

ABSTRACT

BARTEK, CARRIE ELAINE STOCK. Mixed Methods Analysis of Effective Transfer Partnerships at Community Colleges and Public Universities in North Carolina (Under the direction of Dr. Audrey Jaeger).

Community college transfer students represent a large and growing proportion of students at public universities and are key to filling labor market needs for bachelor's degrees now and in the future. Yet, despite articulation agreements to smooth the transfer process, bachelor's degree attainment rates for community college transfer students vary widely across the nation and are often lower than for native students starting at these universities. North Carolina follows this trend, where the attainment rates of students who start at community colleges are lower than for students who start at public universities and vary widely depending on the university, and to some extent, the community college of origin. Research indicates that important student, environmental, and university characteristics contribute to the baccalaureate attainment of community college transfer students, but even after accounting for these characteristics, there remain other factors contributing to the variance in baccalaureate attainment rates associated with the practices at each institution. The purpose of this study was to 1) identify community college and university transfer partnerships in North Carolina with higher-than-expected baccalaureate attainment rates; 2) examine the extent to which these pairs employed transfer and partnership practices that make them more effective than others in helping transfer students attain bachelor's degrees even before state mandates to implement articulation agreements; and 3) recommend policy and practice based on this work.

A mixed methods explanatory case study design was used to identify pairs of community colleges and universities with higher-than expected bachelor's completion rates for their transfer students, to examine the transfer and partnership practices at three of these high-performing pairs

and summarize this research for practitioners to take action. The research findings showed that only 12% of all possible community college and university partnerships in North Carolina transfer had at least 10 transfer students and of those, about one-third achieved higher-than expected baccalaureate completion rates for their transfer students. Analysis of three pairs among this group that had more transfer students between them (20 or more) than their peers showed that the universities in the pairs were the top transfer destinations for their transfer partners. Although these pairs had different strategies for achieving transfer effectiveness, they reinforced one another to make transfer a priority, collaborated to define pathways to the baccalaureate, and offered strong tailored transfer advising in accordance with Fink and Jenkins' (2017) model of effective transfer practices. The pairs also demonstrated they had important elements of collective action needed for informal partnerships that hold loosely coupled systems together (Orton & Weick, 1990): subtle leadership, shared values, and focused attention. In addition, these pairs demonstrated strong internal communication and collaboration within their own institutions, as well as strong key practices common to all of them, including a student-centered culture at the community college, a welcoming and receptive environment for transfer students at the university, the use of transfer data to drive improvement, resources needed to support transfer, and tailored transfer advising to guide students along their pathway to completion.

This research suggests that improving baccalaureate attainment rates of community college students transferring to public universities in North Carolina requires strengthening the pathways and the partnerships between them. Articulation agreements can be strengthened through accountability reporting and field of study provisions rather than relying on the development of numerous Baccalaureate Degree Plans to smooth pathways. Partnerships can

be strengthened through system-spanning infrastructure, such as professional development and project management support, to support effective partnership practices, and may be best organized through a collective impact approach that includes guided pathways reforms given the institution-driven nature of policy in North Carolina.

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Mixed Methods Analysis of Effective Transfer Partnerships at Two- and Four-Year
Colleges in North Carolina

by
Carrie Elaine Stock Bartek

A dissertation submitted to the Graduate Faculty of
North Carolina State University
in partial fulfillment of the
requirements for the Degree of
Doctor of Education

Adult and Community College Education

Raleigh, North Carolina
2020

APPROVED BY:

Dr. Audrey J. Jaeger
Committee Chair

Dr. James Bartlett

Dr. Michelle Bartlett

Dr. Mary Rittling

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DEDICATION

This work is dedicated to the citizens of North Carolina. May you find increasing success in achieving the American Dream through the open and welcoming doors of North Carolina's great community colleges and public universities.

BIOGRAPHY

Carrie Bartek was born in Queens, New York and spent her high school years in the Hudson River Valley. After receiving a firm foundation in math and science through her Associate of Science degree earned at Orange County Community College in Middletown, New York, she transferred to Penn State and earned her BS in Geoscience. There she met a football player named Lou Bartek, and after marrying him and settling in Houston, Texas she received her master's degree in geology from Rice University. She worked in both the oil and environmental consulting industries, but after moving to Tuscaloosa, AL and starting a family, she discovered her interest in teaching as an adjunct for Shelton State Community College. After moving to North Carolina she taught at UNC Chapel Hill until she found a position as a geology instructor at Wake Technical Community College.

At Wake Tech Carrie taught both traditional and online courses. She was appointed Faculty Chair of Wake Tech's first Quality Enhancement Plan (QEP), and since that time has become increasingly interested in helping faculty and staff find and implement solutions to complex challenges related to student success. In her current role as Executive Director of College Initiatives and Assessment, she oversees a department that guides college-wide assessment, research, and evaluation as well as cross-functional committees and teams engaged in innovation and improvement, including projects like strategic planning and the college's second QEP, eLearning Preparedness Initiative across the College (EPIC).

Carrie is passionate about using data, science, and partnerships to improve the upward mobility of community college students. She enjoys writing, reading, cooking, hiking, volunteering, traveling and trips to the beach and mountains with her family and friends.

ACKNOWLEDGMENTS

I am so thankful for all the ways God has worked through my family and friends on this journey. Thanks to my Dad, Edward Stock, for being patient with me as I inundated you with questions every day when you came home tired from work. You encouraged me to aim high and always believed I could do whatever I set my mind to. Thanks to my Mom, Elaine Athens, for always being comforting and compassionate when I needed you, and teaching me empathy for others. Thanks to my husband Lou Bartek. Through you I had so many opportunities, and though you completed your PhD years before me, you considered me an equal, building my confidence in my intellectual endeavors. Thanks to my in-laws, Lou and Jacque Bartek II as well as Curtis and Sherrie Hill for always being there for us throughout the years. Thanks to my daughter Lauren Bartek, son Wes Bartek, brother Michael Stock, sister-in-law Nicole Stock and sister Michele Kroemer. Your encouragement and support helped me finish. Thanks also to all of my friends who have encouraged and counseled me.

I would not be engaged in this work if it were not for the many teachers and mentors who influenced me early on in my life, including Drs. Cal and Dr. Linda Heusser, who changed the trajectory of my life toward academics through a part-time job at Lamont-Doherty Geological Observatory; and Mr. Larry O'Brien, my Geology Instructor at Orange County Community College. Your passion for geology and teaching greatly influenced my future career choices.

Similarly, I am thankful for the friends, peers, mentors and sponsors who cheered me on and helped me along the way at Wake Tech. Thank you to the many friends and colleagues inside and outside of the Effectiveness and Innovation Division for constant encouragement and support. Thanks to Gayle Greene, who invited me to be the faculty chair of Wake Tech's first QEP and encouraged me to pursue my doctorate and to Tonya Forbes, a friend and a role model.

I am especially thankful to Bryan Ryan. You have mentored me, sponsored me and gave me opportunities to grow. You recognized leadership ability in me before I recognized in myself, and taught me how to lead. Thank you for your great example.

I am also grateful for the faculty, mentors, and colleagues in the College of Education, including the 2017 cohort of the Adult and Community College Leadership program, as well as the staff supporting the cohort. I admire each of you and all you do for our community colleges. Special thanks to Ashley Swing and Kara Battle, collaborators in my doctoral work. I am truly grateful to both of you for propelling this dissertation forward. Thanks to committee members Michele Bartlett and James Bartlett who provided timely consultation on key portions of this research. Thanks also to Dr. Mary Rittling, who not only served on my committee but also served as my mentor during the program, giving me career and life advice along the way. Most of all, I am profoundly thankful to Dr. Audrey Jaeger, my dissertation chair. You inspired me when I first met you on Assessment Day in 2017, and I am so grateful you agreed to take me on! You have the ability to give exactly what each of your student's need to succeed. You have planted in me the seeds of a scholar-practitioner and I look toward a future of fruitful collaborations.

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CHAPTER 1: Introduction

We have proclaimed our faith in education as a means of equalizing the conditions of men. But there is grave danger that our present policy will make it an instrument for creating the very inequalities it was designed to prevent. If the ladder of educational opportunity rises high at the doors of some youth and scarcely rises at all at the doors of others, while at the same time formal education is made a prerequisite to occupational and social advance, then education may become the means, not of eliminating race and class distinctions, but of deepening and solidifying them. (United States President's Commission on Higher Education, 1948, p. 36).

Originally conceptualized as extensions of high school to help graduates transition to four-year colleges at the turn of the 20th century, community colleges evolved into “junior colleges” and as separate organizations in the 1930s (Boggs & McPhail, 2016; Mellow & Heelan, 2014). In the 1950s, in response to President Truman’s Commission on Higher Education and post-World War II economic expansion, “community colleges” were birthed to provide access to higher education, with a focus on returning veterans and low-income groups (Bailey, Jaggars, & Jenkins, 2015; Boggs & McPhail, 2016; Mellow & Heelan). By the 1990s, the focus on college access shifted to student success at both community colleges and universities and most recently, to student outcomes not only “owned” by each institution-type individually, but also shared between the two. Shared outcomes include: the rates at which students transfer out of two-year colleges (termed “transfer-out rates”), transfer into four-year universities (termed “transfer-in-rates”), and receive bachelor’s degrees at four-year universities (termed “bachelor’s completion rates”). Yet, despite the focus on baccalaureate attainment, coupled with the growing need for a labor force with bachelor’s degrees (Carnevale, Smith, & Strohl, 2013) and the aspirations of community college students to attain those degrees, students

who start at two-year colleges do not graduate at the same rates as “native” students who begin at four-year colleges (Alfonso, 2006; Jenkins & Fink, 2016; Monaghan & Attwell, 2015; Shapiro et al., 2017; Townsend & Wilson, 2006). For example, among the Fall 2010 cohort of two-year college students in the U.S. (n=852,439), on average, only 31.5% transferred to a four-year institution, even though a majority of students surveyed nationally indicated their aspirations to transfer (Community College Survey of Engagement [CCSSE], 2018). Some research suggests that after adjusting for student characteristics, community college students who do transfer to four-year institutions complete bachelor’s degrees at the same rates as students who start at four-year colleges (Melguizo, Kienzi & Alfonso, 2011; Monaghan & Attwell, 2015); however, other research disputes this claim (Alfonso, 2006; Long & Kurleander, 2009; Sandy, Gonzales & Hilmer, 2008; Rouse, 1995; Shapiro et al., 2017). Recent research indicates there is large variability in bachelor’s degree completion rates among states and among institutions within states that cannot be fully explained by state policy or by controlling for student inputs or institutional characteristics (Bailey et al., 2015; Ehrenberg & Smith, 2004; Fink & Jenkins, 2017; Jenkins & Fink, 2016; Xu, Jaggars, Fletcher, & Fink, 2018a). These authors concluded that the practices occurring at, and between, community colleges and universities are important to increase the rate in which students complete bachelor’s degrees. Specifically, Fink & Jenkins (2017) and Wyner, Deane, Jenkins, and Fink (2016) found: 1) making transfer a priority; 2) creating clear programmatic pathways from two-year to four-year institutions; and 3) tailoring transfer advising at both two- and four-year colleges, are practices at institutions associated with higher-than-expected bachelor’s degree completion rates. However, there is little empirical research validating these practices or providing a theoretical base or model to explain why these practices are associated with higher-than-expected bachelor’s degree completion rates for

transfer students. Accordingly, this mixed methods study aimed to identify partnerships with higher-than-expected bachelor's completion rates and explain the transfer and partnership practices occurring between them before state policy was mandated in 2014, as well as provide recommendations for policy and practice to achieve better outcomes within the state of North Carolina.

Purpose Statement and Research Questions

The purpose of this study was to identify pairs of North Carolina Community College System (NCCCS) and University of North Carolina (UNC) System colleges associated with higher-than-expected bachelor's completion rates of community college transfer residents in North Carolina and use that information to understand and validate effective transfer practices occurring between the institutions. This study employed a mixed-methods explanatory sequential research design (Creswell & Plano Clark, 2018) that used the identification of these pairs to gain an in-depth view of the transfer and partnership practices associated with their effectiveness. This study answered the following research question:

Which NCCCS and UNC System transfer partner pairs have higher-than-expected four-year bachelor's degree completion rates [from the time of entry into the UNC System] for residents of North Carolina who transferred to a UNC System school in Fall 2011?

Based on the answers to this question, a follow-up case study endeavored to understand how and why these pairs were more effective than others through the lens of these two propositions:

Proposition 1: Partnership pairs with higher-than-expected baccalaureate attainment rates for their transfer students are associated with effective transfer practices outlined by Fink & Jenkins (2017).

Proposition 2: Effective transfer practices are facilitated by partnership practices that provide the cohesion needed to compensate for loose coupling, namely subtle leadership, shared values, and focused attention (Orton & Weick, 1990).

Based on this research and associated reviews of the literature, recommendations for improving transfer policy and practice in North Carolina are provided.

Overview of Methodology

Using a large longitudinal set of student-level data from the UNC General Administration (GA) that has been merged with data from the Bureau of Labor Market Statistics, U.S. Census, and Integrated Postsecondary Educational System (IPEDS), the first research question was answered using an input-adjusted, value-added approach for identifying pairs of NCCCS and UNC System colleges in North Carolina with higher-than-expected bachelor's completion rates for transfer students (Bailey & Xu, 2012; Horn & Lee, 2016; Xu, Ran, Fink, Jenkins, & Dundar, 2018b). This approach is grounded in Astin's input-environment-output (I-E-O) assessment model (Astin, 1970a; Astin, 1970b; Astin & Antonio, 2012) and was modified for transfer students based on work by Bergman, Gross, Berry, and Shuck (2014). In this model, the units of analysis were the unique pairs of UNC System and NCCCS colleges. The outcome of interest was the four-year bachelor's completion rate of the transfer students among each pair and the independent variables were the mean characteristics common to each pair. The inputs were the mean characteristics of the community college transfer students; the external environment was represented by the mean economic characteristics related to the transfer student's county of origin and the geography of the institutions; and the internal environment was represented by the mean university characteristics in each pair. Hierarchical, blocked multiple regression equations were used to predict bachelor's degree completion rates for each university and community

college pair. Residuals between the actual and predicted completion rates that were used to identify partnership pairs were ranked and assigned to levels identifying them as higher-than-expected, lower-than-expected, or as-expected.

Ranked pairs with higher-than-expected rates were screened by evaluating the residuals between their actual and expected bachelor's completion rates, their transfer productivity (number of transfer students in the pair), college websites, published performance measures (NCCCS Office and UNC SYSTEM Info Center), and informal interviews with college personnel. Based on these evaluations, three pairs among those with "much higher than expected" bachelor's completion rates for transfer students were selected and used for purposeful sampling in the qualitative study as a follow-up to explain the practices that added the additional value necessary to achieve better-than-expected completion rates for transfer students.

The first and second propositions of this study were then answered through case study analysis of focus groups with administrators, faculty, and staff at each of the six institutions within the three high-performing transfer partnerships. The practices discerned at each of these institutions were compared to an *a priori* model for effective transfer practices by Fink and Jenkins (2017) and Wyner et al. (2016), and the partnership practices identified at each institution were compared to Orton and Weick's (1990) theory of loose coupling.

Because of the labor-intensive nature of this mixed methods study, the data collection was conducted in collaboration with Battle (2020) and Swing (2020), doctoral students at North Carolina State University; however, analysis, interpretations, and findings were discerned individually.

This study assumes effective transfer partnerships can be explained by analyzing observable institution- and student- level data and then following up to discern practices.

However, this study leaves unstudied some unobservable variables, such as student intent, enrollment intensity, integration, and involvement that have been documented as important to transfer student success.

Definition of Variables and Key Terms

Definitions to aid readers in understanding several key terms used throughout this study are provided in Appendix A.

Significance

This research is critical to the workforce development of our state and nation because of the growing numbers of workers needed with bachelor's degrees (Carnevale et al., 2013; Steering Committee of MyFutureNC Commission, 2019) paired with the large numbers of undergraduates beginning at community colleges but the low rates at which these students attain bachelor's degrees (Fink et al., 2016; Jenkins & Fink, 2016; Shapiro et al., 2017; UNC Info Center, 2019). These studies are important to the research on transfer effectiveness because they provide analytical frameworks for estimating bachelor's degree completion rates of pairs of institutions and determine whether recent models proposed for effective partnership practices can explain higher-than-expected rates of degree completion (Fink & Jenkins, 2017; Wyner et al., 2016). This research also contributes to the body of research on educational partnerships by grounding them in Orton and Weick's (1990) theory of loosely coupled systems, where weak ties between colleges are strengthened through the collective action in partnerships. These studies are helpful to practitioners because they identify peer institutions and partners employing practices that add value to transfer student outcomes; they shed light on how and why these institutions and partners are able to adapt and adopt new ways of interacting and practicing; and they provide policy recommendations based on this research.

Organization of Study

This dissertation is composed of two research articles and one policy paper. Chapter 1 provides an introduction to the dissertation and an overview of methods. Chapter 2 describes a quantitative study identifying effective community college and university partnership pairs in North Carolina. Chapter 3 follows with a case study examination of the transfer and partnership practices between three of the highest performing university and community college pairs identified in Chapter 2. The study ends with recommendations for state policy and practice in Chapter 4.

CHAPTER 2: Identifying Effective Transfer Partnerships Among Two- and Four-Year Public Colleges in North Carolina

Introduction

As the nation rebounds from the Great Recession of the 21st century, the demand for skilled workers needing bachelor's degrees continues to grow and exceeds supply in many high skill, high wage fields (Carnevale et al., 2013; Oslund, 2016). Whereas high school training was sufficient for about two-thirds of workers in 1973, in 2016, two-thirds of workers had at least some college, with over half of "good" jobs held by workers with bachelor's degrees (Carnevale, Strohl, Ridley, & Gulish, 2018). Accordingly, attaining a bachelor's degree is linked to socioeconomic mobility and sustainability of the middle class – the higher the level of degree earned, the greater the wages and lower the unemployment (Belfield, Liu, & Trimble, 2014; Brundage, 2017; Carnevale et al., 2013; MDC, 2016).

This understanding is well understood by community college students who take the national Community College Survey of Student Engagement (CCSSE) each year. A majority of students indicate that one of their goals/reasons for attending community college is to transfer to a four-year college or university (66.7%, n=289,585; CCSSE, 2018), substantiating previous work that a majority of students at community college intend to pursue a bachelor's or higher degree (Horn & Skomsvold, 2011; Laanan, 2003). A large portion (40%) of all first-time entering freshman begin at community colleges and a majority of them (73%) go on to attend public universities (Shapiro et al., 2017). There is also evidence for higher bachelor's degree completion rates for community college students who attend public universities as compared to private or for-profit colleges (Jenkins & Fink, 2016; Shapiro et al., 2017). Therefore, the baccalaureate attainment of community college students who transfer to public universities is

crucial for filling labor market demand *and* increasing socioeconomic mobility in the U.S.

(Jenkins, Kadlec, & Votruba, 2014; Jenkins & Fink, 2016; Shapiro et al., 2017; Wyner, 2014; 2016).

Yet, a national study found that only 24% of students who began at community colleges in North Carolina in 2007 transferred out of those colleges to four-year institutions within six years, which is lower than the average rate of 33% for community college students nationally (Jenkins & Fink, 2016). While the baccalaureate attainment rates of community college students who transfer to public universities in North Carolina are above average, among the top in the nation (48%) and better than their private counterparts (28%; Jenkins & Fink, 2016, p. 26), it is clear that once entering the university, fewer transfer students graduate within four years as compared to their peers. For example, 67% of the 3,262 students who matriculated to a UNC System college from a NCCCS college with an academic standing of “junior” in Fall 2011 received bachelor’s degrees within four years of entering the UNC System, compared to 85% of the 25,402 students who began at one of the 16 UNC System colleges (UNC Info Center, 2019). National research indicates lower rates of baccalaureate attainment for community college students who do transfer are due in large part to their longer time to degree and loss of credit upon transfer, which ripples to gaps in their future earnings compared to their peers who start at universities (Monaghan and Atwell, 2015; Witteveen, & Attewell, 2020; Xu et.al., 2018a). When evaluating the entire journey of community college students, from entry into the community college to outcomes at public universities six-years later, the problem is stark. North Carolina ranks at the bottom, where only 10% of community college students who start at community college, on average, receive bachelor’s degrees at any university within six years of enrollment, with wide variability in these rates across the state depending on both the community college and

universities attended (Jenkins & Fink, 2016). Accordingly, with upward transfer from community college to public universities a growing and necessary path to the baccalaureate degree, this pathway must be improved to fulfill the labor market demand and socioeconomic mobility in North Carolina, and our nation. Therefore, this study sought to identify community college and university pairs that were more effective than others in helping students transfer-out and attain bachelor's degrees as part of a larger mixed-methods study to shed light on the transfer and partnership practices associated with higher baccalaureate attainment rates for their transfer students (Bartek, 2020b).

Background

Reports from the UNC System indicate the rates at which transfer students from NCCCS colleges receive bachelor's degrees vary depending on the community college where they began, whether or not they completed a degree before they transferred, the level (sophomore, junior, senior) at which they transferred, the UNC System college they transferred to, and the extent to which they chose a major when they transferred (UNC SYSTEM, 2012). The bachelor's degree completion rates for NCCCS transfer students is higher for students who complete an Associate in Arts (AA) or Associate in Science (AS) degree before they transfer (73%), and lower for students who transfer with other types of associate degrees, such as an Associate in Applied Science (AAS) degree (57%, UNC SYSTEM, 2012). Bachelor's degree completion rates are also lower for students who transfer with no degree but with 30+ credit hours from NCCCS colleges (63%); the rates are lowest for students who have earned less than 30 credit hours before transferring (48%; UNC SYSTEM, 2019). In a study of the 2005-2007 cohort of all transfer students at UNC System institutions, 65% of transfer students who declared a major upon entering as juniors graduated in four years, while only 58% of those who did not declare a major

graduated in four years (UNC SYSTEM, 2012). While the 2012 Transfer Report also indicated that bachelor's degree completion rates varied among community college transfer institutions (UNC SYSTEM, 2012), Jenkins and Fink (2016) provided evidence that the characteristics of community colleges matter less than the characteristics of their university transfer partners when considering the variability of bachelor's degree completion rates among transfer students. They provide national evidence of wide variability of the baccalaureate attainment rates of transfer students regardless of the state policies designed to improve them. Recent work supports through evidence that this variability may be closely connected to practices at these institutions that tend to promote or hinder transfer student success in completing bachelor's degrees (Bailey & Xu, 2012; Bahr, Toth, Thirolf, & Massé, 2013; Jenkins & Fink, 2017; Wyner et al., 2016).

The purpose of this study was to identify pairs of community colleges and public universities associated with higher-than-expected bachelor's degree completion rates of community college transfer residents in North Carolina before state policy mandated the implementation of state-wide articulation agreements to improve these rates in 2014. This study is important because it fills a gap in the literature on the effectiveness of university and community college partnerships in promoting baccalaureate attainment among transfer students. Few studies have evaluated the variation in bachelor's degree completion rates among transfer students in multi-campus studies (Ehrenberg & Smith, 2004; Jenkins & Fink, 2017; Monaghan & Atwell, 2015; Xu et al., 2018b) and there is little empirical evidence linking higher-than-expected bachelor's degree completion rates for transfer students with university and community college practices (Bahr et al., 2013; Ehrenberg & Smith, 2004; Fink & Jenkins, 2017; Wyner et al., 2016). To date, there have only been two studies with university and community college partnership as the unit of analysis (Jenkins & Fink, 2017; Xu et al., 2018b), and none have been

grounded in a research-based conceptual model for college impact. This study is also important to practitioners because it is the first known state-level study that evaluates the effectiveness of transfer partnerships using an input-adjusted, value-added approach that accounts for the differences among transfer student populations, the counties of origin, and university characteristics, which research and state reports indicate contribute to this variation in college impact (Astin & Antonio, 2012; Ehrenberg & Smith, 2004; Horn & Lee, 2016; UNC SYSTEM, 2012; Xu et al., 2018b). Specifically, the present study sought to answer the following research question:

Which NCCCS and UNC System transfer partner pairs have higher-than-expected four-year bachelor's degree completion rates [from the time of entry into the UNC System] for residents of North Carolina who transferred to a UNC System school in Fall 2011?

Using a large longitudinal set of student-level data from the UNC General Administration (GA) that was merged with data from the Bureau of Labor Market Statistics, U.S. Census, and Integrated Postsecondary Educational System (IPEDS), this question was answered using an input-adjusted, value-added approach for identifying pairs of NCCCS and UNC System colleges in North Carolina with higher-than-expected bachelor's degree completion rates for transfer students (Bailey & Xu, 2012; Horn & Lee, 2016; Xu et al., 2018b). This approach is grounded in Astin's input-environment-output (I-E-O) assessment model (Astin, 1970a; 1970b; Astin & Antonio, 2012) and was modified for transfer students based on work by Bergman et al. (2014). In this model, the units of analyses were the unique pairs of NCCCS and UNC System colleges. The outcome of interest was the four-year bachelor's degree completion rate of the transfer students among each pair and the independent variables were the mean characteristics common to each pair. The inputs were the mean characteristics of the community college transfer

students, while the external environment was represented by the mean economic characteristics related to students' county of origin and the geography of the institutions and the internal environment was represented by the mean university characteristics in each pair. Hierarchical, blocked multiple regression equations were used to predict bachelor's degree completion rates for each university and community college pair. Residuals between the actual and predicted completion rates were used to identify partnership pairs that were ranked and assigned to levels identifying them as higher-than-expected, lower-than-expected, or as-expected.

Literature Review

A growing body of research indicates that transfer effectiveness, as measured using baccalaureate attainment rates of transfer students, is influenced by variables beyond the actual completion rate calculated by dividing the number of transfer students who began at an institution by the number of students who graduated from that institution within a given time (Adelman, 2006; Bailey & Xu, 2012; Horn & Lee, 2016; Shapiro et al., 2017; Xu et al., 2018b). This research demonstrates that input-adjusted models that take into account variables, like four-year college selectivity, student demographics, and income status, provide a more accurate measure of bachelor's completion rates, and, when accounted for, tend to diminish differences in completion rates between community college transfers and students who start at universities (Monaghan & Attewell, 2015). The following details the variables relevant to the present study.

