supporting tailored policy development for specific identities, such as older students.

**Table 1.2: Descriptions of Predictive Indicators**

Predictive Block	Indicators
<b>General Early Academic Momentum</b>	<ul style="list-style-type: none"> <li>• Passed college level English</li> <li>• Passed college level math</li> <li>• Earned 45 credits prior to transfer</li> </ul>
<b>General Post-Transfer Academic Momentum (Block 1)</b>	<ul style="list-style-type: none"> <li>• Persisted to second year post-transfer</li> <li>• Course pass rate in first year post-transfer</li> </ul>
<b>MA Post-Transfer Academic Momentum (Block 2)</b>	<ul style="list-style-type: none"> <li>• Earned at least 60 credits in the first year post-transfer (inclusive of all pre-transfer credit)</li> <li>• Met MassTransfer Gen Ed Block</li> </ul>
<b>Post-Transfer Program Momentum</b>	<ul style="list-style-type: none"> <li>• Earned at least 6 credits in entering major in first year post-transfer</li> </ul>

Table 1.3 compares how Massachusetts community college transfer students perform on key academic indicators, broken down by age. Older students are more likely to accumulate excess credits before transferring and are slightly more likely to earn 60 credits in their first year after transfer. In contrast, younger students show slightly higher rates of persistence, stronger course pass rates, and are more likely to complete the MassTransfer Gen Ed Block and earn early credits in their major.

These patterns highlight the importance of examining how credit and program momentum relate to degree completion. For instance, it is notable that a higher percentage of older students earn 60 credits post-transfer—roughly equivalent to full-time enrollment—despite common expectations that older students may take fewer credits due to work or caregiving responsibilities. At the same time, older students are more likely to have accumulated excess

credits before transfer but less likely to complete the Gen Ed Block, raising important questions about the efficiency and alignment of their credit accumulation.

**Table 1.3: Distribution of Outcomes and Indicators by Student Age**

	<b>Under 24 (N = 15,102)</b>	<b>24+ (N = 7,463)</b>
<b>General Early Academic Momentum</b>		
Passed college level English	94%	94%
Passed college level math	90%	90%
Earned 45 credits prior to transfer	56%	69%
<b>Post-Transfer Academic Momentum, Block 1</b>		
Persisted to second year post-transfer	77%	72%
Course pass rate in first year post-transfer	.87	.85
<b>Post-Transfer Academic Momentum, Block 2</b>		
Earned at least 60 credits in the first year post-transfer (inclusive of transferred credits)	68%	72%
Met MassTransfer Gen Ed Block	23%	17%
<b>Post-Transfer Program Momentum</b>		
Earned at least 6 credits in entering major in first post-transfer year	36%	32%

**Table notes:** the variable “met MassTransfer gen ed block” was derived by merging an export of all approved MassTransfer courses as of summer 2023 with student course files. MassTransfer gen ed block courses are not common to MADHE administrative data; they were provided by the MassTransfer data team. “Course pass rate in the first year post-transfer” is a continuous measure denoting percentage of courses passed (0-100%).

## Statistical Models

To answer the research questions posed at the beginning of the chapter, I constructed two logistic models predicting degree completion based on the momentum blocks specified above. Equation 1 includes only the indicators in the general early academic momentum block and the general post-transfer academic momentum block (not specified to the Massachusetts policy context).

Existing, Generalized Model: (1)

$$\begin{aligned} & \text{Earned Bachelors Degree}_i \\ &= \alpha_i + \beta(\text{General Early Academic Momentum}_i) \\ &+ \delta(\text{Post – Transfer Academic Momentum Block 1}_i) + \lambda X_i + \phi_i + \epsilon_i \end{aligned}$$

Equation 2 builds on Equation 1 by further including novel measures of early momentum including blocks measuring policy-relevant academic momentum and major-related program momentum.

New, Policy-Driven Model: (2)

$$\begin{aligned} & \text{Earned Bachelors Degree}_i \\ &= \alpha_i + \beta(\text{General Early Academic Momentum}_i) \\ &+ \gamma(\text{Post – Transfer Academic Momentum Block 1}_i) \\ &+ \delta(\text{Post – Transfer Academic Momentum Block 2}_i) \\ &+ \theta(\text{Post – Transfer Program Momentum}_i) + \lambda X_i + \phi_i + \epsilon_i \end{aligned}$$

In both models, the outcome, *Earned Bachelor's Degree*, is conditional on transfer and includes any degree outcome available for a student—regardless if the degree was earned at the first transfer-in university or elsewhere. It is not uncommon for students to earn degrees at different institutions than where they started. For this reason, all indicators included in the study are focused on initial college entry and early progress post-transfer; interpreting coefficients on these metrics is more applicable to the colleges where students first enrolled and where they

initially intended to earn a degree. Using this logic, the utility of momentum indicators may serve as formative or “just in time” sources of information to help institutions make data-driven decisions to support students as they matriculate.

$\beta, \gamma, \delta,$  and  $\theta$  represent vectors of binary academic momentum indicators for a student  $i$ .  $\lambda$  includes controls for student demographics including race and Pell grant eligibility,  $\phi$  represents a cohort-by-institution fixed effect, and  $\epsilon$  is an error term clustered at the cohort-institution level.

## 1.5 Results

### Predicting Bachelor’s Degree Completion with Different Models

The predicted impacts on bachelor’s degree completion of meeting specific momentum milestones are discussed below. To ensure balanced panels by cohort, only students who transferred in or before 2017 are included in the model estimation. This ensures that all students were granted at least six academic years to complete a degree, inclusive of transfer. On average, about 30% of students who transferred between 2009 and 2017 from a Massachusetts community college to a Massachusetts State University earned a bachelor’s degree within six years of entering college and about 70% of students earned a bachelor’s degree at all after transfer. This trend is highly consistent across cohorts (see Table 1.4).

**Table 1.4: Bachelor’s Degree Completion by Cohort**

Cohort year	Complete within 6 Years of Community College Entry (%)	Complete After 6 Yrs (%)	N
2009	33	69	1,499
2010	30	66	1,664
2011	30	71	1,711

<b>2012</b>	29	71	1,974
<b>2013</b>	29	68	1,764
<b>2014</b>	29	68	1,756
<b>2015</b>	29	68	1,704
<b>2016</b>	29	68	1,821
<b>2017</b>	28	65	1,830
	29	68	15,723

Table 1.5 compares the generalized model, Model 1, to the policy-driven model, Model 2, for the whole sample of community college transfer students (columns 1 and 2), for students 24 and younger (columns 3 and 4), and for students older than 24 (columns 5 and 6).

Among all models and all student groups, passing gateway English and math courses, persisting to a second year, and maintaining a high course pass rate are strongly positively predictive of earning a bachelor’s degree. It should be noted that course pass rate is the only indicator that is continuous instead of binary. As such, the coefficient must be scaled to be interpreted correctly. In my analysis, this can be stated as for every ten-percentage point increase in course pass rate—or moving, on average across courses, up one letter grade—the likelihood of earning a bachelor’s degree increases by 7.4 to 8 percent for all students.

Interestingly, pre- and post-transfer credit momentum show disparate impacts on predicting degree completion for older and younger students. When post-transfer credit is considered in the predictive model for all students (Table 1.4, Column 2), there appears to be a negative association between earning more pre-transfer credits and completing a degree. However, when the model is disaggregated between younger and older students, the impact on younger students of earning more pre-transfer credits is non-significant, while the impact on older students becomes more negatively predictive and is highly significant. Moreover, it appears that earning greater amounts of credit post-transfer is positively significantly predictive for all

students, but the effect is increased for older students. Finally, when comparing the coefficient on earning at least six credits in intended major in the first post-transfer year, the impact on degree completion is significantly positive for all students yet older students appear to benefit more than younger students from gaining program momentum.

**Table 1.5: Predicted Probability of Bachelor’s Degree Completion, Transfer Cohorts 2009 - 2017**

	(1) Model 1	(2) Model 2	(3) Model 1	(4) Model 2	(5) Model 1	(6) Model 2
	Whole Sample		Students 24 and Under		Students Over 24	
Passed College English	0.109*** (0.0119)	0.101*** (0.0132)	0.114*** (0.0126)	0.106*** (0.0137)	0.0845*** (0.0266)	0.0796*** (0.0281)
Passed College Math	0.0631*** (0.0112)	0.0609*** (0.0110)	0.0596*** (0.0209)	0.0562*** (0.0205)	0.0765*** (0.0235)	0.0792*** (0.0222)
Earned 45 Credits Pre-Transfer	0.0352*** (0.0128)	-0.0435*** (0.0165)	0.0441** (0.0171)	-0.0161 (0.0221)	0.0211** (0.00978)	- 0.0916*** (0.0229)
Persisted to Second Year Post-Transfer	0.0655*** (0.0220)	0.0632*** (0.0214)	0.0618*** (0.0225)	0.0612*** (0.0219)	0.0689*** (0.0245)	0.0635*** (0.0235)
Course Pass Rate First Post-Transfer Year	0.805*** (0.0212)	0.744*** (0.0230)	0.825*** (0.0264)	0.770*** (0.0314)	0.778*** (0.0374)	0.720*** (0.0393)
Earned 60+ Credits by End of First Post-Transfer Year		0.0880*** (0.0135)		0.0657*** (0.0158)		0.132*** (0.0261)
Met GenEd Block Within First Post-Transfer Year		0.0540*** (0.0070)		0.0405*** (0.0127)		0.0720*** (0.0152)
Earned at Least 6 Credits in Intended Major First Post-Transfer Year		0.0609*** (0.0090)		0.0507*** (0.0121)		0.0724*** (0.0152)
Observations	13,864	13,864	9,489	9,489	4,341	4,341
Pseudo R2	0.183	0.193	0.190	0.197	0.196	0.210

Table Notes: This table presents likelihood of degree completion based on a logistic regression model. Coefficients are reported as predicted probabilities, with robust standard errors in parenthesis. All models include controls for race and gender and a cohort-by-institution fixed effect. Robust standard errors were clustered at the community college level. Statistical significance is indicated as follows: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

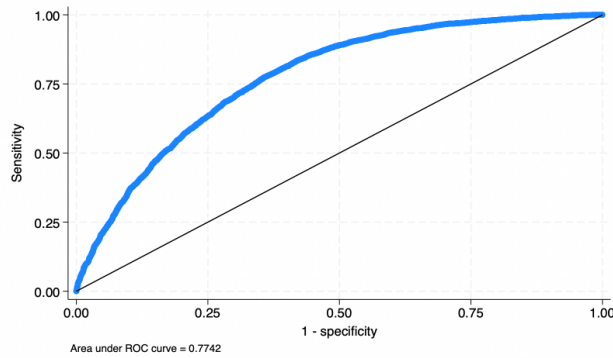
### Comparing Model Performance

To assess the performance of both models for the whole sample and each subset, I used postestimation prediction to compare goodness-of-fit and pseudo- $R^2$  values, as well as visual inspections of the area under the Receiving Operating Characteristic (ROC) curves. Pseudo- $R^2$  is a measure of predictive strength; it gives a rough sense of how well a model explains an outcome. Examining the pseudo- $R^2$  values in Table 1.5 shows that Model 2 explains more of the variation in outcomes among students than Model 1—the components included in Model 2 are more predictive of degree completion. This is consistent for younger and older students. In fact, the increase in pseudo- $R^2$  value between Model 1 and Model 2 is greater for older students than for younger students, suggesting that the collective components in Model 2 do a better job predicting the variation in outcomes for older students.

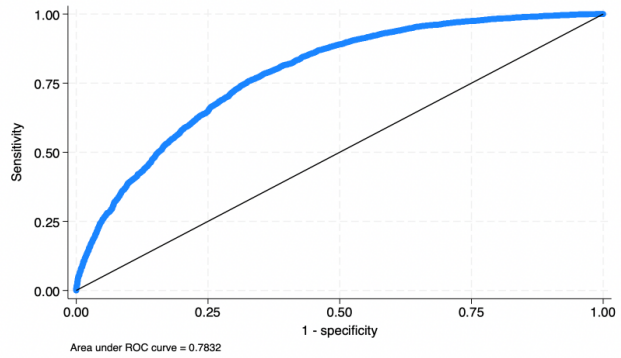
Examining the ROC curve and the area under the curves (AUC) helps identify whether the model being tested is useful for prediction when the outcome is binary—such as whether a student completed a degree. The ROC curve is a graph that compares the likelihood of a model predicting false positives (specificity, or predicting something occurred when it did not) on the x-axis to the likelihood of a model predicting true positives (sensitivity, or correctly predicting something occurred) on the y-axis. The AUC indicates a model's ratio of specificity to sensitivity and explains how well it predicts an outcome. An AUC value of one indicates that the model perfectly predicts an outcome. Values less than .5 indicate that the model performs relatively poorly—that it is no better than a coin toss at predicting an outcome. AUC values that indicate strong predictive modelling typically fall between .7 and one (Huang and Ling, 2005). Model 2 does a slightly better job of predicting the outcome of degree completion for the experimental sample as it has an AUC value of 0.7832 compared to 0.7742 (see Figure 1.2).

**Figure 1.2: Area Under the ROC Curve for Model 1 and Model 2**

Model 1



Model 2



**Figure Notes:** The figure shows the area under the receiving operating characteristic (ROC) curve (AUC) for both models explored in the study. AUC of Model 1= 0.7742, AUC of Model 2= 0.7832. Models with higher AUC values are typically considered to perform better.

Another way to compare model performance is by using statistics that measure the tradeoff between model complexity and predictive power. Two commonly used measures are Akaike’s Information Criterion (AIC) and Bayesian Information Criterion (BIC) (Kuha, 2004). Both assess model fit while penalizing for complexity, with BIC applying a stronger penalty as sample size increases. Lower AIC and BIC values indicate a better-fitting model that avoids overfitting (Burnham & Anderson, 2004). As shown in Table 1.6, Model 2 has lower AIC and BIC values. Combined with its higher AUC, Model 2 is the preferred model for this analysis.

**Table 1.6: Model Performance Statistics**

	AIC	BIC
<b>Model 1</b>	14060.82	14143.73
<b>Model 2</b>	13885.48	13975.92

**Testing for Differential Age Effects Using a New, Policy-Driven Model**

After comparing both models on their predictiveness for all community college transfer students in the sample, for younger students, and for older students, I used Model 2 to further investigate statistically significant differences in the association between degree completion and specific indicator blocks for older and younger students. I conducted this analysis by adding interaction terms between students' age and the indicators in Equation 2 and reran the models. Table 1.7 presents the results of this analysis and provides additional evidence that pre-transfer credit accumulation appears to impact older students differently than younger students. Specifically, older students who earned at least 45 credits prior to transfer had a predicted probability of bachelor's degree completion approximately 7 percentage points lower than younger students with similar credit accumulation.

Furthermore, although maintaining a high pass rate in the first post-transfer year is positively associated with increased likelihood of completing a degree, this relationship is attenuated for older students. Specifically, the association between course pass rate and degree completion is reduced by 12.8 percentage points for students over age 24 compared to younger students. In contrast, the positive association between earning at least sixty credits by the end of the first post-transfer year and degree completion is slightly stronger for older students, increasing by 5 percentage points. There does not appear to be a significant differential effect on gaining program momentum between older and younger students; when all students are included in the model, the positive coefficient on the interaction term is not statistically significant and can therefore be assumed to be zero—although earning program momentum is positively associated with degree completion for both groups independently.

**Table 1.7: Model Two with Age Interaction Terms**

	(1) Model 2	(2) Model 2 w/ Interactions	(3) Model 2 = (Younger)	(4) Model 2 (Older)
Passed College English	0.101*** (0.0132)	0.110*** (0.0145)	0.106*** (0.0137)	0.0796*** (0.0281)
Passed College Math	0.0609*** (0.0110)	0.0592*** (0.0211)	0.0562*** (0.0205)	0.0792*** (0.0222)
Earned 45 Credits Pre- Transfer	-0.0435*** (0.0165)	-0.0145 (0.0227)	-0.0161 (0.0221)	-0.0916*** (0.0229)
Persisted to Second Year Post-Transfer	0.0632*** (0.0214)	0.0610*** (0.0227)	0.0612*** (0.0219)	0.0635*** (0.0235)
Course Pass Rate First Post- Transfer Year	0.744*** (0.0230)	0.797*** (0.0370)	0.770*** (0.0314)	0.720*** (0.0393)
Earned 60+ Credits by End of First Post-Transfer Year	0.0880*** (0.0135)	0.0688*** (0.0161)	0.0657*** (0.00158)	0.132*** (0.0261)
Met GenEd Block Within First Post-Transfer Year	0.0540*** (0.00660)	0.0404*** (0.0117)	0.0405*** (0.0127)	0.0720*** (0.0229)
Earned at Least 6 Credits in First Post-Transfer Year	0.0609*** (0.00896)	0.0534*** (0.0126)	0.0507*** (0.0121)	0.0724*** (0.0152)
<b><i>Interaction Terms</i></b>				
Passed College English * Adult	-	-0.0309 (0.0291)	-	-
Passed College Math * Adult	-	0.00891 (0.0383)	-	-
Earned 45 Credits Pre- Transfer * Adult	-	-0.0730*** (0.0274)	-	-
Persisted to Second Year Post-Transfer * Adult	-	-0.00109 (0.0131)	-	-
Course Pass Rate First Post-Transfer Year * Adult	-	-0.128* (0.0655)	-	-
Earned 60+ Credits by End of First Post-Transfer Year	-	0.0516* (0.0281)	-	-

\* Adult

Met GenEd Block Within First Post-Transfer Year * Adult	-	0.0307 (0.0276)	-	-
Earned at Least 6 Credits in First Post-Transfer Year * Adult	-	0.0170 (0.0205)	-	-

Observations	13,864	13,864	9,489	4,341
Pseudo R2	0.193	0.196	0.197	0.210

Table Notes: This table presents likelihood of degree completion based on a logistic regression model. Coefficients are reported as predicted probabilities, with robust standard errors in parenthesis. All models include controls for race and gender and a cohort-by-institution fixed effect. Robust standard errors were clustered at the community college level. “Adult” is categorized as a student who is 24+ years old. Statistical significance is indicated as follows: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 1.6 Discussion

This study highlights key factors associated with degree completion for transfer students, emphasizing the role of both post-transfer academic momentum and program momentum in predicting college outcomes. The findings suggest that additional post-transfer variables that contextualize state policy and measure programmatic progress improve the predictive power of previously developed models. While early pre-transfer academic momentum indicators, such as passing college-level English and math, remain significant predictors, their effect sizes shrink slightly when additional predictors are added, suggesting that post-transfer academic progress explains more variance in completion. This is further and especially noticeable in the change in direction on the coefficient for earning 45 credits prior to transfer when post-transfer program momentum indicators are added to the model for all students.

While earning 45 or more credits prior to transfer appears beneficial for all students in Model 1, the results from Model 2 suggest a more nuanced effect, where higher pre-transfer credit accumulation is negatively associated with completion for all students, and particularly so for older students. This is demonstrated by the significant negative coefficient on the interaction term between being older than 24 and earning more than 45 credits prior to transfer (Table 1.7,

column 2). It is not clear what mechanism is driving the negative association between earning many pre-transfer credits and completing a bachelor's degree. However, it may indicate that students who accumulate excess credits before transferring due to non-linear pathways or by swirling through multiple programs may face additional barriers to degree completion. It appears that this is disproportionately impacting older students, who by definition, may be taking longer to complete a degree.