Community college student inputs. Student demographics, socioeconomic status, and academic transcript characteristics have an effect on postsecondary success, including the rates at which students receive community college degrees, as well as the rates at which students transfer-out and complete bachelor's degrees (Clotfelter, Ladd, Muschkin, & Vigdor, 2013; Shapiro et al., 2017; Xu et al., 2018b). Indeed, using propensity score matching techniques,

Lichtenberger and Dietrich (2017) demonstrated there are demographic differences between community college transfer students and native juniors, and when student level-variables are accounted for, community college transfer students complete bachelor's degrees at the same rates as native freshman (Monaghan & Attwell, 2015). Therefore, these student-level variables must be taken into consideration when building models to predict the bachelor's completion rates of transfer students. The following sections describe the variables in the literature found to be significant in baccalaureate attainment and Table 2 summarizes the variables included in this study based on this review and availability of data (see Appendix B).

Among statistically significant factors are gender, with both transfer-out (community college as unit of analysis) and transfer-in (university as unit of analysis) bachelor's completion rates of female students greater than male students (Clotfelter et al., 2013; Kopko & Crosta, 2015; Melguizo et al., 2011; Roska, 2007 Shapiro et al., 2017; Wang, 20016 Xu et al., 2018). While some studies found no significant differences in community college persistence by race (Bergman et al., 2014; Umbach et al., 2019), other studies found that African American, Hispanic, and American Indian students have significantly lower completion rates as compared to White students (Calcagno, Bailey, Jenkins, Kienzl, & Leinbach, 2008; Clotfelter et al., 2013; Horn & Lee, 2016; Kopko & Crosta, 2015; Shapiro et al., 2017; UNC SYSTEM, 2016; Xu et al., 2018b). Most studies testing age as a variable reported as age increases, completion of bachelor's degrees decreases (Adelman, 2006; Horn & Lee, 2016; Kopko & Crosta, 2015), though Bergman et al. (2014) reported that age is not a significant factor in degree completion for adult students. While a majority of transfer students in the UNC System are between the ages of 18 and 24 (UNC SYSTEM, 2012; 2013; 2014), there is a growing population of students who are younger than age 18 transferring from community colleges to four-year institutions due to

dual enrollment (NCES, 2019). LaSota and Zumeta (2016) found positive association between bachelor's degree completion outcomes and students under the age of 18, contributing to the notion that age matters in degree attainment. While a limitation of the current study is the absence of an age variable in the UNC SYSTEM dataset, the percent female and percent non-Asian minority students within the transfer partnership pair are included as variables to account for the gender and race variations noted in the literature.

Student socioeconomic status, such as income, bachelor's degree achievement of parents, or census tracts of the student population, have a significant impact on both community college degree attainment (Melguizo & Dowd, 2009; Clotfelter et al., 2013), as well as bachelor's degree completion rates of transfer students (Jenkins & Fink, 2016; Shapiro et al., 2017; Xu et al., 2018b). The income level of community college transfer students, often measured using a proxy variable, such as the percentage of community college students who received free and reduced lunch in K-12 (Clotfelter et al., 2013) or the average percentage of students receiving Pell, are the most readily available socioeconomic indicators. Research shows that while this type of aid can help more students attain college credit and degrees than without the aid, Pell students have reduced chances of both transferring out to a four-year institution and attaining a bachelor's degree (Horn & Lee, 2016; LaSota & Zumeta, 2016; Shapiro et al., 2017; UNC SYSTEM, 2016; Xu et al., 2018b). Therefore, the percentage of students receiving Pell within the transfer partnership pairs is included as a variable in the present study.

Credit accumulation, along with the number of credit hours transferred or not, has also been noted as either one of the largest barriers, or largest accelerators, of the rates at which students complete bachelor's degrees (Bailey et al., 2015; Ehrenberg & Smith, 2004; Monaghan & Atwell, 2015). Credits transferred from two- to four-year institutions account for the largest

volume of transfer credit in the nation (Simone, 2014), but when students lose credits when they transfer it may take them more time to graduate and they incur higher costs (Ehrenberg & Smith, 2004; Monaghan & Atwell, 2015; U.S. Government Accountability Office, 2017). A recent study demonstrated in North Carolina, the number of transfer credits awarded at four-year institutions, compared to the number of credits earned at two-year institutions, varied along demographic factors; namely, students of color experienced significantly greater credit loss as compared to White students (Giani, 2019). Further, other researchers suggested that credit momentum matters (Davidson, 2014; Monaghan & Attewell, 2015). Students who accumulated 60 credits by their second year as undergraduates had a greater odds ratio of completing a bachelor's degree than those who earned less than 60 credits by their second year. Therefore, the average number of credits transferred between community colleges and universities are important factors to consider in bachelor's degree attainment (Davidson, 2014; Ehrenberg & Smith, 2004; Giani, 2019; Umbach et al., 2019).

Student award levels prior to transfer also impact bachelor's degree completion rates. Although Jenkins and Fink (2016) found no relationship between award levels and bachelor's degree completion in their national study, Ehrenberg and Smith's (2004) and Kopko & Crosta's (2016) state-level studies found a significant relationship between bachelor's degree completion and transferring with an associates degree, which validates current and historic UNC System data and reports. This and other studies suggest that students who attain an associate degree before transferring have a higher probability of attaining a bachelor's degree after transferring than those who do not earn the associate degree, with the highest probability of bachelor's degree completion among students earning the transfer-oriented AA or AS degree before transferring (Ehrenberg & Smith, 2004; Kopko & Crosta, 2015; LaSota & Zumeta, 2016; UNC System,

2013). The outcomes for students who attain any associate degree, or the career focused AAS degrees, are less clear. While some authors (Crook et al., 2012; Ehrenberg & Smith, 2004; Kopko & Crosta, 2015) found a positive association between bachelor's degree completion rates of community college transfer students and the completion of AAS degrees, UNC System (2013) found that students who transferred with AAS degrees completed bachelor's degrees at lower rates than students who transferred with 30 or more credit hours, and Kopko & Crosta (2015) found no effect of AAS degrees on baccalaureate attainment.

Academic achievement has also been associated with baccalaureate attainment in some studies. In their study of factors affecting transfer student success in North Carolina, Umbach et al. (2019) reported that the community college GPA of transfer students prior to transfer is a significant, positive predictor of successful bachelor's degree completion at the transfer institution, affirming other evidence from national studies (Wang, 2009). Horn and Lee (2016) also supported findings by Astin & Antonio (2012) that undergraduate SAT scores are significant predictors of bachelor's degree completion. Other studies showed the first term GPA of community college transfer students at four-year universities is also a predictor of transfer student success (Carrell & Kurlaender, 2016; Kopko & Crosta, 2015). Therefore, while the UNC System dataset did not include student-level GPA, the present study included first-year GPA of the NCCCS-UNC pair, gleaned from the UNC System Info Center, as a measure of academic achievement. In the analysis, this variable was grouped among variables characterizing the university environment, since the GPA was attained after transfer to the university (i.e., it is not a community college input).

Recent studies emphasized the importance of both high transfer-out rates in addition to high bachelor's attainment rates in evaluating transfer effectiveness among community colleges

and universities (Jenkins & Fink, 2016; Fink & Jenkins, 2017; Xu et al., 2018b). However, there is little research showing a connection between the transfer productivity and bachelor's completion rates. Koker and Hendel (2003) found that being in a specific transfer cohort was a significant predictor of bachelor's degree attainment, with membership in a specific university transfer cohort explaining more of the variance in attainment than the associated community college or high school cohorts. Ehrenberg and Smith (2004) found the proportion of transfer students at four-year institutions made a difference in the bachelor's degree completion rates of those students. Similarly, in their report on transfer, UNC System (2012) derived a variable for this relationship, called "transfer relationship," which they defined as the total number of transfers received at a UNC System institution from a NCCCS institution, divided by the total number of transfers from the NCCCS institution. However, preliminary univariate analysis indicated that transfer relationship and the number of students within a cohort was not normally distributed and by itself had no relationship to the bachelor's completion rates in the analytical sample. Therefore, while the present study does not account for transfer relationship and transfer productivity in regression equations, it does take these variables into account by focusing specific NCCCS-UNC System cohorts of students as the unit of analysis and using the number of transfers in each cohort as a basis for selecting the partnership pairs in the analytical sample.

Declaring a major upon entry into the four-year institution has been documented as a significant factor in time to bachelor's degree for transfer students (Alfonso, 2006; Bailey et al., 2015; UNC System, 2013). Although the dataset in this study does not have a variable specifying major upon entry (only major upon graduation), UNC System (2013; 2014; 2015) reported a majority of students transferring to the UNC System did declare a major at entry

(75%), and the top three fields they declared were business (13%), health professions (12%), and education (7%; UNC System, 2015).

External county variables. Distance between community college and university partners has been found by some researchers to have a small negative, but significant effect on bachelor's completion, particularly in regard to persistence of community college transfer students at four-year institutions, with greater distances associated with lower completion rates (Carrell & Kurlaender, 2016; Ehrenberg & Smith, 2004; Xu et.al., 2018; UNC System, 2013). Other researchers found distance between institutions to be a positive factor, though not statistically significant (Xu et al., 2018b). Recent research in North Carolina has also found a positive relationship between community college student bachelor's completion and having a public university in the same county as the community college (Umbach et al., 2019), so this variable was included in the analytical sample.

Economic variables have been consistently identified as statistically significant contributors to transfer student success (Bahr, Hom, & Perry, 2005; Ehrenberg & Smith, 2004; Jenkins & Fink, 2016; Shapiro et al., 2017; Xu et al., 2018b). Therefore, median income and unemployment rates were derived from the U.S. Census Bureau data based on the student's county of residence, as identified in the UNC System dataset.

University environment variables. Although there is a large body of research on the variables effecting institutional outcomes for four-year institutions in general, there is minimal research on the variables affecting bachelor's degree completion of community college students who have transferred to four-year institutions. While the selectivity of universities (Jenkins & Fink, 2016; Shapiro et al., 2017; Xu et al., 2018b), and the GPA of community college transfer students within their first year (Carrell & Kurlaender, 2016; Kopko & Crosta, 2015) have been

identified as highly predictive of bachelor's degree completion rates of community colleges students, the type of institution they attend may matter less. Some researchers found that the program mix at community colleges (the proportion of academic transfer-focused programs versus occupational programs) and urbanicity (the degree to which a college resides in an urban, suburban, or rural setting) at both community colleges and universities had a small impact on transfer-out rates for community college students (Carrell & Kurlaender, 2016; Jenkins & Fink, 2016; Shapiro et al., 2017). However, Xu et al. (2018b) found that program mix and urbanicity were not significant predictors of bachelor's degree completion of community college transfer students. While some researchers (Carrell & Kurlaender, 2016) found that enrollment, as measured by the number of first-time, full-time degree/certificate-seeking undergraduate students, was a significant predictor of student success, Xu et al. (2018b) showed that this variable had a positive effect on bachelor's degree completion, but was not statistically significant. Therefore, selectivity and GPA were included as variables in the present study, but institutional-type variables were not.

University resources and expenditures have also been found by some researchers to be significant variables. Some researchers found that percentage of full-time female faculty and percentage of part-time faculty at the community college are significant variables affecting bachelor's completion rates of community college transfer students (Calcagno et al., 2008; Carrell & Kurlaender, 2016), but were not observable in the current study. Although some researchers reported that institutional expenses per full-time equivalent (FTE) were significant in predicting bachelor's degree outcomes (Hamrick, Schuh, & Shelley, 2004; Ryan, 2004), recent researchers found expenses per FTE at community colleges (Stange, 2012; Xu et al; 2018b) and four-year institutions (Xu et al., 2018) were not significant factors in bachelor's degree

outcomes. However, the extent to which the institution spends money on student services, instruction, and academic support may be an important measure of the extent to which students receive advising, which has been shown to be a significant factor in the probability of transfer-out from two- to four-year colleges (termed “upward transfer”; Calcagno et al., 2008; LaSota & Zumeta, 2016) and therefore, were included in the present study.

In summary, effective transfer partnerships can be identified using three criteria, taken all together: 1) high transfer productivity (the number of students who have successfully transferred) among community colleges and their university partners; 2) higher-than-expected baccalaureate attainment of transfer students, where actual baccalaureate attainment rates are greater than those predicted based on student and institutional characteristics; and 3) community college and university practices that promote this effectiveness. The aim of this study was to identify effective partnerships based on their transfer productivity and bachelor’s completion rates, while the third measure, employing effective practice, is the subject of the follow-up companion study in Chapter 3.

Conceptual Model

Guided by the literature identifying significant factors in community college transfer student attainment of bachelor’s degrees, the conceptual model for this study was used to identify the community college and university partnership pairs in North Carolina that had higher-than expected bachelor’s completion rates for their transfer populations given known characteristics of these populations and the institutions they attended. In accordance with the philosophy and literature that these characteristics alone will not fully explain why these pairs had higher than expected rates, and the idea that the differences between actual and model predicted completion rates are due to unobserved environmental factors, including practices

between the pairs (Bahr et al., 2013; Fink & Jenkins, 2017; Xu et.al., 2018), the analytical results of this quantitative study were used for purposeful sampling in a companion follow-up study to explain why these pairs are more effective than others in graduating their transfer students (see Chapter 3).

The present study is driven deductively by applying Astin's I-E-O assessment model (Astin, 1970a; 1970b; Astin & Antonio, 2012) to evaluate college impact (Astin & Denson, 2009). In the I-E-O model, "I" accounts for student input variables, such as gender, race/ethnicity, and academic achievement, such as GPA. The "E" accounts for independent variables related to the environment a student is in, and the "O" is the outcome of interest, as measured by the dependent variable. This model was modified for external and internal environments important to college impact studies based on the work of Horn & Lee (2016) and important to transfer students based on work by Bergman et al. (2014) and by Ehrenberg and Smith (2004). But where these models use the student or institution as the unit of analysis, the present study uses the cohorts of transfer students between specific community college and university pairs as the units of analysis, as baccalaureate attainment varies depending on the combination of community colleges and universities students attend (Xu et.al., 2018b; Fink & Jenkins, 2017). In this study, the four-year bachelor's completion rate of the transfer students among each pair was the dependent variable. The input variables were the mean characteristics of the community college students common to each pair, including race/ethnicity and gender. The external environmental variables represent the mean geographic and economic county characteristics of the population of students within each pair and the internal environment represents the mean university characteristics in each pair.

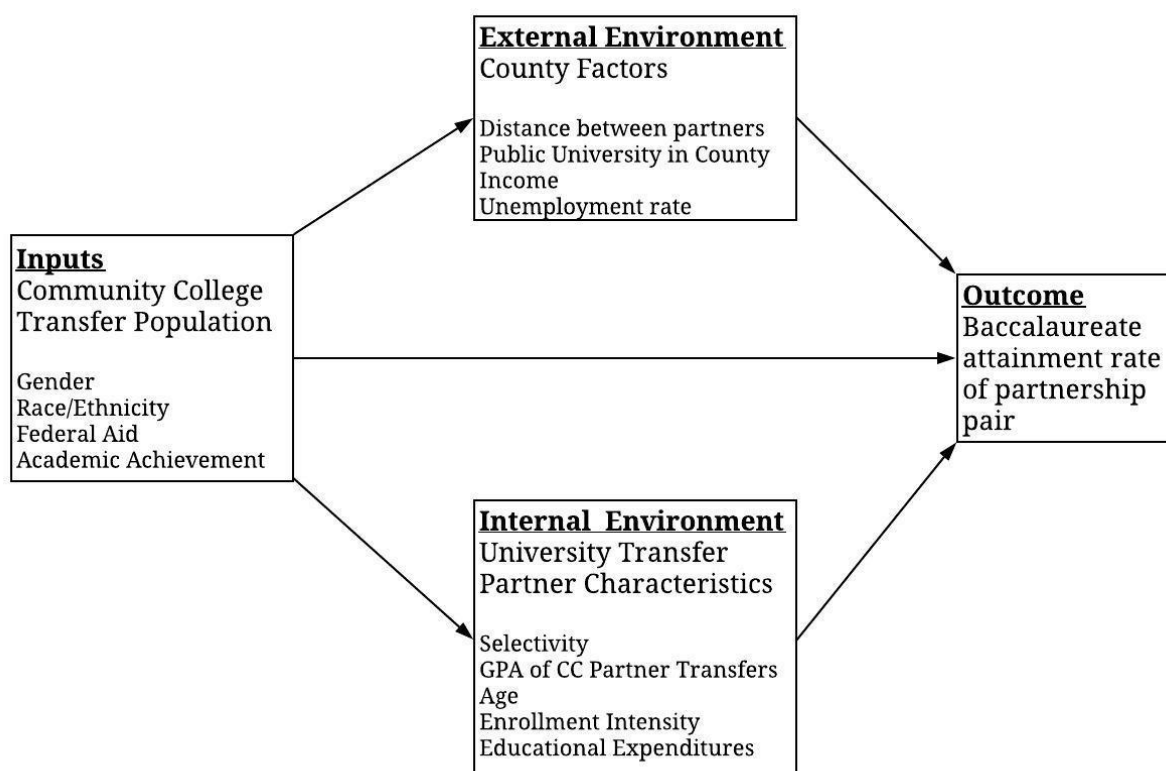


Figure 1. Partnership impact model for predicting baccalaureate attainment rates of transfer student populations among individual community college and university pairs. Adapted from Bergman, M., Gross, J. P. K., Berry, M., & Shuck, B. (2014). *If life happened but a degree didn't: Examining factors that impact adult student persistence*. The Journal of Continuing Higher Education (p.93).

Methods

This study identified pairs of community colleges and universities in North Carolina that had higher-than-expected bachelor's degree completion rates for their community college transfer students using an input and environment adjusted, value added approach that accounts for the student, environmental, and institutional heterogeneity that influences these rates and rankings (Bailey & Xu, 2012). This approach has been used by numerous authors to equitably

compare and rank colleges and universities (Adelman, 2006; Astin & Antonio, 2012; Astin & Denson, 2009; Bahr et al., 2005; Horn & Lee, 2016) and yields reliable and valid results using appropriate analytical models (Horn & Lee, 2016).

Data sources for this study include a longitudinal dataset provided by UNC System that tracked students who transferred into and graduated from the UNC System between 2003 and 2015 (n=124,716 unique transfer student cases). Guided by the literature on factors that affect transfer students and their performance (Ehrenberg & Smith, 2004; Jenkins & Fink, 2016; LaSota & Zumeta, 2016; Monaghan & Attewell, 2015; Shapiro et al., 2017; Xu et al., 2018b), the final analytical sample was merged with data from the U.S. Census Bureau, Bureau of Labor Statistics, IPEDS, UNC System interactive dashboards for transfer students, and Google Maps.

Sampling procedures. The UNC System dataset is comprised of all “new transfer students” (see definitions in Appendix A) who entered one of 16 public UNC System colleges anywhere in the state between 2003 and 2015 (n=124,716). To control for any differences in, and effects of, state policy, such as articulation agreements and practices (Jenkins & Fink, 2016; LaSota & Zumeta, 2016) and to focus the research on the transfer processes of public institutions that may be of interest to state leaders and administrators, this study focused on a subset of the UNC System dataset that included only residents of North Carolina who transferred from a NCCCS college to a UNC System college. This population accounts for 87.5% of the cases in the dataset (n=109,305). The sample was also limited to Fall 2011 community college transfers with sophomore or junior status for several reasons. Because this quantitative study is part of a larger mixed-methods analysis, it was important to analyze the most recent data available to narrow the gap between interviews conducted for the qualitative study (2019) and the effective pairs identified in the present quantitative study. Second, the UNC System regularly reports on

the four-year outcomes of its transfer students, rather than six-year outcomes as is common among some reporting agencies (Shapiro et al., 2017). Recent research reported the effectiveness of institutions, or institutional pairs, is likely to be the same regardless of whether they are evaluated by four- or six-year outcomes from the time of transfer (Horn & Lee, 2016; Jenkins & Fink, 2016). Therefore, since the available UNC System dataset extends only through Fall 2015, four-year bachelor's completion rates were evaluated by delimiting the data to all residents who transferred from a NCCCS college to a UNC System college in Fall 2011 (cohort of 6,213 individual cases for analysis). The dataset was further delimited to students entering with sophomore or junior status based on reports from UNC System that showed students who transferred into their system with less than sophomore status take longer to finish (UNC System, 2012). Further, preliminary analysis of the Fall 2011 NCCCS transfer cohort in this study indicated that students who transferred into UNC System institutions with sophomore or junior status accounted for 83% of the 6,213 students in the Fall 2011 cohort; therefore, transfers entering with freshmen or senior status were excluded from the final dataset, yielding a total of 5,132 remaining cases.

Dataset construction. The final delimited dataset was merged and analyzed using IBM's SPSS software, version 25 (Green & Salkind, 2017). After limiting the dataset to the Fall 2011 NCCCS transfer student population as noted above, the UNC System dataset was merged in SPSS with the IPEDS and U.S. Census Bureau data to create a newly constructed dataset with derived, aggregated variables. Data were merged on a common, derived institution ID variable using the "Merge Files" and "Add Variables" procedures in SPSS as detailed by Green and Salkind (2017). Student-level data were then aggregated into means using the "Aggregate" function to create a new dataset consisting of the mean characteristics of each variable. The

means were aggregated through a partnership variable derived by concatenating the UNC System college and NCCCS college identifiers. Characteristics of the university partners within these pairs are shown in Table 5. The dependent variable (bachelor's degree completion mean) was also derived from the year of graduation by creating a dichotomous variable for baccalaureate completion and then using the "Aggregate" function in SPSS to determine aggregated completion rates for each partnership pair.

There are 58 NCCCS colleges and 16 UNC System colleges in North Carolina, yielding 928 possible transfer partnership combinations. However, only 514 transfer pairs had at least one transfer student in the Fall 2011 dataset, with each university partner having between 10 and 48 community college partners (see Table 4). Initial inspection of the 514 partnership pairs revealed that the number of transfer students within each pair ranged from a minimum of one to a maximum of 300, with a mean of 10, a median number of three, and large positive skewness. Based on a definition of transfer effectiveness as both high transfer productivity (the number of students transferring between one community college and one university) and high transfer performance (baccalaureate attainment rates of transfer students; Carrel & Kurleander, 2016; Fink & Jenkins, 2016; Jenkins & Fink, 2017; Wyner et al., 2016; Xu et al., 2018b), this study restricted the analytical sample to partnership pairs with greater than or equal to the mean of 10 transfers in the Fall 2011 cohort. With this restriction, there were 110 partnership pairs remaining in the analytical sample (see Table 5).

Variables. As shown in Table 3, there were 15 variables selected for the hierarchical multiple regression analysis based on the literature review of significant factors that contributed to the conceptual model. A four-year bachelor's degree completion rate was derived for each partnership pair by first creating a dichotomous variable to check for whether (yes) or not (no)

transfers starting in Fall 2011 had attained their bachelor's degree by Fall 2015. Using a partnership ID variable created for each of the 514 NCCCS-UNC pairs in the dataset, means were derived from the dichotomous variable using the "Aggregate" function in SPSS. Transfer student characteristics in the Fall 2011 cohort were also derived by using the partnership ID variable and the "Aggregate" function in SPSS.

External county variables were derived using Google Maps, IPEDS, and statistics from the Bureau of Labor Statistics and U.S. Census Bureau. The distance between each partner pair was determined using Google Maps after limiting the data to the 110 pairs with at least ten transfer students. Whether or not a UNC System institution was in the same county as the community college in the pair was derived as a dichotomous variable using the county of each UNC System college identified in IPEDS. The average median income for the cohort of transfer students in each partner pair was calculated by retrieving the median income of the county of residence of each student (for citizens of the county who are above age 25 with some college/associate degree in 2013) from the U.S. Census data and aggregating that income on the partnership ID variable into an average median income for the transfer students in each pair. The mean unemployment rate in counties of residence of students in partnership pairs (2012) was derived from the Bureau of Labor Statistics Local Area Unemployment Statistics. This variable was derived by summing the total unemployed citizens in all the counties represented in each partnership pair and dividing that sum by the total labor force in those counties to get a mean unemployment rate for the partnership pair.

University environmental variables were derived from several sources. Average first year GPA of the partnership pair (Fall 2012), was retrieved directly from the UNC System Info Center (2019). Remaining variables relating to the specific characteristics of the four-year

institution partners in each pair were derived from IPEDS data. As shown in Table 2, these variables were dichotomized to meet screening tests for regression analysis.

Analytical approach and procedures. As noted, numerous studies have conceptualized and employed input-adjusted, value added approaches to evaluate multi-campus studies of college impact, with the institution as the unit of analysis (Adelman, 1999; Astin, 1970a; 1970b; Astin & Antonio, 2012; Astin & Oseguera, 2005; Bailey & Zu, 2012; Berger & Milem, 2000; Horn & Lee, 2016; Pascarella & Terenzini, 2005). In general, these studies aimed to measure and compare college performance as an indicator of college practice by adjusting for factors that can influence performance, namely the characteristics of their student population and fixed institutional characteristics. Using input-adjusted statistical models that predict baccalaureate attainment rates, a simple residual calculated by subtracting the predicted from the actual attainment rates provides an index of college impact on degree completion (Astin, 2006; Aston & Antonio, 2012; Baily & Xu, 2012; Horn & Lee, 2016; Xu et al., 2018b). The residuals provide indicators of institutional effectiveness. Colleges with positive residuals are “outperforming” their predicted rates, indicating college practices that promote student success; those with residuals at or near 0 are performing as expected, indicating college practices that, at minimum, are not impeding students; those with negative residuals are “underperforming” their predicted rates, indicating practices that are not as effective, or possibly thwarting, student success.

Few college impact studies have focused on the effectiveness of the transfer function between community colleges and four-year institutions and fewer have focused on the performance of the partnership between the two as the unit of analysis (Bahr et al., 2013; Carrell & Kurleander, 2016; Ehrenberg & Smith, 2004; Jenkins & Fink, 2017; Xu et al., 2018b). Using

a national dataset containing 938 community colleges and 1,908 universities, Xu et al. (2018) built on these and other college impact studies through a novel two-step approach to evaluate the effectiveness of the partnerships between community colleges and four-year institutions. Using regression analysis, the researchers first identified community colleges with better-than-expected baccalaureate attainment rates for their transfer students, then identified the colleges' university partners with better-than-expected rates. While the Xu et al. (2018b) approach identified effective community college and university transfer pairs nationally, it had several attributes that made it inappropriate for use in this state-based study. First, whereas the Xu et al. (2018b) study was exploratory in nature, the present study is explanatory and undergirded by a conceptual framework guiding the analytical procedures. Second, whereas the Xu et al. (2018b) study had large numbers of institutions to draw from in their national sample, this study had only 58 community colleges and 16 universities, a number insufficient to generate generalizable results using variables in the conceptual model. Third, whereas the Xu et al. (2018b) considered two different units of analysis in their two-step approach (the community colleges and then the universities), this study endeavored to treat the cohorts of students transferring from specific community colleges to specific universities as the unit of analysis given the research indicating that institutions are factors themselves in baccalaureate attainment (Koker & Hendel, 2003; Kopko & Crosta, 2015).

An additional consideration in choosing an analytical approach was the varying levels of data (student, institution, and county-level). Many researchers argue that Type I statistical errors (ie., accepting an alternative hypothesis and rejecting a null hypothesis when the null hypothesis is actually true, also known as a "false positive") or Type II statistical errors (ie., accepting the null hypothesis and rejecting an alternative hypothesis when the alternative hypothesis is actually

true, also known as a "false negative") can result from aggregating student level data and combining different levels of variables into one multiple regression equation using ordinary least squares (Berger & Milem, 2000; Hair et al., 2018; Horn & Lee, 2016; Titus, 2004). Therefore, some authors advocate using hierarchical multilevel modeling that uses all of the different variable levels – student-level and institution-level- instead of using means of these variables in ordinary least squares regression (Hair et al., 2018; Titus, 2004). However, Astin and Antonio (2012) argued, and Astin and Denison (2009) demonstrated, that using sequential multiple regression, also known as “hierarchical multiple regression” (Mertler & Reinhart, 2017) actually overcomes the inherent problems with multi-level data, particularly when used for predictive purposes in multi-campus college impact studies, as in the present study. Using this approach, mean variables are entered into the multiple regression analysis in sequential “blocks” based on a conceptual model or theoretical framework. Their research indicates that this approach provides an equally “good fit” as those obtained through hierarchical multilevel modeling (Astin & Denson, 2009) for multi-campus impact studies. Further, the reliability and validity of this approach using aggregated means for college impact students has been affirmed by Horn and Lee (2016) in their study evaluating institutional baccalaureate attainment rates. Therefore, the present study employed an input-adjusted, value added approach similar to that outlined by Astin and Antonio (2012), and hierarchical multiple regression analytical procedures employed by Horn and Lee (2016) to identify effective transfer partnerships in North Carolina.

Univariate normality and linearity were examined through standard testing. The dichotomous variable HBCU was deleted from the list of variables used in the analysis because there was more than a 90-10 split, with 92% of the partnership pairs not HBCU’s (Mertler & Reinhart, 2019). Race was positively skewed, so it was corrected by a square root

transformation. Dichotomized variables yielded normal distributions when evaluated against the bachelor's degree attainment rate dependent variable (DV). Multivariate outliers were identified by calculating the Mahalobis Distance, and, nine pairs were eliminated from the dataset. After screening the multivariate outliers, the remaining sample was tested for multivariate linearity, normality, and homoscedasticity. Scatterplot matrices and residuals plots indicated acceptable distributions to assume multivariate normality and homoscedasticity.

After cleaning the data, hierarchical multiple regression analysis was conducted with SPSS 25. The final equation predicting the bachelor's completion rate can be written as:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 \dots \dots + B_{14}X_{14} + e$$

where,

Y = value for the dependent variable (DV=*Bachelor's Completion Rate*)

B_0 = is the intercept, or where the line intersects the axes of the graph

$X_1 \dots \dots X_{14}$ = Values for the independent variables (IVs), meaning the data points

$B_1 \dots \dots B_{14}$ = Beta coefficients defining the regression line

e = residuals, also known as errors of prediction

Applied to this study, residuals represent the difference between the actual and predicted value for the DV (bachelor's degree completion rate), which is the unexplained phenomenon not predicted by the independent variables (IVs). The premise of this study was that partnership practices account for the residuals. The size and sign of these residuals reflect these practices: those with "higher than expected" bachelor's degree attainment rates for their transfer students reflect effective practices, those with "expected" rates reflect expected practices, and those with "below expected" bachelor's degree attainment rates represent an opportunity for growth.

Limitations and Delimitations

The results of this study are limited to the student data provided by UNC System and publicly available archival data. While a majority of the variables in the literature that were reported as statistically significant factors related to the baccalaureate attainment of transfer students were included in this study, a few key student-level variables, like community college GPA of each transfer student, age, enrollment intensity, involvement, and integration were not available, and therefore could not be included. This study was also delimited to North Carolina residents who transferred with sophomore or junior status from North Carolina community colleges to UNC System universities in Fall 2011.

Power of the multiple regression analysis could be of concern based on the number of partnerships pairs in the sample, the aggregation needed to develop mean characteristics of each cohort, and the necessity of dichotomizing variables to meet screening criteria. Since the p-value for the F-test in all three models of the equation is 0.000, we can reject the null hypothesis that a model with no independent variables fits the data as well as the models in the study, and assume that the independent variables in the model explain more of the variance than a model with one or no independent variables.

Results

Descriptive statistics. Tables providing descriptive statistics for the analytical sample are provided in Appendix B. Descriptive statistics of the transfer students in the Fall 2011 cohort are provided in Table 3; descriptions of the university transfer partners are in Table 4; and statistics for the partnership pairs are in Table 5.

As shown in Table 3, there were 5,132 students who transferred from NCCCS colleges with sophomore or junior status to a UNC System institution in Fall 2011. While about half of

these students transferred with a degree, a little more than one-third (37%) transferred with a traditional “transfer” degree, meaning an AA or AS degree. Compared to students who did not receive these degrees, or received other degrees, students who transferred with AA or AS degrees had higher bachelor’s degree attainment rates (70%); and interestingly, among those who did not receive an associate degree, a larger percentage of students with no associate degree (58%) fared similarly in baccalaureate attainment as those who transferred with a degree other than that of an AA or AS degree, namely, the AAS degrees (56%).

Surprising in the student inputs is the large proportion of transfer students who were Pell recipients at the UNC System transfer destination—63% of the students in the Fall 2011 cohort received Pell at their transfer destination. Subsequent review of Pell grant recipients over time (US Department of Education, 2018) reveals these statistics are consistent with national trends: due to the Great Recession, Pell Grant recipients were at their highest levels in 2011-2012. Further, baccalaureate attainment for transfer students who received Pell (63%) was on par, but slightly higher, than non-Pell students (61%).

As shown in Table 4, of the 16 UNC System transfer schools, four-year bachelor’s degree completion rates for the Fall 2011 cohort varied greatly - from a low of 42.4% to a high of 81.3%. Also striking, is the difference in transfer productivity among the UNC System schools, as measured by the number of transfer-in students in the Fall 2011 cohort. The number of students who transferred-in to UNC System colleges ranged from a low of 33 to a high of 906. In general, the greater the number of transfers, the greater the number of transfer partners. However, only 110 out of 514 transfer partnerships with one transfer student (21%) had 10 or more transfer students between them, with three transfers the median number among the 514 pairs with at least one transfer student. These pairs can be considered as having higher-than-

average transfer productivity among the pairs with transfer students in the fall 2011 cohort. The five institutions with the largest number of transfer partners and transfer students were UNC-Charlotte, Eastern Carolina University, UNC-Greensboro, Appalachian State University, and UNC-Wilmington. While the mean number of credits transferred into each college was consistent among the colleges, with a minimum mean of 52 credit hours, there was variability in the percentage of transfers with AA or AS degrees, from a high of 59.7% of UNC-Chapel Hill transfers having AA or AS degrees before transfer to a low of only 21% of Winston-Salem State University having AA or AS degrees before transfer. As expected, the mean number of transfer students was greater in the analytical sample of 110 pairs (mean=35) as compared to all possible transfer pairs in Fall 2011 (mean=10) and the mean bachelor's completion rate among all pairs was 63%. The mean AA/AS degree holders among each pair was 36%, and the mean number of credits transferred was 50.

In terms of external environmental characteristics, the partnership pairs in the analytical sample were, on average, also relatively close to one another, both geographically and in terms of their transfer relationships, as measured by the proportion of transfers in the partnership pair compared to all students transferring out from the community college in the pair. On average, transfer partners in the analytical sample were only eight miles apart with a standard deviation of 3.4 miles, and their transfer relationships were closer (0.28 compared to 0.11) than the 514 possible partnership pairs in the Fall 2011 sample. Additionally, a much higher percentage (88%) of the NCCCS colleges within the analytical sample were in counties with a public university, as compared to only 46% among the entire Fall 2011 sample. Similarly, the average median income was slightly higher (\$30,770 compared to \$30,291) and the average

unemployment rate was lower (less than 8.5%) in the analytical sample compared to all the partnerships in the Fall 2011 cohort.

In terms of university partner characteristics, while 72% of UNC System institutions among all of the partnership pairs were less selective (higher percentages admitted), the average GPA among all of the pairs after the first year of transfer was 3.0. A majority (92%) were not designated HBCUs. Regarding age and part-time status variables relevant to transfer student success, the proportion of universities in the partnerships that had higher proportions of older students (greater than 19% of students 25 and older) were about equal to those with lower proportions of older students (less than 19% of students 25 and over). Only a small proportion of the partnerships (26%) had part-time enrollment greater than 20%. The partnerships spent 50-70% of their core operating expenses on instruction and academic and student services.

Regression results. Sequential multiple regression was conducted to develop an equation that predicted the bachelor's degree completion rates (DV) of pairs of NCCCS and UNC System institutions. The resulting residuals, which represent the difference between the actual and predicted rates, were then used to rank the pairs and identify those with higher-than-expected four-year bachelor's degree completion rates [from the time of entry into the UNC System]. Results tables are provided in Appendix B. Table 6 provides the coefficients of each of the three regression models and Table 7 provides the model summaries. As shown in Table 7, the regression results indicate that Model 1, which included the student input variables, significantly predicted the bachelor's degree completion rates of the pairs [$R^2 = .229$, $R^2_{adj} = .187$, $F(5,93)=5.522$, $p<0.001$] but only accounted for 22.9% of the variance. A summary of the regression coefficients is presented in Table 6 and indicated only two of the five variables (% of students within the partnerships with Pell and average number of transfer credits within each pair

for students with no degree) significantly contributed to Model 1. Model 2, which included both the student input variables in Model 1 and external environmental variables known to be significant in transfer student retention, also significantly predicted the bachelor's degree completion rates of the pairs [$R^2 = .312$, $R^2_{adj} = .242$, $F(9,89)=2.684$, $p<0.001$] but only increased the explanation of the variance to 31.2%. Review of the regression coefficients presented in Table 6 also indicate that % Pell and transfer credits remained significant contributors to the second model, but a third variable, average median income, also significantly contributed. The final Model 3, which includes all of the variables of Models 1 and 2, plus all of the variables related to the internal environments of the university partners, significantly predicted the bachelor's degree completion rates of the pairs [$R^2 = .460$, $R^2_{adj} = .369$, $F(14,84)=4.589$, $p<0.001$] and accounted for almost half (46%) of the variance. In this final model, transfer credits dropped out from being significant predictors, while % of Pell and average median income remained, and another variable, percent of the university population that is 25 and older is less than 19%, was added as a significant positive predictor.

Identifying high-performing partnerships. After running the regression analyses, the predicted graduation rates and standardized residuals (z-scores) for each pair were computed using the coefficients in Model 3 as reported in Table 7. The residual z-scores were transformed to percentile ranks assuming normal distribution of the residuals, which was confirmed by running normality tests. Using a convention modeled after Horn and Lee (2016) in their development and validation of effectiveness scores for universities, the pairs were rated in relationship to the mean ($X=.4937$, $SD=.27444$) to group them into levels of effectiveness. The results of the ratings of each pair are provided in Tables 8 through 12 in Appendix B.

The partnership pair residuals with percentile ranks above one standard deviation above the mean ($X=.77$) were assigned a rating of “much-higher-than-expected” (see Table 8) and those between one-half and one standard deviation above the mean ($X=.63$ to $.77$) were assigned a rating of “higher-than-expected” (see Table 9). The “much-higher-than-expected” group captured 18% of the analytical sample, and the “higher-than-expected” group captured 17% of the analytical sample, in total accounting for one-third of the analytical sample. These positive residuals indicate that unobserved partnership practices may be “adding greater value” to achieve “better-than-expected outcomes” given their mutual community college input characteristics, environmental characteristics, and university characteristics (Baily & Xu, 2012; Horn & Lee, 2016; Xu et al., 2018b).

The partnership pair residuals with percentile ranks within one-half of a standard deviation above or below the mean ($X<.63$ to $.36$) were assigned a rating of “as-expected” (see Table 10). Accounting for 29% of the analytical sample, these pairs had actual bachelor’s degree completion rates as would be expected given the community college inputs, external environmental characteristics, and university characteristics. The partnership pair residuals between one-half and one standard deviation below the mean ($X<.36$ to $.22$) were assigned a rating of “lower-than-expected” (see Table 11) and those below one standard deviation below the mean ($X<.22$) were assigned “much-lower-than-expected” (see Table 12). In all, 35% of the analytical sample could be considered either “lower-than-expected” or “much-lower-than-expected,” indicating that the partnership practices among these pairs may be impeding transfer students from completing bachelor’s degrees.

Discussion and Implications

This study identifies pairs of public community colleges and universities in North Carolina that were more effective than others in helping students transfer-out in fall 2011 and attain bachelor's degrees by fall 2015. The following sections discuss these results and the implications and recommendations for research and practice.

Improving transfer productivity is important to improving transfer effectiveness. A striking finding of this study is that in fall 2011, overall only 12% of 928 possible community college partnerships pairs in North Carolina actually transferred 10 or more transfer students; a little more than half (N=514) transferred any students. This affirms Jenkins & Fink's (2016) findings that North Carolina has below average transfer-out rates compared to other states. As one of the parameters measuring transfer effectiveness, these metrics indicate that North Carolina is underperforming in its transfer productivity, with much opportunity for growth. Even though distance and having a public university in the same county as the community college were not significant predictors of baccalaureate attainment as found by Clotfelter, et.al.(2013) and Umbach et.al. (2019), descriptive statistics of the 110 pairs in the analytical sample with higher-than-average numbers of transfer students between them indicates these pairs, on average, had closer relationships with one another than the larger sample, with regard to both the proportion of students transferring from specific community colleges and universities, their geographic regions, and the distance between them. This information validates UNC System reports (UNC SYSTEM, 2014) indicating that transfer relationships and partnerships between community colleges and universities by geographic region are important to transfer productivity, and implies that building these relationships are important to increasing that productivity, in addition to transfer policy mandates (implementation of the CAA) ordered by the State Board in

2014 (Board of Governors of the University of North Carolina and Board of Governors of the North Carolina Community College System, 2014). While these relationships, and how to improve them, are examined in a companion follow-up to the present study (Bartek, 2020b), more research is needed to understand why students are failing to transfer from community colleges to public universities in North Carolina even though they have accumulated the credentials to do so, an area of research also needed nationally, as noted by Monaghan and Attewell (2015). For example, in 2017, 16,490 NCCCS students completed associates degrees or had accumulated 30 or more articulated transfer credits, but only 85.9% actually transferred to any community college or university (North Carolina Community College System, 2019), and only 10,399 (63%) transferred to a UNC System college (UNC SYSTEM, 2019). These statistics are consistent with national trends, where 60% of students have credentials for transferring but do not transfer (Monaghan and Attewell, 2015). Given the important role community college transfer students and public universities play in generating post-secondary credentials to fill labor market demand (MyFutureNC, 2019) North Carolina's public universities need to find ways to enroll a larger proportion of these students, and more research is needed to determine how to increase these proportions.

Baccalaureate attainment rates should be adjusted for both student inputs and environmental factors in studies of institutional and partnership effectiveness. Actual 4-year baccalaureate attainment rates of transfer students common to specific community college and university partnership pairs cannot be taken by themselves as measures of partnership effectiveness because these rates are influenced by student, environment and institutional factors. Grounded in college impact studies by Astin & Antonio (2012), Bergman et.al. (2014), Ehrenberg & Smith (2004), Horn & Lee (2016) and Xu et.al. (2018b), the present study uses an

input and environment-adjusted conceptual model to control for student inputs like gender and race, external economic factors like median income and internal environmental factors like university selectivity and to predict 4-year baccalaureate attainment rates using multiple regression analysis. By entering independent variables sequentially, in blocks, into multiple regression equations, three different models show how input variables only, input variables plus external environmental variables, and then finally input, external environmental and internal university variables together effect the variance of 4-year baccalaureate attainment rates for each partnership pair. Using this approach, the final model still reveals high variability in the predicted baccalaureate attainment rates for transfer students among the partnership pairs, with 46% of this variance accounted for using the model.

Using this input and environment adjusted approach to determine the predicted baccalaureate attainment rates of transfer students among community college and university pairs has identified a few variables as statistically significant, while others are not. Similar to other studies on baccalaureate attainment of community college transfer students (Bergman et.al., 2014; Umbach, et.al., 2019). For example, this study finds that gender and the percentage of non-Asian minorities, when considered alongside other variables in the model, are not significant predictors of baccalaureate attainment at the partnership level when comparing the population of students who have already transferred among partnership pairs. But these findings must be considered alongside other statistics and studies in North Carolina that track the entire student journey from the time of entry into community college. Only 35% of the fall 2014 cohort of first-time fall, credential seeking Black students completed at North Carolina community colleges within four-years, meaning they graduated with a credential and/or transferred-out, compared to 58% of white students (North Carolina Community College System, 2019).

Additionally, studies show that Black students in North Carolina are more likely to lose credit upon transferring (Giani, 2019) and less likely to earn bachelor's degrees as compared to white students when considering their entire student journey beginning at entry into the community college (Kopko & Crosta, 2015), regardless of whether or not they earn an AA or AS degree prior to transfer. More research, disaggregated by specific race categories, is needed to understand the interaction effects between race and other variables, as well as the locus of and reasons for the greatest loss points along the community college student journey to the baccalaureate.

Significant factors in baccalaureate attainment among partnership pairs include the average number of credits transferred without a degree, but not AA/AS awards. This study also counters current perceptions of the relationship between the baccalaureate attainment of transfer students and their attainment or lack thereof of AA or AS awards before they transfer. Despite descriptive statistics indicating much higher baccalaureate attainment rates for transfer students with AA or AS degrees, a surprising finding of this study is that very few students transferred with an AA or AS degrees in fall 2011. Additionally, this study finds that the proportion of students having AA or AS degrees among the partnership pairs was not a significant predictor of baccalaureate attainment when entered alongside other student input factors in the conceptual model, but the average number of credits transferred without a degree was a significant factor. This finding affirms Jenkins & Fink (2016) conclusions that transferring with the AA or AS awards may not impact baccalaureate attainment rates in North Carolina as much as previously thought, but is in conflict with Kopko & Crosta (2015), who showed a strong relationship between AA and AS awards and baccalaureate attainment in a state-level study on North Carolina. However, the idea – that the number of credits transferred may be more

important to timely baccalaureate attainment than the proportion of students transferring with a general AA or AS award - is consistent with Bailey et.al. (2015). They argue that after controlling for independent variables affecting these rates, such as those in this study's conceptual model, it is the alignment of transfer credits with university programs –the successful transfer of credits aligned with the student's university major - that are more important to transfer success than the achievement of general education awards like the AA or AS degree. This is especially the case for majors in science, technology, engineering or math where pre-major requirements at the university may actually cause students to lose credits and hinder baccalaureate attainment. Attainment of the AA or AS degree does not guarantee admission into a specific program in North Carolina because under the CAA, students may still have to take additional lower level pre-major courses to enter their programs of study at the university (Bailey et. al., 2015). Umbach's et.al. (2019) work in North Carolina, supports this study's findings: while having an AA or AS was not a significant predictor of baccalaureate attainment for transfer students, there was a small, positive and significant effect in the number of credits earned, and having any type of associates degree transferring 60 credits. Even in their findings that AA/AS holders have better chances of earning the baccalaureate, Kopko and Crosta (2015) find that the transfer destination is a significant factor in this success, and argue that the "value of the associate degree may not be in the knowledge or preparation that the college aims to impart, but rather in the degree's potential to place its holder in a transfer institution which is more likely to foster success" confirming that "all transfer destinations are not equal" (p.214). Given these conflicting findings, more research is needed to compare the effect of credit transfer, credit loss and baccalaureate attainment rates of students who have AA/AS degrees and those who do not, taking into consideration the specific programs into which they are transferring, to better

understand whether or not attaining the AA or AS, or transferring credits, makes a difference to baccalaureate attainment, and among what programs and universities, in North Carolina.

Improving baccalaureate attainment rates among partnership pairs will mean addressing the needs of low income students and adult learners. This study also documents the importance of variables related to income and age group on the baccalaureate attainment of transfer students. Approximated in this study by the proportion of students receiving Pell at the university as an input variable, it finds that the percentage of students receiving Pell is a significant negative predictor of baccalaureate attainment, meaning that the baccalaureate attainment rates are lower for partnership pairs with a higher proportion of Pell recipients than for those pairs with lower proportions. This study affirms college impact studies by Horn & Lee (2016) and Xu et.al. (2018), as well as studies by Melguizo, Kienzl & Alfonso (2011), Xu et.al. (2018b) and Wang (2009) showing that average median income is a positive, significant environmental factor in this attainment. Given that Pell is a proxy for low income status, this implies that students among partnership pairs with higher proportions of low income transfer students, and lower proportions of students from wealthier counties, are less likely to attain bachelor's degrees. It also implies that poorer students, from poorer counties, not-only make-up a smaller proportion of students who transfer-out, but also a smaller proportion of baccalaureate degree completers as compared to their more wealthy peers. This idea is in line with other work by MDC (2016) showing the profound effect of attrition of poorer students on the economic mobility in our state, given that near 60% of "good" jobs require bachelor's degrees (Carnevale et.al., 2018). Recent research by Swing (2020) indicates that community colleges and universities may be able to improve the rates at which low-income transfer students transfer-out and attain bachelor's degrees by providing early and tailored transfer advising to increase the

transfer capital they need to successfully transfer-out, and by providing services that are customized to students who working and have responsibilities outside of college. Universities who want to increase the rates at which low income students attain bachelor's degrees may consider increasing counseling and support structures, including course and schedule flexibility, to address work/college balance issues. Similarly, this study's findings that lower proportions of adult learners (25 years and up) predicts higher baccalaureate attainment rates for partnership pairs, aligns with research indicating that adult learners have different and special needs to move through universities to completion (Bergman et.al., 2014; Schlossberg, 1989). It suggests that universities with higher proportions of adult learners and low income students could be doing more to help them move into and through their universities in a timely matter through non-academic supports, such as course and assignment flexibility for managing the competing demands on their time, as well as additional financial supports that might help them increase their enrollment intensity and reduce their external workload (Slossberg, 1989).

Residuals, rather than actual or predicted baccalaureate attainment rates, should be used to gauge and rank institutional and partnership effectiveness. This study also validates a value-added method of identifying college impact and effectiveness used by Astin and Antonio (2012), Bailey & Xu (2012), Horn & Lee (2016), and Xu et.al. (2018b). Ranked residuals between the actual and predicted bachelor's completion rates for partnership pairs indicates that about 35% of the partnerships pairs can be described as "strong": they have higher-than-expected baccalaureate attainment rates, indicating they may be employing practices that are more effective than their peers in promoting transfer student success once students transfer. But considered within the context of both the low transfer productivity of North Carolina in general, and the fact that 65% of the partnership pairs had "as expected" or "lower than expected"

baccalaureate attainment for their transfer students, an corollary interpretation also emerges: a majority of the partnership pairs may have been employing practices that were adding little more value to, or possibly impeding, bachelor's completion of their community college transfer student population, with partnerships that can be interpreted as weak (Horn & Lee, 2016; Xu et.al., 2018). While the Bartek (2020a) companion study explores how and why the partnership pairs with "higher-than-expected" baccalaureate attainment rates may be adding more value than their peers through their transfer and partnership practices, additional studies should be conducted to determine how the practices among these "effective" partnerships compare with those identified with "lower than expected" baccalaureate attainment rates.

Inspection of the partnership pair rankings also indicates an important insight from this study: 65% of the pairs with baccalaureate attainment rates that were no better than expected or lower than expected, are not dominated by one university or one community college. While there are some universities and community colleges absent from the "Higher-Than-Expected" lists, universities and community colleges among this list can also be found among the pairs with baccalaureate attainment rates "As-Expected" or "Lower-than-Expected". This further suggests that transfer practices employed in isolation at a university or at a community college may not be as important to transfer effectiveness as are the practices in partnership between specific community colleges and specific universities, and the relationships forged between them. While there are many practices employed by colleges and universities individually to help their transfer students, as proposed by Bahr et.al. (2013) and Fink and Jenkins (2017) it may be that those implemented together, in concert, have the greatest impact on the baccalaureate attainment of transfer students. To understand the differences in impact between isolated practices and those implemented in partnership, additional research is needed to identify and compare institutions

with strong partnerships verses those with weak partnerships. One step in this direction is to determine what effective partnerships are doing to help their students attain bachelor's degrees in North Carolina. Accordingly, the Bartek (2020b) companion study in Chapter 3 provides details of the transfer and partnership practices occurring at three of these top-performing institutions.