When pre-transfer credit accumulation is compared to post-transfer credit accumulation, it appears that older students benefit more than younger students from earning at least 60 credits in their first post-transfer year, but are more negatively impacted from earning excess credits *prior* to transfer. This could indicate that older transfer students are better off following a more constrained pre-transfer pathway that prevents an excess of credit accumulation and allows students to earn community college credits that apply towards a degree program. For example, all students appear to benefit from completing the MassTransfer Gen Ed Block, yet when looking at older students, the relationship between completing this milestone and completing a degree is much stronger for older students than for younger students. Once students of any age transfer to a Massachusetts State University, earning 60 credits (cumulatively) in the first post-transfer year (about the equivalent of attending full time) is positively associated with degree completion for all students. This finding points to the need to better understand students' motivations and resource availability to complete degrees. For example, is age serving as a mediator for the types of supports different students could lean on, either financial, social, or professional, that can help them absorb additional time or costs associated with excess credit accumulation?

Similarly, earning at least six credits in a students' intended major during the first post-transfer year has a small positive impact for all students. While it does not appear that older students earn a "boost" from gaining program momentum compared to younger students, when the model is applied only to older students, the association is highly significant and stronger compared to younger students. Combined, these results suggest that helping older post-traditional students enter and stay on a pathway towards completion and buffering them from accumulating excess credits early on that do not support progress in a degree program may be a strategy to improve post-transfer success and achieve more equitable levels of degree attainment.

### **1.7 Policy and Research Implications**

These findings have several important policy and institutional implications. The long-term trends suggest that MassTransfer and the associated credit articulation policies have been effective in promoting timely credit accumulation and degree completion, particularly for older transfer students. This progress aligns with the broader completion agenda but also highlights the need for differentiated strategies that support equitable momentum and degree attainment for diverse post-traditional student populations. Specifically, strategies that help students avoid excess credit accumulation prior to transfer and maintain clear pathways toward degree completion could be especially impactful.

Further research should examine how different majors shape these patterns, particularly whether certain fields exacerbate or mitigate barriers tied to age or credit accumulation. Additionally, exploring the intersection between age, race, and gender could illuminate how structural inequities manifest in diverse transfer student pathways and outcomes. For example, do students entering nursing programs face the same barriers as students entering construction

programs, which both tend to lean more dominantly in one direction by gender? Finally, beyond simple degree completion metrics, examining time-to-degree could offer more nuanced insights into how efficiently students progress through their programs.

### **Limitations and Future Directions for Research**

While this study benefits from rich, system-wide data and robust modeling, it is focused on one specific state transfer system, with a unique policy structure and student population. As a result, findings may not be generalizable to other states or contexts with different organizational frameworks or student demographics. Future research should investigate how unique policy design and implementation—including state-level goals, institutional structures, or financial aid policies—moderate the relationship between academic momentum and completion for varied student groups. Studies that incorporate racial and ethnic variation would be particularly valuable, as would qualitative research that provides deeper insight into student decision-making and experiences with credit accumulation, major switching, and academic behavior post-transfer. Such work would further inform policies that aim to support equitable degree attainment across diverse transfer student populations.

## **Chapter 2: Do targeted postsecondary interventions have differential impacts for student parents?**

### **2.1 Introduction**

This study explores how different policy interventions aimed at improving community college outcomes affect students with and without parenting responsibilities. Previous research indicates that time-intensive interventions—such as those that focus on promoting full-time attendance and offering intensive additional advising—were more effective in helping community college students accumulate credits compared to alternatives that didn't include these. To date, researchers have not considered whether students with more constraints on their time and resources—including those who have parenting responsibilities—may experience different impacts from participating in these interventions compared to their peers who don't.

Relying on a large database of individual community college students who took part in over 30 randomized studies, I conduct a meta-analysis of treatment impacts to investigate whether differences in treatment effect estimates on college credit accumulation by parenting status are observed. I also analyze whether specific intervention components featured in the studies, such as financial aid and promoting full-time and/or summer enrollment, impacted parenting students differently compared to non-parenting students. Overall, I find few differences in the impact of the interventions for parenting students compared to non-parenting students. However, some nuanced caveats to this trend imply that college completion interventions could be better designed to target and support parenting students in the future.

Between 2007 and 2014, the social policy research firm MDRC initiated nearly three-dozen randomized studies to evaluate the effect estimates of programs, policies, or practices geared toward improving progress and success (referred to as “interventions” throughout) at

community colleges across the United States. Data from the studies were collected and analyzed and findings were reported and published by MDRC researchers and collaborators. In 2020, student-level data from thirty-one studies were pooled and published as a single database that includes study-level information like the number and types of interventions included in each one, and individual student-level information like demographics and academic outcomes. The studies included in the database, known collectively as The Higher Education Randomized Control Trial (THE-RCT) took place mostly at community colleges across 12 states. Most of the interventions in the studies lasted between 1 term and 3 years (6 terms) and were targeted at students who needed additional support in college-level English and math courses.

In prior analyses of the study data, researchers found that when program interventions included more components, students, on average, earned more credits and were more likely to persist in college. Additionally, they found that interventions which focused on promoting full-time attendance and increased advising or tutoring had the largest positive effect estimates on credit accumulation and persistence (Weiss et al., 2022). These findings were reported as average treatment effects for all students, regardless of characteristics. Such averages have the potential to mask important differences across different student populations. This raises the question of whether the impacts of specific interventions were the same for students of different races, genders, ages, or other experience-mitigating identity groups such as student parents. For example, students caring for dependent children may deviate from the average student in important ways that influence the impact of interventions on their academic outcomes. They may be less likely to enroll full-time or have more difficulty accessing in-person advising if they are attending classes in the evenings or weekends (Wladis et al., 2018). Alternatively, they may be

more highly motivated to complete in less time, enrolling at higher credit-levels than the average student—this could also moderate the impacts of certain interventions on their college outcomes.

This study is an examination of eighteen of the thirty-one studies in THE-RCT and reports findings from a meta-analysis on the differential impacts of community college academic success and completion programs between students caring for dependent children and those without dependents. It contributes to the growing literature on how best to support student parents towards degree completion and how colleges can target interventions to specific student subgroups effectively.

## **2.2 Research Questions**

The core question the study examines is whether what we know about the effectiveness of the interventions in THE-RCT studies changes if we compare average treatment effects for student parents to average treatment effects for those without dependents. This is explored in two parts:

1. What are the effect estimates on credit accumulation of participating in an intervention focused on college access and completion for parenting students and non-parenting students?
2. Are specific interventions or intervention components differentially associated with credit accumulation for parenting students compared to non-parenting students?

This analysis is uniquely possible with these data because care-giving status was collected as a standardized variable in twenty-one of the studies included in THE-RCT—a novel descriptive detail that is not commonly included in more widely available datasets (Yates, 2024). Even though student parents represent nearly one in five U.S. undergraduates, very little

quantitative research has historically been focused on this population due in part to experimental design complications, sample size challenges, or data quality (Anderson & Green, 2022). Information about how certain interventions affect this diverse post-traditional student population is important because it can inform how policymaking influences multigenerational approaches to economic and social mobility through a critical mechanism—a college degree. For example, children of college completers are more likely to earn higher wages than their peers whose parents did not complete college and they are more likely to accrue social capital that is associated with better health outcomes, education outcomes, and longevity (Chetty, et al., 2017). Supporting student parents to achieve their college goals may therefore produce positive impacts across generations.

### **2.3 Literature Review**

As colleges and postsecondary systems have expanded their interests and efforts in access, success, and equity work, understanding the unique needs of certain student subgroups may be helpful to shaping and targeting policies and programs. With complex work and home schedules, financial needs, academic goals, and motivations, student parents have begun to receive more attention within of this trend in higher education research. Yet because data about the caregiving status of students is not commonly collected or made available, identifying and developing services and interventions specifically for student parents is more difficult than for other traditionally marginalized groups on college campuses (Gault et al., 2020; Anderson & Green, 2022).

Data collection for student parents at U.S. colleges is crucial for informing policies and support systems. Student parents are commonly identified through data from financial aid tools

such as the Free Application for Federal Student Aid (FAFSA) or nationally representative sample surveys that track how students spend financial aid money such as the National Postsecondary Student Aid Study (NPSAS). Other national surveys like the Baccalaureate and Beyond Survey (BPS) and the American Community Survey (ACS) also include information about student parents, yet all of these sources use aggregated data and provide a very limited understanding of the institutional experiences of student parents. Without student-level data that includes information about credits, programs, and service utilization, these data do little to inform institutional policies and practices.

As a result, much of what we know about student parents stems from qualitative literature focused on their motivations, experiences, and needs. This information can help policymakers and colleges gain context for how to engage with student parents as learners, but it may not be as helpful to formatively evaluate whether programs and interventions already underway are having their intended effect. Knowing about the experiences of student parents is not the same as knowing what interventions work to help them succeed in college. THE-RCT is one of the few experimental data sources available that identifies student parents at a granular level and makes it possible to compare standardized outcomes of their college progress, even as they experienced different programs and interventions.

### **Student Parents in College**

What we do know about student parents is that they are not an insignificant proportion of collegegoers. Nearly one in five U.S. undergraduates are caring for dependent children younger than eighteen. Most are single mothers, and they are more likely to be students of color, to have high levels of financial need, and to be older than traditional college students. Approximately

42% of student parents attend community colleges, although representation on college campuses has increased across all sectors (Cruse, et al., 2019).

Student parents navigate multiple lives and schedules simultaneously; they are typically responsible for managing their own needs and obligations, as well as those of their children. This often means arranging their courses and employment around childcare, school activities, and the social and medical needs of children (Sallee & Cox, 2019). Additionally, student parents who are pregnant or breastfeeding must manage college alongside their own medical needs and/or infant feeding while attending classes, completing assignments, and potentially maintaining jobs. All these factors can make participating in campus life, seeking academic counseling, or participating in professional training opportunities—activities associated with persistence and completion—a real challenge (Ajayi et al., 2021).

### **Structural and Institutional Supports for Student Parents**

Without sufficient policy and institutional supports, student parents may be less likely to complete degrees, despite qualitative evidence that their motivation to earn credentials can be quite high (Richardson & Harrington, 2022). Given the complexities of their scheduling needs, student parents may benefit from courses offered outside of traditional academic hours like in the evenings and on weekends (*ibid.*). They may also benefit from hybrid course modalities where some class activities are completed independently online, and some are undertaken in-person.

Access to campus resources such as advising, career counseling, and financial, health, and social services is also important for supporting student parent success. Several studies which interviewed student parents have documented the expressed need and lack of availability of these resources (Ajayi et al., 2021; Richardson & Harrington, 2022). Broader policy supports like

financial aid and childcare access are necessary to support college completion for student parents. In her book, Pearson (2019) found that low-income student parents she interviewed struggled to qualify for state financial assistance because attending college did not meet the work requirements of the social service programs they sought (Pearson, 2019). Financial aid programs that require specific enrollment intensities may also disfavor student parents who can struggle to maintain full-time status due to other ongoing life events and obligations (Reilly & Levintova, 2022). Additionally, Peterson (2014) found that access to affordable, reliable childcare was the most cited reason student parents stopped out of college. Institutional policies often prevent students from bringing their children onto campus and on-campus childcare availability is very limited at colleges across the U.S. (Olson Beal et al., 2022). Off-campus, childcare affordability is a significant challenge for most parents—the average cost of having one child in daycare in 2021 was about \$900 per month while the average part-time wage for adults was \$1,268 per month. This means the average part-time employed college student could have faced childcare expenses accounting for about 70% of their monthly wage in 2021 (Childcare Aware; Bureau of Labor Statistics).

### **Student Parents and Factors Associated with College Completion**

**Enrollment Intensity.** Literature on early momentum and post traditional students demonstrates that community college students who continuously enroll between academic terms (e.g., enroll in the fall and the following spring term) and earn at least sixty credits in their first two years have a higher likelihood of completing a credential or transferring to a university (Davidson & Wilson, 2013; Cardenas, 2018; Dawson et al., 2021, Chan, 2022). To meet such a credit threshold, first-time students would necessarily need to enroll full time in at least four

terms in their first two years, earning 12-15 credits in each. Attewell (2012) supports this presumption, finding that full-time attendance in the first two years of college is strongly associated with higher outcomes of persistence and degree completion (Attewell, 2012). This suggests that students who attend college part-time, as many student parents do, may face a disadvantage in their likelihood of completing a credential on time. However, in later research, Maggio and Attewell (2019) also find that community college student who enrolled part-time and worked part-time with no stop-outs had higher labor market outcomes post college than those who attended full-time without working and those who attended part-time without working (Maggio & Attewell, 2019). This may indicate a selection bias of success towards students who are able to balance the demands of multiple roles simultaneously. This body of research supports the hypothesis that outcomes from academic success and completion programs may be different for student parents—although the directionality of the differences could go either way based on structural or personal reasons. For example, even assuming that student parents are resilient and motivated students, there is also evidence to suggest that students who attend part-time are also less likely to consistently interact with faculty and advisors and miss out on financial aid that incentivizes full time enrollment (Reilly & Levintova, 2022). Structural and institutional policies may have a role to play here; a systemic review of eight rigorously evaluated early interventions found that expanded access to customized advising and case management had the strongest positive impacts on degree completion for community college students (Dawson et al, 2021).

**Credit Accumulation and Persistence.** For students to make progress towards their academic goals, they need to not only enroll in a sufficient number of courses, but also successfully complete those courses. Credit accumulation metrics represent both how many credits students enroll in and how successfully they perform in them. On average, students earn

approximately 75% of the credits they attempt (National Student Clearinghouse). Student parents tend to have higher GPAs than their peers, but lower credit accumulation and persistence rates (Reed et al., 2021). Wladis et al. (2018) found that they experience more “time-poverty” than other community college students, meaning that the time student parents could devote to academics was more limited and of lower quality than students without children. This led to higher rates of stopping out (pp.1). A report of student parent outcomes at the California Community Colleges similarly found that persistence rates were lower for students who had young children, particularly those who were not supported with financial aid (Reed et al., 2021). These findings suggest that as a population, student parents need structural and institutional supports that address more than academic guidance—childcare access and affordability, financial aid, and guidance that takes their scheduling needs into account may all be promising directions to explore.

## **2.4 Study Identification**

All the studies included in the meta-analysis are pulled from a database of randomized studies conducted by MDRC between 2007 and 2014 at 50 community colleges in the U.S. (Diamond et al, 2025). The database, THE-RCT, includes thirty-one studies, twenty-seven of which meet the highest standards, without reservations, to be included in the What Works Clearinghouse (WWC), a national repository of education research studies (the remaining studies have not been reviewed by the WWC). While each study had its own focus as to what it was trying to measure, most included the same outcomes, such as term-by-term credit accumulation, or degree completion. Data from institutional and state records, as well as the National Student Clearinghouse were also linked to student records in the database. Most studies in THE-RCT

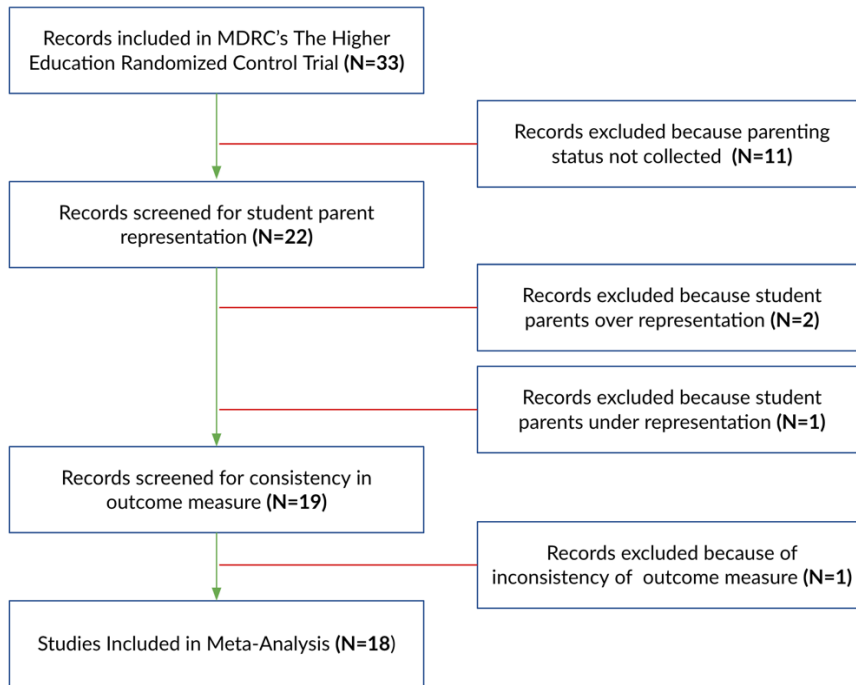
included standardized demographic and descriptive variables, with many including parenting status.

## **Study Selection**

Eighteen of the thirty-one studies in THE-RCT are included in this meta-analysis. Some studies were not included because they had no student parent participants or did not include enough student parents to generate meaningful statistical inferences. Others had design characteristics that made the effect estimates on the outcome of interest difficult to interpret in a meaningful way. Figure 2.1 demonstrates the study selection process. The specific criteria used to determine whether a study was included in the meta-analysis were:

1. Study must include parenting status as a descriptive indicator.
2. Sample sizes for any subgroup by parenting status must be more than 10% of the total sample included in the study, to enable robust subgroup comparisons.
3. Study must include credit accumulation one year after random assignment as an outcome.

**Figure 2.1: Identification of Studies via THE-RCT**



**Figure Notes:** This figure shows the identification process for selecting studies from the database to include in the meta-analysis, indicating how many studies were dropped at each inflection point.

## 2.5 Methods

I construct two linear regression models and conduct a meta-analysis to examine whether there are subgroup differences in the effect estimates of study participation on credit accumulation. I also explore whether any differences in average treatment effects by subgroup are associated with specific interventions and specific intervention components.

## Data and Sample

Table 2.1 and Table 2.2 disaggregate the samples of each study by race, gender, age, and parenting status. Study participants were broadly representative of community college students; however, some differences were observed. The sample was slightly younger and more racially diverse than community college students nationally. Approximately 77% of all study participants

were students of color, compared to 40% of community college students overall in 2010. Around 69% of study participants were between eighteen and twenty-four, compared to 53% overall in 2010<sup>1</sup>. This is not unexpected since many of the studies targeted new or returning first-year students with remedial needs; a group that tends to be younger and more racially diverse than the broader college-going population (Thai, 2023). Additionally, the proportion of females in the overall sample population (59%) was slightly higher than the national community college average in 2010 (56%)<sup>2</sup>.

Table 2.3 describes key characteristics of each study such as when the impact data were collected, what components were featured in the intervention, and whether specific populations were targeted. Interventions were evaluated between 2005 and 2014, spanning a decade of education reforms focused on improving college completion rates (Palmadessa, 2016). Most interventions featured two or three components, while two featured the maximum of six. Advising and tutoring were featured in seven of the eighteen studies and financial support, learning communities, success courses, and instructional reform were featured in eight of the eighteen studies. The least common intervention component was promoting full-time and/or summer attendance, which was featured in only four of the eighteen studies. However, studies that included promoting full-time attendance tended to be more comprehensive overall and had some of the largest positive average treatment effects.