CHAPTER 3: Effective Transfer and Partnership Practices Among Community Colleges and Public Universities in North Carolina

Introduction

Community college transfer students are the fastest growing proportion of transfer students in North Carolina, representing over half of all transfers into the public university system in Fall 2011 and growing to 61% of transfer enrollments by Fall 2017 (UNC System, 2012). However, despite articulation guidelines and agreements to delineate transfer courses and curricula between community colleges and public universities to ease the transfer process for students, other national trends are also reflected in the state of North Carolina. Small percentages of students who start at community colleges actually transfer to universities despite their aspirations to do so, and those who do transfer graduate at lower rates as compared to “native” students who begin at universities (Alfonso, 2006; Jenkins & Fink, 2016; Monaghan & Attewell, 2015; Shapiro et al., 2017; Townsend & Wilson, 2006; UNC System, 2012). National research also indicates that transfer-out rates and baccalaureate attainment rates vary widely across and within states, including those with formal articulation agreements, indicating this variability is not necessarily associated with the presence or absence of state policy (Fink & Jenkins, 2017; Roska & Keith, 2008). Likewise, there is growing evidence that the mere existence of state policy designed to facilitate the transfer of credits does little to improve transfer processes or increase degree attainment among transfer students (Bailey et al., 2015; Roska & Keith, 2008). Researchers have argued that unless both universities and their community college partners implement practices that prioritize transfer as vital to their mission, the rates at which community college students transfer-out to universities and attain bachelor’s degrees will not change (Bahr et al., 2013; Bailey et al., 2015; Jenkins & Fink, 2016; Fink & Jenkins, 2017; Wyner et al.,

2016). With a large (40%) and growing percentage of all undergraduates in the nation starting at community colleges, and the baccalaureate now accounting for more than half of all “good” jobs with a living wage (Carnevale et al., 2018), increasing the rates at which community college transfer students complete bachelor’s degrees presents both a key challenge and an opportunity to expand the skilled workforce and increase economic opportunity and mobility in the U.S.

Yet, despite the importance of increasing baccalaureate attainment among community transfer students, there is little empirical research on the community college and university transfer practices and the partnerships that facilitate their success. While there is extensive research on community colleges and transfer student success (or the barriers to that success), in their meta-analysis Bahr et al. (2013) found very little of the research focused on the contribution of university partners to that success, despite the important role universities play in the graduation of these students (Bahr et al., 2013). They argued the policies and practices at universities can pose barriers to students and may even be in conflict with the mission of the community colleges who are attempting to help students transfer (Bailey et al., 2015; Fink & Jenkins, 2017). However, while there have been national studies detailing effective transfer practices and partnerships and the characteristics making them successful (Fink & Jenkins, 2017; Xu et al., 2018; Wyner et al., 2016), to date, there have been no state-level studies controlling for state policy factors to validate these effective practices and partnerships or to explain the theories that drive them. There is also little empirical evidence linking these practices with higher-than-expected bachelor’s degree completion rates for transfer students (Ehrenberg & Smith, 2004; Fink & Jenkins, 2017; Wyner et al., 2016).

To fill the gap in research on effective transfer practices, this study replicated at the state level, a national study by Fink & Jenkins (2017) that identified high-performing pairs of

university and community colleges and described how and why these pairs were more effective in helping their transfer students attain bachelor's degrees (Fink & Jenkins, 2017; Xu et al., 2018; Wyner et al., 2016). Accordingly, the purpose of the present mixed methods study was to discern how and why specific pairs of community colleges and public universities in North Carolina, identified by Bartek (2020a; see Chapter 2;) in a companion study, have higher-than-expected baccalaureate attainment rates than other partnership pairs, even before the state mandated the implementation of state-wide articulation agreements in 2014 to better facilitate transfer. This study is relevant to university and community college leaders and practitioners aiming to improve baccalaureate attainment of their transfer students, as well as researchers who are engaged in empirically validating the effectiveness of transfer practices through theory and replication.

Background and Literature Review

Established in 1963, the purpose of the North Carolina Community College System (NCCCS) was to bring together both industrial education and public pre-baccalaureate (i.e., two-year) colleges under one system and state board (NCCCS, 2018). In 1965, shortly after NCCCS' inception, work began to address articulation and transfer between NCCCS colleges and other colleges in the state (see Table 13 in Appendix C). By Fall 1986, North Carolina was home to 58 community college and technical institutes of the NCCCS, 16 public universities of the University of North Carolina (UNC) System, and 44 private institutions. Among these institutions, 35% of enrolled students were transfers from two- to four-year institutions (Joint Committee on College Transfer Students, 1987). With an aim to both “preserve the institutional autonomy” of each system in determining transfer policies and “eliminate unnecessary penalties” for students when they transfer, in 1987, a Joint Committee on Transfer Students sponsored by

the North Carolina Association of Colleges and Universities published *Guidelines for Transfer* (Joint Committee on College Transfer Students, 1987). By 1997, North Carolina was one of the first states to legislate a Comprehensive Articulation Agreement (CAA) between the NCCCS and UNC System (Board of Governors of the UNC & Board of Governors of the NCCCS, 2014). The purpose of the agreement was to develop a plan (the CAA) for pre-major credit transfer between institutions, a common course library for NCCCS courses, and “accurate and accessible academic counseling for students considering transfer” between NCCCS and UNC System colleges (Board of Governors of the UNC & Board of Governors of the NCCCS, 2014). In 1998, the North Carolina General Assembly also directed the State Board to “review past performance measures and define standards to ensure programs and services offered by community colleges in North Carolina were of sufficient quality” (Schneider, Bao, Sieman, & Burns, 2018, p. 2). At that time, in addition to ensuring common course numbers among all 58 NCCCS colleges, the Transfer Advisory Committee (TAC), a joint committee of NCCCS and UNC System personnel, was charged with organizing a common general educational core that could be transferred as a block, as well as guidelines for pre-majors to align with popular UNC programs.

However, by 2012 it was clear the policy was not working as planned. Performance measures revealed that less than 35% of North Carolina community college students transferred to universities and of those who did transfer, baccalaureate attainment rates varied widely among institutions and lagged behind native students (UNC System, 2012; 2019). The UNC System (2012) indicated that “partnerships between UNC campuses and sending institutions may increase graduation rates of transfer students” (UNC System, 2012). Similarly, the variation in baccalaureate attainment between pairs of community colleges and universities was affirmed by

Bartek (2020a; see Chapter 2), who ranked them using the residuals between their actual and predicated rates based on regression analysis that accounted for student inputs, as well as county and university environmental factors. Following other studies on college impact (Astin & Antonio, 2009; Horn & Lee, 2016; Xu et al., 2018), Bartek (2020a) asserted that large positive residuals represent unobserved practices between the two partners that may be adding greater value to achieve “better-than-expected outcomes,” and large negative residuals may be indicating practices that are impeding transfer student success.

Reviews of the national research also affirm large variation in baccalaureate attainment among different institutions (Jenkins & Fink, 2016; Xu et al., 2018a), and that institutional agents and commitments to partnering, in addition to strong implementation of state policy, are needed to significantly improve transfer effectiveness (Bahr, et.al., 2013; Bailey, et. al, 2015; Dowd, Pak, & Bensimon, 2013; Schlossberg, 1989). These studies concluded that while both student and institution inputs are significant predictors of transfer student outcomes, there remain unexplained differences between institutions that go beyond the presence of policy and lie in the practices at these institutions, including both the transfer practices at the institutions and the partnership practices between them (Bahr et al., 2013; Fink & Jenkins, 2017; Kisker, 2007; Wyner, 2014; Wyner et al., 2016; Xu et al., 2018). The research also indicates that improving transfer student outcomes requires more than individual colleges implementing isolated improvement strategies, and that collective strategies implemented in partnership between specific community college and university pairs are needed (Bahr et al., 2013; Bailey et al., 2015; Fink et al., 2016; Jenkins & Fink, 2016; Jenkins, Bailey, & Columbia University, Community College Research Center, 2017; Kisker, 2007; Wyner et al., 2017). Similarly, Lasota & Zumeta (2016) found that most state policy factors had no effect on the probability of upward

transfer from community colleges into universities, they did find positive correlations between access to a state-wide transfer guide and transfer-out probability. They and others argue it is the continued relationships between community college and university faculty and staff that formulated the guide, rather than the existence of the policy itself, that impacted the outcomes (Lasota & Zumeta, 2016; Bailey et.al., 2015) as well as the implementation and communication of these policies, and the attitudes and behaviors of institutional agents that guide them, that result in transfer effectiveness (Bailey et al., 2015; Jenkins and Fink, 2016; Wyner et al., 2017). Given that North Carolina was an early adopter of articulation agreements and community college common course numbering systems but ranks at the bottom among states when comparing overall baccalaureate completion rates (Jenkins & Fink, 2016), this evidence suggests that state policy, including articulation agreements, as it is currently being implemented in North Carolina, may be less important to transfer-out and baccalaureate attainment rates in North Carolina than the transfer practices being implemented at the community colleges and public universities in the state.

While some studies combine both transfer practices and transfer partnerships as one continuum (Fink & Jenkins, 2017), the present study views transfer practices as strategies that need effective partnerships to carry them out. Further, it assumes that the success or failure of the partnerships is dependent upon underlying organizational attitudes and behaviors. Both the transfer practices (the how) and the organizational practices leading to effective partnerships (the why) are important to evaluating the effectiveness of transfer partnerships. Regarding improving transfer practices at community colleges, in 1987, the American Association of Community Colleges published a report called *Transfer: Making it Work* (Donavan, Schaier-Peleg & Forer, 1987). The report included recommendations for “productive collaboration between two- and

four-year colleges” (p. 7) that resonated with more recent recommendations for transfer practices (Wyner et al., 2016; Fink & Jenkins, 2017). The first recommendation was that “key administrators and faculty from both two- and four-year colleges should meet periodically to discuss curriculum, teaching strategies and outcomes” (Donavan et al., p. 8). The report also recommends frequent exchanges between the two- and four-year institutions, including exchanges of faculty to teach on the other institution campus and community college students taking courses at the university.

Transfer practices. Earlier work by Schlossberg (1989) and others advocated for viewing adult learners as an important priority for universities by allocating personnel, space, and resources to them, connecting them to institutional agents, such as trusted advisors, mentors, and faculty (Dowd et al., 2013), and tailoring advising to their special needs (Bahr et al., 2013; Miller, 2013). Schlossberg (1989) asserted these institutional practices show adult learners the institution cares about them, an important institutional culture attribute that promotes student success. Another way of viewing these practices is the idea of “transfer receptivity,” which is the extent to which universities commit to transfer student success (Bahr et al., 2013).

More recently, Wyner et al.’s (2016) *Transfer Playbook* and Fink and Jenkins’s (2017) mixed methods research provided a practical model for effective transfer practices. The Fink and Jenkins (2017) model was developed based on a mixed methods study (the companion study is Xu et al., 2018b) that identified pairs of two- and four-year colleges as “high-performing” based on analysis of the bachelor’s completion rates identifying high-performing community colleges and their high-performing university partners, and then conducted follow-up site visits and interviews to establish how and why these practices were effective. Their work validated and extended earlier research on the practices that have demonstrated to be effective in helping

transfer students attain bachelor's degrees and were the basis for the present study. A brief summary of the model, as well as additional research supporting it, is provided here for understanding and context.

1. *Make transfer a priority.* Fink and Jenkins (2017) indicated that effective community college and university transfer partnerships connect transfer to the community college mission, ensure presidents are personally involved, use data to make the case to improve transfer, and provide appropriate resources. Kisker (2007) echoed the importance of administrators, and particularly, presidential prioritization and support of transfer initiatives.

2. *Create clear programmatic pathways aligned with high quality instruction.* As advocated in prior work by Kisker (2007), Donovan et al. (1987), and Bahr et al. (2013), and Schlossberg (1989), Fink and Jenkins (2017) found it is important for two- and four-year colleges to collaborate together to create transfer pathways and curricula that ensure smooth transitions and post-transfer transition processes into four-year college programs. Faculty involvement is critically important because of the focus on developing course work at the level needed for students to be successful at the four-year institutions (Bailey et al., 2015; Donovan et al., 1987; Fink & Jenkins, 2017). Creating maps for all programs at the university transfer destinations, as well as exploratory majors and “meta majors,” meaning groupings of courses at the community college that align with four-year college majors, are important features of these transfer pathways (Bailey et al., 2015). Though not specified in the Fink and Jenkins (2017) research, Donovan et al.'s (1987) recommendation that transfer faculty teach on each partner's campus is one way to ensure high quality instruction.

3. *Tailored transfer advising.* According to Schlossberg's (1989) transition theory, tailoring advising to the transfer student population is important to help students move in and

through their new four-year institution and move on to completion. For community colleges, this means helping students decide on a major as soon as possible, a factor well documented in the research as promoting the success of transfer students (Alfonso, 2006; Bailey et al., 2015; LaSota and Zumeta, 2016; LaVigna, 2018). Transfer advisors, and the extent of their knowledge of transfer processes and policies at both community college and university destinations, have also been documented as being crucial to successful transfer. In her case study of a successful transition between a community college and university in Arizona, Phillips (2014) attributed the baccalaureate success of transfer students to advisors who helped keep students “on track” by their (the advisors) knowledge of transfer policies and articulation agreements.

Pre-transfer advising programs and mentors for transfer students can also help students develop positive connections with faculty and mentors prior to transferring, while bridge programs can help them acclimate and access campus support systems, like libraries, as well as cultural and athletic events. These practices can help transfer students feel a sense of belonging (Anderson, Sun, & Alfonso, 2006; Dowd et al., 2013; Fink, McShay, & Hernandez, 2016; Schlossberg, 1989; Starobin, Smith, & Laanan, 2016).

Transfer partnerships. A culture of collaboration and communication between transfer institutions, especially between department-level chairs and faculty at both institutions, are important in developing and maintaining clear transfer pathways and ensuring smooth transitions between community colleges and universities (Bahr et al., 2013; Fink & Jenkins, 2017; Kisker, 2007; LaVigna, 2018). Eddy (2010) emphasized the importance of relationships or shared goals in successful partnerships. However, collaboration and communication between two different organizations operating under two different systems is difficult, requiring resources, coordination and management structures to be successful (Amey, Eddy, & Okaki, 2007). Indeed, Bailey et al.

(2015) discussed the need for extensive communication to develop and maintain clear pathways from community college courses to university majors so that all stakeholders understand the goals of the pathways and to ensure fidelity of implementation, because as with articulation agreements, it is not the existence of the agreements that facilitate transfer success, but the implementation. In addition to the importance of involving faculty as collaborators, Kisker's (2007) findings center on the challenges in partnership management and governance. In particular, the collaboration challenges she detailed focused on the dynamic of both preserving the autonomy of community college transfer agents to develop tactics that work for them in their environment, and at the same time providing the management strategies needed to hold the partners together and accountable with a shared vision for success. Indeed, improving transfer is difficult because it represents an adaptive challenge for both partners, requiring them to reconcile the values they espouse with the reality they face (Heifetz, Grashow and Linsky, 2009). Because of this challenge, this study holds that a framework for effective leadership and partnership strategies is necessary to be able to make the organizational changes necessary to implement effective transfer practices and make transfer work.

Theoretical Framework

Weick's (1976) loose coupling theory well describes the paradoxical relationship of both connection and autonomy between community colleges and universities in the higher education system of North Carolina. Orton and Weick (1990) explained that in loose coupling, the components (such as departments) within an organization and among organizations in a system have relationships that vary in strength, but each retains its own identity and individuality, creating a "system that is simultaneously open and closed" (p. 204). Similarly, recall the 1987 *Guidelines for Transfer* that sought to both preserve autonomy of the institutions but also

minimize the penalty for transfer students through collaboration (Joint Committee on College Transfer Students, 1987), as well as Kisker's (2007) recommendations for both autonomy and support within the context of faculty collaboration. This relationship is conceptualized in Figure 2, which conceptualizes loose coupling for an entire education system in a region, including K-12 schools, universities, government, and professional organizations.

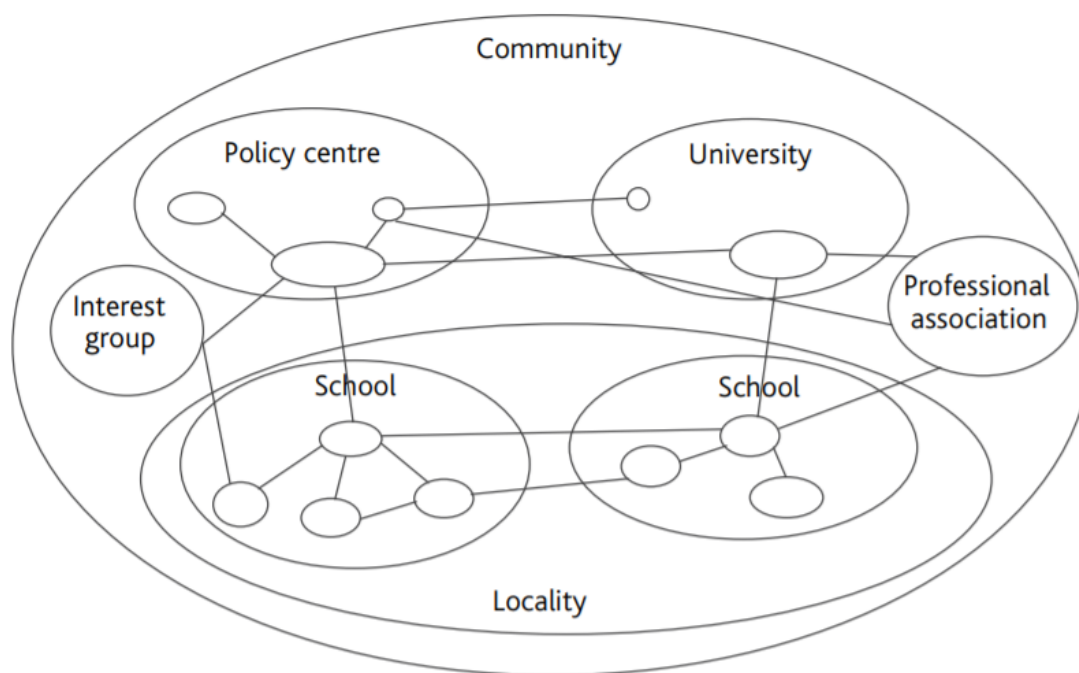


Figure 2. Illustration of a loosely coupled educational system. Used with permission from Rethinking educational reform: A loosely coupled and complex systems perspective, by C. Goldspink, 2007, *Educational Management Administration & Leadership*, 35(1), p. 41.

One of the reasons loose coupling emerges in organizations is because as the environment changes, practitioners create new structures based on how they process and make sense of environmental changes, such as changes to curriculum and creation of new departments

(Kezar, 2013; Weick, 1986). However, these changes are subject to the cognitive limitations of the practitioners in each organization, as people process information differently. As a result, in an “interplay of cognition and action” (Spender & Grinyer, 1995, p. 427), the actions of each partner become more autonomous and less coordinated, but also more innovative and responsive without formal authority (Bess & Dee, 2012). When change occurs, and mutual goals must be accomplished, the system can compensate for loose coupling through collective action between partners and communities of practice emerge in response (Bess & Dee, 2012; Orton & Weick, 1990; Spender & Grinyer, 1995). This collective action can be viewed as both formal (through agreements) and informal (through relationships) partnerships, defined as “a collaborative between two or more institutions of higher education, businesses, or social agencies, with the goal of obtaining a shared objective” (Eddy, 2010, p. 10). Applied to the transfer function at colleges and universities, partnerships provide the cohesion needed to compensate for loose coupling, but at the same time preserve autonomy for the two to act independently, as needed, for maximum effectiveness (Bess & Dee, 2012; Goldspink, 2007). The theoretical framework holds that the existence of both autonomy and connection/collaboration in loosely coupled systems leads to innovation and more effective outcomes than would have been attained by isolated, autonomous actions or among systems that are too tightly coupled (DiMaggio & Powell, 1983; Weick, 1976). Institutions that are too tightly coupled—meaning they trend toward close ties among all of their processes and structures—prevent institutions from adjusting to inputs and specializing so that they can effectively meet challenges they encounter in their environments (Orton & Weick, 1990).

According to Orton & Weick (1990), the cohesion through collective action has three characteristics: 1) subtle, a.k.a “enhanced,” leadership that provides both coordination and

support needed for stakeholders to focus on the priorities; 2) focused attention on the actions most important to produce the work and bring about change; and 3) communicating and enacting the shared goals and values that link the loosely coupled entities. These three dimensions of cohesion can be correlated with elements of the Fink and Jenkins (2017) model for effective transfer practices and are explained in more detail in the following sections.

Subtle (adaptive) leadership. According to Orton & Weick (1990) leadership that provides centralized coordination, but also the flexibility practitioners need to address challenges they face, is one form of cohesion needed for the effectiveness of loosely coupled systems. Rather than issuing authoritarian directives, cohesion in loosely coupled systems requires leadership other than formal administrative structures (Spender & Grinyer, 1995), including communication of policy goals, spending one-on-one time with people to remind them of “central visions” and to “assist them in applying these visions to their own activities” (Orton & Weick, 1990, p. 211). The role of senior leadership in loosely coupled systems is to “shape and make purposive emerging patterns of action,” asking practitioners to confront and address the reality that is facing them and to create a safe, trusting environment for the conflict that will inevitably result when partners with different cognitive maps work together to transform (Spender & Grinyer, 1995). Fink and Jenkins (2017) described subtle leadership as key to the transfer function when they explained presidents who “infuse the topic of transfer whenever possible into conversations” (p. 301), and who are personally involved in making transfer a priority at their institution by forming partnerships and collaborations with other institutions. These leaders also provide resources for the communities of practice, in this case, faculty and staff, to collaborate to make changes. This type of leadership can also be described as adaptive, guiding practitioners in facing complex, difficult problems that cannot be solved by one person,

or one organization alone (Heifetz, 1994). Using adaptive leadership, leaders create urgency for their transfer vision by using data, which helps practitioners make sense of the changes that are needed by confronting the gap between their practices and the reality of performance, a key cognitive step in implementing deep, “second-order” changes needed to address adaptive challenges (Heifetz, 1994; Jenkins et al., 2014; Kezar, 2013; Spillane, Riser & Remer, 2002).

Focused attention. Orton and Weick (1990) discussed the importance of focusing loosely coupled systems on specific, mutual targets of change, but also giving practitioners the resources and flexibility to innovate interventions and adapt to meet those targets. Focusing attention is a difficult task when addressing complex, adaptive challenges because people have limited attention and will generally want to focus their time and effort on technical challenges, which are easier to solve (Heifetz, 1994; Weick, 1995). Orton and Weick (1994) provided an example of focused attention when teachers faced a curriculum change in a K-12 setting where teachers had to “map what is currently taught, reduce the curriculum to structured and basic information, and needed to be provided with the flexibility to adapt the curriculum” (p. 112). This is a way that faculty and staff can build on what they already know and what they are already doing to implement change. Specific targets of focused attention in the Fink and Jenkins (2017) model include faculty and staff collaborating to create clear programmatic pathways aligned with high quality instruction, providing the resources needed for those collaborations, and offering tailored transfer student advising. Using a common data to design improvements is also important to focusing attention on mutual goals between colleges and universities (Hodura, et al., 2017).

Shared values. Having shared values is key for linking loosely coupled systems. Formal agreements in combination with reaffirmations of shared values work together to help

close the gap between policy and practice (Orton & Weick, 1990), but mandates only go so far. Eddy (2010) discusses the vital importance that intrinsic motivations and shared values play in educational partnerships, arguing they last longer if each partner has intrinsic motivations and shared goals.

Communication and framing of policy goals is extremely important for stakeholders to make sense of the issues and adopt shared values (Weick, 1995). Related to transfer partnerships, communicating the importance of transfer to college mission and hiring people who are “steeped in transfer” (Fink & Jenkins, 2017) are ways that leaders create student-centered, transfer affirming, and receptive cultures (Bahr et al., 2013). When faculty and staff collaborate through planning and shared activities, they build a common construct of what is important that removes the necessity of formal rules and procedures as they self-organize around these common values (Bess & Dee, 2012). New shared values are reflected in new attitudes (Kezar, 2013). Universities in particular show their shared values by providing support for students transferring out and by having a “transfer affirming culture” (Jain et al., 2011, p. 253) devoid of community college stigma through practices and attitudes that show community college students are welcome (Bahr et al., 2013; Handel & Williams, 2012).

In summary, based on state policy history of North Carolina and literature reviews, this study holds that effective community college and university transfer partnerships operating under the same state policies have three major elements in common: 1) higher-than-average transfer productivity (the number of students who have successfully transferred); 2) higher-than-expected baccalaureate attainment for transfer students; and 3) effective transfer practices and partnership practices. A premise of the current study was that community college and university partners in North Carolina with high transfer productivity and higher-than-expected baccalaureate

attainment rates for their Fall 2011 cohort of transfer students were already employing effective transfer practices through partnerships they developed even before they were required to implement newly mandated transfer policies in 2014 (Bartek, 2020a; see Chapter 2).

Methods

This study is a follow up to Bartek's (2020a) identification of community college and public university partners in the state of North Carolina that had higher-than-expected baccalaureate attainment rates for their transfer students. This research endeavored to understand how and why these pairs performed better than their peers even before implementation of the CAA was mandated in 2014. It was deductively driven as it aimed to use an *a priori* theoretical framework to test the Fink and Jenkins (2017) model for essential transfer practices at community colleges and universities within the context of a theory for effective partnerships that provide the cohesion needed to compensate for loose coupling (Orton & Weick, 1990). Accordingly, this study is guided by the following two propositions informed by literature reviews and the theoretical framework:

Proposition 1: Partnership pairs with high transfer productivity and much higher-than-expected baccalaureate attainment rates for their transfer students are associated with effective transfer practices outlined by Fink & Jenkins (2017)

Proposition 2: Effective transfer practices are facilitated by partnership practices that provide the cohesion needed to compensate for loose coupling, namely subtle leadership, shared values, and focused attention on implementing needed changes (Orton & Weick, 1990).