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<sup>1</sup> 2010 was chosen as a mid-point comparison year due to most RCTs taking place between 2005 and 2014

<sup>2</sup> All references to 2010 community college population statistics represent 12-month full-time equivalent enrollment at public two-year Title IV degree-granting institutions in the U.S. Pulled from the National Center for education Statistics, Nov. 2024.

**Table 2.1: Demographics of Student Participants in Selected Studies by Parenting Status**

	<i>Nonparent %</i>	<i>Parent %</i>	<i>Total %</i>
<i>%</i>	72	28	100
<b><i>Age</i></b>			
<i>18-19</i>	55	8	42
<i>20-21</i>	18	10	15
<i>22-24</i>	12	18	13
<i>25-29</i>	7	26	12
<i>30-34</i>	2	19	7
<i>35-39</i>	1	8	3
<i>40-49</i>	1	9	3
<i>50-64</i>	1	2	1
<i>Less than 18</i>	5	0	4
<b><i>Race</i></b>			
<i>American Indian or Alaska Native</i>	<1	<1	<1
<i>Asian or Pacific Islander</i>	6	2	5
<i>Black</i>	29	38	32
<i>Hispanic</i>	35	30	34
<i>Multiracial</i>	2	2	2
<i>Other</i>	2	1	1
<i>White</i>	25	28	26
<b><i>Gender</i></b>			
<i>Female</i>	53	78	59
<i>Male</i>	47	22	41
<i>N</i>	13,668	5,263	18,931

**Table Notes:** Percentages represent the distribution of the full sample of students from the included RCTs by disaggregated demographic category and parenting status. Classification of each group reflects how data are presented in THE-RCT and were not edited by the author.

**Table 2.2: Population Demographics by Study**

Study Name	Total Sample Size	Race %						Gender %		Age %			Parenting Status %	
		American Indian or Alaskan Native	Asian or Pacific Islander	Black or African American	Hispanic/Latino	Multiracial	White	Female	Male	<20	20 to 24	>24	Parent	Not a Parent
<b>ASAP CUNY</b> <i>Accelerated Study in Associate Program - City University of New York</i>	896	0	7	33	42	2	10	62	38	57	26	17	15	85
<b>ASAP Ohio</b> <i>Ohio Accelerated Study in Associate's Program - Ohio Replication</i>	1,501	0	1	34	9	7	44	63	36	47	25	27	27	73
<b>AtD Success Course</b> <i>Achieving the Dream - Student Success Course</i>	911	1	2	57	6	3	28	69	31	48	16	36	36	64
<b>LC Career</b> <i>Learning Communities - Career Focused at Kingsborough Community College</i>	917	0	10	33	19	2	27	59	41	40	43	17	12	88
<b>LC English</b> <i>Learning Communities - Developmental English</i>	1,424	0	13	9	55	2	16	51	49	57	23	19	27	73
<b>LC English + Success</b> <i>Learning Communities - Developmental English + Success Course</i>	1,083	0	2	55	4	2	31	59	41	71	17	12	16	84

<b>LC Math</b> <i>Learning Communities - Developmental Math at Queensborough and Houston Community Colleges</i>	1,034	0	12	28	33	1	13	56	44	69	23	8	8	92
<b>LC Math + Success</b> <i>Learning Communities - Developmental Math + Success Course</i>	1,273	0	1	34	55	1	3	67	33	53	27	21	30	70
<b>LC Reading</b> <i>Learning Communities - Developmental Reading at Hillsborough Community College</i>	1,071	0	4	36	32	2	24	57	43	64	20	16	19	81
<b>ModMath</b> <i>Modularized, Computer-Assisted Developmental Math</i>	1,403	0	4	19	27	2	45	64	36	33	27	40	29	71
<b>OD Advising + Incentive</b> <i>Opening Doors - Advising + Financial Support</i>	2,139	0	1	29	11	3	53	76	24	20	36	44	64	36
<b>OD LC</b> <i>Opening Doors - Comprehensive Learning Community</i>	1,534	0	8	36	19	1	26	55	45	68	25	7	9	91
<b>OD Success</b> <i>Opening Doors - College Success Course + Centers</i>	898	0	6	14	52	2	23	59	40	39	48	13	12	88

<b>OD Success (Enhanced)</b> <i>Opening Doors - College Success Course + Centers (Enhanced)</i>	444	0	6	11	51	2	21	59	36	46	42	13	11	89
<b>PBS + Math</b> <i>Performance Based Scholarships + Math Lab - Florida</i>	1,075	0	1	32	30	3	30	66	34	23	29	48	44	56
<b>PBS + Supports</b> <i>Performance Based Scholarships + Supports - Arizona</i>	1,028	0	0	0	100	0	0	0	100	38	31	31	25	75
<b>PBS NY Wave 1</b> <i>Performance Based Scholarships - New York (Wave One)</i>	749	0	9	35	46	1	5	70	30	0	37	63	48	52
<b>PBS NY Wave 2</b> <i>Performance Based Scholarships - New York (Wave Two)</i>	753	0	10	37	41	2	7	68	32	0	40	60	48	52

**Table Notes:** Percentages represent the distribution of the full sample of students from the included RCTs by disaggregated demographic category, parenting status, and study. Classification of each group, except for age, reflects how data are presented in THE-RCT and were not edited by the author.

**Table 2.3: Study Descriptions and Target Population**

Study Name	Eval Starting Year	Intervention Components	Total Intervention Components	Target Population			
				New (or First Year Returning) Student	Low-Income	Remedial Needs	Enrolled Full-Time
<b>ASAP CUNY</b> <i>Accelerated Study in Associate Program - City University of New York</i>	2010	Financial support; Advising; Promoting full-time attendance; Tutoring; Learning communities; Success course	6	✓	✓	✓	✓
<b>ASAP Ohio</b> <i>Ohio Accelerated Study in Associate's Program - Ohio Replication</i>	2014	Financial support; Advising; Promoting full-time attendance; Tutoring	4	✓	✓		✓
<b>AtD Success Course</b> <i>Achieving the Dream - Student Success Course</i>	2008	Success course	1			✓	
<b>LC Career</b> <i>Learning Communities - Career Focused at Kingsborough Community College</i>	2008	Instructional reform; Learning communities	2				
<b>LC English</b> <i>Learning Communities - Developmental English</i>	2007	Instructional reform; Learning communities	2			✓	
<b>LC English + Success</b> <i>Learning Communities - Developmental English + Success Course</i>	2007	Instructional reform; Learning communities; Success course	3			✓	

<b>LC Math</b> <i>Learning Communities - Developmental Math at Queensborough and Houston Community Colleges</i>	2007	Instructional reform; Learning communities	2	✓		✓	
<b>LC Math + Success</b> <i>Learning Communities - Developmental Math + Success Course</i>	2007	Instructional reform; Learning communities; Success course	3	✓		✓	
<b>LC Reading</b> <i>Learning Communities - Developmental Reading at Hillsborough Community College</i>	2007	Instructional reform; Learning communities; Success course	3	✓		✓	
<b>ModMath</b> <i>Modularized, Computer- Assisted Developmental Math</i>	2014	Instructional reform	1			✓	
<b>OD Advising + Incentive</b> <i>Opening Doors - Advising + Financial Support</i>	2007	Financial support; Advising; Tutoring	3	✓	✓		
<b>OD LC</b> <i>Opening Doors - Comprehensive Learning Community</i>	2005	Financial support; Advising; Tutoring; Instructional reform; Learning communities	5	✓		✓	✓
<b>OD Success</b> <i>Opening Doors - College Success Course + Centers</i>	2005	Advising; Tutoring; Success course	3	✓			

<b>OD Success (Enhanced)</b> <i>Opening Doors - College Success Course + Centers (Enhanced)</i>	2006	Advising; Tutoring; Success course	3	✓		
<b>PBS + Math</b> <i>Performance Based Scholarships + Math Lab - Florida</i>	2010	Financial support; Tutoring	2		✓	✓
<b>PBS + Supports</b> <i>Performance Based Scholarships + Supports - Arizona</i>	2010	Financial support; Advising; Promoting full-time attendance; Tutoring; Success course	5		✓	
<b>PBS NY Wave 1</b> <i>Performance Based Scholarships - New York (Wave One)</i>	2008	Financial support	1		✓	✓
<b>PBS NY Wave 2</b> <i>Performance Based Scholarships - New York (Wave Two)</i>	2009	Financial support; Promoting full-time attendance	2		✓	✓

**Table Notes:** Table 2.3 is reproduced from data included in Weiss et al. (2022), Tables A.2 and A.4. Study characteristics were coded prior to inclusion in THE-RCT.

## 2.6 Statistical Models and Meta Analysis

I first construct a linear regression model to estimate the overall average treatment effect for each study for all students, for parents alone, and for non-parents alone. This means that fifty-four regressions were run resulting in fifty-four treatment effect estimates and associated standard errors (3 subgroups, 18 studies). These facilitated a meta-analysis. Equation 1 demonstrates the causal impact of being assigned to treatment on credit accumulation for study participants.

$$y_i = \alpha_k(Block_{ki}) + \beta (Treatment_i) + \epsilon_i \quad (1)$$

In equation 1,  $y_i$  represents the average number of credits accumulated by the third term after random assignment, for student  $i$ .  $Block_{ki}$  is a binary indicator for whether student  $i$  was assigned to Block  $k$ , typically representing different colleges and cohorts (and occasionally narrower groups within colleges and cohorts).  $Treatment_i$  is a binary indicator of whether a student was assigned to the treatment group or the control group.  $\beta$  is the average impact on credit accumulation among students assigned to treatment.

After separately estimating Equation 1 for all students, parenting students, and non-parenting students for each individual intervention, I then conducted a meta-analysis of the estimated treatment effects for parenting students and non-parenting students. I used the Meta package in Stata, a statistical software program, to run both meta-analyses. The program works by assessing treatment effect heterogeneity across studies, weighting study-specific estimated average treatment effects by specific parameters such as sample size and effect size variance and estimating an overall average treatment effect across studies for each group. After running

equation 1 for each study and subgroup, I organized study-level data including the estimated average treatment effect, standard errors, and confidence intervals into a data set that was imported into Stata and used to run the meta-analyses.

Before the program can run, some specifications must be made. First, given the context of the studies included, I chose a random-effects model for the meta-analysis. A random-effects model explicitly analyzes variation in effect estimates across studies and treats the studies as a random sample from a broader population. This is helpful because not only did the studies test different interventions, they were also carried out over a period of many years in different geographic and institutional settings. For example, studies were conducted across college systems with a lot of variation in complexity and in states serving highly diverse student populations like Arizona and New York. A random-effects model addresses the expectation that effect sizes amongst the studies will vary, generating weights and confidence intervals that are wider than the alternative fixed-effects model to account for additional uncertainty stemming from the expected variation. This offers a more conservative approach to interpreting results. Additionally, because a random-effects model provides an estimate of the average treatment effect that assumes the studies are a sample from a broader population, the results are more generalizable.

## **2.7 Results**

### **Estimating Average Treatment Effects by Subgroup**

Table 2.4 presents the results from Equation 1, showing the estimated average treatment effects (in cumulative credits earned) and standard errors for each study, by parenting subgroup. Figure 2 presents meta-analytic forest plots of the average treatment effects by study by

parenting group. When Figure 2.2 and Table 2.4 are compared, the CUNY ASAP and ASAP Ohio programs appear to be the most effective at increasing credit accumulation for both student parents and nonparents. In contrast, most other interventions show smaller and mostly statistically insignificant effect estimates. As I will explore later in the paper, ASAP programs tend to be the most comprehensive interventions and have high levels of intensity in the dosages of intervention components, which are associated with larger effect estimate sizes. Among all other studies that included less intense treatments, the differences in average treatment effects between parents and nonparents appears to be null.

There are two other patterns worth noting. First, some performance-based scholarship programs and learning community interventions show large variations between parents and nonparents. For example, the second wave of the performance-based scholarship program in New York City community colleges (PBS NY Wave 2) had one of the highest positive effect estimates for parents but one of the lowest for nonparents. Second, learning community interventions, such as the Opening Doors Learning Community project (OD LCs) showed some of the strongest positive effect estimates for nonparents and some of the weakest for parents.

**Table 2.4: Average Treatment Effect by Study and Parenting Subgroup**

<i>Study Name</i>	<i>Parents</i>			<i>Nonparents</i>		
	Effect Size	Standard Error	N	Effect Size	Standard Error	N
<i>ASAP CUNY</i>	5.008*	1.943	134	4.122***	.824	762
<i>ASAP Ohio</i>	2.981*	1.216	405	5.178***	.684	1096
<i>AtD Success Course</i>	-0.01	1.125	328	-0.263	.837	583
<i>LC Career</i>	1.707	2.612	110	0.452	.891	807
<i>LC English</i>	1.357	1.077	384	0.918	.664	1040
<i>LC English + Success</i>	-2.278	1.452	173	-0.041	.661	910
<i>LC Math</i>	-2.492	2.574	83	1.175	.69	951
<i>LC Math + Success</i>	0.568	.922	382	-0.179	.596	891
<i>LC Reading</i>	0.684	1.556	203	0.448	.746	868

<i>ModMath</i>	1.754*	.881	407	0.393	.578	996
<i>OD Advising + Incentive</i>	0.273	.491	1369	0.854	.678	770
<i>OD LCs</i>	-0.079	2.381	138	2.221***	.659	1396
<i>OD Success</i>	-0.99	1.533	108	-0.428	.606	790
<i>OD Success (Enhanced)</i>	2.153	2.287	49	0.75	.846	395
<i>PBS + Math</i>	1.199	.975	473	0.736	.892	602
<i>PBS + Supports</i>	-1.797	1.633	275	2.913***	.776	753
<i>PBS NY Wave 1</i>	0.974	1.039	360	0.579	.987	389
<i>PBS NY Wave 2</i>	2.12	1.078	361	-0.186	1.002	392

Table notes: Effect size is reported as impact in accumulated credits through year one after random assignment. Statistical significance is indicated as follows: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Figure 2.2: Estimated Impacts by Study and Subgroup**

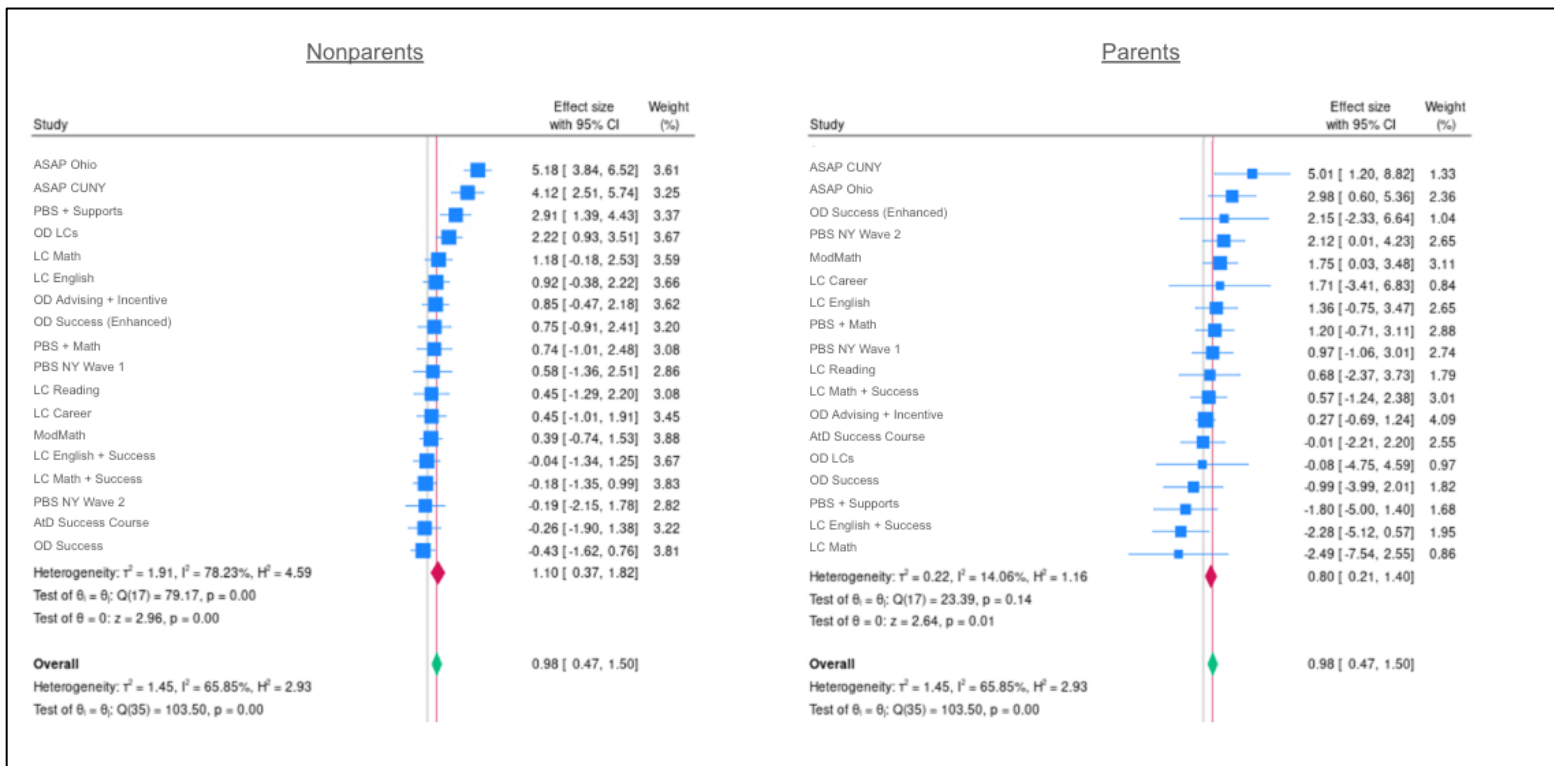


Figure Notes: This figure shows two forest plots of impact estimates for nonparents and parents with 95% confidence intervals, by intervention. Effect size is reported as impact on credits accumulated through year one after random assignment.

Among the studies analyzed, the overall average treatment effect is .98. In other words, the average impact of being assigned to treatment on credit accumulation after three terms (or through year one), is an increase of .98 credits ( $p < .05$ ). For non-parenting students, the average treatment effect across the studies analyzed is 1.10. For parenting students, the average treatment effect is .80. This difference amounts to about a third of a credit and the confidence intervals of both effect sizes are highly overlapping, suggesting that there may not be a significant overall differential effect between the interventions' impact on student parents compared to non-parenting students.