By examining effective transfer practices and the partnerships associated with them, this study confirmed, challenged, and modified the models and theoretical frameworks explaining these practices.

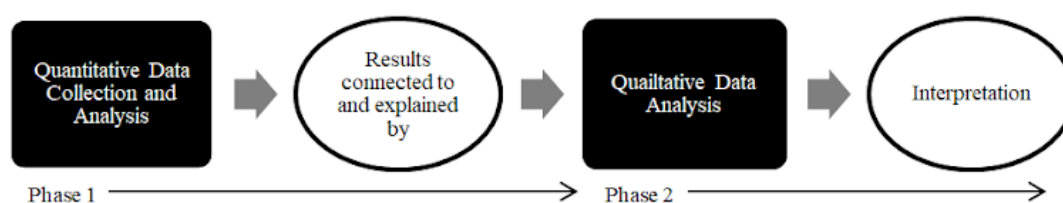


Figure 3. Phases in an explanatory sequential design. Adapted from *Designing and Collecting Mixed Methods Research* (p. 115) by J. W. Creswell and V. L. Plano Clark, 2018, Thousand Oaks, CA: SAGE Publications.

Research design. This study used a mixed methods case study approach to examine high-performing community college and university pairs identified by the residuals from regression results (Bartek, 2020a). A general diagram detailing the steps in the entire mixed methods study is shown in Figure 3. To overcome the time-intensive challenge inherent in mixed methods studies, a collaborative approach was used during the data collection and analysis phase of the study. Three researchers (Kara Battle, Ashley Swing, and I), collaborated in designing the study and continued to work together during data collection and analysis. I led the quantitative phase of the study (Bartek, 2020a), while Battle (2020) and Swing (2020) led the case study data collection. Our research team worked together to validate the quantitative results, design protocols for the qualitative phase, and code and theme qualitative results. Not only did this collaboration make the study more manageable, but it provided triangulation and data validation not typically possible in single-authored works. Because each of us is also an experienced practitioner in a community college, this collaboration also more accurately reflects typical community college practices.

The case selection variant of explanatory sequential design was used to screen and then examine effective transfer partnerships between community colleges and universities (Creswell & Plano Clark, 2018). As shown in Appendix G, the primary unit of analysis forming one case was a pair of community college and university partners, with pairs representing the three main cases. However, each pair had two units of analysis—a community college partner and a university partner. Because more than one case was analyzed, and each case had two units of analysis, this study was designed as a multiple embedded case study Yin (2018).

Screening. Screening and data collection for this study was conducted in collaboration with Battle (2020) and Swing (2020) after completing a companion study that identified 18 partnership pairs in North Carolina with higher-than-expected rates of baccalaureate attainment (Bartek, 2020a). In accordance with Yin's (2018) recommendations for case study screening and Creswell & Plano Clark's (2018) recommendations for mixed methods studies, three of the best pairs were selected for purposeful sampling using a two-step process based on the literature on transfer effectiveness. First, the "much-higher-than expected" pairs identified in Bartek (2020a) were ranked from highest to lowest based on the z-score residuals between the actual and predicted baccalaureate attainment rates of the partnership pairs, yielding 18 possible pairs (see Table 14). Next, we restricted the top pairs to those with at least 20 or greater transfer students in accordance with the UNC System (2012) report that indicated partnership pairs with at least 20 or more transfer students in each cohort had higher baccalaureate completion rates than those with fewer transfer students, which reduced the number of pairs to nine (see Table 14). In the second phase of screening we conducted document analysis and informal interviews to examine whether or not each community college and university in the pair was contributing to transfer success and to "assess whether the college's strong outcomes were the result of intentional,

replicable practices as opposed to idiosyncratic situations or characteristics” (Fink & Jenkins, 2017, p. 299) to ensure the results could be generalizable for use in North Carolina. We analyzed the websites of the community colleges and universities in the remaining pairs using a checklist based on Wyner et al.’s (2016) *Transfer Playbook of Effective Transfer Practices*, and queried members of the North Carolina Transfer Advisory Committee (the “TAC”) who were knowledgeable about each of the colleges and their transfer practices, as well as employees at the community colleges and universities (Yin, 2018). Triangulating this data and reaching consensus with one another, we selected three pairs representing the best cases for site visits (see Table 1).

Table 1

<i>Community College-University Transfer Partners Selected for Case Study</i>	
University	Community College
University of North Carolina at Wilmington	Carteret Community College
University of North Carolina at Chapel Hill	Durham Technical Community College
Appalachian State University	Forsyth Technical Community College

Data collection. Document analysis was conducted in collaboration with Battle (2020) and Swing (2020) to inform the screening and the protocols before the site visits, as well as substantiate the data analyzed from the focus groups (Bowen, 2008). The websites of each college in the effective partnership pairs were reviewed to extract useful documentation, such as transfer policies, resources for students, uniform and bilateral agreements, and marketing material geared towards transfer students. Content analysis was performed on each document to organize the information into categories related to the propositions of this study and the codebook (Bowen, 2008).

Focus group interviews (Yin, 2018) were used for this multiple embedded case study to foster conversation amongst participants, to explain the “hows and whys” of their transfer-related experiences, and to validate practice. I developed a focus group protocol for semi-structured interviews (see Appendix E) in collaboration with Battle (2020) and Swing (2020) to include open-ended questions based on the theoretical framework. Each focus group was recorded with participant consent (see Appendix F) and pseudonyms were assigned to each administrator. All focus groups were transcribed through an outsourcing service and the transcripts were posted to a secure shared drive.

Site visits to each of the six campuses among the three cases were conducted by Battle (2020) and Swing (2020) in Fall 2019. Through an initial point of contact at the university (see Appendix D), we asked for the names of administrators, faculty, and staff at the college who were involved with student transfer and requested a campus visit. To ensure the focus group would include campus stakeholders who are most knowledgeable about transfer functions at the college, Battle (2020) and Swing (2020) purposefully recruited personnel based on document analysis and recruited potential participants with organizational titles such as “transfer coordinator,” “chief academic officer,” and “director of advising” by email and telephone. Battle and Swing spent a half day at each institution conducting focus groups of faculty, student services staff (e.g., advisors, financial aid personnel), and administrators (e.g., vice presidents, deans, directors, department heads) using a semi-structured focus group protocols. The focus groups included six to eight members each.

Analytical procedures. The analytical procedures for this study are summarized in Appendix G. After identifying high-performing partnership pairs (Bartek, 2020a), screening the data for the top three pairs, and conducting focus groups at each community college and

university embedded in the pairs (six textual transcripts), I uploaded each transcript to the qualitative software tool *QDA Miner 5.0* to manage the data and assist with coding and creating memos and reports. To create the codebook, prior to manually coding the documents, all six transcripts were uploaded into *QDA Miner 5.0* using the “Content Analysis” text mining feature in *WordStat 8.0*. Each of the transcripts were explored together to quickly extract the most common topics, phrases, and key words to form the basis for the initial codebook. I then collaboratively coded several transcripts with Battle (2020) and Swing (2020) as a “reality check” and for interrater reliability (Saldaña, 2013). Our group met to review the transcripts and codes, and I made changes to the focus group codebook based on this work. During a second coding cycle, I coded each of the focus group transcripts again and added or merged codes based on the collaborative insights and organized them into categories related to the *a priori* propositions and theoretical framework. I then used this semi-final codebook to manually code the remaining transcripts, adding codes that emerged with each transcript and recoding previous transcripts iteratively as necessary. The final codebook is provided in Appendix H.

Analytic text segments and statistics were generated from *QDA Miner 5.0* for each of the six community colleges and universities within the three cases to describe the setting, organize the coding results, document the code book as well as relevant notes and quotes, and identify the categories, sub-categories, major themes, and concepts (Saldaña, 2013). As summarized in Appendix G, case reports for each partnership pair provide a holistic summary of the partnership, as well as offer conclusions about the extent to which the whole case affirms or refutes the propositions. Also shown in Appendix G, the case reports were then compared to draw cross-case conclusions about the extent to which they replicated one another and affirmed or refuted the theoretical propositions—being the model for effective transfer practices and the proposed

organizational theory explaining the practices. The conclusions of this cross-case synthesis are provided in the results section of this paper, and a proposed modification to the theoretical framework as a result of this synthesis is provided in the discussion.

Quality, Assumptions and Limitations

Combined with Bartek's (2020a) quantitative companion study, this study represents a rigorous explanatory mixed methods case study design using multiple data sources, where quantitative results were used to purposefully select the cases for the qualitative sample and the qualitative case study was conducted using a multiple case study design. The quality of this study can be demonstrated using four tests outlined by Yin (2018) and Creswell and Plano Clark, (2018), and detailed in the following paragraphs.

Construct validity. This study identified and used multiple, appropriate sources of evidence in an explanatory research design and maintained a chain of evidence that led to the final conclusions. Namely, this study 1) identified effective partnership pairs using an empirically-based conceptual model and multiple regression analyses that significantly predicted baccalaureate attainment rates and explained 46% of the variance in those rates; 2) ranked the pairs according to an empirically validated method by Horn & Lee (2018) that identified pairs with higher-than-expected baccalaureate attainment rates based on the residuals between their actual and predicted rates; 3) selected pairs for case study using multiple sources of data (ranked residuals between actual and predicted baccalaureate attainment rates of the partnership pairs, the number of transfer students between pairs, websites and informal interviews); and 4) used a replication analytical procedure for the multiple case study design based on Yin (2018). In addition, Ashley Swing (2020) reviewed and provided feedback on the case study reports, which were incorporated into the study.

Internal validity. This study infers a causal relationship between partnership pairs that have higher-than-average transfer productivity and higher-than-expected baccalaureate attainment rates, and the use of effective transfer and partnership practices associated with those rates. Therefore, Yin's (2018, p.43) explanation building tactic for case studies was employed to mitigate threats to internal validity. First, explanations of each case are built on two propositions grounded in an empirically-derived theoretical framework for transfer and partnership effectiveness. Data from each case study was then compared to these propositions and the original propositions were revised, as needed, to reflect the data. Additionally, a cross-case synthesis comparing the three cases was used to determine whether the cases replicate one another or are different from one another.

An additional threat to the internal validity of this study is history. This work is based on the assumption that the practices discerned from archival material and focus groups during fall 2019 are the actual practices, or derivatives of the actual practices, that were in play in Fall 2011 when students transferred from NCCCS community colleges to UNC System colleges. It assumes that effective colleges and universities were more likely than their peers to have in play effective practices before the CAA because they had already started to employ effective practices prior to the CAA mandates. These are reasonable assumptions since the original CAA has been in effect since 1997, giving colleges enough time to develop partnerships needed to improve transfer prior to the mandate as they saw fit, coupled with research demonstrating the ineffectiveness of the mere presence of articulation agreements (Bailey et al., 2015). However, it is also reasonable to assert that practices observed in Fall 2019 could and did likely change substantially from those in play in Fall 2011. To mitigate this problem, during each focus group the interviewers asked questions about whether there were differences in their practice before

and after the mandated CAA in 2014. Accordingly, coding, theming, and interpretations attempted to focus only on practices that were in play prior to the mandated CAA in 2014.

Another threat to the internal validity of this study is the assumption that effective practice can be gleaned from focus groups limited to mid-level managers, vice presidents and faculty involved in transfer functions—leaving out conversations with presidents and students. This is a reasonable assumption in that many of these individuals are boundary-spanning personnel who have experienced the structures, processes, attitudes, and actions of both presidents and students. However, while the absence of these voices does not discount the generalizability of the results included, more research involving presidents and students at the high-performing colleges would help to affirm and deepen the explanations of effective practice.

External validity. This study’s findings are generalizable because the case study propositions are grounded in empirically-derived models and theory and the study uses replication logic in a multiple case study design to test the propositions, which attempt to explain why some community college and public university pairs had higher-than-expected baccalaureate attainment rates.

Reliability. To ensure reliability of the results, the focus groups for this mixed methods study used a protocol provided in Appendix E, as well as *QDA Miner 5.0* as a case study data base to organize all of the documentation. Generating the foundational codebook using the text mining feature in *WordStat 8.0* as a first pass in coding all of the focus group transcripts together, as well as collaboratively coding several transcripts with Battle (2020) and Swing (2020) as a “reality check” also provided extra layers of trustworthiness and interrater reliability for this study.

Limitations. A limitation of this study was that it focused on high-performing partnerships but left unstudied partnerships that were performing as-expected or lower-than-expected as a comparison. Therefore, I recommend additional research be conducted to discern the practices at these institutions and compare them to the high-performing partnerships.

Results

Overall, analysis of focus group and archival data revealed that community college and university partnership pairs with high transfer productivity and much higher-than-expected baccalaureate attainment rates were associated with some of the effective partnership practices outlined by Fink & Jenkins (2017), but the institutions also demonstrated other practices, such as strong internal collaboration, as well strong external collaboration with their partners. Data also demonstrated the institutions had key elements of partnership practices that enabled them to implement effective transfer practices regardless of their size or distance.

Partnership characteristics. Tables 15 and 16 in Appendix C provide synopses of the settings and characteristics of each partnership. While all the university transfer partners are large institutions, and the partners within each pair are in similar geographic locations, there were no other dominant setting characteristics apparent. Appalachian State University (ASU) is in the mountains and partners with Forsyth Technical Community College (Forsyth Tech) in western Piedmont; the University of Carolina Chapel Hill (UNCCH) partners with Durham Technical Community College (Durham Tech), which are both located in central Piedmont; and the University of North Carolina Wilmington (UNCW) and Carteret Community College (Carteret) partner on the coast. The distances between ASU–Forsyth Tech and UNCCH–Durham Tech were below the mean and the distance between UNCW–Carteret was slightly above the mean. The urbanicity within each pair and among pairs was also mixed, spanning

from small towns to mid-sized cities. Though all the public universities are considered large, their community college partners span from small (UNCW–Carteret) to large (ASU–Forsyth Tech). Regarding the types of programs offered, only UNCCH–Durham Tech represented a high transfer community college paired with a high arts and science/professional focus, while the other pairs were mixed transfer/arts and science and vocational/professional.

Descriptive statistics for the partnership pairs are shown in Figures 4 through 6 and Table 16. Two of the pairs (UNCCH–Durham Tech and UNCW–Carteret) had strong transfer relationships with the university partner serving as the top transfer destination, as measured by the number of students transferring from each community college in the Fall 2011 cohort. ASU–Forsyth Tech had a weaker transfer relationship, with ASU being the third highest transfer destination for Forsyth Tech.

Socioeconomic and academic differences within the Fall 2011 cohort are also shown in Table 16. UNCW–Carteret and ASU–Forsyth Tech were similar in that they had much lower percentages of non-Asian minority transfers than UNCCH–Durham Tech, but were socioeconomically dissimilar—the UNCW–Carteret transfer population had the highest percentage of Pell and the lowest county incomes, whereas ASU–Forsyth Tech had the lowest percentage of Pell and average incomes. Of note, and as expected given its high transfer focus, the UNCCH–Durham Tech Fall 2011 cohort had a much higher proportion of AA/AS degree transfers and a much lower proportion of AAS transfers—almost half of the cohort transferred with AA/AS degrees. UNCW–Carteret had the highest number of AAS degrees transferring, accounting for about one-fourth of the transfer population.

Pursuant to the analytical framework, the following sections present the results of each individual case study, organized by the theoretical framework. In the last section, a cross-case

synthesis compares the similarities and differences of each case, and is followed by a discussion and implications.

UNCW–Carteret

Subtle leadership. Stakeholders from both the university and community college in this partnership receive communication from their presidents and other leaders that transfer is a priority. One participant from Carteret attributed this communication to their transfer population:

I think part of [the reason it is the focus of the president] is because it takes up a huge part of our student population ... So, you have to focus on it as an institution and I think that message comes very clearly from all levels, not just our deans and our chairs, but [from the] vice president [and] president.

Carteret participants described transfer communication from the president, vice president, and deans and UNCW participants noted monthly meetings with the chancellor to review transfer applications, as well as statistics on transfer student retention. UNCW uses data in many ways to provide resources for community college transfer students. This data informs transfer admissions advisors on community college campuses and helps to determine which community college campuses to visit. In addition to the state performance measures, the Carteret Advising Committee reviews a robust year-end report for program reviews that includes disaggregated retention and success data, and uses this data to make sure students are accumulating credits toward their degree, and not outside of that degree. Meetings are held each semester to discuss the data and professional development sessions are planned to share the data with faculty and staff, but faculty described still feeling “disconnected” from the data.

Shared values. Because transfer students are such a large proportion of their student populations, the partners connect transfer to their mission as a matter of course in all their operations. Aside from formal articulation agreements, UNCW participants described the institution as being dedicated to understanding “where a student is coming from [and] help them create the picture they’re looking for, so they can figure out what their next steps need to be.” UNCW participants described Carteret as “focused on transferring their students out, and providing them with relevant information,” indicating Carteret really “looks to meet the student’s needs.” Carteret participants attributed their small size to their student-centered culture, enabling faculty and staff to make meaningful connections with transfer students and keeping each other accountable for their success. Their long-standing Advising Committee has representation from every division across the college—from both transfer programs and AAS programs. With a significant proportion of students in AAS programs transferring to UNCW, the committee provides participants with the professional development and communication structures they need to “be a generalist” so they can answer a variety of questions from students or know where to take students to help them find answers. This knowledge helps Carteret employees be in tune with their transfer students and understand students need help with next steps, especially their large first-generation population who are often timid when thinking about transferring to a large university.

Additionally, Carteret participants gave numerous examples of UNCW being receptive to transfer students all along their pathway. They described UNCW as being “so accommodating” as compared to other universities who seem to be more inflexible and “have their [own] culture.” For example, when there is a question about whether or not a student’s course credits would transfer from Carteret to UNCW, Carteret faculty and staff found UNCW to be flexible in that

there was more than one course UNCW would accept to fulfill requirements in a particular program. This experience was different for Carteret than in their dealings with some other universities, who they found to be inflexible despite very similar course requirements.

UNCW's transfer receptivity was summed up by a Carteret participant who said:

Wilmington has always rolled out the red carpet for transfer students. I find it interesting.

It's tough to get in as a freshman. It's really tough to get into Wilmington as a freshman

... and probably still is as transfer student, but they're very open to talk to the transfer students and to come on [our] campus to make the connections.

Focused attention. The UNCW–Carteret partnership showed clear evidence of providing resources to help transfer students. UNCW is often present on the Carteret campus through transfer fairs and workshops specifically related to the admissions process. Expanding over time with substantial investment since 2017, UNCW has devoted resources to their traveling transfer admissions team, which spends specific, scheduled days every week on partner community college campuses. These advisors have become part of the UNCW-Carteret Community College Pathway to Excellence Program, a recently implemented guaranteed admission program.

Despite the existence of the CAA, and its implementation after 2014, UNCW–Carteret participants described the continual communication and negotiation they engage in even now on a case-by-case basis in relation to credit transfer and articulation into programs, largely because a majority of their students are transferring without degrees, or with AAS degrees. These conversations have been eased in recent years by the presence of baccalaureate degree plans (BDPs). These plans provide a crosswalk between NCCCS and UNC System college courses and help to clarify the transition. One Carteret participant noted:

[UNCW] was the first and the best when it came to their baccalaureate degree plans.

And so that's why we always use that as a model ... because it was so comprehensive ...

We've looked at a lot of different schools and I'm like, why can't they just see UNCW's BDPs. They really did a fantastic job. They are leading the group on a very comprehensive degree plan site.

As a result of this type of collaboration, in 2019, the partners were able to launch bilateral agreements in aquaculture technology and early childhood education, where faculty from both the community college and university mapped out the pathways because they felt “it really does start fundamentally with that faculty to faculty connection.” Advisors at Carteret also reported working with faculty at UNCW on a one-on-one basis after the agreement is signed for specific students and specific transcripts:

So, we have to sit and make sure that what we're teaching ... works with what they're also teaching as their intro ... So, that's really where the conversations happen. And then it's almost a negotiation of what they will take ... the goal being just like a traditional student.

For other academic programs without agreements, the close relationship between the two and a flexibility perceived of UNCW make it much easier for students. Carteret participants perceived UNCW to be “here all the time” in working with Carteret students, faculty, and staff, as well as making sure students are getting on the right path when they are admitted. Reflecting on their close collaboration, one participant noted:

It's different, because you don't have this state level working on those relationships, you're doing it yourself ... We have to take it, we have to make phone calls, and we have to establish the meetings, make the way, it's just a different way of doing things.

The UNCW–Carteret partnership also provided a good glimpse at how internal collaboration is vital to their transfer effectiveness. Carteret is a small college and uses faculty for advising, in addition to three paid admissions counselors. The Advising Committee is where faculty and staff collaborate to get the professional development they need to stay current and also clarify pathways to help students. All participants saw this committee as extremely valuable by providing the professional development they need, as well as the connections and relationships with all divisions on campus they feel is key to their student-centered culture, one that provides encouragement and support throughout their entire journey through the college. This committee was thought to be especially helpful by faculty and staff in AAS programs.

Advising is a multi-pronged approach between the partners, and both partners pointed out the advising practices of the other that facilitate transfer student success. At Carteret, ACA 122 is required within the first six hours of enrollment in AA and AS programs, along with some AAS programs. The course has been a primary vehicle for transfer advising and helping students choose majors and destinations early. Admissions advisors from UNCW also regularly visit campus and, working in collaboration with Carteret advising staff, help students create a path of transfer to the university through their tentative programs of study. The partners feel these advisors are among the keys to the success of transfer students:

With the support of implementing these positions, it allows us to meet these transfer students where they are, especially because not all transfer students are 19, 20 years old. Some of them are working full time while taking classes at the community college, with the intent of maybe transferring to a four-year institution. So, with the convenience of having [a transfer advisor] there, it's really helped us in bridging that gap of communication for us who are here on campus.

In addition, UNCW hosts Carteret students annually at an open house event and an application event each spring. Carteret also monitors student financial aid closely, auditing students' financial aid, and communicating with students so they can stay within their limits for transfer. Carteret has an extensive list of scholarships transfer students can use to ease their transitions, and UNCW offers a transfer merit scholarship.

UNCW also has several programs in place for transfer student advising and transitions to campus. The institution has guided tours specifically for transfer students to help transfers feel they have a sense of belonging. A mandatory transfer orientation helps students feel welcome even before they start and covers what services and resources are available to them. UNCW also has a Transfer Equivalency Tool available via their website, where students can evaluate their transcript unofficially to determine which of their courses will transfer into specific programs.

In summary, there is evidence that UNCW-Carteret are employing most, if not all of the practices described in the Fink & Jenkins (2017) model for effective transfer, as well as the partnership practices that provide the key elements of cohesion needed (Orton & Weick) to foster collaboration among the two.

UNCCH–Durham Tech

Subtle leadership. Durham Tech participants explained their president demonstrates supports for transfer by “showing up at transfer events, supporting C-STEP and C3 students with stipends if they are successful in meeting the goals for each semester, ... [and in creating] agreements with four-year universities.” However, while Durham Tech has an annual transfer success plan with data, and thinks about NCCCS performance measures each year, participants did not report using this data to improve transfer, in part because “it is very hard to get [actionable] transfer numbers.” Instead, they tend to rely on their university transfer partners to

assist with tracking, particularly in terms of their uniform and bi-lateral agreements for different programs.

UNCCH has a robust system of transfer student tracking and uses a variety of tools to improve transfer student outcomes. Participants shared that they monitor the UNC System performance dashboards and reports to track transfer student success and retention. The transfer student coordinator surveys transfer students every year to gauge what programs on campus are working for them and which ones could possibly be better—making changes based on feedback. Additionally, a subcommittee for transfer students conducted interviews and focus groups with transfer students to determine what was and was not working for them. One of the things they learned through their research was that transfer students need to know of admissions decisions sooner to be able to register for courses at the same time as native students, so as a result, they moved up their admissions decisions to earlier in April.

Shared values. Participants at both partner institutions felt that transfer was not being overtly connected to their missions by the institution, but for very different reasons. Although they devote resources to their transfer functions, UNCCH participants described the missions of community colleges and universities as in tension with one another, with universities focused on research and community colleges focused on teaching and learning. Participants inferred that transfer students may have a difficult transition experience because of these differences. However, Durham Tech participants perceived transfer to be so engrained in the mission of the college that there is no need to be overt, it is “what we do.” One Durham Tech participant explained:

I think it's just understood. I don't think it has to be verbalized particularly. It's like if you take a baseball team to a game to play you expect to win. I mean it's just understood. We want our students to transfer.

Durham Tech participants perceived UNCCH faculty as being responsive and helpful. One participant said, “when you do get to a faculty member, they're super helpful and gracious. It's just that's not always the easiest thing to do.” However, outside of specialized guaranteed admissions programs like C-STEP, both partners perceived low transfer receptivity at UNCCH. UNCCH participants viewed community college transfer students as needing “a lot of hand holding,” being underprepared for upper level courses, and being no more important than native students—therefore, they should not receive special consideration for registration.

Focused attention. Durham Tech’s Transfer Center is one of the investments the college has made in transfer students and demonstrates its commitment. Since 2010, students can visit the Transfer Center both in-person and virtually for advising and to sign-up for workshops and information related to transfer. Durham Tech holds transfer fairs in the fall and spring, hosting university partners from across the state on campus, and UNCCH participates in these fairs. Durham Tech also hosts campus functions for faculty from across the UNC System to collaborate and make sure key courses like freshman English align in terms of rigor and content with UNC System courses.

Much of the UNCCH–Durham Tech collaboration and communication has occurred within the context of the C-STEP program, a guaranteed transfer admissions program, which began in 2006. Reviews of archival documents indicate that while this exclusive program contains a number of benefits for transfer students, it also has requirements that limit the number of transfer students in the program, including maintaining a 3.0 GPA and transferring-in with an

AA or AS degree. By 2011, only 250 students among all community colleges in North Carolina had transferred in this program (University Gazette, 2014), and as of 2018, about 800 had transferred. However, according to focus group participants, the existence of the C-STEP program fostered broader collaboration to help transfer students, such as faculty from UNCCH teaching biology courses on the Durham Tech campus—an important connection to making sure course materials are current and for maintaining points of contact.

Durham Tech participants also emphasized the importance of internal communication and collaboration. The internal campus wide publication “Transfer Times” is one way transfer-related issues are communicated across campus. Durham Tech has a hybrid advising model, where upon admission students meet with professional advisors, receive a *Transfer Student Handbook* and are directed to resources at the Transfer Center. Then, halfway through their first semester or at the end, students are assigned to faculty and staff advisors in their programs of study. Even librarians advise for some programs. Within the last five years, Durham Tech also began offering ACA classes to help students begin to make decisions about transfer destinations sooner rather than later. This one credit course meets the transfer needs of both AA/AS students and AAS students because students change their minds frequently. Workshops for students called “Make a Plan” help students learn how to apply to universities and pay for bachelor’s degrees, although not many students take advantage of them yet.

UNCCH has implemented programs designed to help transfer students. Summer bridge programs help transfers integrate to university life and connect to transfer-oriented groups, such as Tar Heel Transfers. UNCCH transfers also take an orientation course—similar to ACA in the community college—called Navigating the Research University. Entering juniors take a transfer seminar and as one of the assignments, students are required to go to the writing center and have

a paper reviewed. As a result of their work with C-STEP, UNCCH hired a transfer student coordinator to help struggling students and have several transfer advocates in each department as a source of contact and support for transfer students. A living-learning community (Transfer United) and most recently, a transfer student orientation, also provide customized supports for transfers. Several transfer-specific clubs, such as Tau Sigma, a transfer student national honor society and Transfer Connection, a program that aims to foster involvement of transfer students on campus, provide additional support to students. Stipends for Success help lower income transfer students attain interview clothing, and emergency grants also help transfer students in need. However, while UNCCH appears to have many supports that help transfer students once they arrive on campus and show they care about them, while Durham Tech participants mentioned UNCCH frequently in their transfer discussions UNCCH focus group participants only mentioned Durham Tech within the context of the C-STEP program, which transfers very few students.

In summary, while UNCCH-Durham Tech emerged as a strong transfer partnership, the data indicate that the strength of that pair is associated with Durham Tech's enhanced leadership, internal shared values for transfer, and focused attention on getting students on the right path to UNCCH through their advising model, along with UNCCH's use of data and focused attention on extensive transfer program supports that help transfer students move in, move through and move on to baccalaureate attainment. However, there appears to be little collaboration between the two, outside of the C-STEP program, that contributed to the strength of this pair.

ASU-Forsyth Tech

Subtle leadership. ASU has broad leadership support for transfer students as demonstrated by the large investment the college has made in its Office of Transfer Services.

This office was formed when the college assessed the attrition of transfer students and realized there were several issues for transfer students, including transfer credits not articulating and students not receiving information needed to transition to campus. ASU also uses data in a variety of ways that has improved transfer on campus. Participants from ASU described having a strong working relationship with their Institutional Research office through their Transfer Services team, who provides disaggregated data of the incoming class every semester to each department and visits with department heads and faculty to review the data and dispel myths about transfer students. ASU surveyed their transfer students and found that transfer students struggle with the cost of living in Boone, an issue they are trying to address with community partners. Forsyth Tech did not mention any type of leadership support in their work.

Shared values. ASU participants cited the resources dedicated to their Office of Transfer Services as evidence of the institution's commitment to transfer. This office has nine staff members dedicated to the maintaining BDPs and course equivalencies, evaluating and ensuring credit transfer, admissions counselors, traveling and onsite counselors who make regular visits to community college campuses to help students transition, and customer service counselors who help transfer students get what they need to succeed. This office serves not only as a central hub for transfer, but its employees provide advising resources to the community colleges and visit community college campuses regularly. ASU participants felt they have strong buy-in and support from the institution for transfer, and they have the reputation of being a transfer-friendly university throughout the state. Being on the Phi Theta Kappa Society's honor roll for being a transfer-friendly school is a testimony to their transfer receptivity.

While Forsyth Tech provided no specific references that indicated the shared value of transfer, the resources they are dedicating to transfer advising, as well as their new strategic plan

(Forsyth Tech, 2020) with a focus on transfer, indicates the college recognizes and shares transfer values. Evidence for transfer advising as a priority for the college is demonstrated by transfer faculty caseloads in addition to seven professional transfer/counselors - each have a case load of 30 to 40 advisees.

Focused attention. ASU conducts webinars and distributes newsletters to their community college partners and are intentional at creating open lines of communication between partner institutions. Representatives from ASU serve on the College Transfer Program Association (CTPA). The CPTA is an information sharing association that supports practitioners in professional development related to transfer advising, and facilitates communication among community college transfer coordinators and administrators at universities. ASU also serves on a Transfer Advisory Board at Forsyth Tech. Forsyth Tech participants explained that ASU provides excellent transfer guides, “It's the best school in our state as far as being very clear of what they want, what their expectations are. And so, it really saves a lot of the discussion.”

Forsyth Tech participants expressed appreciation of how clear information is on the ASU website and how easy it is to find specific course information on all of their programs. Participants have attended ASU's Lunch and Learn webinars regularly, and occasionally go to ASU for campus visits. ASU also has good internal collaboration mechanisms. As an example, the Office of Transfer Services meets every other week in meetings with admissions, called “Transmission” meetings to determine ways they can support one another.

ASU participants described being impressed with Forsyth Tech's cohort-based intrusive advising model, where students cannot register for classes until they see an advisor. Every entering student is assigned a faculty advisor during their orientation at Forsyth Tech—each advisor meets with 30–40 advisees—and they are required to meet with every student. Advisors

push email and phone calls to students, and about 50% of students attend. Forsyth Tech also employs engagement coordinators, who act as another point of contact for students. Advisors meet with students when they enter and try to discern their transfer destination as soon as possible. They ask them about what college they want to attend and ask them to pick two institutions if they are not sure. Next, they pull up the degree guides to help students select electives along a pathway. Forsyth Tech advisors find:

If they have a direct path, they understand they're more successful ... If they take classes that aren't going to transfer, then they get discouraged. Anytime a student gets discouraged, there's the possibility to give it up.

Advisees must come see Forsyth Tech advisors at least once per month in person and the remainder of the advising can happen on the phone. Forsyth Tech participants felt that this advising model builds closer relationships with students. ASU participants verified these close relationships between Forsyth Tech advisors and their transfer students.

When students transfer to ASU, before they can enroll, they must attend a virtual transfer pre-orientation program in addition to a virtual early registration advising program. Also, students receive financial literacy training when they receive a financial aid package. In addition to advisors, students are connected with peer transfer and faculty mentors for additional support who receive training from the counseling center. ASU has a variety of programs to help transfer students feel a sense of belonging, including the “Transfer Scoop” email sent every week and a transfer-focused residential learning community.

In summary, this case study suggests that the strength of the ASU-Forsyth tech partnership lies in the priority both institutions have placed on transfer, as evidenced by the

resources devoted to it, the focused attention of both partners on transfer advising, and the associated collaboration with another to help students transfer.

Cross-Case Synthesis

In summary, the partnership pairs selected for this study are different along geographic, academic, and socioeconomic dimensions, and yet they do have commonalities, including the community college and university partners *within* each pair are in similar geographic regions (clustered near the mountains, Piedmont region, or coast) and the university partners are large as measured by undergraduate enrollment. In two partnerships, the universities are the top transfer destinations for their community college partners; in the third partnership, the university was the third top transfer destination. These results as well as those of the focus groups both affirmed and modified the propositions and theoretical frameworks of this study, discussed below.

Proposition 1. *Partnership pairs with high transfer productivity and much higher-than-expected baccalaureate attainment rates for their transfer students are associated with effective transfer practices outlined by Fink & Jenkins (2017)*

While there were elements of the Fink and Jenkins (2017) practices among all of the partnerships, only UNCW–Carteret provided strong evidence of all of the practices, including making transfer a priority, collaborating to create clear pathways to the bachelor’s degree, and employing transfer-focused student advising, even before state policy mandates to implement articulation agreements. Although the other partners employed most of the practices under these three areas, not all were employed, direct collaboration between the community college and university was weaker, and in UNCCH–Durham Tech, Durham Tech was the dominant collaborative partner. For example, while the UNCCH–Durham Tech partnership showed evidence of both partners providing strong transfer advising practices and resources devoted to

transfer, neither provided evidence of explicit connection of transfer to mission, or especially strong collaboration with one another. Durham Tech seemed to have stronger involvement of their president, and UNCCH had a much stronger reliance on data to drive transfer urgency and improvement. Both institutions seemed to collaborate in different ways to clarify the path and prepare students for upper-level course work, but there was little evidence the two had a strong relationship outside the exclusive C-STEP program. Similarly, ASU–Forsyth Tech showed evidence for strong transfer advising practices, but very little communication from either president indicated that transfer was a priority and there were weak relational ties. All three pairs provided evidence that faculty were out of the loop with regard to being exposed to and using data to improve transfer, a sign that there was little “ongoing communication among faculty across institutions to establish and continually update agreements,” as noted by Bailey et al. (2015).

In addition to the practices outlined by Fink and Jenkins (2017), strong internal communication and collaboration between faculty and staff emerged as important to the transfer effectiveness of these pairs. Each partnership pair had similar, but unique, mechanisms for communicating and collaborating. These included Carteret’s Advising Committee, UNCW’s transfer admissions team, Durham Tech’s *Transfer Times* newsletter and Transfer Advising Center, UNCCH’s transfer advising subcommittee, and ASU’s “Transmission” bi-weekly meeting. Additionally, relationships between the partners were evident in all the pairs—namely, the university was the top transfer destination for the community college partner in two pairs, and the third top destination in the third pair. Further, UNCW–Carteret, the only pair with all the elements of the Fink and Jenkins (2017) model, was the only pair with strong collaborative

relationships and communication between faculty and staff at the university and community college.

Considering the evidence, Proposition 1 is true, but should be amended as follows:

Partnership pairs with high transfer productivity and much higher-than-expected baccalaureate attainment rates for their transfer students are associated with effective transfer practices outlined by Fink & Jenkins (2017). Additionally, these pairs had strong relationships with one another through enrollment ties and strong internal collaboration.

In summary, strong transfer partnerships have the elements of Fink & Jenkins (2017) practices, in addition to strong enrollment ties and strong internal communication. In addition, the partnership practices vary in strength in each partner, and in two of the cases, the strengths of each partner differ, but when combined, fulfill all of the practices. Strength in one partner overcomes the weakness of the other to help transfer students be successful.

Proposition 2. *Effective transfer practices are facilitated by partnership practices that provide the cohesion needed to compensate for loose coupling, namely subtle leadership, shared values, and focused attention (Orton & Weick, 1990).*

Though the presence of leadership was implicit, it was not explicit in these case studies. In only one partnership, UNCW–Carteret, did both colleges indicate the same perception that presidents and leaders at both schools communicated transfer as a priority because transfer students are a large portion of their population. In each case, universities led the way in using data to make the case to improve transfer. While data use was clearly apparent in guiding transfer admissions, there was also clear indications, in every instance, that universities were using data to improve transfer outcomes. However, in every case, community college faculty

indicated they did not access or use data, though a majority recognized the need to further faculty understanding and data use.

It was clear among each of the partnerships that the state articulation agreements were a strong foundation for their shared values; however, since many students do not complete degrees before they transfer, in all three cases, questions continually arose about the transfer of credits that required partners to continually communicate, collaborate, and negotiate to make sense of the policy. Additionally, while the Baccalaureate Degree Plans (BDPs) help guide these collaborations, most of these guides did not appear to be readily available in Fall 2011, prior to the state mandate of the CAA in 2014.

In only the UNCW–Carteret partnership were all the elements of shared values described in the theoretical framework present in the partnerships—relationships, connection of transfer to the mission, student-centered culture at the community college, and strong transfer receptivity at the university. While both partners in the UNCCH–Durham Tech focus groups indicated a lack of transfer receptivity at the university, the numerous transfer-focused programs at the university are counter to the perception expressed in the focus groups, so this study considers the focus group an outlier. At ASU–Forsyth Tech, there was evidence of a strong student-centered culture at the community college partner via their intrusive advising model, as well as strong transfer receptivity at the university. Additionally, each of the pairs were clearly focusing their attention on transfer student success through strong transfer advising and collaborations to define the pathways for their students, and at each of the community colleges, faculty are the advisors with an advising caseload.

In conclusion, most of the partnership pairs employed the partnership practices needed to provide the cohesion to compensate for loose coupling but with the exception of UNCW-

Carteret, the collaboration between the two pairs was relatively weak. The strongest partnership pair, UNCW–Carteret, employed all the practices needed for cohesion and all of the transfer practices needed for effectiveness, in addition to internal collaboration.

In summary, a mixed methods explanatory case study identified the transfer partner pairs with higher-than expected bachelor's completion rates, even before state mandates to implement articulation agreements, and examined the transfer and partnership practices at three of these high-performing pairs. The research findings showed that only 12% of all possible community college and university partnerships in North Carolina transfer at least 10 transfer students and of those, about one-third achieved higher-than expected baccalaureate completion rates for their transfer students. Analysis of three pairs among this group that had more transfer students between them (20 or more) than other pairs showed that although they all had different strategies for achieving transfer effectiveness, these strategies reinforced one another to make transfer a priority, collaborate to define pathways to the baccalaureate, and offer strong tailored transfer advising in accordance with Fink and Jenkins' (2017) model of effective transfer practices. The pairs also demonstrated they had elements of partnerships, in the form of collective action, which hold loosely coupled systems together including subtle leadership, shared values, and focused attention (Orton & Weick, 1990). In addition, these pairs demonstrated strong internal collaboration within their own institutions and key practices common to all of them, including the community college partners demonstrated a student-centered culture, university partners provided a welcoming and receptive environment for transfer students and used transfer data to drive improvement, leadership provided the resources needed to support transfer, and they all focused on tailored transfer advising to guide students along their pathway to completion.

Discussion, Implications and Recommendations

This study explains how and why three pairs of community college and university partners in the state of North Carolina achieved better than expected baccalaureate attainment rates for their transfer students, even before mandated implementation of state articulation policy to improve those rates in 2014. By screening pairs identified as effective based on the difference between their actual and predicted baccalaureate attainment rates, and then conducting focus groups with administrators, faculty and staff at each of six partner campuses among the three pairs, this study shows their effectiveness along several dimensions.

Key attributes of effective transfer partnerships in North Carolina. This study affirms the 2012 UNC System report speculating that relationships between UNC campuses and community colleges may increase graduation rates of transfer students (UNC System, 2012), particularly those partnerships where the university is the community college's top transfer destination. This study also shows that the partnerships were effective not just because they had large volumes of transfer students. Many of the largest transfer volumes in Bartek (2020a) only had "as expected" baccalaureate completion rates for their transfer students, indicating that more than volume accounts for transfer success. The most effective transfer partnerships had the following attributes even before the CAA was mandated in 2014:

- 1) The university partner was the top transfer destination for the community college in terms of transfer productivity (number of transfer students);
- 2) Effective transfer partnerships employed practices consistent with the Fink & Jenkins (2017) model for effective partnership practices;
- 3) Effective transfer partnerships also had strong internal communication and collaboration related to transfer within their organization

- 4) Subtle leadership, shared values and focused attention on tailored transfer advising between campuses provided the partnership cohesion needed for the loose coupling between the partners (Orton & Weick's, 1990)

Contribution to research: A theoretical framework effective transfer practices. This study replicates, at the state level, a national study by Fink & Jenkins (2017) that identified high-performing pairs of university and community colleges and described how and why these pairs were more effective in helping their transfer students attain bachelor's degrees (Fink & Jenkins, 2017; Xu et.al., 2018; Wyner et.al., 2016). In addition, it finds that these partnerships collaborated internally, with student-centered and university environments welcoming to transfer students, affirming Bahr et.al.'s (2013) idea of "transfer receptivity" and Schlossberg's (1989) work showing that a caring university environment helps adult learners move successfully into, through and out of these institutions. This study also contributes to the research on transfer effectiveness by providing a theoretical framework for the work of Fink and Jenkins (2017) that is grounded in Orton & Weick's (1990) loose coupling theory, which well aligns with how community colleges and public universities perceive themselves in the state of North Carolina. This framework helps to explain how and why partnership practices provided the cohesion needed to implement effective transfer practices described by Fink & Jenkins (2017), and as such, provides the basis for recommendations on changing structures, processes and attitudes in order to implement those practices. A depiction of this framework is provided in Figure 4, and implications and recommendations follow.

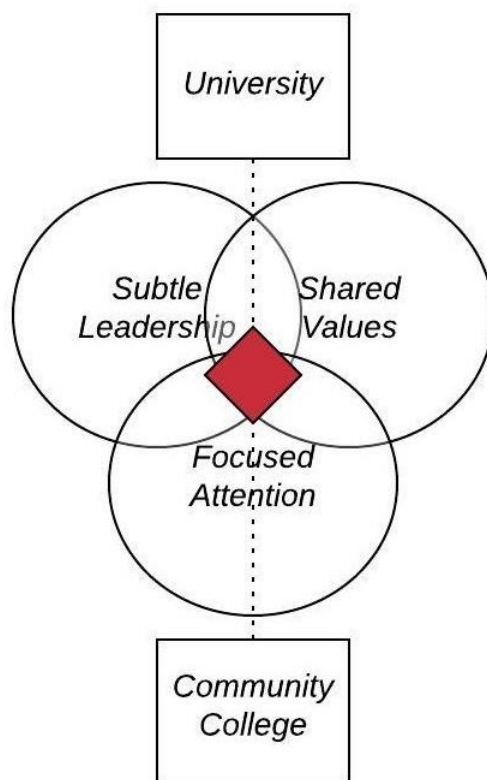


Figure 4. Theoretical framework for effective transfer partnerships developed based on Orton & Weick's (1990) theory of cohesion for loose coupling and Fink & Jenkin's (2017) model for effective transfer practices.

Subtle leadership. Rather than by directive means, leadership of effective partnerships demonstrated that transfer was a priority by communicating the importance of transfer in conversations and regular meetings, by attending transfer functions, by using data to make the case to improve transfer, and by providing the resources to do it, all elements of the Fink & Jenkins (2017) for effective transfer partnerships. However, leadership did not appear to overtly connect transfer to the mission of the college. Instead, actions (such as attendance at transfer functions), conversations (such as through monthly meetings on transfer), data use at the university and resources devoted to transfer demonstrated that transfer was a priority to the

institution and helped educate faculty and staff on the importance of transfer. This suggests that leaders who wish to make transfer a priority and improve transfer policy implementation on their campuses in North Carolina might do so by having conversations with faculty and staff to help them make sense of the policy (Weick, 1995; Spillane et. al., 2002) by educating them on the common goals and the shared “visions” of the policy (Bailey et.al., 2015, p. 190; Orton & Weick, 1990), and by allowing them to spend time wrestling and reconciling the gaps between these goals and the performance of their transfer students (Heifetz, et. al., 2009). While faculty were not engaged in data use at the community colleges in this study, faculty and staff professional development workshops surrounding the data, as well as conversations with their leaders about the data, may be a way to further improve the implementation of transfer policy on their campuses. Additional research, such as interviewing President’s at high performing transfer colleges in the state, as well as faculty on those campuses, is needed to further understand how adaptive and subtle leadership practices can help partnership pairs improve the baccalaureate attainment rates of their transfer students.

Shared values. While not explicit in the Fink & Jenkins (2017) model, shared values in the form of student-centered culture on community college campuses and transfer receptivity on university campuses emerged as key cultural attributes for transfer partnership effectiveness. For example, UNCW and Carteret Community College are both very welcoming to transfer students, so much so that UNCW dedicates resources to being a regular presence on the Carteret campus. It was evident that both of these partners were not only making transfer a priority, but they were making transfer students a priority, and specifically, the students that were going to and coming from each partner. This implies that community colleges and universities wishing to improve transfer may want to build a caring and welcoming culture for transfer students through

messaging, professional development and services that focus on transfer students, their journey, and the non-academic resources they need to be successful, such as through financial aid, mentoring and programs customized for transfer students, such as living and learning communities.

Focused attention. Faculty and staff among the more effective pairs focused their attention on transfer student advising and worked together to ensure transfer students were learning what they needed to be successful at the university. As noted in the UNCW-Carteret pair, the advising relationships between faculty and staff at the two institutions were centered on mutual goals and created communities of practice needed to achieve them in a loosely coupled system (Bess & Dee, 2012; Orton & Weick, 1990; Spender & Grinyer, 1995). This implies that improving transfer might involve more coordinated, tailored student advising between two institutions that develop a community of practice. Having university advisors on the community college campus was a key practice that helped this coordination between UNCW and Carteret Community College. Additional research on specifically how faculty and staff in successful partnerships are working together within the context of transfer policy in North Carolina is needed to better advise universities and community colleges on the specific practices that do and do not make a difference.

Better data systems are needed to improve transfer. Finally, this study reveals the need for better data systems to make improvements to the transfer process in North Carolina. While a keystone of the Fink & Jenkins (2017) effective practice is using data to create urgency, the present study indicates that while university partners appear to be generating their own data and using it to improve their own transfer processes, sharing of this data with their community college partners appears to be limited. Of the data that is available to community colleges, most

staff find it too aggregated and too old to be useful to their current practice, and most community college faculty are not reviewing or using the data at all. A system that would better serve transfer students and partners would provide practitioners with a readily available way to track individual students from the time they enter community college to the time they leave universities at different levels of aggregation appropriate to administrators, staff and faculty so that they would be able to intervene sooner rather than later in helping students attain bachelor's degrees (Diamico & Chapman, 2018).

Recommendations for provosts and presidents. The results of this study implies several steps provosts and presidents can take to improve transfer-out rates and baccalaureate attainment of community colleges transfer students:

- 1) Pick one or two regional transfer partners and focus on building stronger relationships with them;
- 2) Initiate data sharing and the development of shared metrics based on student-level data between these partners, including the ability to track community college transfer-out rates to the university and baccalaureate attainment rates at the university.
- 3) Collaborate with these partners to improve these metrics through changes to their policy and practices. Develop clear strategic objectives around these metrics and devote resources to improving them, as well as the infrastructure (such as project management support) needed to oversee implementation;
- 4) Cultivate student-centered and welcoming, transfer-receptive and caring cultures on each campus through leadership messaging and through symbols and ceremonies celebrating the partnership and transfer students on campus.

CHAPTER 4: Improving Baccalaureate Attainment of Community College Students in North Carolina

Introduction

Through the myFutureNC initiative, North Carolina recently called on the higher education community to improve the credential attainment of its citizens to meet future workforce demands so that by 2030, “2 million North Carolinians have a high-quality postsecondary degree or credential—more than doubling projected growth over the next 10 years” (Steering Committee of the My Future NC Commission, 2019). As the proportion of North Carolina Community College System (NCCCS) transfer students in the University of North Carolina (UNC) System has grown 26% over the last five years, comprising 62% of all transfer students and 21% (N=11,28) of all new undergraduate enrollments in the system in fall 2018 (UNC General Administration [GA], 2019), the successful transfer and baccalaureate attainment of community college transfer students to public universities in the state is critical to the achievement of this goal. However, recent research in North Carolina indicates that transfer-out rates between community colleges and public universities is very low—only 12% of these pairs had 10 or more transfer students between them in fall 2011 (Bartek, 2020a), and only 10% of community college students in North Carolina actually transfer-out to universities within six years of starting at a community college (Fink & Jenkins, 2016). While North Carolina has above average baccalaureate attainment rates for community college students who do manage to transfer-out compared to other colleges in the nation, the rates of attainment are lower for those community college students, compared to their peers who start at universities, in large part due to credit loss they experience when they transfer (Monaghan & Atwell, 2015; Xu et al., 2018a). For example, only 24% of students who start at community colleges in North Carolina transfer-

out to universities within six years of entering, and overall, only 10% of community college students in North Carolina are attaining bachelor's degrees at universities within six years, which makes North Carolina sit near the bottom of the attainment rankings compared to other states (Jenkins & Fink, 2016). Through this and other work (Crosta, 2013; Fink & Jenkins, 2017; Hodura et al., 2017; NCCCS System, 2018; UNC GA, 2019, Wyner et al., 2016), policy and practice within the state were identified as both possible causes, and possible levers, for change (Bailey et al., 2012; 2017; Hodura et al., 2017; Jenkins & Fink, 2016).

Similar to Texas, North Carolina's transfer policy can be categorized as "institution-driven." While there is a common course numbering system among all 58 community colleges in the state, and a 30-credit common general education core guaranteed to transfer to public universities if students complete an associate degree, individual universities decide if any pre-major coursework transfers into their programs, and there is no common course numbering system between universities or between community colleges and universities in the state (Hodura et al., 2017). While this type of system gives community colleges discretion in their transfer-out processes and practices, and universities autonomy in the courses they offer and in course articulation, in the absence of any policy or partnership that governs the transactions between the two, that discretion and autonomy profoundly effects the rates at which community college students transfer-out and attain bachelor's degrees. Indeed, while North Carolina was one of the first states to legislate a Comprehensive Articulation Agreement (CAA) for the seamless transfer between community colleges and public universities, by fall 2011 it was clear that like Texas, this policy had fallen far short of its goal (UNC GA, 2012). A detailed study investigating the effectiveness of community college and public university partnerships in the baccalaureate attainment of transfer students in North Carolina under this policy affirmed this stark reality

(Bartek, 2020a; 2020b). In 2011, of 928 possible transfer partnerships between community colleges and public universities in North Carolina, only 514 transferred at least one student and only 12% (110 pairs) transferred at least 10 students with sophomore or junior standing (which makes up the largest volume of transfers). Further, the four-year baccalaureate attainment rates for the 5,142 students in those pairs who did manage to transfer was highly variable, ranging from a low of 46% to a high of 81%. Among those students, only 35% transferred with college transfer degrees in accordance with the CAA (Associate in Arts [AA] or Associate in Science [AS]; Bartek, 2020a) even though some research indicates that community college students who transfer to public universities with associate degrees are more likely to complete bachelor's degrees (Kopko & Crosta, 2016). Regression analyses of the baccalaureate attainment rates of these pairs, which took into account student inputs, county environments of the institutions, and university characteristics, revealed that 65% of these pairs had baccalaureate attainment rates that were either "as expected," "lower than expected," or "much lower than expected" when comparing their actual and predicted attainment rates. In keeping with interpretations of similar multi-campus college impact studies (Astin & Antonio, 2012; Horn & Lee, 2016; Miller, 2013; Xu et al., 2018), partnership pairs with "as expected" baccalaureate attainment rates for their transfer students were interpreted as employing practices that were not necessarily impeding transfers from attaining bachelor's degrees, but these practices were also not adding value that helped students attain those degrees. And pairs that had "lower" or "much lower than expected" baccalaureate attainment rates for their transfer students may employ practices that pose barriers to students (Bartek, 2020a). While these statistics seem bleak, a follow-up study on three of the pairs with "higher than expected" baccalaureate attainment rates, as compared to their peers in North Carolina, provides hope as these pairs managed to implement practices that helped their

students transfer and attain bachelor's degrees even before the North Carolina acted to improve the CAA policy in 2014.