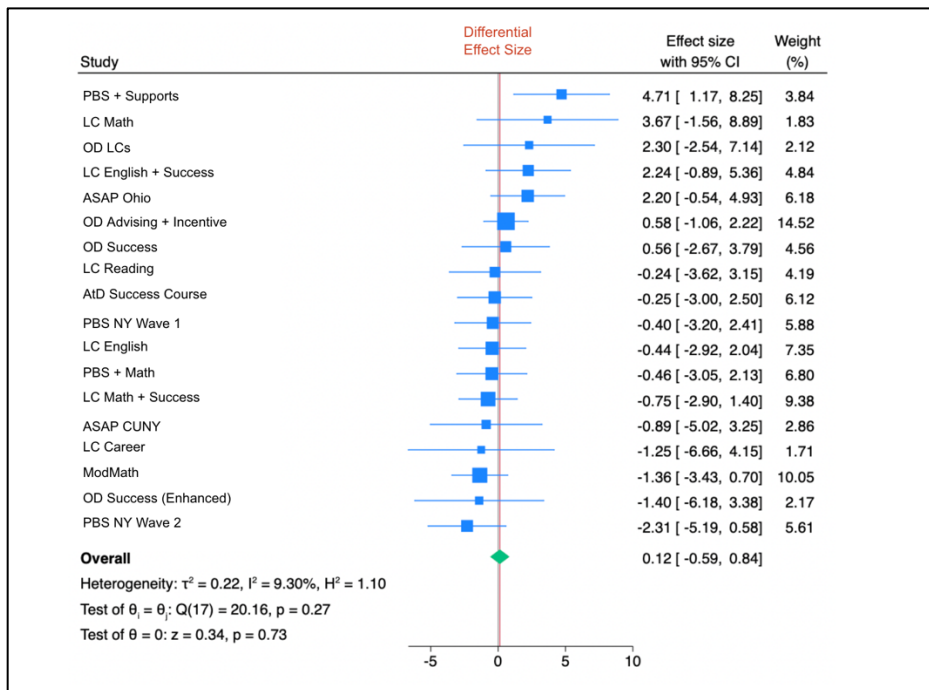
### **Exploring Differential Impacts by Parenting Subgroup**

Figure 2.2 highlights an important consideration in meta-analytic subgroup analyses. The weights assigned to studies for student parents and nonparents differ due to variation in subgroup sample sizes and differences in within- and between-study variance. As a result, each study's influence on the overall effect estimate size changes depending on the subgroup analyzed. This can lead to differential weighting across subgroups, potentially affecting comparisons and introducing bias if not carefully accounted for. One way to mitigate this is to calculate the subgroup difference within each study first and then meta-analyze those differences, ensuring that each study is weighted equally across subgroups. I did this by running equation 1 for every study and every subgroup, taking the difference between subgroup effect estimate sizes for each study, and meta-analyzing the output.

Figure 2.3 demonstrates the results of this test. To ensure that results were accurate, I manually adjusted the standard errors and confidence intervals of the differential estimates between parenting subgroups by study according to Borenstein et al. (2009). For the average

intervention included in my study from THE-RCT, the effect estimates for parent and non-parents are not discernably different (the average difference in effects is only 0.12 credits). Substantiating the results of Figure 2.2, the confidence intervals of the differential impacts are quite large and among all studies except one, there is no evidence to suggest that average treatment effects for parents compared to nonparents are different from zero for nearly all interventions (as demonstrated by the confidence intervals all crossing the red line). Notably, there are 18 tests of differential effects presented in Figure 2.3 and only one shows up as statistically significant. This is how many would be expected, by chance, if in fact there are no true differential effects by parenting status.

**Figure 2.3: Estimated Differential Impact Between Subgroups by Study**



**Figure Notes:** The figure shows the differential impact on credits accumulated in year one between parenting subgroups. Differential effect size was calculated as Nonparent Effect Size – Parent Effect Size. Standard errors were adjusted accordingly to Borenstein et al., 2009.

One critical benefit of conducting a meta-analysis is the ability to compare heterogeneity across studies, which can shed light on why certain interventions are more or less effective.

Based on the heterogeneity statistics for the subgroup differential, there is little evidence that intervention effectiveness varies meaningfully between students with different parenting responsibilities. A  $\tau^2$  value of .22 suggests low between-study variability. While not zero, this  $\tau^2$  value—combined with an  $I^2$  value of just 9.30%—indicates that the observed heterogeneity may be due to chance or sampling error rather than real differences across studies. This suggests that differences in effect estimate sizes between student parents and nonparents are unlikely to stem from unique interventions or components targeting these groups. In other words, the variation in impacts does not appear to be driven by how interventions differentially affect students with distinct lived experiences.

Caution is needed when interpreting differences across subgroups for a few reasons. First, the studies were designed to estimate overall average treatment effects and may not be well suited to looking at impacts for small subgroups such as student parents. Because the studies were not designed with this subgroup analyses in mind—for example, they did not oversample for specific student groups—statistical power to make inferences about each subgroup, and particularly about student parents, is likely reduced, increasing the risk that statistically significant impacts could be falsely observed (Pustejovsky & Tipton, 2021).

Another reason for caution is because there may be underlying relationships between subgroup identities and intervention components that are unobserved. For example, there may be behavioral, cultural, or structural differences between parenting students and non-parenting students that moderate their participation in the studies or uptake of the intervention. If this is true, these interactions could be influencing the average treatment effect for each subgroup for each study in ways that are difficult to disentangle with the data available.

## Intervention Components as Predictors

Although there does not appear to be any overall significant differential impacts by study based on parenting status, it may be useful to know if specific components within the studies are associated with changes in directionality or magnitude of impacts based on parenting subgroup. This moves the research forward in two key ways. First, this exploration helps provide more descriptive evidence about the association between specific intervention components and parenting status outside of the context of one study. This information can help shape policy development by pointing researchers and policymakers to observed trends across studies that include similar components, helping to refine future analyses and unearth new questions about how to maximize the effectiveness of interventions. Additionally, if future RCTs were to be replicated with parenting status in mind, or if a meta-analysis of differential impacts between other relevant subgroups were to be conducted, this exercise could help explain why some interventions are differentially effective, guiding future study design and methods for targeting experimental samples.

Before analyzing the role of intervention components as predictors of impact, it is useful to remember that each study is classified by the types and combinations of intervention components that it includes (see Table 3). Using meta-regression, I constructed a linear model to predict the average treatment effect of each study for each parenting subgroup based on the make-up and intensity of its components. Equation 2 presents the model.

$$\beta_j = \alpha + \theta_j(\text{Component}_c) + \epsilon_j \quad (2)$$

In Equation 2,  $\beta_j$  is the average treatment effect estimated for study  $j$  (from Equation 1), modeled for each parenting subgroup separately.  $\theta_j$  is the association between the average treatment effect for study  $j$  and the presence and intensity of study  $j$ 's components  $c$ , represented by *Component*. Six components were included in this analysis.<sup>3</sup> With the exception of comprehensiveness, each component is measured by its intensity as a factor in the intervention. Comprehensiveness is measured by the total number of components included in the intervention. Given the small number of observations (eighteen studies) and the large number of predictors (six possible intervention components for each study), a meta-regression was run for each component individually for each study, rather than in one model, to avoid multicollinearity and model overfit.

The intervention components include financial aid, promoting full-time and/or summer enrollment, increased advising, increased tutoring, success courses, and learning communities. All components except for comprehensiveness are coded on a scale of zero to one and categorized into quartiles or terciles distributed across the studies. The exception to this rule is financial support, where full intensity (set at a value of one) represents the maximum amount of money accumulated among any intervention at the end of the first year of treatment, \$2,327. All other scaled values of financial support are calculated as a proportion of the max dosage in dollars (e.g., average cumulative dollars received by individuals in the study divided by \$2,327).

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<sup>3</sup> This analysis was possible because THE-RCT researchers previously analyzed, coded, and generated standardized measures for six specific intervention components for each study in the database. The categorical components were identified from researchers' detailed knowledge about the programs and the program descriptions (e.g., whether a program included advising and how much) and coded in THE-RCT as measures of intensity based on the overall distribution of the presence of the component across studies (e.g., whether the amount of advising included in the program fell into the bottom, middle, or top third for all programs that featured advising).

Table 2.5, reproduced with information from Weiss et al. (2022), demonstrates how the data were reported to enable this analysis of effect estimate moderation.

**Table 2.5: Presence and Intensity of Featured Intervention Components**

<i>STUDY</i>	<i>Financial Support</i>	<i>Advising Usage</i>	<i>Promoting FT &amp; Summer Enrollment</i>	<i>Tutoring Usage</i>	<i>Instructional Reform</i>	<i>Learning Communities</i>	<i>Success Courses</i>	<i>Comprehensiveness (Total Features)</i>
<i>ASAP CUNY</i>	0.57	1.00	1.00	1.00	0.00	1.00	1.00	6
<i>ASAP Ohio</i>	0.37	1.00	1.00	1.00	0.00	0.00	0.00	4
<i>AtD Success Course</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.67	1
<i>LC Career</i>	0.00	0.00	0.00	0.00	0.33	0.50	0.00	2
<i>LC English</i>	0.00	0.00	0.00	0.00	0.33	0.50	0.33	3
<i>LC English + Success</i>	0.00	0.00	0.00	0.00	0.33	0.50	0.00	2
<i>LC Math</i>	0.00	0.00	0.00	0.00	0.33	0.50	0.00	2
<i>LC Math + Success</i>	0.00	0.00	0.00	0.25	0.33	0.50	0.33	4
<i>LC Reading</i>	0.00	0.00	0.00	0.00	0.33	0.50	0.67	3
<i>ModMath</i>	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1
<i>OD Advising + Incentive</i>	0.14	0.50	0.00	0.50	0.00	0.00	0.00	3
<i>OD LC</i>	0.08	0.25	0.00	0.25	0.33	0.50	0.00	5
<i>OD Success</i>	0.00	0.25	0.00	0.25	0.00	0.00	0.67	3
<i>OD Success (Enhanced)</i>	0.00	0.25	0.00	0.75	0.00	0.00	0.67	3
<i>PBS + Math</i>	0.34	0.00	0.00	1.00	0.00	0.00	0.00	2
<i>PBS + Supports</i>	0.78	0.25	0.67	1.00	0.00	0.00	0.33	5
<i>PBS NY</i>	0.88	0.00	0.00	0.00	0.00	0.00	0.00	1
<i>PBS NY Wave 2</i>	1.00	0.00	0.33	0.00	0.00	0.00	0.00	2

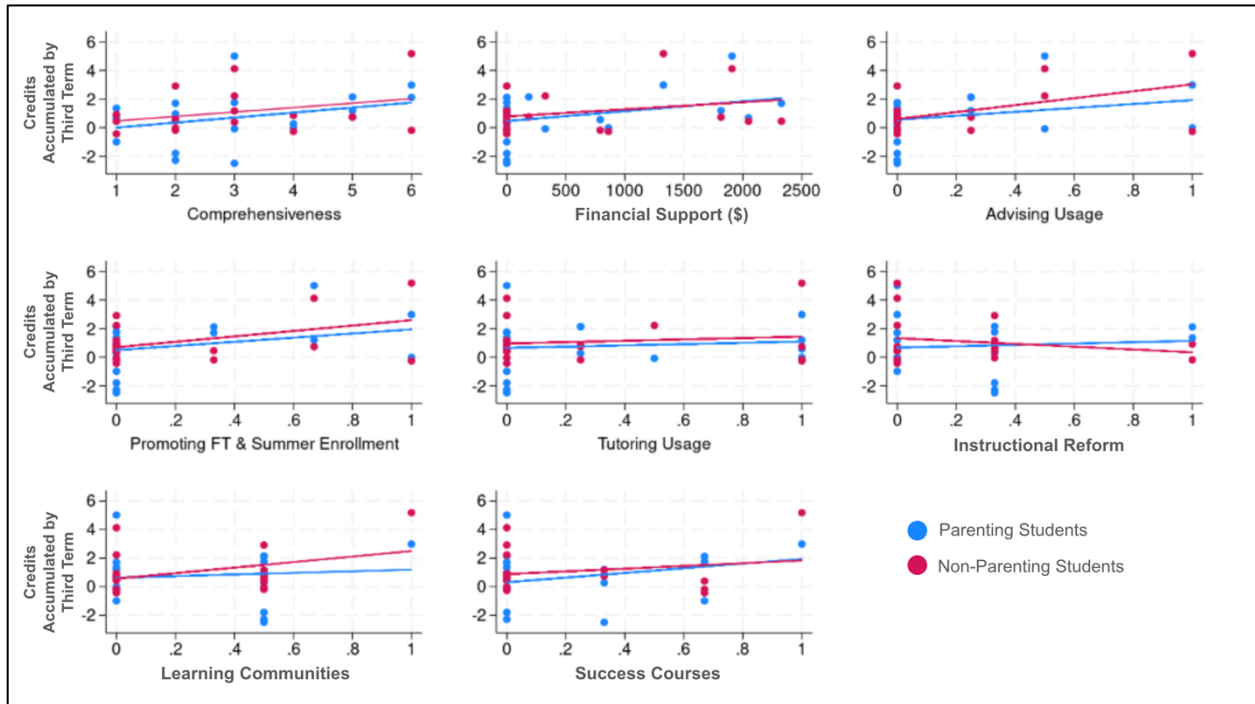
**Table Notes:** This table presents the distribution of featured intervention components and their intensity across all studies as coded in Weiss et al., 2022. It demonstrates the presence of an intervention by study (rows) and the dosage, or intensity, of a component that treated students received by study compared to other interventions (columns).

Plotting the relationship between each intervention component and the average treatment effect by study and by parenting subgroup is a helpful way to visualize how the presence of an intervention component and its intensity within a study may impact average treatment effects differentially for each parenting subgroup. Figure 4 demonstrates how the intensity of an intervention component is associated with the magnitude of an interventions’ effect estimates on credit accumulation for parents and nonparents.

As previously noted, each intervention component is measured as a dosage, or intensity, ranging from zero (the component was not part of the intervention) to one (the maximum intensity observed across all studies). The exception to this is that financial aid was converted back into dollars for ease of graphical interpretation. The complete typography for each featured intervention is included in Appendix 2.A, reproduced from Table A.1 of Weiss et al. 2021. Figure 2.4 demonstrates that the relationship between effect estimates on credit accumulation (y-axis) and the presence or intensity of a featured component (x-axis) is about the same for parents and nonparents across most components. The blue line in Figure 2.4 represents predicted values from Equation 2 for student parents and the red line represents output for nonparents.

Overall, more comprehensive interventions—those that featured a high number of components—were associated with higher estimated average treatment impacts for both groups. Programs that featured promoting full time or summer attendance, financial support, or tutoring appear to have had about the same impacts on both groups. The largest differences between slopes occurred when an intervention featured learning communities, instructional reforms, or advising. Based on the directionality of the slopes, nonparents appear to have benefitted more from interventions that featured advising or promoted full time or summer attendance while they appeared to have benefitted less from interventions that featured instructional reforms. However, comparing Figure 4 to the meta-analysis of differential impacts demonstrates that although differences by study are evident, they lack statistical significance and may be due to random sampling or chance.

**Figure 2.4: Impact of Intervention Components on Average Treatment Effects by Subgroup**



**Figure Notes:** Regression lines generated from estimates using the single predictor model in Equation 2 run separately for each parenting subgroup.

Earlier I showed through meta-analysis that there are few meaningful differences between estimated impacts for parenting subgroups by study. I then removed the bounds of an individual study and asked whether there were meaningful differences in associations between intervention components and parenting subgroups writ large. Plotting this relationship was one way to explore this question. However, it is not easily discernible by comparing the slopes in Figure 2.4, which include estimation error, whether variations between groups are statistically different from zero (i.e., whether meaningful differential impacts truly exist).

To determine this, I used meta-regression to test an interaction term between an intervention's featured components and parenting status for each study. I did this by constructing

a linear model of the impact on the average treatment effect of a study when a component was present in an intervention (See Equation 3). The model was run for each study and subgroup individually.

$$\beta_j = \alpha + \theta (\text{Component}_{jc}) + \delta (\text{Parent}_{jp}) + \gamma (\text{Component}_{jc} \times \text{Parent}_{jp}) + \epsilon_j$$

(3)

In Equation 3,  $\beta_j$  is the average treatment effect associated with study  $j$  for parenting subgroup  $p$ . The coefficient  $\theta$  is the impact on the average treatment effect for study  $j$  of the presence of the full intensity of a featured component  $c$ . The coefficient  $\delta$  is the impact on the average treatment effect for study  $j$  for parenting subgroup  $p$ .  $\text{Parent}_{jp}$  is a 0/1 indicator for whether the meta data from study  $j$  are from the parent or nonparent subgroup. The coefficient  $\gamma$  is the change in impact on the average treatment effect for study  $j$  in the presence of the full intensity of a program component between non-parenting students and parenting students.

The results in Table 2.6 reveal that there are no statistically significant differences in the relationship between components and impact estimates based on parental status.

**Table 2.6: Difference in Impact of a Featured Component’s Presence on Credit Accumulation by Parenting Status**

<i>Moderating Component</i>	<i>Component X Parenting Status</i>	
	Effect Size	Standard Error
<i>Comprehensiveness</i>	.078	.328
<i>Financial Support</i>	.000	.000
<i>Advising Usage</i>	-.912	1.48
<i>Tutoring Usage</i>	.059	1.34
<i>Instructional Reform</i>	1.33	1.74

<i>Learning Communities</i>	-1.47	1.75
<i>Success Courses</i>	.550	1.69
<i>Promoting Full-Time or Summer Enrollment</i>	-.207	1.42

**Table Notes:** Effect size represents the coefficient on the interaction term (Component X Parenting Status) from Equation 3. Difference in coefficients between parenting groups is calculated as non-parent – parent. \*\*\*p<.01 \*\*p<.05 \*p<.1

## 2.8 Discussion

### The Impact of Parenting Status on Study Impacts

The findings suggest that, in general, there are no statistically significant differences in intervention impacts based on parenting status, whether analyzed across individual studies or across broader groups of intervention characteristics. This indicates that the effectiveness of various student success initiatives tends to be consistent for both student parents and non-parents. While some individual programs exhibit variation in effect estimate sizes, these differences do not reach statistical significance when examined systematically.

One possible interpretation of these findings is that student parents and non-parents face overlapping structural challenges in community college, such as financial constraints, limited time or competing priorities, and academic preparedness. Many interventions were designed to address these common barriers rather than tailoring support specifically to the needs of parents or non-parents. As a result, interventions such as performance-based scholarships, learning communities, and comprehensive support programs like CUNY ASAP and ASAP Ohio appear to benefit both groups in comparable ways. This may be welcome news to policymakers and program implementers; generalized interventions have the potential to positively impact a diverse swath of learners.

Furthermore, the lack of statistically significant differences does not necessarily imply that parenting status is irrelevant to student experiences or that all interventions were universally positively or neutrally impactful. Instead, it may suggest that the interventions analyzed were not

sufficiently targeted to address the unique challenges of student parents. For example, while financial aid interventions may provide support for immediate expenses, they do not directly address childcare availability or scheduling constraints, which may be more pressing concerns for student parents.

Another possible explanation is that the sample sizes for student parents in many studies may be too small to detect meaningful differences in impact. Given that student parents represent a modest proportion of students in most higher education settings, statistical power may be insufficient to capture nuanced effect estimates. Future research could explore whether larger datasets that oversample for specific subgroup representation or pooled analyses across even more studies reveal clearer patterns in the effectiveness of interventions for student parents.

These findings highlight the need for more targeted research and policy interventions that explicitly consider parenting status. While it appears that general interventions are effective across student populations, tailored support structures—such as expanded childcare services, flexible scheduling options, programs that promote student belonging, and targeted financial aid—may enhance outcomes for student parents without diminishing benefits for non-parents. Future research should investigate whether modifying existing interventions to accommodate the unique circumstances of student parents could lead to more equitable educational outcomes. Additional research that followed the outcomes of the children of student parents would be especially interesting for measuring the multigenerational impact of college investments for parents.

### **Implications of Targeting Remedial Students in Intervention Studies**

One important caveat of the data is that most interventions targeted students with remedial needs in math or English. This means that students were assessed to be underprepared for college-level math or English at the time they participated in a study and were expected to complete non-credit developmental courses, which typically lengthen timelines (Bailey et al., 2010).

Literature that examines students with remedial needs *and* their parenting status is scant. We do not know if student parents are more or less likely than their non-parenting peers to need learning supports. Despite this, it is worth considering if asking student parents, who already have limited time and attention, to extend their academic timeline without earning credits might make them less likely to pursue college and thus participate in any of the studies included in the analysis.

The estimated effect sizes presented in this study represent impacts for students assigned to treatment, also known as an intent-to-treat estimate. While this approach reduces selection bias, differential attrition remains a potential concern. If student parents in the treatment group were more likely to stop out of college or stop out of the study than their non-parenting peers, the estimated impacts may not fully capture the effect estimates of the intervention for this subgroup. Further research is needed to determine whether this pattern occurs systematically. If so, future experimental designs that account for the specific needs and constraints of student parents would likely enhance statistical power and yield more precise estimates of which interventions are most effective for them.

## **Study Replications and Arguments for Stronger Contextualization for Diverse Learners**

For both parents and nonparents, the ASAP studies in New York and Ohio showed the strongest positive impacts. ASAP was first launched at the City University of New York but has since been replicated and evaluated across the country; in Ohio, which is part of this analysis, and in five other states more recently. ASAP includes the highest number and, in most cases, higher dosages of intervention components and combines these with other supports designed to keep students enrolled and making progress towards their degree. Replication projects have taken the ASAP model further by contextualizing the program to the needs of diverse student groups, policy landscapes, and local economic interests. For example, two states focused their programs on unique student groups—Colorado community colleges’ replication focused on Latino/a students in workforce programs while Michigan’s targeted first-generation and low-income learners. Other states focused on aligning the ASAP model with their own policy landscapes and goals—New Jersey is considering how to leverage existing state financial aid programs to complement ASAP participation while West Virginia and North Carolina are integrating ASAP into college and workforce development partnerships (Chawla & Giardello, 2024).

These adaptations and replications demonstrate that comprehensive interventions that focus on highly impactful practices can be effectively designed to target groups with specific needs and meet policy goals. Given the size and diversity of the student parent population and their motivations for completing a degree, combined with policymakers’ and researchers’ interests in leveraging multigenerational impacts, a targeted replication of the ASAP model focused on student parents at community colleges may hold promise for identifying insights for improving outcomes for a broad and traditionally underrepresented group.

## 2.9 Conclusion

Despite evidence that interventions vary in their effectiveness on impacting credit accumulation, this study does not provide clear evidence that community college interventions are systematically more or less effective for student parents compared to their non-parenting peers. However, the finding that what works for the average student also appears to work for post-traditional students like student parents, is important and helpful to policymakers. It suggests that rather than designing entirely separate interventions, efforts should focus on ensuring that post-traditional groups have equitable access to the most effective programs and interventions available.

At the same time, augmenting existing interventions to better meet the needs of student parents—such as providing childcare, offering financial supports tailored to their circumstances, or making academic support available at non-traditional times—may be an effective and efficient way to adapt existing policies and interventions. Indeed, the ASAP model, which was by far the most effective intervention in the study, includes many of these supports. While its complexity and cost could make replications more challenging, colleges and policymakers can learn from its comprehensive approach. For example, taking iterative steps that build on proven models while incorporating parent-specific supports may allow for utility-maximizing choices that can benefit a broader range of students. By refining interventions in ways that acknowledge the unique constraints of student parents, institutions and policymakers can improve outcomes without needing to reinvent entire support systems.

# **Chapter 3: Linking Perception, Sensemaking, and Policy Engagement to Promote Post-Traditional Student Success on a College Campus**

## **3.1 Introduction**

This study uses qualitative research methods to examine how faculty and administrators influence the perception, engagement, and implementation of policies designed to support post-traditional college students. Relying on thematic content analysis, I conducted semi-structured interviews with a group of eleven college faculty and administrators employed full time at a broad-access four-year university located in the northeast U.S. The goal of the study was to uncover and analyze the ways that faculty and administrators make sense of public policies related to post-traditional students. The study was also designed to better understand how they interpret policy goals and whether and how their experiences with post-traditional students affected their participation in policy design and implementation.

## **3.2 Research Questions**

The study seeks to understand the following questions:

1. How do college actors conceptualize their role as policy agents and implementers of a statewide and campus reform focused on post-traditional learners?
2. What factors, such as their environments, organizational culture, interactions with students, and their own self-identities contribute to how they undertake their role in policy implementation?

Connecting perception to policy implementation is an important addition to the field, as contemporary theories and frameworks of implementation within higher education have not kept

pace with the field's rapid evolution (Gonzalez et al., 2021; Felix & Nienhusser, 2023). This article investigates the impact that cultural-cognitive mechanisms such as shared understandings, norms, and implicit assumptions can have on policy implementation, as demonstrated through the experiences and perceptions of college faculty on a campus where large-scale reform is underway (Scott, 2014). By analyzing concepts of policy through a lens of concepts of self, it prioritizes the role of college actors as key actors in implementation and unearths important questions about why policy knowledge and engagement vary and why it matters for student outcomes.

### **3.3 Literature Review**

#### **Stages of Policy Development and the Role of Policy Implementation**

Much of the contemporary policy literature is rooted by a key framework that breaks the process of policy development down into discrete phases. These have been broadly referred to as: agenda setting, policy formulation, policy selection, policy implementation, and policy evaluation (DeLeon & DeLeon, 2002; Anderson, 2003). For decades, policy theorists have posited the various actors, environments, and mechanisms that contribute to outcomes within each stage. However, some have received more attention than others. Theories on agenda setting and policy formulation have anchored the field since their inception in the 1950s and remain a large focus of scholarly attention today (DeLeon & DeLeon, 2002; Hudson et al., 2019). More recently, interest in policy evaluation and econometric approaches expanded the field of policy analysis and have ushered in new methods for understanding the impacts policies may have (Heckman & Vytlačil, 2001). Among all the policy development phases, and particularly within the context of higher education, one that has received relatively sparse analytical attention is the

role that college faculty and administrators play in policy implementation. While the field has expanded in this area in recent years, clear delineations of what policy implementation is, who is involved, how authority and responsibility are distributed among implementers, and our understanding of the role this phase plays in the outcomes and evolution of a policy have remained opaque (Hill & Hupe, 2015; Felix & Nienhuser, 2023).

This is a problem because when the details about what happens between when policies are selected and when they are evaluated are elusive, analyses risk becoming reductive comparisons of inputs and outputs. In other words, a lack of clarity on implementation perpetuates the status quo within policy research of articulating the *what* but not the *how* (Gunn, 1978). The field has taken an interest in this challenge, but progress is slow; likely due to the complexity of policy implementation and the field's growing understanding of the messy interconnected roles and feelings of policy actors and implementers (Braithwaite, 2018).

As further evidence of the need for focusing on implementation, Hill and colleagues (2023) identify several critical reasons for centering it as part of impact evaluations. They point to implementation knowledge as key to understanding why effects of interventions and reforms vary, why reforms may not have the anticipated impacts, and why specific components of reforms may be more impactful than others (Hill et al., 2023). Yanow also explores this link between policy implementation and impact variation resulting from personal interpretations that are subject to organizational and institutional culture, power dynamics, social context, and time (Yanow, 1996).

## **Policy Implementation and Cultural Cognition**

Building off prior and contemporary literature, one of the most useful things about Felix and Nienhuser's framework is that it merges policy implementation with cultural-cognitive concepts of individual and organizational sensemaking, agency, and discourse. Sensemaking refers to how policies are interpreted through unique histories, objectives, and experiences (Kezar, 2012; Scott, 2014). Agency refers to how authority and autonomy are perceived and understood. Discourse refers to how individuals and organizations interact with and relate to each other and their environments. Connecting ideas of policy making with these concepts supports a recognition that policies are not generated, implemented, or evaluated in a vacuum—they are subject to the human experience. Particularly within the context of implementation, it is important to recognize that those who are “on the ground” are constantly reinterpreting the expectations of their role as implementers through their own lived experiences (Karlsson & Rytberg, 2016; McKay & Robson, 2023; Natow, 2016).

**Sensemaking.** As policies are enacted, they are often adapted or innovated by implementers (Lipsky, 1980, Yanow, 1996). Within the context of college reforms, implementers are likely to be institutional administrators, staff, and faculty. The process of interpretation that inform adaptation and innovation is known as sensemaking. Sensemaking often includes building understanding through perceptions, feelings, and interactions (Kezar, 2012). In education, it has been extensively studied in K-12 classroom, largely from the perspective of teachers and administrators involved in school reform movements (Bertrand & Marsh, 2015; Kressler & Cavendish, 2019). I argue that it is imperative to expand the field's understanding of sensemaking for college faculty and administrators, in ways akin to how we understand it for K-

12 teachers and leaders, to begin to unveil explanations for how specific policy outcomes come to be.

**Agency.** Concepts of authority and autonomy are important for understanding implementers' capacity to impact (or feel they are impacting) change. Within higher education institutions, whether and how faculty can make decisions, allocate resources, and coordinate actions, will impact their effectiveness as implementers (Campbell & O'Meara, 2013; Drake et al., 2019). Agency is also critical to understanding how ideas of trust and empowerment impact policy engagement top-down and bottom-up (Moye et al., 2005; McNaughtan et al., 2021). As classroom facilitators and academic mentors, college faculty members should be thought of as change-agents and critical players who are most closely connected and most frequently interfacing between administrators and students for whom policies are targeted.

**Discourse.** Individual interpretation and structural concepts of authority are key mechanisms for analyzing policy implementation, but these phenomena do not occur in a vacuum. College campuses are micro-environments where people not only interact with each other, but also their surroundings (Morrow, 2005; Foste et al., 2023). The ways in which language, symbols, and narratives are represented on campus and in conversation importantly shape interpretation and thus, policy implementation, and can help underscore how one's perceptions of themselves and their environment are tied to their policy participation (Arellano et al., 2019; Foste et al., 2023).

### **Street-Level Bureaucracies in Higher Education**

Lipsky's theory of street-level bureaucracies is foundational to understanding the role of college faculty as they navigate the complexities of policy-sensemaking and interacting with

their institutions and students. Core to the theory is that on-the-ground policy agents, or street-level bureaucrats, are the closest actors to policy constituents and may use their positionality and discretion to directly and indirectly transmit information about organizations, such as policy priorities and values. This phenomenon is common in public environments that are resource constrained with ambiguous mandates—not unlike college classrooms—and so street-level bureaucrats, according to Lipsky, may also adapt and innovate on policy implementation to operate within the resources available to them and to meet the perceived needs of their constituents—or students (Lipsky, 2010, 1980).

A key factor shaping these discretionary decisions is the concept of deservingness, or the extent to which policy agents perceive certain individuals as more or less worthy of institutional resources and support (Jilke & Tummers, 2018; Schneider & Ingram, 1993). For example, faculty may develop their own implicit criteria for determining which students are ‘deserving’ of extra attention, flexibility, or institutional resources based on characteristics such as effort, perceived motivation, or background. These judgments can reinforce existing inequalities, as those students who do not fit dominant narratives of merit or effort may face additional barriers to accessing needed supports. In the context of college campuses, this discretionary decision-making reflects broader institutional values and biases, potentially shaping which students ultimately benefit most from faculty engagement with policy implementation (Soss et al., 2011).

Scholars have applied Lipsky’s approach to “shop-floor” policy making that occurs at the discretion of implementers to higher education spaces. Khelifi and Triki tested Lipsky’s ideas at Tunisian universities where structured policy reform was taking place. They found that while professors did demonstrate agency and discretion, innovating on policy implementation, their ability to impact the goals of policy-making at the bottom of the development process was

limited (Khelifi & Triki, 2020). In a slight contrast, O’Meara (2021) found that in some cases, college faculty members’ use of discretion to participate in and implement policy reform is quite high and may lead to bias and unwanted outcomes if not adequately monitored and checked, thus reinforcing the idea of deservingness as something to be further explored. She analyzes processes of admissions, hiring, promotion, and workload to demonstrate the extent to which college faculty are often seen as subject matter experts and enjoy significant autonomy over decision-making, which can impact policy buy-in and implementation—particularly when equity is a major goal of policy reform (O’Meara, 2021). Her work demonstrates how interpretation, discretion, and innovation may shift into transmission, ultimately impacting policy outcomes.

### **Implementation and Sensemaking of Student Outcomes Amidst Large-Scale Reform**

Colleges are complex systems with various actors who have differing levels of power and influence. These actors can shape the institutional culture, practices, and policies that affect students and facilitate their success. In the context of the state and institution where the study occurred, this shaping took place amidst a transition to a state-wide community college and transfer credit articulation reform designed to address equitable degree attainment and increase degree completion overall.

When evaluating and discussing such equity-focused policy interventions and reforms, it is important to acknowledge that institutional actors, in their role as implementers, are also policy designers, with their own beliefs, values, and experiences (Tierney, 1988; Austin, 1990; Yanow, 1996; Kezar & Eckel, 2002). For example, Hurtado and colleagues found that faculty members were key transmitters of field-specific culture and that their personal interactions with students were not only predictive of academic success, but also shaped by the broader

institutional culture of their colleges (Hurtado et. al, 2011). Alternatively, Vance and Weyandt found very few associations between college professors' years of experience, personal interactions with students, and their perceptions of policies regarding student disability accommodations (Vance & Weyandt, 2008).

Complicating the debate on the role of institutional agents, Jensen and colleagues found that while faculty members held desires to follow policies designed to support diverse learners, they were skeptical about the processes used to evaluate the needs for accommodations among students, which led to skepticism of the students themselves (Jensen et al., 2004). Arminio, Torres, and Pope further reflect on the relationships between college actors and students, examining the concept of self-image among administrators and how this influences their interactions with students. They find that self-awareness among college administrators is critical to shaping how they engage with students across cultures, gender identities, and diverse life experiences (Arminio et al., 2012).

Recent literature makes a clear case for examining how institutional actors influence policy design and implementation within higher education institutions, but there is no consensus on a central theoretical understanding of this relationship—especially in the context of large-scale reform that could be differentially applied and experienced. Building primarily on the frameworks of Lipsky and Felix and Nienhuser, I hypothesize that it may be the dynamic interactions between different cultural-cognitive sensemaking tools and professional experience and discretion that lead to variation in policy implementation and ultimately differences in students' academic experiences.

### 3.4 Conceptual Framework

#### Equity Centered Policy Implementation

Felix and Nienhusser identify the gap between understanding the what and the how of policymaking and attempt to create a framework which ties together ideas of people, place, and context to reimagine an understanding of policy implementation tailored to a higher education setting – a space where policy histories are often layered over one another, and the goals of policy reform may be leveraged for different purposes such as promoting equity or improving academic or economic outcomes (Felix & Nienhusser, 2023). Their framework provides a conceptual backdrop for my study and contextualizes the need for understanding the roles of policy implementers as critical agents on college campuses and their potential influence on students’ outcomes.

**Table 3.1: Equity Centered Policy Implementation Framework<sup>4</sup>**

People	Identity Conscious
	Implementation Imagination
Place	Institutional Complexity
	Sociopolitical Context
Policy Possibility	Prior Reforms
	Racial Equity

#### Theory of Action

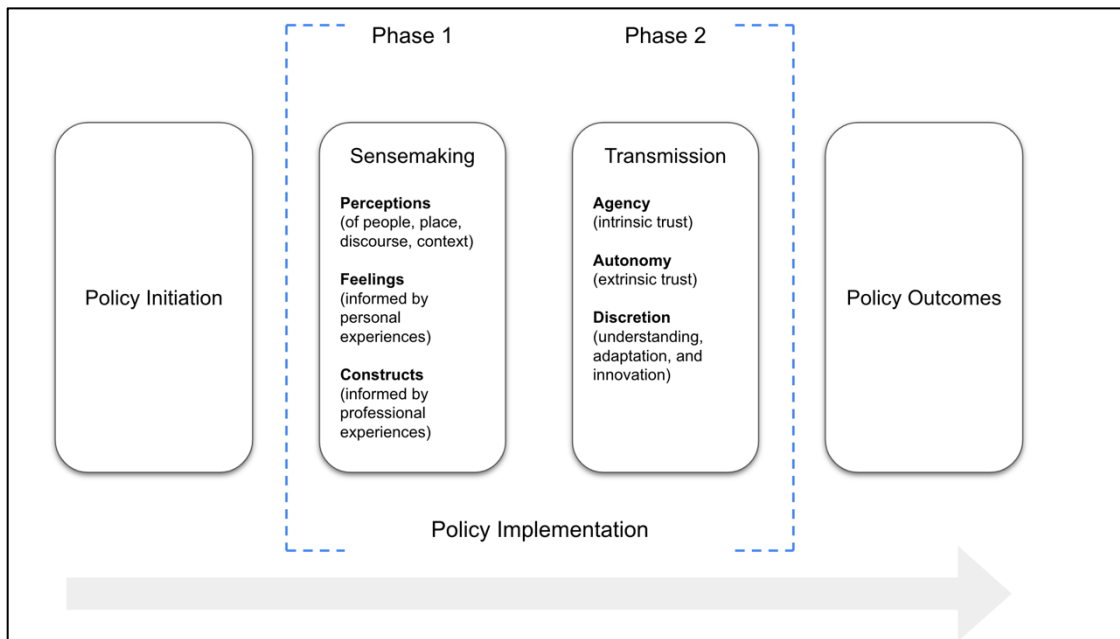
When comparing the theoretical model of sensemaking offered by Felix and Nienhusser to that of discretion and transmission offered by Lipsky, two halves of a whole process begin to emerge. For example, first, policy implementers take in information about a policy and

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<sup>4</sup> Adapted from Felix and Nienhusser, 2023

contextualize meaning about it from their unique organizational, personal, and professional perspectives. Then, in their role as street-level bureaucrats, they are also charged with delivering information about the policy and actions required in accordance with it. In doing so, they are also transmitting information about their own interpretations and perceptions of the policy, the institution, and themselves. This study adapts both frameworks into a testable theoretical model that describes a fuller process of the internal and external mechanisms affecting policy implementation. Figure 3.1 demonstrates the theoretical role of sensemaking and value transmission within the bounds of policy implementation. In describing transmission, intrinsic trust refers to the idea that implementers trust themselves and feel ownership over their abilities to enact policy. Extrinsic trust refers to the idea that implementers are trusted and provided the resources necessary to independently enact policy (without burdensome or intrusive oversight).

**Figure 3.1: Multi-Phased Process of Policy Sensemaking and Transmission**



**Figure Notes:** This figure demonstrates a hypothesized theory of action conceptualized from the scholarship of Felix, Nienhuser, and Lipsky. It connects elements of the policy cycle from initiation to implementation to outcomes, demonstrating the multiple facets of sensemaking and value transmission that occur in the implementation phase.

## **3.5 Methods**

### **Applied Thematic Analysis**

This study uses applied thematic analysis to identify the relationships between policy implementers' perceptions and experiences and their engagement with a policy reform happening on a college campus. Thematic content analysis is a qualitative method that uses words to illicit and describe phenomena from content generated by research subjects (Guest et al., 2012). More specifically, thematic analysis relies on interpretations, or codes, generated by the researcher that describe connections and patterns within the data. For this study, I generated qualitative data from transcribed interviews of eleven faculty and administrators at a broad-access four-year university where a large-scale community college transfer reform was taking place.