Recognizing the need to improve the transfer pipeline, in 2013, the North Carolina General Assembly mandated compliance with the terms of the CAA, requiring “biannual joint reviews to assure full institutional adherence to the agreement,” including the development and implementation of community college “pre-major degrees” that articulate to university programs, in addition to the general education core (subsequently termed “Universal General Education Transfer Credits” or “UGETC”), as well as development and continual updating of Baccalaureate Degree Plans (BDPs) that guide students between the pre-major degrees and their university program counterparts (Board of Governors of the UNC & Board of Governors of the NCCCS, 2014). However, while these updates and mandates were designed to improve the transfer of credit between community colleges and universities via strengthened pathways, the new policy did not fundamentally address the root causes of the failure of the old policy. While a Transfer Advisory Committee was also authorized in the updated agreement to oversee adherence to the policies, universities still have complete autonomy in accepting or denying pre-major courses into specific programs, resulting in the development of a large number of agreements for specific programs and between individual pairs of community colleges and universities. Since students are often not transferring with the associate degree and academic standing required in these agreements, they are likely to continue to lose credit when they transfer (Bailey et al., 2015; 2017; Hodura et al., 2017).

Critique of Transfer Policy and Practice

The current CAA mandate requires NCCCS support of UNC System general education requirements, a process for maintaining currency of those requirements, and availability of the

information for students, NCCCS colleges, and UNC System institutions (Board of Governors of the UNC & Board of Governors of the NCCCS, 2014). Associated with these requirements was the 2014 update of the CAA, which included a “Transfer Assured Admission Policy” with several conditions, among them: “1) Students must have graduated from a North Carolina community college with the pre-major Associate in Arts (AA) or Associate in Science (AS) degrees; 2) Students must meet all requirements of the CAA; 3) Students must have an overall GPA of at least 2.0 on a 4.0 scale, as calculated by the college from which they graduated, and a grade of “C” or better in all CAA courses” (Board of Governors of the UNC & Board of Governors of the NCCCS, 2014, p. 5). By 2018, the General Assembly also required UNC System institutions, if they had not done so already, to develop, publish, and maintain a Baccalaureate Degree Plan (BDP) “identifying community college courses that provide pathways leading to associate degree completion, admission into the major, and baccalaureate completion” (Board of Governors of the UNC & Board of Governors of the NCCCS, 2018, p. 9), which served as another step in the right direction (Bailey et al., 2015; 2017; Fink & Jenkins, 2017; Hodura et al., 2017). After the mandate, the CAA was again refined, and several new “Uniform Articulation Agreements” between all UNC System and NCCCS institutions were developed, which defined associate degree “pre-majors,” such as nursing and early childhood education, for transfer into those programs at UNC System universities. In addition, numerous bi-lateral articulation agreements were subsequently developed between individual pairs of NCCCS and UNC System institutions for transfer of specific Associate in Applied Science (AAS) programs between the community college and university. Yet, apart from the mandate to create transfer pathways, there are two challenges in the updated 2014 CAA policy related to transfer pathways

and partnerships that, according to national research, may limit its effectiveness in improving transfer in North Carolina, discussed in the following paragraphs.

Transfer pathways. There is growing evidence in the research on the insufficiency of individual articulation agreements themselves, no matter at what level (general education or more specific program level), to improve transfer (Bailey et al., 2015; Crosta, 2013). Gross and Goldhaber (2009) found that students in states with articulation agreements were no more likely to transfer to universities or earn bachelor's degrees than students in states without agreements. In fact, evidence suggests that weak policy designs, including those that lack faculty involvement in policy development and implementation, as well as policy monitoring for fidelity of implementation in terms of credit transfer, may be key reasons that policies appear to have little impact on transfer rates. In North Carolina, Crosta (2013) found a negative impact on the transfer-out rates for students with more structured, pre-major degrees as compared to the general AA/AS degree, and no impact on baccalaureate attainment rates. Based on other evidence indicating these pre-major programs should be facilitating greater baccalaureate attainment, Crosta (2013) attributed the lack of effect as a failure of "process, policies, and procedures that are required to support structured programs rather than the failure of the structured programs themselves" (p. 47) Among these processes and procedures are those that lead to the loss of credit. Indeed, Monaghan & Attewell (2015) noted that "it is the loss of credits that occurs after undergraduates transfer from a community college to a 4-year institution ... that lower the chances" of baccalaureate attainment (p.70). Similarly, while Lasota and Zumeta (2016) found that most state policy factors had no effect on the probability of upward transfer from community colleges into universities, they did find positive correlations between

access to state-wide transfer guides and transfer-out probability. But recently, Spencer (2019) found only a small impact of transfer guides on student's course taking and transfer.

Despite the evidence that weak transfer policy and credit loss affects transfer-out rates and baccalaureate attainment, and that North Carolina has very low transfer-out rates, there was no provision in the 2014 mandate of the CAA that required universities to accept pre-major credits into specific programs outside of the few Uniform Articulation Agreements developed or updated in 2018. Hodura et al. (2017) noted the result of this policy in their study in North Carolina:

North Carolina updated and approved its statewide Comprehensive Articulation Agreement in 2014, which includes a 30-credit common core guaranteed to transfer and junior status guarantee for transfer students who complete an associate's degree program. However, individual university programs determine any major-specific coursework. A community college advisor estimated that advisors had to keep track of approximately 1,280 articulation agreements since there are 16 public universities and about 80 programs at each institution. (p. 18)

Students lose credits when they transfer with general AA and AS degrees into specific university program majors because many of these majors have specific lower division courses required to enter the program. Further, there are no guarantees for the transfer of credits if students do not complete an associate degree. Bartek (2020a) and the UNC GA (2012, 2013, 2014) affirmed that a majority of students in North Carolina do not transfer with AA or AS degrees. In fact, a growing number of students are transferring with AAS degrees (UNC SYSTEM, 2019), which puts them at an even further disadvantage in completing bachelor's degrees at public universities, largely due to credit loss (Kopko & Crosta, 2015; Monaghan &

Atwell, 2015; UNC GA, 2019). Under the current policy, even if students choose a major early, and then decide to switch university majors, they also lose credit. And because bi-lateral agreements are different for different institutions, if students choose a transfer destination early, and then are not admitted to that university, or choose another university, their transfer credits may not be accepted.

In summary, while the CAA updates in 2014 aimed to strengthen transfer pathways, students are still in danger of losing credits when they transfer. A primary reason for the loss of credits is that students are not transferring with AA or AS degrees in accordance with the conditions of the Transfer Assurance Policy; therefore, there is no guarantee that community college credits will transfer into specific programs at universities because in institution-driven systems like North Carolina, universities have the autonomy to decide whether or not they will accept courses into specific programs. And while Uniform and Bi-Lateral Agreements are ways that community college and university pairs overcome this autonomy, the complexity and volume of these agreements make it difficult for practitioners to know and correctly guide students along the right pathway. Unless they know their university destination early on, it is difficult for community college students to know and choose a path to follow.

Transfer partnerships. As noted by Bartek (2020a), 65% of the partnerships in North Carolina transferring at least 10 students could be described as weak, as indicated by the small, or negative residuals between their actual and predicted baccalaureate completion rates. As implied in other college impact studies, small or negative residuals indicate these partnerships may be underperforming, meaning the partners may not be employing partnership practices that add value to the baccalaureate attainment of transfer students, or, may even be employing practices that impede attainment (Horn & Lee, 2016). In comparison, community college and

university partnership pairs in North Carolina with the largest, positive residuals between actual and predicted baccalaureate attainment rates were found to have strong partnerships. An example is the partnership between the University of North Carolina at Wilmington (UNCW) and Carteret Community College. Both the university and community college leadership made transfer a priority as UNCW is Carteret's top transfer destination. They collaborate to define pathways for students into specific programs, and provide tailored transfer advising, such as UNCW advisors being present on Carteret's campus. They did this through a strong partnership grounded in the shared value of transfer student success, and provided resources for that success through advising committees, professional development, and regular institutional and faculty collaboration between the partners. However, in North Carolina, this type of relationship is rare among community college and university partnerships (Bartek, 2020b) and needs infrastructure in the form of coordination and professional development to help build better partnerships. While a Transfer Advisory Committee, comprised of UNC System and NCCCS representatives, oversees refinements of the regulations and minor changes to the CAA, as well as reviews to assure compliance, this committee is not responsible for supporting or improving transfer partnerships beyond those agreements (Board of Governors of the University of North Carolina and Board of Governors of the North Carolina Community College System, 2014). And while the College Transfer Program Association provides support to university and community college advisors in keeping up with and communicating these agreements, it is not specifically charged with strengthening partnerships. Promising is the North Carolina Guided Pathways to Success (GPS) initiative through the NCCCS North Carolina Success Center (NCCCS, 2019). Providing support to community colleges who are attempting to implement the guided pathways reforms, this organization is a network of colleges that form a "professional learning community" to

accelerate “advancement of student success reforms while building capacity for adaptive and sustainable improvements” (NCCCS, 2019). However, while this initiative is focused on building Networked Improvement Communities (“NICs”) among community colleges, it is not specifically focused on transfer partnerships, nor are universities included in this work.

In addition to these challenges is the availability of common data between community college and university partnerships. While the NCCCS and UNC Systems have recently made great strides in providing statistics to the public through dashboards about their individual systems, student level data needed to track transfers between these systems is not readily available, which makes it difficult to follow students along their pathways and develop interventions to get them back on track. As noted by an administrator in Georgia:

In my perfect world, what I would really like a report on, on an individual student basis, I wouldn’t need the student names, but I would like to know, okay, the student left the two-year institution with this many credits and when they transferred to the next institution how many credits did they get, so I could compare the two numbers. I would predict right now that there’s a very close to one-to-one match, but I’d like some assurance of that. And I don’t have that right now. (Hodura et al., 2017, p. 38)

As a result, while university partners appear to be generating their own data and using it to improve their own transfer processes, sharing of this data with their community college partners appears to be limited. Of the system-level data that is available to community colleges, most staff find it too aggregated and too old to be useful to their current practice, and a majority of faculty are not using the data at all (Bartek, 2020b). Research indicates that community colleges and universities with the highest transfer-out and baccalaureate attainment rates for their transfer students are those that have formed the strongest partnerships with their top transfer

partners (Bartek 2020b; Xu et.al., 2018b). These partners help both their faculty and staff understand the urgency of the problem by reviewing and tracking data that is disaggregated at a level relevant to them and makes the case as to why transfer should be a priority (Bartek 2020b; Diamico & Chapman, 2018; Fink & Jenkins, 2017). Therefore, there is a pressing need to have a common set of shared metrics between NCCCS and UNC System institutions to help improve transfer pathways and partnerships.

Policy Options

As noted in Bartek (2020b), the research on transfer effectiveness to date is clear—improving transfer student outcomes requires more than individual colleges implementing isolated strategies; rather, collective strategies implemented in partnership are needed to improve the rates at which community college students transfer out to universities and attain bachelor’s degrees (Bahr et al., 2013; Bailey et al., 2015; Fink et al., 2016; Jenkins & Fink, 2016; Jenkins, Bailey, & Columbia University, Community College Research Center, 2017; Kisker, 2007; Wyner et al., 2017). The following sections describe options available to collectively improve transfer outcomes through strengthened transfer pathways and partnerships.

Options to strengthen transfer pathways. Barring a change in state-wide policy that improves credit transfer, as seen in Florida, Tennessee and New York, where both major-ready status as well as pre-major credit transfer is determined by the state in “2 plus 2” agreements (Hodura et al., 2017), Bailey et al. (2017) advised that in institution-driven systems like Texas and North Carolina, reforms that promise to be most successful “are embedded in a broader reform of higher education in the state based on the Guided Pathways model” (Bailey et al., 2017 p. 13). These reforms are more comprehensive and holistic, and are designed to help build institutional capacity to create clear pathways to universities and careers. Specifically, in

institution-driven systems like Texas, Bailey et al. (2017) advocated for “field-specific transfer pathways” policies, rather than major-specific policies like the Uniform Articulation Agreements and Bilateral Articulation Agreements in North Carolina. This recommendation aligns with recent work by Bartek (2020ab) on effective partnership pairs in North Carolina. As noted in focus groups, despite proactive advising to help transfer students choose majors, students commonly do not know early enough what specific university majors they will finally choose and be admitted to and a majority do not transfer with associate degrees, as currently stipulated in these agreements. However, in “field-specific transfer pathways” or “meta majors,” general education and pre-major courses are designated in articulation agreements for transfer toward junior standing in broad major fields, which community college students are more likely to select earlier in their transfer journeys (Bailey et al., 2017). They emphasized:

Having statewide field-focused (rather than major-specific) agreements provides a level of standardization of common requirements and a general framework and language for faculty from two- and four-year institutions to communicate across a state, making them far more desirable than if there were only local agreements among institutions. (Bailey et al., 2017, p.15)

Ideally, these “field-specific” agreements would also improve the transfer of credits without associate degrees into a broad number of majors at university transfer destinations, since a majority of students are transferring without associate degrees, and universities would be required to accept them (Bailey et al., 2017; Hodura et al., 2017). Bailey et al. (2017) highlighted Washington State as an example of implementing field-specific agreements that have been effective, including fields like business, biosciences, engineering, and computer science.

These field-specific agreements have community college requirements common to many university programs, but also provide transfer guides for particular programs.

Subsequent to Bailey et al. (2017), the bipartisan Senate Bill 25 passed in Texas in June 2019, amending the Education Code of Texas to reduce credit loss and increase transfer credits between community colleges and universities in the state. Among other stipulations, Senate Bill 25 includes the following:

1. **Requires annual reporting of transfer credits earned, accepted, and lost.** The bill requires universities to annually report on “lower division” courses, like those in the NCCCS Common Course Library, that were denied at the university transfer destination or have not been accepted toward a major if the student declared a major, provided the student did not change majors upon transfer. Included in the report must be the reasons why the university did not grant credit. Bill 25 also requires public community colleges to report on the courses attempted and completed by students who transferred to a university.
2. **Degree plans are required by 30 credit hours at both community colleges and public universities.** The bill changes the requirement from 45 to 30 for the minimum number of credit hours requiring a degree plan to be filed at the transfer student’s university.
3. **Required course sequencing.** Bill 25 requires both community colleges and public universities to develop “at least one recommended course sequence for each undergraduate certificate or degree program.” The bill also requires that sequence to be submitted to the coordinating board and to be published in the college’s catalog and website.

4. **Articulation agreements using field of study curricula authorized.** The bill also authorizes, but does not require, articulation agreements between universities and community colleges for specific certificates and programs to use field of study curricula developed by the Texas Higher Education Coordinating Board “to the greatest extent possible.” This provision enables transfer students to receive up to 60 credits for courses completed at community college (without having to attain an associate’s degree), but does not infringe on a university’s admissions policy. The policy does not require a general core curriculum be developed for the field of study agreements.

The additional measures of accountability and degree plan/course sequencing required in Bill 25, while not mandating field of study agreements, represent a big step in strengthening the transfer pathways for students in Texas and likewise, represent realistic options for strengthening policy in North Carolina.

Options to strengthen transfer partnerships. To strengthen transfer partnerships in North Carolina, Bailey et al. (2015; 2017) suggested that states where infrastructure provided for community colleges and universities to learn effective transfer practices (such as Fink & Jenkins, 2017; Wyner et al., 2016), and to form effective partnerships (such as Fink & Jenkins, 2017), had better outcomes for their transfer students than states like North Carolina, that did not mandate this infrastructure. DiAmico and Chapman (2018) also recommended incentives for transfer, such as “performance measures that reward on-time transfer baccalaureate degree completion” (p.10). Because one of the primary issues underlying credit loss is the concern about academic rigor and alignment of community college courses to university programs (Fink & Jenkins; 2017), policy that promotes or provides for intentional and supported opportunities for

community college and university faculty and staff to regularly collaborate and communicate about the content of courses, teaching strategies, expected course outcomes, and the curriculum pathways is also vital (Diamico & Chapman, 2018; Donovan, Schaier-Peleg, & Forer, 1987; Jenkins, Kaldec, & Vortuba, 2014; Kisker, 2007). Not surprisingly, it follows that the strongest transfer partnerships in North Carolina were among pairs where the university in the pair was the community college's top transfer destination in terms of enrollment, and where transfer students comprised a large percentage of a university's student enrollment, and where the community college and university had continuous communication and collaboration. Examples of this scenario included the partnerships between Carteret Community College and University of North Carolina at Wilmington in the state of North Carolina, and Valencia College and the University of Central Florida in the state of Florida, where their "DirectConnect" program is a showcase for effective, strong transfer partnerships (Jenkins et al., 2014). Based on this work, partnership pairs who focus their attention on strengthening the pathways and partnerships with their top two or three university destinations or colleges of origin may have a better shot at improving transfer effectiveness than those who take a broader, networked approach to transfer.

When designing supports to help institutions partner to improve transfer in North Carolina, a framework should be considered that matches their institution-driven independence. Effective community college and public university partnerships in North Carolina have been found to have three elements that make them more effective than their peers in implementing transfer practices that help their students succeed (Bartek, 2020b; Fink & Jenkins, 2017). Rather than being directive, the strongest partnerships had presidents who demonstrated that transfer was a priority through meaningful conversations with faculty and staff and by using data. These leaders allowed their practitioners the time, space, and resources they needed to collaborate on

transfer pathways (Bartek 2020b; Fink & Jenkins, 2017; Heifetz, 1994; Jenkins, et al., 2014).

Faculty and staff among the most effective partnership pairs also understood the importance of transfer to the mission of their colleges and the purpose of transfer, as well as adopted a customer-focused, student-centered, and transfer student-affirming culture with an attitude of “transfer is what we do.” These attitudes of care for transfer students and their success helped them focus on the difficult work of collaborating with their partners and reorganizing their structures and processes to create and implement pathways and advising models that worked for their students (Bahr et al., 2013; Bartek, 2020b; Kezar, 2013; Schlossberg, 1989; Spillane, Riser, & Remer, 2002). To implement these changes, faculty and staff in the most effective partnerships communicate and collaborate with each other frequently and focus their attention on the most important transfer practices—namely, to clarify the transfer pathways between partners and on implementing proactive, intrusive advising practices customized for transfer between the two partners (Bartek, 2020b; Fink & Jenkins, 2017; Wyner et al., 2016).

However, these types of partnerships are not common in an institution-driven system like North Carolina, which is why a majority of community college and public university partnerships in the state are naturally weak and need energy to bring them together for change. One framework for strengthening these partnerships is through a collective impact model. Collective impact initiatives are long-term commitments by cross-sector organizations who come together with a common agenda for solving complex challenges (Kania & Kramer, 2011). Collective impact initiatives are different than typical partnerships in that they bring together key stakeholders to solve complex “adaptive” challenges that cannot be solved by one institution in isolation, or by implementing “technical” solutions. Adaptive challenges are “wicked,” highly complex, and systemic problems with multiple underlying causes that require interdependent

collaboration between partners to solve (Heifetz, 1994; Rittel & Webber, 1973;). As noted by Shugart (2019), transfer effectiveness is one of these wicked, adaptive challenges in the state of North Carolina. The difference, and the key to the success of collective impact initiatives, as opposed to other partnerships, is the required accountability to improving shared metrics, in addition to making a commitment to a common set of goals and actions to affect change.

Research shows that organizations, particularly educational or non-profit organizations, who partner through collective impact initiatives, as opposed to those mandated by agreements, those focused on technical challenges only, those without a shared measurement system of accountability, or those organized without infrastructure, have a better chance of solving complex, adaptive problems than other types of collaborations (Heifetz et al., 2004). For example, in 2006, the University of Cincinnati convened a cross-sector group to address college readiness in their community, and realized that systematic change, rather than programmatic change, was needed. As a result, they launched one of the first collective impact projects that resulted in improved educational outcomes for the community. Key to the success of the Strive Partnership was not only that they had a set of shared metrics and an accountability framework, they had a StriveTogether “Theory of Action” set of practices that were effective in the community, developed from partnerships with networked members after many years of testing, as well as a dedicated staff to facilitate the initiative. Virginia Commonwealth University built on the success of the Strive Partnership. In 2009, they formed the Bridging Richmond Network and began with the end in mind—business competitiveness through workforce preparation (Smith, Pelco, and Rooke, 2017). While that collective impact initiative took some time to form, the university also provided the vital infrastructure needed for the initiative to be successful,

though key lessons learned included universities serving as backbones must be sensitive to the power dynamics that exist with their community partners.

Policy and Practice Recommendations

Based on research focusing on effective partnership practices between community colleges and universities in North Carolina (Bartek, 2020a; 2020b), improving transfer outcomes in North Carolina may lie in refining current articulation policies to better support students through guided pathways that work for them, in the ways they actually choose majors and enter university programs. These policies should also be refined to include the infrastructure needed for colleges to build better partnerships and pathways for students by providing data systems that track transfer students along their entire pathway and organize for action around a common framework. The following sections detail these policy and practice recommendations.

Develop field of study agreements and requirements to strengthen pathways. To improve transfer-out rates in North Carolina and greatly increase the number of students of diverse socioeconomic backgrounds attaining bachelor's degrees, Bailey et al.'s (2017) recommendation for states to develop broad "field of study" majors and agreements to facilitate transfer of the core requirements of many majors would well-serve transfer students in North Carolina, particularly those who are interested in fields of study, but uncertain of the specific programs or universities they want to, or have the opportunity to, transfer into. Ideally, these agreements would provide for the seamless transfer of a common core of pre-major courses specific to that field of study, and also common to different university programs across the state. The fields of study should be aligned with the state's greatest labor market needs for bachelor's degrees including health and social services occupations, computer and mathematical occupations, and business and financial services. In conjunction with those field of study

agreements would be stipulations of university flexibility in accepting courses that are part of the field of study agreements and align with their program majors as long as the course was passed successfully with an A, B, or C (Hodura et al., 2017). Similar to the effective practices captured at Carteret Community College, Durham Technical College, and Forsyth Technical College by Bartek (2020b), the policy would require students to enter ACA-122 (College Transfer success course) in their first semester at community college to develop a plan of study. The new North Carolina policy would require students to choose fields of study by their second semester, with mandatory career exploration, career field selection, and selection of their one or two top transfer destinations accompanied by proactive, intrusive advising within their first 30 hours. Taking cues from Texas Senate Bill 25, new North Carolina transfer policy would require annual university reporting of transfer credits earned, accepted, and lost, requiring universities to annually report on NCCCS Common Course Library courses that were denied at the university transfer destination, and include reasons why they were denied. This new state transfer policy would also require community colleges to report on the courses attempted and completed by students who transferred to a university and require both NCCCS and UNC System institutions to develop and submit to the state board “at least one recommended course sequence for each undergraduate certificate or degree program.”

North Carolina Transfer Impact Project. To strengthen transfer partnerships in North Carolina, I recommend forming a state-wide collective impact initiative for improving the baccalaureate attainment rates of transfer students. This initiative could be a subcommittee of, or partner to myFutureNC, and would follow a framework that combines effective transfer practices and partnerships with the conditions necessary for a successful collective impact project. Using

this framework, the North Carolina Transfer Impact Project (NCTIP) would have the following elements:

Subtle (adaptive) leadership. Leaders who commit to the initiative commit to making transfer a priority, learning (through professional development) adaptive leadership practices, and implementing those practices on their campuses. These practices have been implemented among effective community college and public university pairs in North Carolina (Bartek 2020b) and include having regular conversations with campus faculty and staff to help them make sense of new state policies and understand why these policies are important by sharing the goals and vision of the policy. Leaders who commit to the initiative will also provide the resources needed for the faculty and staff on their campuses to spend time reviewing and understanding data related to transfer effectiveness, wrestle and reconcile the gaps between the goal of the policy and the actual performance of their transfer students, receive professional development on guided pathways reforms, and design solutions around these reforms that will work for their campus. In this way, these leaders commit to distributing the authority, responsibility, and decision making to their regional partners and frontline faculty and staff dealing with these adaptive challenges among their ranks.

Backbone support and organization. The NCTIP should be organized in a way that would maximize its effectiveness according to the research on effective transfer partnerships in North Carolina (Bartek, 2020b) —by geographic region and by the top transfer destinations of each community college within that region. NCTIP would have groups of transfer leaders from all 58 community colleges and 16 universities organized by region, and each region would have work groups of faculty and staff practitioners organized by partnership pairs based on the community colleges' top two transfer destinations. A steering committee of community college

and university presidents and/or provosts representing each region would be elected among the regional groups to guide the initiative and act as communicators to their regions and work groups. Cross-functional groups already in existence that could be expanded, reorganized, or partnered with for NCTIP would be the College Transfer Program Association, the Transfer Advisory Committee, and the North Carolina Success Center.