Thematic analysis often takes on either a positivist or interpretive perspective, depending on the precise data collection and coding processes undertaken (Braun & Clarke, 2022). Positivist approaches to data analysis tend to use deductive reasoning and align closely with the scientific method, relying on the data collected to serve as evidence for theoretical and phenomenological understanding (Ryan & Bernard, 2003; Braun & Clarke, 2006). Alternatively, interpretive approaches typically rely in inductive reasoning and iterative analyses, coupled with other methods of interpretation and information sources, to identify new relationships, themes, and processes (Peterson, 2017).

Drawing on Ryan and Bernard, this study applied a positivist approach with an interpretive lens to data coding and analysis. It employed both deductive and inductive reasoning: deductively, by using existing theoretical models (see Figure 3.1) and frameworks to

inform initial code development, and inductively, by allowing patterns and themes to emerge organically from the data. This dual approach ensured that coding and thematic analysis were both guided by established theory and responsive to new insights from the data. While the coding and analysis process engaged with established theories, the development of the interview protocol was not strictly theory-driven. Instead, it was designed to allow participants to share their experiences and perspectives on large-scale policy reform and their interactions with students, ensuring that the data collection process remained open to emergent insights. For example, questions did not specifically address organizational or institutional culture, discourse, authority, or discretion; they were left open-ended to illicit original thoughts from participants. Allowing the interview questions to generate a wide array of information reduces bias in data collection and enables a direct application of a theoretical framework to the raw data in a testable manner. At the same time, the amount and variation of data generated provides room for thematic interpretation in the context of the university studied.

### **Study Design and Data Collection**

I designed this study to illicit the perceptions of college and faculty administrators experiencing policy changes focused on post-traditional students on their campus using long form interviews. I identified the university where data collection took place through collaborations with policy makers and university leaders who were engaged in reform-based conversations at a state level. For example, all public universities in the state are engaged in a community college transfer and credit articulation reform. State leaders and administrators at the university where the study took place are highly engaged in designing and evaluating transfer reforms which are aimed at improving the experiences of post-traditional students. After

reaching out to state leaders to identify a university that would be a good study site, I reached out to assess the institution's interest and willingness to participate. This university is the largest of several comprehensive state university campuses in state, comprised of approximately 10,000 students in 2023. It also had the highest proportion of transfer students from community colleges compared to other institutions within the same system.

The study was proposed and jointly approved by the institutional review boards at the selected university and at Teachers College. Interview recruitment was conducted through semi-random sampling at the departmental level.

Using the university's online faculty and administrative directory, I emailed every third person listed on each departmental website, provided that the person had a documented faculty appointment or administrative role indicated on their staff directory biography, and that they were currently working at the university (those with documented sabbatical leave and Emeritus faculty were not considered). The rationale for this method had to do with how faculty members were listed on departmental websites; images were alphabetically displayed in grids in multiples of three, making it easy to quickly and randomly select individuals throughout the department. I sent 59 messages successfully to faculty and staff (accounting for some out-of-office email responses). Sixteen responded, and eleven participated in interviews. While a response rate of approximately 19% was lower than expected, for a first attempt at exploring the research questions, the interviews generated interesting and rich data that could be expanded on in the future by incorporating more interviews at the same university or extending the study to other campuses.

Interview participants represented departments within the humanities, physical science, social science, business, education, the registrar's office, the student success center, and the

office of the provost. Ten interviews were conducted using video conferencing software—one was conducted in person at the university due to the personal preference of the interviewee. The opportunity to visit the campus provided an additional source of data collection as I was able to observe its physical structure, location, and campus climate. Interviews lasted between 50 and 90 minutes. Video calls were recorded and transcribed using a two-stage process. First, audio from the calls was transcribed using an automated transcription service. The output of the first transcription was then carefully reviewed while I listened to the audio; in some cases, data were clarified and re-transcribed to ensure transcription quality and that all words were accurately recorded.

### **Descriptive Statistics**

The study participants closely reflect the demographics of the university where the research was conducted. The university's faculty is approximately 60% female, aligning with the gender distribution of the study sample. In terms of racial diversity, the study sample is slightly more diverse, with 28% of participants identifying as Black or Hispanic/Latino/a/x compared to 19% among the university's faculty. Additionally, the sample skews slightly older, with 60% of participants aged 50 or older, whereas 45% of faculty at the university fall within this age group. Table 3.2 presents descriptive statistics for the sample. To protect participant anonymity given the small sample size, departmental affiliations are not included, as they could potentially reveal individual identities.

**Table 3.2: Participant Information**

Pseudonym	Race/Ethnicity	Gender	Age
Tom	Black	Male	Prefer not to answer
Blake	White	Male	Prefer not to answer
James	Black	Male	40-49

Wendy	White	Female	30-39
Janice	White	Female	50-59
Anna	Hispanic/Latina	Female	50-59
Paul	Prefer not to answer	Male	30-39
Len	Prefer not to answer	Prefer not to answer	Prefer not to answer
Erin	Prefer not to answer	Prefer not to answer	Prefer not to answer
Lisa	White	Female	50-59
Sarah	White	Female	30-39

**Organizational Representation.** It was important to the study that departmental and subject-matter diversity was considered throughout recruitment because organizational culture can vary significantly by sub-group within a university (Hermanowicz, 2016). For example, this study focuses on educational policy reform, and it may be that faculty in the education department have different perspectives than those in physical sciences or the humanities. While the study is not immune to positive response bias, I attempted to equalize organizational representation to gain a fuller breadth of perspectives across the university. I especially redoubled my efforts to recruit participants from diverse departments after visiting the campus and learning that a major four-lane road divides most of the buildings into two sections. On one side of the road were administrative buildings and humanities and social science classrooms and offices; on the other side were physical sciences, mathematics, and business offices and classrooms. This structural divide came up organically in interviews, compelling me to seek representation from “both sides” of campus.

### **Defining a Concept of Policy**

I made a deliberate methodological choice to establish a consistent definition of "policy" for interviewees, rather than allowing the interpretation to vary based on individual perspectives.

To achieve this, I referenced the widely recognized statewide policy, “[STATE]Transfer,” in interview questions, ensuring that participants had a shared understanding of what “policy” referred to for the study. For example, I commonly introduced the topic by stating:

I’d like to open a discussion about some policy reforms currently being implemented in [State] and about the students you interact with. You might have heard of the [STATE]Transfer Program or other programs on your campus that are designed to help students transfer between community college and a four-year college. Can you tell me what you have heard about or what you know about [STATE]Transfer (or other initiatives like it) on your campus?

The importance of establishing a clear definition of policy became increasingly evident as the interviews progressed. Many participants lacked strong knowledge of the specific policy reform, having anticipated discussing their own or university policies unrelated to the program. For example, topics they brought to our conversations included their approaches to grading, the provision of student disability accommodations, or their level of engagement with politics and their state representatives. This variation in expectations highlighted a lack of cohesion in how faculty understood and engaged with policy, which I explore further in the discussion below. Appendix 3.A has a full transcript of the interview protocol, demonstrating how I maintained focus throughout each conversation.

### **Coding Processes and Data Analysis**

Data analysis and coding procedures followed a positivist approach consistent with applied thematic content analysis (Naeem et al., 2023). First, a combination of open codes and in vivo codes were used to categorize words, ideas, feelings, and experiences expressed by interview participants. Open codes were applied iteratively throughout the process; most interviews went through at least two rounds of open coding. Throughout open coding, all

previously used codes were considered when identifying a new concept to assess saturation. Next, each code was sorted into broad thematic categories such as “feelings,” “policy,” and “student interactions” which were informed by the literature and existing theory. Once broadly categorized, open codes were then grouped into a first set of axial codes which reflected the full set of diverse ideas under the broader theme. Next, relationships and connections between the axial and open codes within each thematic grouping were further defined with a second round of axial coding. The second round of axial coding help reveal sensemaking mechanisms faculty and administrators rely on to develop perceptions of policy, students, and culture. An example of the coding procedure and schema I developed, moving from quotations to open coding, to categorical themes, to primary, and finally to secondary axial coding, is presented in Appendix 3.B.

### **3.6 Statement of Positionality**

May and Perry (2017) establish that claiming a position is a dialectic choice made during the process of research that shapes relationality between a researcher and a subject and critically impacts the design, implementation, and interpretation of empirical work. In consideration of this perspective, I reflexively acknowledge my own positionality in the research and in interpreting the findings. The study was undertaken from the perspective of a White, cisgendered, partnered, female who did not attend community college as an undergraduate and who would not have been considered a “post-traditional” undergraduate student. However, the motivation for this work is informed by my experience as a low-income first-generation college graduate, as a student who is also parenting young children, and as someone who holds beliefs that the pursuit of education

and equitable mobility is an unalienable right. These characteristics undoubtedly influence the lenses I use to approach my work and my relatability to the subjects in this study.

### 3.7 Findings

Thematic analysis of faculty and administrator experiences identified six themes which characterize how both groups make sense of policy change and its impact on students at their college. Table 3.3 outlines each theme and related subthemes with code saturation, demonstrating which sensemaking mechanisms, or processes and structures used to conceptualize the themes, appeared most frequently.

Respondents largely framed their thoughts on students and policies through personal feelings about the university, their job satisfaction, and their colleagues. Notably, when asked directly about their perceptions of students, they primarily made sense of these experiences by identifying barriers students face, often using an asset-based perspective. In many cases, participants contrasted concerns about the university failing to meet faculty and student needs with a sense that students should not have to endure the challenges they were experiencing.

**Table 3.3: Themes, Sensemaking Subthemes, and Code Saturation**

Theme	Sensemaking Subtheme	Total Codes
<b>Perceptions of Institutional and Organizational Culture</b>	Feelings about the university	62
	Feelings about faculty role	29
	Feelings about faculty colleagues	14
<b>Perceptions of Policy</b>	[STATE] Transfer	10
	Perceptions of policies and change	22
	Policy engagement	18
	How policies impact students	6
<b>Interactions with Students</b>	Cultural change	4
	Acknowledging students as humans	12
	Classroom behavior and pedagogy	15

	Non-teaching engagement	8
<b>Perceptions of Students Generally and of Post Traditional Students</b>	Perceived barriers to student success	34
	Diverse faculty feelings about students	34
	Opposing forces in the classroom	3
<b>Perceptions of Social Change</b>	Missing critical competencies	2
	Triage and Mediation	7
	Changing dynamics among student cohorts	4
<b>Personal Identity and Prior Experiences</b>	Personal history	3
	Professional expertise	3
	Inspiration for working in higher education	5

### **Theme 1: Perceptions of Institutional and Organizational Culture**

This theme refers to how most participants discussed policy, student views, and reform through the lens of the university's culture, mainly sharing their feelings and opinions about the university, colleagues, and their own role. For example, interview questions that focused on the implementation of a specific program reform, such as the [STATE]Transfer program, often led participants to opine about the way reforms were perceived to happen on campus rather than the reform itself—implementation was described as “top-down”, and some participants felt that the university purposely kept faculty and students out of policy processes, or that their efforts to participate were not acknowledged. Other participants described appreciation for the existing system of implementation, noting that they felt administrators, not faculty, were best positioned to drive cultural and institutional change at the university. A common thematic finding, however, was that lines of communication between administrators and faculty, particularly with regard to large-scale reforms, were opaque and not clearly reflective of the university’s institutional values; this led to confusion and distrust of the university’s commitment to impactful change.

For example, Janice shared, “when I was in student affairs, everything was on fire all the time. And now I'm in academic affairs and nothing is on fire.”

Perceptions of policy implementation and students were also routed through feelings about participants’ colleagues. Commonly, participants described themselves as interested in and committed to policy outcomes for students, in juxtaposition to their colleagues. Age and tenure were frequently noted as conditions of resistance to change and reform engagement. This may be an example of sensemaking as a social activity, where participants articulated their own ideas as they compared them to perceived behaviors of others (Maitlis, 2005). Another reoccurring contrast that was used was the idea of “the other side of campus” or “across the street,” in which participants described their own feelings as collectively representative of either humanities and social sciences (located on one side of the university campus) or physical and natural sciences and math (located across the street). Participants within both groups perceived the other to be resistant to change or difficult to communicate with in the context of reform adoption. For instance, Blake said:

And I do get a little bit of pushback when I talk about some my practices with some my older faculty or older colleagues that may go 'What? You let students pass things in late?' Yes, of course. 'You read your students assignments before they submit it?' I do. 'What? You give extra time on quizzes that are worth 2%?' Yeah, the point is to get the best work out of the student, not the *best* work and have stressful students.

On the other hand, there was near universal agreement among faculty participants that policy engagement could not be prioritized over the amount of work they were attempting to manage, which was already leading to feelings of burnout and overwhelm. Moreover, some faculty described their decisions to purposely avoid policy engagement or other non-teaching activities as a method of maintaining work life balance and constraining their academic role. Interestingly,

participation in “policy” was most typically considered an activity that occurred outside of the classroom—not as something that was incorporated into the expectations of the role of classroom teaching. One example of this is James who said:

You know, folks are tired. And you got AI, you have all these things happening at warp speed, you have war, and I think people are just like, I can't. And I'm not trying to project my perspective here. It's just all the hallway conversations that I'm having. You know, I think people are just like, I just want to do my thing, which is teach folks. And that's it, you know, but there's a lot more placed on faculty to be mediators—and quite frankly some don't feel comfortable doing that.

In this section, and in every thematic section below, each theme is explored in detail alongside a corresponding table that highlights the key ideas shaping respondents’ perspectives. For example, Table 3.4 illustrates the three primary ways participants interpreted institutional and organizational culture in relation to policy reforms and students: through their feelings about the university, their colleagues, and their role. These sensemaking mechanisms repeatedly surfaced across interviews, revealing clear patterns in how faculty engage with and understand institutional dynamics.

**Table 3.4: Key Ideas Associated with Sensemaking of Institutional and Organizational Culture**

<i>Feelings about the university</i>	<i>Feelings about their colleagues</i>	<i>Feelings about their role</i>
Questioning authenticity of commitments to impactful change	Resistance to change	Role is exhausting and all-encompassing
Underappreciation, disparity, and struggle for recognition	Communication challenges among faculty	Value of autonomy and work life balance
Conflicting perceptions of institutional values	Perceptions of reactionary behavior	Burnout, lack of role clarity, and dissatisfaction
Rapid growth hampers internal communication and policy processes		Extra-academic work: faculty as mediators and advisors

Acknowledgement of university efforts and role in cultural change

Appreciation for organizational culture and work environment

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## **Theme 2: Perceptions of Policy**

Interview participants primarily conceptualized policy on campus as a mechanism for creating change. This was true for those who thought policy changes ushered in by large-scale reforms were welcome and for those who were skeptical that policy changes were “double-edged swords.” The perception of policy as good or bad was distributed evenly across multiple departments and levels of tenure, although the reasoning behind these conclusions appeared to differ by experiences and position within the university. For example, one participant who worked on academic requirements, worried that while transfer policies enabled more equitable entry into the university, more students would be academically underprepared to succeed. Len explained:

With [STATE]transfer, now we're having a double-edged sword. By increasing the amount of students that we do intake, we do fill up fast. And our money's not changing. So, we have the same academic units. We have the same class slots that were there...and perhaps maybe classes fill up faster. And they're not filling up faster...with strong students, they'd be filling up faster with, with dollar signs - and the university likes that, likes the dollar signs, like tuition dollars, that's great. But how many students are starting and finishing their degree versus starting and taking up seats of other students who are trying to get through?

Alternatively, another participant, who expressed criticism of the university's commitment to diversity and inclusion, worried that as the university institutionalized more reforms, a sense of paternalism would prevail and serve as a barrier to students whose needs fell outside those with traditional identities, stating:

We could probably be more flexible [and allow students to] waive the requirement for a pre-req. It'll allow them to take something as a co-rec...A lot of the rationale to not change this is like, 'well, we've done that before, that's not going to set them up for success.' And that's very paternalizing. Like, these are adults.

In general, participants who expressed negative reactions to policy efforts on campus also shared feelings of being left out or unheard by the university. For example, Wendy (quoted above) also said, “the university wouldn't be able to run without us as faculty, but I really feel the sense that we're just replaceable, and it doesn't matter what expertise we have.” On the other hand, those who expressed largely positive views of policy reforms were also more engaged in their implementation. Tom, who was on a policy implementation committee said:

There are some of us who have been talking about this [changes to certification exam requirements] for a few years. And I think that our current department leadership is open to at least having that conversation about how we can make something work...I think that there is a bigger window of opportunity now, to kind of have those kinds of discussions.

There was broad consensus that developing policies which centered student needs were a net benefit for the university, although many participants expressed concern that the potential of student success policies could be hampered by top-down implementation between administration and faculty that left details, methods of engagement, and feedback loops opaque. One participant said:

...in academic affairs, we just are not responsive enough to progress and change that needs to happen. Largely not because we're not interested. But because it seems so difficult that you have to really choose your areas of focus carefully and really focus on only a couple of things at a time in order for any of it to move forward.

There was also broad faculty consensus that instructors were best—or at least strongly—positioned to understand student needs at the individual level. Many faculty described the students in their classes and programs as unique within the university, which often led to

discussions about how faculty used their professional expertise and demonstrated discretion and autonomy in policy implementation. For example, one participant felt that broad credit transfer policies were not tailored enough for students in their program and described using departmental oversight to change which courses were transferrable between community colleges and the university—giving students more credits than a general policy may have prescribed. Tom said:

And often, department chairs will take a look at those courses, even if they'd fall into courses that from a title may not transfer, but we know from the content that it can. So we do a little digging into and help students get those courses transferred over as well.

Another described changing curriculum and course sequencing at the class and departmental level to accommodate the fast pace at which their professional field was evolving—something they thought would have taken much longer if they had gone through the full university process for recommending such changes. Len said:

[I asked] what about if we use Python or maybe Ruby [as a computer science 101 programming] language? [a colleague said] ‘No, I suffered with Java, so everybody else should too.’ So a couple years later, I broached this with the curriculum committee because all of our you know, outcomes and whatnot happen inside of a curriculum committee...And we laid it out and there were a lot of people, [saying] ‘you can't teach an old professor new tricks’ who were deeply committed to Java because they really wanted the students to know Java without actually teaching them Java. And we got to the point where we actually voted to replace Java for the first semester...with Python. And at least one of the people who was so against it later told me, this was the right thing.

As demonstrated in Table 3.5, faculty perspectives on policy reforms revealed a tension between institutional standardization and the need for flexibility in addressing perceived student needs. While many faculty members recognized the potential benefits of reforms, their effectiveness was often viewed as contingent on faculty involvement and agency in decision-making and implementation.

**Table 3.5: Key Ideas Associated with Sensemaking of Policy**

Large-scale Reforms like [STATE] Transfer	Perceptions of Policy and Change	Policy Engagement	How Policies Impact Students	Opportunities for Cultural Change
Conflicting opinions on the benefit of [STATE]Transfer	Complex opinions about policy: skepticism about unintended consequences	Organizational barriers to strong policy engagement and top-down implementation	Policies can support post traditional success	Optimism about potential for policy change
Goals of [STATE]Transfer are not clear between faculty and administration	Students and faculty are purposely kept out of policy design and participation	Participating in reforms and projects outside of a traditional policy process	Balancing needs, empathy, and authority	Sense that there is a window of opportunity
	Positive perspective of student-centered policy ideas	Faculty want autonomy, discretion, and innovation over policy implementation	University policy influences how faculty perceive students	
			Understanding how unique student needs drive institutional perceptions	
			Conflicting perceptions of student accountability	

**Theme 3: Interactions with Students**

Faculty described interacting with students in three main ways: relating to them as people first and students second, adapting classroom behavior and pedagogy to meet student needs, and engaging with students outside of the classroom. Through describing activities to these themes, faculty also expressed opinions and perceptions about their students and the policies that impact them. For example, Blake shared his perception of students as “highly complex” and deserving of extra time and effort, regardless of ability, many times throughout the interview. He described his methods of relating to students with honest communication about his own challenges—such

as being late to prepare for a lecture—and treating them like adults with lives outside of college. Moreover, he described in detail, efforts he had undertaken to reform processes for students accessing learning accommodations. He also shared policy ideas about eliminating term grades, finding them poor indicators of student learning.

In a similar way, another participant with less favorable perceptions of policy reform and engagement described how they managed classroom behavior and occasionally struggled to balance authority and respect with flexibility and content differentiation. James said:

I think it's always the task of finding the line that you kind of hold everyone to and also practicing empathy where you are using your discretion and good professional judgment to say, we can move this just a little bit here, so that you can also succeed.

Across the board, faculty frequently described interactions with students that did not involve teaching. This included activities like advocating for student groups on campus and helping to resolve conflicts between administrators and students. In referencing a time when she advised a student group on campus that was not agreeing with a campus policy, Janice said:

...trying to talk to a student, when it's obvious that they're, they're doing the right thing, you know, they're doing something that's important, they're doing something that they're committed to, and the university is not helping, or standing in the way, that's a tough position.

Another common theme involving student interactions was the navigation of difficult conversations with students, including changing power dynamics and the role of politics on campus. For example, Len described an experience where they perceived “consumer” style behavior from a student they felt was unwilling to do their own homework:

If you take all the Gen Z stereotypes, about insecurity and inability to function on their own, and pile them into one person, you've got this student...when he first showed up to

my office hours, he said, ‘you need to do my homework for me in your office hours.’ And I said, ‘you are? ... You have to be able to do this on your own when you graduate. So no, I'll point you in the right direction.’

James, described trying to broker a political conversation during class between students who did not agree:

[I had] a student that wanted to convince me he was more conservative than anyone I've ever met in my life...it didn't really work. And he would just keep doing that. And we had an older student who was a non-traditional student. And was coming from a very, very different background than most of our students. He was from the south; he was an older gentleman. And we were talking about populism and stuff. And he was writing things based on his own experience as a black man growing up in the 1970s, during desegregation... And the other student would come in and kind of culture warrior over him. And it was very hard to rein them both in.

These interactions were often discussed in parallel with ideas of burn out, overwhelm, and dissatisfaction with higher education—particularly among participants who expressed feeling underprepared by their university to interact in these ways. Table 3.6 summarizes the ways faculty and administrators made sense of their interactions with students.

**Table 3.6: Key Ideas Associated with Sensemaking of Student Interactions**

<i>Acknowledging students as humans</i>	<i>Classroom behavior and pedagogy</i>	<i>Non-teaching engagement</i>
Classroom differentiation for student success	Balancing authority, respect, and creating academic environments for students to thrive	Navigating complex interactions, power dynamics, and classroom politics
Relating to students through personal and professional knowledge	Classroom differentiation for student success	Support outside of class: advocacy, accessibility, and conflict resolution
Attempts to build trust through student self-empowerment	Selecting tools and resources to support success	

**Theme 4: Perceptions of Students Generally and of Post Traditional Students**

Beyond direct interactions, administrators and faculty held diverse perceptions of students, and specifically post-traditional students. In several cases, these perceptions were channeled through discussions about institutional culture, policy change, and policy implementation on campus. This was especially true when participants described perceived barriers to student success. Barriers fell into two main categories: structural or social-emotional. Structural barriers included things such as credit shortfalls for transfer students; although students can transfer up to sixty credits from community college, many don't learn until they arrive at the university that they must also take two philosophy and logical reasoning courses to complete their degree as a university requirement. Several participants across a range of departments mentioned this as a barrier to degree completion. Social-emotional barriers included things like the perception that students feel like they do not belong on campus because of their identity—students of color, adult students, and Black students were specifically mentioned in these discussions. There was wide consensus among participants that there is a significant need to “do more” to support post traditional and underrepresented students on campus. However, there were conflicting opinions about what these student populations needed and valued; some participants focused on student organizations and meeting spaces while others focused on structural changes like financial aid and registration policies. Moreover, although most participants demonstrated interest in policy and organizational changes that could lead to stronger outcomes for students, very few described activities where they had directly engaged with this work on campus. It did not appear that interest in and understanding of students' needs was a significant motivator for policy engagement—particularly not over other highly prioritized duties and responsibilities.

Most participants appeared to hold dual views that students were both inspiring and challenging to engage with in certain aspects. Students' consistent determination and a general perception that the university serves a less affluent or privileged population were widely acknowledged by participants who also shared admiration for students' tenacity and resourcefulness. At the same time, many participants described a changing culture among students as the university and higher education shifts towards a more consumer-focused model of knowledge delivery. For example, Anna said:

...there's a lot of learned helplessness...as soon as something challenge happens, then they email me like at 11:30pm like, 'I can't access this one file' or something like that. And it's sort of like, once there's an obstacle, then they just freak out if they need immediate help. ...[This is what I] was talking about, sort of like the consumer model where I'm supposed to be sort of like, helping them 24/7 with some technical issues that they they could figure out for themselves so there's a lack of resilience, in that sense.

This was generally not perceived to be a positive change, and some participants shared opinions that students demonstrated entitlement and a lack of work ethic. These perceptions were noticeably focused on younger students; many participants used age as a key differentiator between positive and negative student attributions. For example, one participant said, "we have younger students, who are maybe more accustomed to asking for help, rather than finding the resource or the solution on their own, or if they do, they kind of give up prematurely." Another shared:

The post traditional older student groups actually seem to be the best adjusted because they went through that critical period of, you know, late teens, much earlier on. And so, they learn[ed] how to interact with [their] peers and a variety of [different] people much earlier on. And if they lost a year or two, then that's no big deal. It is really those traditional age students that I'm seeing the most difficulty [interacting with, post-Covid].

In a few instances, participants described examples of how university policy had shaped perceptions of students. For example, Amy discussed the roll out of an alert system where faculty could electronically report chronic absences, consistently low performance, or other challenges they observed among students in their classes. As the system became institutionalized and administrative staff were able to share student experiences with faculty who had opened cases, faculty comments in the report submissions changed from simply describing an issue to using more inclusive language such as “tell them I’m here to support them” or “I have some ideas about why a student may not be coming to class” or “please connect them to [a specific] resource.” According to her, this was a welcome and unexpected change among the faculty which demonstrated their increased engagement with student success measures and a more nuanced perception of students. Amy shared:

I knew, to a certain extent, that faculty would shift their modality a little bit or their approach to students. What I did not foresee is that the language in the interaction would also change. It's almost like [analyzing the behavior] was becoming part of a process for them.

Interestingly, study participants connected institutional policies with student experiences organically, describing ways in which students face or overcome barriers while also attributing some of the outcomes of those trials to specific characteristics, such as age. Table 3.7 presents the most common ways that participants made sense of students and their experiences.

**Table 3.7: Key Ideas Associated with Sensemaking of Students**

<i>Perceived barriers to student success</i>	<i>Diverse faculty feelings about students</i>	<i>Opposing forces in the classroom</i>
Structural university-centric barriers	Faculty feel negatively about consumerization of higher education	Challenges in classroom management within broad social context

Students' life needs in conflict with academics	University influences how faculty perceive students	Balancing needs, empathy, and authority
Unclear expectations and lack of campus cultural knowledge	Students are thriving and inspiring	
Social-emotional barriers and belonging	Our students are unique	
Need for understanding and engaging under represented students	Feelings towards students differ by age and transfer status	
Conflicting perceptions of post traditional student goals and values	Conflicting perceptions of student work ethic	

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### **Theme 5: Perceptions of Social Change**

Throughout the interviews, participants routinely incorporated ideas of social change and cultural and political turbulence into their discussions about the university and students. The interview protocol did not ask about these issues; however, it appeared as a major thematic finding. The three ways that participants appeared to make sense of the social and cultural changes impacting their work, their policy engagement, and their perceptions of students were through their role in triaging and mediating conflicts, an awareness that critical competencies to take on a mediating role were lacking on campus, and their perceptions that student cohorts were undergoing a generational and cultural shift.

There were two main types of conflict described by participants that tended to shape faculty experiences. The first was when political discourse and disagreement entered classroom discussions and triage and mediation were needed to diffuse tension. Several participants mentioned the setting of the university and its location in a conservative sector within a region generally thought of as more progressive. In addition to the volatile tenor of national politics, this juxtaposed geographic location was opined to be driving tensions among students and faculty with diverse views and opinions. The other conflict that was brought up many times throughout

the interviews had to do with how the university communicates its commitment to equity within a broader higher education landscape that appears increasingly hostile to ideas of diversity, equity, and inclusion. Although most participants who discussed this idea shared feelings of gratefulness that they and their work were not being censored like their colleagues in other states, they also shared feelings of anxiety about the future of academia, which spilled into discussions about institutional and organizational culture and interactions with students. For example, James referenced students feeling triggered in the classroom and potentially targeted due to their race. Describing how faculty respond to this, he said:

I do think there's some wonderful faculty that hold the line and they'll take the hits from those students, as others have said, not dealing with it. And then there's others that are overcompensating because no one ever wants to be called racist or something like that.

Tom also discussed work he was doing to incorporate equity into student programs and said:

It makes me really appreciative to be in a state and at a university that is moving this kind of work forward. I have friends that work at another university in Texas. And he was talking about how difficult it is to try to move that kind of work forward now, but he says that some days, he just wants to leave, and other days, and 'I have to stay here, because I need to be here to do this kind of work.' So I applaud him for doing that. And when I tell him some of what we're doing, he said, 'Oh, God. I wish we could just call it what we are doing, as we are still doing it.'

Participants were not only aware of how political discourse was impacting their work, but many acknowledged that they did not think the university had invested in developing critical competencies among staff faced with engaging in these conflicts. For example, one participant felt that their colleagues struggled to respond to racialized discourse, overcorrecting their actions to appear "race neutral" in ways that could negatively impact students. Another, Anna, found it difficult to manage a tense classroom interaction and was unclear of how to move forward:

I said ‘you know, this [translating a passage] was so hard, I wanted to kill myself.’ That was the expression that I used. Now, this was figurative speech... but for this particular student, she wasn’t able to pay attention to class after that. It was very, very triggering for her. And so she emailed me. I was very sorry...it was hard for me because I mean, at first, I didn't want to her to feel bad...I wanted her to get the best experience out of this class. But I also [thought] about free speech...I can't really predict what's going to trigger a student. So how can we adjust our speech so that it doesn't hurt the student and it makes the student feel safe...You know, how do people deal with trauma and at the same time, what is our responsibility? Do we make the space as safe as possible? And at the same time, if you don't open up the space for them to look at something uncomfortable, and find their own resources to overcome it, are we doing a disservice to them?

In addition to the challenges above, participants consistently described perceptions of a generational shift among student cohorts, particularly after the trauma of a global pandemic. In comparing current students to prior cohorts, participants described the former as less prepared and more disengaged. They also described them as more interested in engaging through email and online classroom forums rather than in person, on campus. Wendy noted:

I've had students wanting to log in, wanting to sit there while they're doing something else... It's either they do the fully online or they do in person, because this thing about zooming in...this was terrifically complicated with COVID. I had students log in from Walmart, like they were working at Walmart, they logged in from the truck on break or something...you know, not a lot of instruction happened that way.

In one case, a participant was concerned about a rise in students’ political and racialized discourse but felt there were few models to point to as a way of demonstrating the values they wanted to convey:

And [student classroom conduct] is getting a little worse. At the same time, there are no reference points that I can give them. Because in politics, and in business, everyone is kind of misbehaving. So, you're kind of standing alone with your colleagues trying to model behavior that you hope they [students] will emulate, but you're not necessarily sure that they will, actually.

It was clear from all interviews that no conceptualization of campus climate, institutional culture, policy implementation, or perceptions of students could occur without consideration of the current political and social climates facing the world. Notably, justifications provided by state leaders for program reforms such as the [STATE]Transfer program do not publicly acknowledge these climactic shifts, but focus primarily on increasing equitable degree attainment and economic mobility. This may have been a strategic choice to maintain bipartisan political support, but may also represent a missed opportunity to generate buy-in and trust from on-the-ground implementers who are grappling with the changes in their everyday interactions with students.

**Table 3.8: Key Ideas Associated with Sensemaking of Social Change**

<i>Triage and Mediation</i>	<i>Missing Critical Competencies</i>	<i>Changing Dynamics Among Student Cohorts</i>
<i>Political turbulence in the classroom</i>	Participating in and witnessing racialized discourse	Students perceived to be less prepared and more disengaged
<i>Conflicting perceptions of faculty vs. administrative roles</i>	Conflicting perceptions of where students should seek support	Students lack models of civil discourse
<i>Fear and anxiety stemming from broader higher education community challenges (i.e., censoring)</i>	Mediating challenging/tense classroom interactions	Conflicting feelings about how representative of student identities faculty should be

**Theme 6: Participants’ Personal Identity and Prior Experiences**

Another major theme that was not directly outlined in the interview protocol but that emerged throughout the conversations was that participants largely relied on personal life experiences and professional knowledge to shape perceptions and make sense of policies and students. For example, some participants used their identities to relate to students and demonstrate their understanding of the demands of the college experience; one shared about their journey to acknowledging their sexual orientation during college, one shared about their

challenges with neurodivergence throughout college, and one shared about their experiences as a person of color in college. Each of these experiences shaped how participants related to students and the methods they used to interact with them and engage in policy reforms on their behalf. Similarly, other participants used the professional training and epistemologies of their field to inform their sensemaking processes surrounding policy reform. For example, Sarah, who felt strongly about the ways in which new reforms could negatively impact students, described her feelings through her discipline of social work:

And just seeing how much students go through, we have students that experienced homelessness and many students who are food insecure. Students who navigate very complex transportation systems to get to class. Students who work many hours just to be able to afford to come to class...I have one student who has been at the university [for many years]. She's finally getting into her senior practicum and her brother has passed away, her mother has been incarcerated, their home burned down, like she's been through so much and she's still coming at it and she's failed some classes multiple times. And Here's another policy that we're instituting—not allowing students to retake a class more than twice...for this one student who has been at it for years, that would mean that she wouldn't be able to graduate from this major, even though that's her goal...[despite the policy's goals] I personally don't understand the rationale to keep students out or to say that they can't take the same class.

Another participant made sense of policies on campus through their discipline of business, describing key ideas like return on investment and defining the customer in our conversation about how they engage with academia and with students at the university:

I think kind of having that real focus on who are our customers? I hate to use that word, customers, but it's an easier way to think about it, what are their true needs? What are their motives? Why are they here? What are they hoping for, and then structuring policies around them would be more effective in addressing their needs.

Building off participants' answers to questions that highlighted the role of their personal and professional perceptions in relating to campus policies and students, I asked participants

what inspired them in their work. It was near universal in my conversations that participants would refer to their personal backgrounds and professional training when describing their perceptions about the university, students, or a specific policy, and asking them about their inspiration enabled an opportunity for even richer data collection on their sensemaking processes.

Answers ranged from intrinsic motivations such as a desire to help people or a goal to change the world, to extrinsic motivations such as a flexible schedule or the ability to conduct independent research. In some cases, participants who demonstrated intrinsic motivation for working in academia through their personal background also held more positive views about the potential of policy to influence change and demonstrated a higher level of policy engagement on campus. For example, one participant connected these ideas by describing their background and their motivation for participating in policy implementation. Blake shared:

So, I wasn't great at school, going through K to 12. I did struggle with certain subjects and things and...I just squeaked by—I failed a few courses... I couldn't get into my home university until I was a mature student, so that's inside me...And I went into education knowing that I struggled. And I wanted to be the teacher that would capture the students when they were struggling and help aid them.

Referring to his level of policy engagement on campus, he then went on to say:

I'm working with the Student Accessibility Services...the issue was, students weren't getting their accommodations. So, they get the letters, give it to the professors, and the professor would either one, read the letter and go, 'I'm already doing that' and put it away. Or they don't read the letter, they just put it away. And whatever it was, the students weren't getting...whatever their accommodation said... So, we have a resource now that walks through how to be compliant when a student needs audio, text to audio or audio to text, whatever it is, or when a student needs Braille or when the student needs [any learning accommodation]. We have every single combination [in a required professional course for faculty]...that was my role in that project and we just concluded and we're rolling it out this September.

At the same time, some participants who demonstrated more extrinsic motivation towards their profession held more neutral or negative views of policies on campus and demonstrated lower levels of policy engagement. One participant described how they ended up in academia at their university as an extrinsic outcome of a broader personal challenge:

[I wasn't] able to get my [security] clearance. So, I was sort of blocked from a fairly big chunk of the industry research jobs that needed some sort of clearance. I mean, I could have gotten it, but instead of the expedited two weeks, they were going to have to go and look into what I was doing [out of the country], because I just came back. And I'm like, 'Well, I'm getting married in a couple months, I better find something... And so I started applying to academic places.

In describing their policy engagement on campus, they then went on to say:

We have a number of transfer days in the summer. So, we kind of come in, we talk with students, we try to orient them, I meet with transfers. I'm regularly briefed on who our new transfer students are, what their majors are. So, I can have a point of contact, we can introduce ourselves to them, we can interface... But faculty are kind of tangential.

While not demonstrative of even the illusion to a causal link, even amongst the small sample of interviews that informed this study, there were clear associations between how participants described their motivation for working in academia and at a broad access public institution, the sources of their inspiration, and their engagement with campus policy reforms and sensemaking of policy implementation on campus.

**Table 3.9: Key Ideas Associated with Sensemaking of Personal and Professional Perceptions**

<i>Personal History</i>	<i>Professional Expertise</i>	<i>Inspiration for Working in Academia</i>
Faculty rely on personal history to relate to students and build trust	Faculty and administrative expertise are applied within classrooms and intra-organizationally	Inspiration relies on personal motivations
Prior experiences relate to ongoing professional work and policy engagement	Disciplinary training shapes perceptions of student experiences	Extrinsic sources of inspiration correlate to lower policy engagement

Faculty identities shape perceptions of student experiences

Engagement in professional work off-campus impacts capacity for on-campus policy engagement

Intrinsic sources of inspiration correlate to higher policy engagement

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## 3.8 Discussion

### Summary of Findings

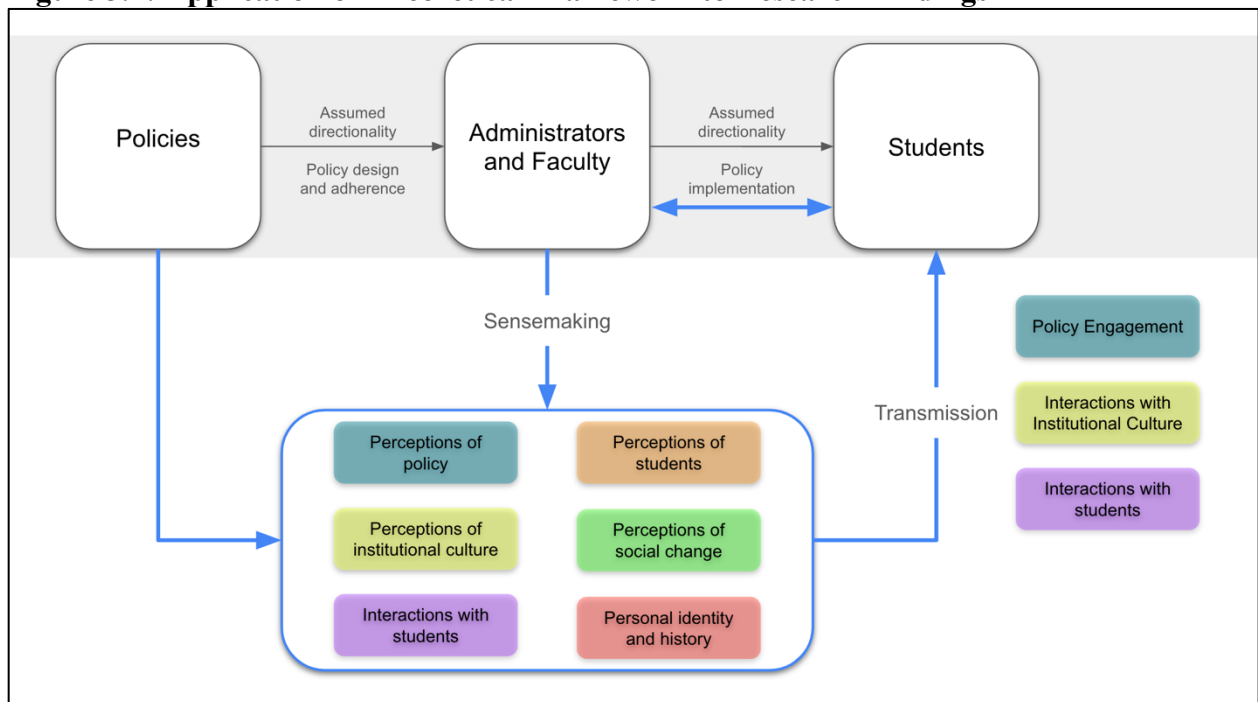
The findings of this study highlight the central role that faculty perceptions and feelings play in their understanding and engagement with university policies, students, and the broader organizational culture of their institution. Faculty were highly vocal about their views on how the university treats them and its students, and these views were a key lens through which they made sense of topics such as policy, student success, and their own professional experiences.

Interestingly, their perceptions of students were not strongly tied to their involvement in policy-making or implementation, which they generally viewed through an institutional culture lens. Faculty also expressed frustration about their limited knowledge of ongoing policies and their sense of exclusion from policy design and implementation. Despite this, they were not short of ideas for policy improvements and expected students to be involved in policy-making as well.

Theoretical frameworks on policy implementation were central to understanding the findings. The study supports Felix and Nienhuser's theory, which emphasizes the influence of people, place, and possibility on policy implementation, as well as Lipsky's theory, which highlights the impact of implementers' discretion, agency, and autonomy on policy transmission. These frameworks were further developed for higher education in this study by focusing on the relationship between policy implementers (faculty and administrators) and their targeted audiences (students) and are demonstrated by Figure 3.2, which expands on the assumed

directionality between policy, practice, and outcomes by incorporating the complex sensemaking process that was observed for policy agents in a higher education context. For example, a bi-directional relationship between sensemaking and policy implementation emerged from the data. Faculty interactions with both the university and students shaped how they viewed and contributed to policy enactment. The findings suggest that outcomes for students are influenced not only by how policies are strictly implemented but also by the values, emotions, and personal backgrounds of those responsible for policy enactment. This highlights the importance of understanding the deeper, often personal dynamics that affect how policies are transmitted and received—and for whom—in higher education settings.

**Figure 3.2: Application of Theoretical Framework to Research Findings**



## **How Findings Could Enhance the Field's Understanding of Policy Processes**

There are several key points from the study which may inform future policy research and design in higher education. First, in the context of the university highlighted, the study identifies a prevalent perception among faculty—they see themselves more as consumers of policy or products of policy change happening to them rather than active agents in its execution and implementation. This perspective underscores the need for policymakers to recognize and address the disconnect between policy designers and implementers, ensuring alignment and buy-in throughout the process.

Secondly, the study emphasizes the influence of institutional and organizational culture on how implementers engage with policy initiatives on campuses. Understanding and navigating these cultural nuances are essential for policymakers seeking successful implementation outcomes—particularly because they are likely to vary across institutions. This points to the need for diverse institutional stakeholders to be early participants in the policy design process. However, the study also highlights the fluidity of implementers' perceptions and opinions regarding policy outcomes and their targeted audiences. As demonstrated, these perceptions are malleable and may change based on context, underscoring the importance of ongoing communication and engagement strategies to foster consistent positive relationships between implementers and stakeholders.

## **Study Improvements and Implications for Future Research**

The study can be improved in several ways. First, a sample size of eleven is small; increasing the sample size at the current university and including more colleges and universities in the study would significantly improve external validity. Additionally, while every effort was

made to be transparent, reflective, and cautious throughout data collection and analysis, internal validity could be improved by incorporating more authors and analysts into the study who could review and cross check coding methodologies and categorizations.

This study also attempted to focus on one large-scale policy as a baseline for all participants to understand how “policy” was being conceptualized. This method was moderately successful, however in many cases, knowledge of the baseline policy was limited or nonexistent and the discussion resorted to participants’ own context and understanding of what “policy” was, such as how they graded or they allowed students to communicate with them outside of class. This complicated data analysis and limited interpretations, as there was not a consistent baseline for the reform being implemented and analyzed at the campus level. In future studies, it will be important to choose a definition for the phenomenological focal point driving the research questions—doing so will increase internal validity and provide clarity to analytical findings. One way to approach a future study with this methodology would be to incorporate the use of surveys which, by construction, could limit the focus of participants to a baseline policy.

Additionally, the findings raise a set of questions that policymakers should consider before implementing policy changes on college and university campuses. These include inquiries about who is responsible for the on-the-ground implementation of the reform, what resources are needed to ensure policy agents are supported, and how the socio-cultural and cognitive environments in which agents operate influence their understanding of the policy. Furthermore, policymakers should consider how to build flexibility and adaptability into the design of policies to account for variations in these environments. Future research could explore these questions in greater depth, providing valuable insights into the dynamics of policy implementation.

Addressing these questions proactively, both through future studies and practical application, will help policymakers craft more effective and responsive policies in university settings.

## Conclusion

This dissertation set out to examine policies related to post-traditional college student success through the lens of Bronfenbrenner's ecological systems theory and Perna and Thomas's adaptation for higher education. The theoretical framework, introduced in the preface and illustrated in Figure 1, initially organized the studies into distinct layers of the policymaking ecosystem. However, the findings reveal that these layers are not discrete so much as they are deeply intertwined. Rather than offering a compartmentalized analysis of higher education policy for post-traditional students from three distinct perspectives, the studies instead highlight the critical interactions across different layers of the ecological model.

For instance, Chapter 1 was originally framed within the *mesosystem*, as it examined whether colleges could improve degree completion predictions using contextualized momentum metrics derived from administrative data. However, the findings demonstrated that the structure and effectiveness of these metrics depend on the broader policy environment—aligning them more closely with the *exosystem*. Furthermore, the development and application of these metrics are influenced by the values and priorities of university systems and state policymakers as they define programs such as transfer articulation agreements, linking them to the *macrosystem* as well.

Similarly, Chapter 2 was initially situated within the *exosystem* because it analyzed policy interventions across different community college contexts and examined whether their impacts varied for post-traditional student parents. While the study did not find conclusive differences in the average effects of interventions, some non-significant variation in credit accumulation among student parents suggested that individual experiences at the *microsystem* level—such as time students have to invest in their academics—may influence intervention

outcomes. This finding underscores the importance of considering structural differences in student experiences when designing and evaluating policies.

Finally, Chapter 3, which was originally categorized within the *macrosystem* due to its focus on beliefs and values, revealed strong interdependencies between macro-level perceptions and institutional culture (*mesosystem*), as well as their impact on policy implementation (*exosystem*). This chapter demonstrated how broad societal narratives about post-traditional students shape institutional priorities, which, in turn, influence policy design and execution.

A key theme emerging from these studies is the necessity of recognizing and managing interdependencies across different layers of the ecological model. The findings underscore that optimizing metrics and interventions alone may be insufficient if institutional and organizational contexts are not carefully considered during implementation. Higher education policies do not operate in isolation—unexpected outcomes can arise, or success can be more difficult to reach when contextual factors are overlooked. Effective improvements in post-traditional student success require a coordinated policy approach that accounts for the dynamic interactions between metrics, interventions, institutional culture, and broader political environments. None of this work happens in a vacuum, and meaningful progress depends on addressing these interwoven complexities holistically.

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## Appendix 2.A

TABLE 2.A.  
Description of Codes for Intervention Features (Cumulative through Year 1)

Intervention Component	Code Description	Mean (SD)
<b>Increased Financial Supports</b>	Cumulative amount received through the end of year 1 divided by max amount among interventions (\$2,327)	0.23 (0.3)
<b>Increased Advising Usage</b>	Cumulative additional advising visits through the end of year 1: 0.00 : Nothing 0.25 : Very low + <2 additional 0.50 : Low + 2-7.9999 0.75 : Med + 8-13.9999 1.00 : High + 14 or more	0.16 (0.25)
<b>Promoting Full-time &amp; Summer Enrollment</b>	# of terms intervention tries to influence enrollment intensity, through the end of year 1: 0.00 : None 0.33 : Require/incentive/encourage: FT fall, FT Spring, OR Summer enrollment 0.66 : 2 of the above 1.00 : 3 of the above	0.19 (0.31)
<b>Increased Tutoring Usage</b>	Additional tutoring per semester, through the end of year 1: 0.00 : None 0.25 : 1 semester + < 3 additional visits, 1 semester none 0.50 : 2 semesters + < 3 additional visits 0.75 : 1 semester + $\geq$ 3 additional visits, 1 semester + < 3 additional visits 1.00 : Med/high (ave. 3 additional visits or more in each semester)	0.18 (0.33)
<b>Instructional Reform</b>	0.00 : None 0.33 : 1 sem, inconsistent implementation 0.66 : 1 sem, consistent implementation 1.00 : (1 sem, Multi-subject consistent) OR (1 sem consistent, 1 sem inconsistent)	0.14 (0.28)
<b>Learning Communities</b>	# of semesters of LCs offered (0, 1, or 2)	0.13 (0.25)
<b>Success Course</b>	Additional participation per semester, through the end of year 1: 0.00 : None 0.33 : + 1 - 9.9pp took course 0.66 : + 10 - 49.9pp took course 1.00 : $\geq$ +50pp or higher	0.14 (0.27)
<b>Comprehensiveness</b>	Total # of intervention components that we studied, ranging from 0 to 6.	2.29 (1.43)

**Table Notes:** Reproduced from Weiss et al. (2022), Appendix Table A.1. Table shows how each intervention component was classified into discrete categories based on the distribution of dosages across all studies.

## Appendix 3.A

### Chapter 3 Interview Protocol

I'd like to start by asking you some questions about yourself and your role on campus.

#### *Section A: Self-Description and Perception*

1. Can you tell me a little about your role at the college?
  - a. How long have you been in this role?
  - b. What does a typical day look like for you?
2. Can you share a little bit about what inspired you to work higher education?
  - a. What is your favorite thing about working in higher education?
  - b. What are some things you don't love about working in higher education?
3. In your opinion, what are your institutions' most important values?

#### *Section B: Policy Reforms and Engagement*

Thank you for sharing about your experiences and ideas. I'd like to open a discussion about some policy reforms currently being implemented in [STATE] and about the students you interact with.

You might have heard of the [STATE]Transfer Program or other programs on your campus that are designed to help students transfer between community college and a four-year college.

4. Can you tell me what you have heard about or what you know about [STATE]Transfer (or other initiatives like it) on your campus?
5. Sometimes, college faculty and administrators participate directly in campus-wide policy initiatives. I'm curious to know if you think you have done this specifically with [STATE]Transfer. Can you think of and describe some activities you've engaged in that were intentionally focused on helping to implement parts of [STATE]Transfer at [College]?
6. Sometimes, college faculty and administrators participate indirectly in campus-wide policy initiatives. I'm curious to know if you think you have done this specifically with [STATE]Transfer. Can you think of and describe some activities you've engaged in that could be linked, but maybe not directly, to implementing [STATE]Transfer at [College]?

*(Examples to pull from if needed)*

- a. *For example, faculty or administrators could directly participate in a policy initiative by...*
  - i. *Joining a campus working group or committee to plan or inform the roll out*
  - ii. *Attending meetings to learn more about the programs and implementation and how it's going*
  - iii. *Sharing information about the programs with students*
  - iv. *Asking colleagues and supervisors about how to get more involved with the policy roll out*

- b. *For example, faculty or administrators could indirectly participate in a policy initiative by...*
    - i. *Talking with colleagues about how the roll out is going*
    - ii. *Reading reports, articles, or other materials about the program and sharing them with colleagues*
    - iii. *Observing the roll out and it's impacts on students*
5. If you don't think you have participated in these initiatives, how did you learn about [STATE]Transfer in general?
  6. If you don't know about [STATE]Transfer, why do you think you haven't heard about it before? (There is no right answer; I'm interested in understanding how information gets shared around your college)
  7. In what ways do you think you have participated in "policy" implementation more generally on campus?
    - a. Can you tell me about a time when you felt inspired to make a change on your campus?
      - i. What did you want to change?
      - ii. What did you do?
      - iii. How did the outcome make you feel?
  8. How do you think policy initiatives or reforms are going generally on your campus?

### ***Section C: Policies and Students***

Thank you for sharing all of that. So far, we have discussed some policy initiatives on campus– I'd like to shift our focus a little to students in the context of those policies.

9. Can you tell me about your typical interactions with students?
  - a. How often would you say you either directly interact with students or think about specific students/student experiences in your role?  
  
*(use if needed)*
  - b. *How would you characterize the quality of your engagements with students?*
    - i. *This could be formal engagements (classroom, advising sessions, activities, etc.)*
    - ii. *Or this could be informal engagements (in passing, observations, talking with colleagues, etc.)*
10. Can you tell me about the diverse students that your campus serves?
11. In your opinion, what impacts do you think something like [STATE]Transfer (or similar programs) have on diverse students?
  - a. Do you think larger policy reforms are the "right" way to support diverse students? Why?
12. *[Faculty]* Can you tell me about the hardest thing you have ever encountered with a student?
13. *[Admin]* Can you tell me about the hardest thing you have ever encountered about a student or student group?

14. Can you share a memory about when you felt inspired by a student or students on campus?
15. Can you tell me about some interactions you've had with veteran students on your campus?
  - a. What was the context of your interaction?
  - b. In your opinion, would you say veteran students are thriving on your campus?
    - i. What makes you say that?
  - c. What do you think are some of their biggest challenges?
16. Can you describe an experience when a student sought yours or another colleague's support for a non-academic issue? For example, something like transportation, financial assistance, social assistance, childcare, etc.
  - a. When you think back on that experience, how does it make you feel?
  - b. Did that experience change how you feel about students on your campus?
    - i. How so?
  - c. What was the outcome for the student?
    - i. Who was involved in "solving" the problem?
    - ii. Were there any tools and resources provided by the campus that were useful for you in that experience? Can you tell me about them?
17. In what ways do you see transfer policies contributing to equity, if at all?
18. In what ways do you see transfer policies as a barrier to equity, if at all?
19. Is there anything we haven't discussed in terms of your experiences, ideas, interactions with students, policies, etc... that you think have impacted your perceptions of students or policy initiatives?

Thank you so much for participating in this interview. I learned a lot about your experiences, and I appreciate you sharing your thoughtful perspective with me. This interview was recorded and will be transcribed and anonymized immediately after our call. Your personal details like your name, title, and institution will not be used in this study. As a reminder, you may choose not to participate in the study at any time; simply email me or call me—my information is on your consent form.

Do you have any other questions before we conclude?

Thank you again for your time! It was a pleasure talking with you today.

## Appendix 3.B

**Table 3.B1: Example of Open Coding, Thematic Grouping, and Primary Axial Coding**

Quote	Participant	Open code	Theme	Primary Axial Code
"The leadership team and my division, especially...these folks are awesome...so committed to helping every student find their way to that stage of graduation. What we're not doing now is seeing the bigger picture and the connections between those conversations. So for every student that walks in [a] dean's office...did those deans have enough time to connect the dots? Like, hey, I had a tough conversation about that, too. Hey, I did too. Hey, wait, we should do something. We don't have enough of those opportunities to make meaning."	Janice	Hard to connect dots across institutional silos	Institutional and organizational culture	Feelings about the university
"I see that as part of my role is to help provide paid opportunities for students or just sort of like, figure out ways to navigate the barriers that students have traditionally faced, and sort of help with that. I do advising, I do service on campus. I'm co-chair of the Racial Justice Council. And then we also have to do community work..."	Wendy	Faculty as student navigators, community workers, academic advisors	Institutional and organizational culture	Feelings about their role
"And it's [student classroom conduct] getting a little worse. At the same time, there are no reference points that I can give them. Because in politics, and in business, everyone is kind of misbehaving. So, you're kind of standing alone with your colleagues trying to model behavior that you hope they will emulate, but you're not necessarily sure that they will, actually."	James	Lacking models of civil discourse	Perceptions of students	Interactions between faculty and students
"If we did not have a [STATE] Transfer program in place, we would only be taking in a certain genre of students. And now with this program in place, that genre of students we're taking it as a little bit larger. And I think that's a little more equitable."	Blake	Policy contributions to equity	Perceptions of policy	[STATE] Transfer

**Table 3.B2: Example of Primary to Secondary Axial Coding**

<b>Primary Axial Code: Feelings about the University (Theme: Institutional and Organizational Culture)</b>	
<b>Secondary Axial Codes</b>	<b>Open Codes</b>
Institutional rigidity and a lack of responsiveness to change	Institution not responsive enough to change
	Talk about students but not to students
	Efforts to meet student needs are chaotic; efforts to improve academics are too slow
	Faculty perceive some academic policies as paternalizing to students
Questioning authenticity of university's commitment to impactful change	Some university efforts are symbolic in nature
	Policies are inspired by Chronicle articles
	Questioning sincerity of university efforts to implement change
Rapid growth hampers internal communication and processes	Scale of institution grew significantly
	Hard for university to connect dots about students across institutional silos
	Faculty institutional knowledge is assumed
	Assumed competency
	Faculty are not clear on processes
<b>Primary Axial Code: Interactions between Faculty and Students (Theme: Perception of Students)</b>	
<b>Secondary Axial Codes</b>	<b>Open Codes</b>
Challenges in Student Engagement and Preparedness	Students are complex beings
	Frustration when students disengage
	Students have feelings of entitlement
	Students lack models of civil discourse
	Students perceived as underprepared for college
Conflicting feelings between wanting to be flexible and experiencing burnout	Faculty feel like hired help
	Faculty don't see themselves as representative of students
	Creating flexibility for students impacts professional and home life
	Feeling beholden to students
	Meeting individual student needs can be taxing