Similar to other recent “cradle to grave” collective impact initiatives, universities in each region with effective transfer track records, such as UNC Wilmington, UNC Chapel Hill, and Appalachian State University could form the backbone organizations for the project. Each would have a dedicated project manager, coordinator, and data analyst to provide support to the regional committee, and would report to the board chair of the overall steering committees for the state. These backbone units would also be tasked with coordinating professional development efforts focused on assisting stakeholders with learning accurate information about the articulation and field of study agreements, as well as effective transfer strategies for impact. The backbone would also be responsible for soliciting grant funds to help support the project. Funding for this infrastructure could be initially sought through grant and foundation funding, as well as through joint, equal appropriations from the North Carolina General Assembly, as well as state partners and community partners with a stake in increasing the number and percentages of community college students attaining bachelor’s degrees in North Carolina, such as the information technology and biotechnology industries.

Shared Values: Community colleges and universities who commit to the initiative commit to making transfer priority by communicating the importance and purpose of transfer as vital to both their missions and future growth. These institutions will cultivate customer-focused, student-centered, and transfer affirming cultures, where faculty and staff say “transfer is

what we do” and commit to help transfer students move in, move through, and move on from universities with their bachelor’s degrees.

Focused attention on a common agenda. To be successful, the NCTIP needs to set a common agenda for success. One research-based agenda can be found through the Fink and Jenkin’s (2017) model for effective transfer, practices which have been affirmed as effective in the state of North Carolina. As part of the NCTIP initiative, colleges in the network would commit to implementing the following framework:

1. Make transfer a priority;
2. Collaborate to define clear pathways from community colleges to universities and align instruction (including field of study agreements) that span multiple universities and community colleges in the region; and
3. Provide tailored transfer advising consistent with guided pathways reforms that includes helping students get on a path and stay on that path.

Continuous communication. Partners will commit to continuous communication, presence at regular and frequent meetings, and development of relationships and common vocabulary for stakeholders to make sense of policy and collaborate to revise it. The backbone organization will be critical for developing and obtaining the platforms needed for open and continuous communication, including remote meetings, social media, marketing, and websites. The communication plan will be key to change management of the initiative, which will build awareness through marketing and communication tools, help stakeholders develop the knowledge, understand shared values, and recognize the desire for transfer impact.

Mutually reinforcing activities (strategic action framework). The strategic action framework is a menu of strategies that partners can test, and share the results of that testing, for

effectiveness at their own institutions. Some examples of effective strategies aligned with the common agenda and identified by Bartek (2020b) in North Carolina include:

1. Regular meetings every semester of university and community college faculty and advising staff among partners to align course curricula and learning outcomes, agree on teaching activities and assessments; and coordinate on transfer advising.
2. Mandatory career coaching and early career and university selection upon intake to community college;
3. Case-management style advising where all faculty and staff have a caseload, and are trained in advising;
4. Implementation of technology and common data systems shared by partners;
5. The presence of university admissions advisors on community college campuses;
6. Transfer programs for engagement at universities and early and frequent connections with a university faculty member or institutional agent who acts as a mentor; and
7. Financial aid counseling and awards at universities that allow adult students to increase their enrollment intensity and persistence.

Common measurement system. Key to all collective impact initiatives is the accountability built into a shared measurement system. Synergistic with new policy requiring reporting of transfer not accepted by universities, key metrics and targets to set for this collective impact initiative would be disaggregated by gender, race, age, and Pell Grant status and will include:

1. Transfer productivity: the number and percentage of students transferring between specific community college and public university pairs.

2. Lost credit report: The number of credits each university did not accept, disaggregated by major, gender, race, ethnicity, and Pell Grant status.
3. Baccalaureate attainment rates for specific community college-public university pairs;
4. Input-adjusted rankings of community college-public university pairs.

In summary, to meet its economic development potential and workforce demands of the future, North Carolina must greatly improve the rates at which students transfer-out of community colleges and attain bachelor's degrees at their public universities. To achieve these goals, the pathways and the partnerships between community colleges and public universities must be strengthened. To this end, articulation agreements can be strengthened through accountability and field of study requirements, and infrastructure is needed to support the competing desire to allow institutions autonomy to design their programs and processes and at the same time, avoid penalizing the citizens of North Carolina who want to improve their social and economic mobility through transfer. A way to facilitate both ends is by investing in a collective impact approach.

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APPENDICES

Appendix A: Definitions of Variables and Key Terms

Outcome Measure	Definition	Unit of Analysis
New Transfer Student	“A new student at a given level for a given term who has recognized college credits from other institution(s) and is admitted as a transfer student. Such students are given graduate credit for course work taken elsewhere should be considered as new graduate transfer students. Students who transfer in during the immediately previous summer sessions are to be classified as new transfer students” (UNC System dataset).	NCCCS college transfer student
Transfer-Out Rate	“The number of transfer students who started at the community college divided by the total number of students who started at the community college in a given term” (Shapiro et al., 2017).	NCCCS College
Transfer-with-Award Rate	“The number of transfer students who started at the community college and earned a certificate or associate degree from that college prior to their earliest enrollment at a four-year institution, divided by the number of transfer students in the cohort” (Shapiro et al., 2017).	
Transfer-Out Bachelor’s Completion Rate	The number of students who transferred from a NCCCS college in the Fall 2011 cohort and earned a bachelor’s degree from any UNC System college within four years of entering the UNC System college, divided by the number of students who transferred from that NCCCS college (Shapiro et al., 2017)	NCCCS College
Transfer-In Bachelor’s Completion Rate	The number of students who transferred from any NCCCS college into a UNC System college in Fall 2011 and earned a bachelor’s degree from the UNC System College within four years of entering divided by the number of transfers (Shapiro et al., 2017).	UNC System College
Partnership	“Partnerships are considered a collaborative between two or more institutions of higher education, businesses, or social agencies, with the goal of obtaining a shared objective” where “actors cannot accomplish the outcome alone, thus the partnership creates the ultimate win-win” (Eddy, 2010).	NCCCS - UNC System Partnership Pair
Partnership Bachelor’s	The number of students who transferred from a specific NCCCS college into a specific UNC System college in	NCCCS - UNC System

Completion Rate	Fall 2011 and earned a bachelor's degree from that UNC System college divided by the number of students from that NCCCS who transferred into the UNC System college.	Partnership Pair
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Appendix B: Tables for Chapter 2

Table 2

Description of Factors Predicting Bachelor's Degree Completion of UNC-NCCCS Partnership Pairs

Factor	Description	Source
<u>Community College Inputs</u>		
Gender	% female	UNC System
Race	% non-Asian minority	UNC System
SES Proxy: Pell	% receiving Pell at UNC System institution	UNC System
Award	% transferring with AA or AS degrees	UNC System
Transfer credits	The average number of credits among students in partnership pair who did not transfer with an AA or AS degree	UNC System
<u>External County Environment</u>		
Distance	Distance between partners (main campus)	Google
Public university in county	UNC partner in same county as NCCCS partner (0=no; 1=Yes)	IPEDS
Median County Income	Average median earnings in counties of residence for students in partnership pair (Population above 25 with some college/associate degree in 2013)	U.S. Census
Mean Unemployment Rate	Mean unemployment rate in counties of residence of students in partnership pair (2012) (0=below 8.5%; 1=8.5% or above)	Bureau of Labor Statistics
<u>University Environment</u>		
Percent Admitted	% applicants admitted (0=60% or above; 1=59% or below)	IPEDS
GPA	Average 1 st year GPA of partnership pair (Fall 2012)	UNC System
HBCU	University designated as historically black college	IPEDS
Age	% FTE 25 and older (0= 20% or above; 1=19% or below)	IPEDS

Table 2 (continued).

Part-time enrollment	Percent part-time undergraduate enrollment -Fall 2011 (0=21% or greater; 1=20% or less)	IPEDS
Expenses	% core operating expenses spent on instruction, academic, and student services. (0=69% or less, 1=70% or more)	IPEDS

Table 3

Description of Transfer Students Within Fall 2011 Cohort

Variable	Percentage of students (sophomores and juniors) (N=5,132)	4-year bachelor's attainment rate (through Fall 2015)
Gender		
Female	55.0%	61.0%
Male	45.0%	64.0%
Race		
Non-Asian Minority	26.0%	58.0%
White/Asian	74.0%	64.0%
Pell received at transfer institution		
Yes	63.0%	63.0%
No	37.0%	61.0%
Community College Degree		
AA/AS Degree	37.0%	70.0%
Other Degree (AAS, AFA, AGE)	14.0%	56.0%
No Degree	49.0%	58.0%
Transfer Credits		
No degree, ≥ 30 hours	49.5%	58.0%
No degree, < 30 hours	1.5%	45.0%

Table 4

Description of University Partners Transferring At Least One Sophomore or Junior in Fall 2011 Cohort

UNC System College	Number of transfers (N=5,132)	Number of NCCCS partners with at least 1 transfer (N=514)	Number of NCCCS partners with at least 10 transfers (N=110)	% entering with AA/AS	% No Degree, 30+ credit hours	Mean number of credits transferred	4-year bachelors completion rate (among all transfers in 2011 cohort)
NCA&T	125	26	1	28.8%	60.8%	52	48.8%
ASU	471	46	12	39.3%	56.3%	54	70.5%
UNC-A	154	22	3	55.8%	40.9%	62	59.0%
ECU	623	49	16	40.8%	48.2%	60	64.5%
ECSU	33	10	0	51.5%	36.4%	60	42.4%
FSU	150	26	2	21.3%	52.7%	63	54.0%
NCCU	90	23	2	38.9%	44.4%	53	59.0%
UNC-P	199	29	6	26.1%	41.2%	56	45.7%
NCSU	372	47	8	40.6%	57.3%	62	70.4%
UNC-CH	176	29	5	59.7%	38.6%	57	81.3%
UNC-C	906	53	19	33.4%	56.4%	54	56.6%
UNC-G	699	46	14	34.5%	42.8%	52	60.1%
WCU	319	37	9	27.6%	48.0%	60	63.3%
UNC-W	682	48	9	44.9%	44.6%	57	68.6%
WSSU	133	23	4	21.1%	55.6%	54	49.6%

Table 5

Descriptive Results for Partnership Pairs with at Least One Transfer Student in Fall 2011 Cohort

Variable	Mean (All Pairs with at least one transfer) (N=514)	Standard Deviation	Mean (All pairs with at least 10 transfers) (N=110)	Standard Deviation
Overall Bachelor's Completion Rate	.60	.33	.63	.14
Inputs (Partnership cohort)				
Gender (% Female)	.57	.30	.54	.15
Race (% Non-Asian Minority)	.30	.36	.24	.19
SES (% Pell)	.65	.21	.62	.13
AA/AS (% with degree)	.34	.33	.36	.16
Average transfer credits (if no degree)	49.5	9.1	50	7.5
Number of transfers in partnership	10	25	35	46
Transfer Relationship	.11	.16	.28	.23
External Environment				
Distance	-----	-----	8.0	3.4
Public university in county				
No = 0	.51		.12	
Yes = 1	.49		.88	
Average Median Income	\$30,291	\$2,400	\$30,770	\$2,307
Unemployment Rate				
Less than 8.5% = 0	.62		.80	
8.5% or greater = 1	.38		.20	
Internal Environment (University)				
Percent admitted				
Greater than 59% admitted=0	.69		.72	
59% or less admitted=1	.31		.28	
GPA			3.0	.24
HBCU				
0= not an HBCU	.79		.92	
1= HBCU	.21		.8	
Age				
Greater than 19% 25 or older=0	.50		.54	
19% or less 25 or older = 1	.50		.46	
Part-time enrollment				
Greater than 20%=0	.66		.74	
20% or less=1	.34		.26	
Expenses (Inst/Acad./Student Support)				
50-70% of core expenses = 0	.84		.81	
Greater than 70% of core expenses= 1	.16		.19	

Table 6

Coefficients for Hierarchical Multiple Regression Results

	Model 1		Model 2		Model 3		<i>B</i>
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	
Constant	.582***	.121	.246	.240	.011	.270	
Community College Inputs							
% Female	.073	.088	.093	.091	.094	.086	.112
% Non-Asian Minority	-.010	.069	-.033	.071	-.011	.067	-0.18
% Pell	-.460***	.101	-.436***	.111	-.339**	.111	-.350
% AA/AS	.093	.085	.127	.090	.039	.092	.045
Transfer Credits	.005*	.002	.005*	.002	.004	.002	.163
External Environment							
Distance			-.007	.004	-.006	.004	-.150
Public university			-.073	.038	-.046	.037	-.114
in county							
Average Median Income			1.396E-5*	.000	1.173E-5*	.000	.216
Unemployment Rate			-.019	.032	-.016	.031	-.050
University Environment							
% Admitted					.018	.027	.064
Average GPA					.083	.045	.157
% over 25 < 19%					.073**	.027	.286
% Part-time <20%					.029	.028	.101
% instruction/ student support expenses					.023	.035	.071

Note: *** p<.001, ** p <.01, *p <.05

Table 7

Model Summaries of Hierarchical Multiple Regression to Predict Bachelor's Degree Attainment Among Pairs of NCCCS and UNC System Colleges

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>R</i> ² _{adj}	ΔR^2	<i>F</i> _{chg}	<i>p</i>	<i>df</i> ₁	<i>df</i> ₂
1	.478 ^a	.229	.187	.229	5.522	.000	5	93
2	.559 ^b	.312	.242	.083	2.684	.000	9	89
3	.678 ^c	.460	.369	.148	4.589	.000	14	84

Table 8

Partnership Pairs with BA Completion Rates "Much-Higher-Than-Expected" (Based on Residual Z-Scores with Percentile Ranks Between One-Half and One Standard Deviation Above the Mean)

UNC Partner	NCCCS Partner	Number of Transfers in Partnership Pair	Actual BA Attainment Rate for Partnership Pair	Predicted BA Attainment Rate for Partnership Pair	Residual Z-Score
UNC-G	Rockingham	25	0.76	0.49	2.78
WSSU	Davidson	14	0.80	0.61	1.97
UNC-CH	Central Piedmont	19	0.95	0.77	1.79
UNC-G	Caldwell	11	0.73	0.55	1.78
UNC-C	Surry	14	0.79	0.62	1.76
UNC-W	Carteret	23	0.83	0.67	1.65
UNC-CH	Durham Tech	31	0.87	0.72	1.59
UNC-C	Stanly	25	0.76	0.61	1.54
ECU	Fayetteville Tech	11	0.82	0.68	1.39
ASU	Forsyth Tech	23	0.83	0.70	1.33
ECU	Lenoir	31	0.74	0.63	1.22
UNC-G	Wake Tech	47	0.70	0.61	1.02
WCU	A-B Tech	54	0.72	0.63	0.99
WCU	Blue Ridge	14	0.71	0.62	0.99
ASU	Sandhills	11	0.73	0.63	0.98
ECU	Catawba Valley	11	0.73	0.64	0.94
UNC-W	Sandhills	14	0.86	0.77	0.92
UNC-W	Wake Tech	31	0.81	0.72	0.90

Table 9

Partnership Pairs with BA Completion Rates “Higher-Than-Expected” (Based on Residual Z-Scores with Percentile Ranks Between One-Half and One Standard Deviation Above the Mean)

UNC Partner	NCCCS Partner	Number of Transfers in Partnership Pair	Actual BA Attainment Rate for Partnership Pair	Predicted BA Attainment Rate for Partnership Pair	Residual Z-Score
UNC-C	Caldwell	17	0.53	0.47	0.72
ECU	Carteret	18	0.72	0.67	0.62
UNC-C	Cleveland	31	0.52	0.46	0.62
UNC-G	Davidson	24	0.63	0.57	0.62
FSU	Bladen	14	0.50	0.45	0.59
UNCCH	Wake Tech	35	0.77	0.73	0.54
UNC-C	Wake Tech	43	0.58	0.54	0.53
ASU	Wilkes	54	0.78	0.73	0.51
WSSU	Central Piedmont	18	0.72	0.68	0.49
UNC-C	Forsyth Tech	18	0.61	0.58	0.43
UNC-G	Guilford Technical Community Col	226	0.58	0.55	0.42
NCSU	Sandhills	12	0.67	0.63	0.40
UNC-G	Central Carolina	21	0.57	0.54	0.38
ASU	Western Piedmont	22	0.86	0.84	0.37
UNC-C	Sandhills	18	0.56	0.53	0.36
ECU	Vance-Granville	14	0.79	0.76	0.35
NCSU	Durham Tech	21	0.76	0.74	0.35

Table 10

Partnership Pairs with BA Completion Rates “As-Expected” (Based on Percentile Ranks of Residual Z-Scores Within One-Half a Standard Deviation of Mean)

UNC Partner	NCCCS Partner	Number of Transfers in Partnership Pair	Actual BA Attainment Rate for Partnership Pair	Predicted BA Attainment Rate for Partnership Pair	Residual Z-Score
EC37:K63CU	Beaufort County	15	0.67	0.65	0.32
UNC-G	Forsyth Tech	96	0.58	0.56	0.31
UNC-G	Sandhills	11	0.64	0.62	0.28
ASU	Gaston	27	0.78	0.76	0.27
NCSU	Wake Tech	150	0.80	0.78	0.26
UNC-G	Surry	11	0.64	0.62	0.25
UNCW	Central Piedmont	24	0.71	0.69	0.22
ASU	Caldwell	54	0.69	0.67	0.20
UNC-A	A-B Tech	78	0.60	0.60	0.10
UNC-C	Catawba Valley	48	0.52	0.52	0.09
UNC-C	Central Piedmont	265	0.62	0.62	0.05
UNC-C	Mitchell	36	0.58	0.59	0.01
UNC-P	Southeastern	14	0.50	0.51	-0.01
UNC-C	Cape Fear	23	0.61	0.62	-0.04
NCCU	Durham Tech	30	0.60	0.62	-0.07
UNCW	Cape Fear	300	0.69	0.71	-0.11
UNC-A	Central Piedmont	13	0.54	0.56	-0.12
WCU	Haywood	21	0.57	0.60	-0.15
UNC-G	Randolph	23	0.57	0.59	-0.16
ECU	Pitt	154	0.68	0.70	-0.16
UNC-W	Coastal Carolina	90	0.73	0.76	-0.17
ASU	Wake Tech	28	0.75	0.78	-0.18
ECU	Wake Tech	78	0.68	0.71	-0.19
UNC-C	South Piedmont	21	0.62	0.65	-0.24
UNC-P	Richmond	20	0.45	0.49	-0.27
ASU	Surry	28	0.68	0.72	-0.29
WCU	Tri-County	16	0.63	0.67	-0.32
UNC-G	Durham Tech	18	0.61	0.66	-0.34
NCSU	Nash	14	0.64	0.69	-0.35

Table 11

Partnership Pairs with BA Completion Rates “Lower-than-Expected” (Based on Residual Z-Scores with Percentile Ranks One-Half to One Standard Deviation Below the Mean)

UNC Partner	NCCCS Partner	Number of Transfers in Partnership Pair	Actual BA Attainment Rate for Partnership Pair	Predicted BA Attainment Rate for Partnership Pair	Residual Z-Score
ASU	Catawba Valley	45	0.69	0.74	-0.38
FSU	Fayetteville Tech	76	0.54	0.59	-0.40
UNC-C	A-B Tech	12	0.50	0.55	-0.40
ECU	Nash	24	0.63	0.68	-0.48
UNC-P	Fayetteville Tech	43	0.47	0.52	-0.49
NCSU	Johnston	19	0.79	0.85	-0.53
UNC-P	Robeson	28	0.39	0.46	-0.58
NCCU	Wake Tech	25	0.56	0.63	-0.59
WCU	Southwestern	55	0.60	0.67	-0.60
UNC-C	Rowan-Cabarrus	86	0.50	0.57	-0.62
UNC-P	Bladen	26	0.38	0.46	-0.63
UNC-P	Sandhills	20	0.50	0.58	-0.63
UNC-C	Guilford Tech	22	0.45	0.53	-0.69
WCU	Catawba Valley	18	0.56	0.64	-0.74
ECU	Wayne	32	0.59	0.68	-0.76

Table 12

Partnership Pairs with BA Completion Rates “Much-Lower-than-Expected” (Based on Residual Z-Scores with Percentile Ranks One Standard Deviation Below the Mean)

UNC Partner	NCCCS Partner	Number of Transfers in Partnership Pair	Actual BA Attainment Rate for Partnership Pair	Predicted BA Attainment Rate for Partnership Pair	Residual Z-Score
ECU	Johnston	36	0.64	0.73	-0.78
NCSU	Wayne	12	0.58	0.68	-0.85
UNC-G	Alamance	58	0.48	0.58	-0.85
ASU	Central Piedmont	38	0.66	0.75	-0.87
NCSU	Central Piedmont	13	0.54	0.64	-0.93
UNC-C	Gaston	62	0.48	0.59	-0.93
ECU	Cape Fear	33	0.61	0.71	-0.93
WCU	Forsyth Tech	12	0.58	0.69	-0.94
UNC-W	James Sprunt	11	0.55	0.65	-0.98
WSSU	Forsyth Tech	46	0.46	0.58	-1.12
UNC-W	Brunswick	30	0.57	0.69	-1.13
WCU	Gaston	12	0.50	0.63	-1.18
UNC-C	Pitt	13	0.38	0.53	-1.34
WSSU	Surry	11	0.55	0.70	-1.43
NCA&T	Guilford	56	0.46	0.62	-1.48
UNC-C	Durham Tech	11	0.36	0.53	-1.53
NCSU	Cape Fear	15	0.40	0.57	-1.63
UNC-A	Blue Ridge	15	0.40	0.58	-1.66
ECU	Albemarle	15	0.47	0.65	-1.69
ECU	Central Piedmont	13	0.46	0.70	-2.26
UNC-W	James Sprunt	11	0.55	0.65	-0.98

Appendix C: Tables and Figures for Chapter 3

Table 13

History of Articulation and Transfer with NCCCS

Year	Body/Agreement	Purpose
1963	NCCCS* Established	Combine industrial and junior colleges under one state system and board
1965	Joint Committee on College Transfer Students	Develop general education guidelines for transfer students
1967	Guidelines for Transfer by the Joint Committee on College Transfer Students	Voluntary statewide articulation guidelines approved
1973, '76, '80	Updated Guidelines for Transfer	Updates to accommodate changing curricula
1987	Revised Guidelines for Transfer	Specifies coordination of higher education in North Carolina, includes “provisions for an ongoing forum for discussion and alleviation of articulation problems” ^a
1997	Comprehensive Articulation Agreement (CAA) between UNC** System and NCCCS	State legislation to “develop a plan” for transfer of credits between institutions; mandates common course library (CCL) for NCCCS colleges; to develop a plan “that ensures accurate and accessible academic counseling for students considering transfer between NCCCS and UNC colleges” ^b
1999-2012	CAA Updated	Several iterations of revisions to “accommodate changing curriculums and students”
2013	General Assembly of North Carolina Session Law 2013-72, House Bill 903	Mandates compliance with CAA terms and requires “biannual joint reviews to assure full institutional adherence to the agreement”
2014	CAA Revised	1) NCCCS support of UNC System general education requirements; 2) Establish a process for maintaining currency of requirements; 3) Ensure current information is available to students and both NCCCS and UNC Institutions ^b
7/2015; 2/2016	CAA Updated	Updates include requirements of UNC System
8/2016; 6/2018		Institutions to develop, publish and maintain a

9/2018

“Baccalaureate Degree Plan ... identifying community college courses that provide pathways leading to associate degree completion, admission into the major, and baccalaureate completion”^c

^a(Joint Committee on College Transfer Students, 1987)

^b(Board of Governors of the UNC & Board of Governors of the NCCCS, 2014)

^c(Board of Governors of the UNC & Board of Governors of the NCCCS, 2018)

Table 14

Partnership Pairs with BA Completion Rates “Much-Higher-Than-Expected” (Based on Residual Z-Scores with Percentile Ranks Between One-Half and One Standard Deviation Above the Mean)

UNC Partner	NCCCS Partner	Number of Transfers in Partnership Pair+	Actual BA Attainment Rate for Partnership Pair	Predicted BA Attainment Rate for Partnership Pair	Residual Z-Score
UNC-G	Rockingham	25	0.76	0.49	2.78
WSSU	Davidson	14	0.80	0.61	1.97
UNCCH	Central Piedmont	19	0.95	0.77	1.79
UNC-G	Caldwell	11	0.73	0.55	1.78
UNC-C	Surry	14	0.79	0.62	1.76
UNC-W	Carteret *	23	0.83	0.67	1.65
UNC-CH	Durham Tech*	31	0.87	0.72	1.59
UNC-C	Stanly	25	0.76	0.61	1.54
ECU	Fayetteville Tech	11	0.82	0.68	1.39
ASU	Forsyth Tech*	23	0.83	0.70	1.33
ECU	Lenoir	31	0.74	0.63	1.22
UNC-G	Wake Tech	47	0.70	0.61	1.02
WCU	A-B Tech	54	0.72	0.63	0.99
WCU	Blue Ridge	14	0.71	0.62	0.99
ASU	Sandhills	11	0.73	0.63	0.98
ECU	Catawba Valley	11	0.73	0.64	0.94
UNC-W	Sandhills	14	0.86	0.77	0.92
UNC-W	Wake Tech	31	0.81	0.72	0.90

Note. +Gray shading indicates greater than 20 students in partnership pair

*Selected pair based on limited document analysis and querying individuals knowledgeable about each institution and their practices.

Table 15

Setting of Partnership Pairs Selected for Case Study

Variable	UNCW and Carteret	UNCCH and Durham Tech	ASU and Forsyth Tech
Location in North Carolina			
University Partner	Wilmington	Chapel Hill	Boone, NC
Community College Partner	Moorehead City	Durham	Winston-Salem
Distance Between Partners	93.5	16.3	46.0
Degree of Urbanization			
University Partner	Mid-size City	Small City	Distant Town
Community College Partner	Remote Town	Mid-size City	Mid-size City
Institutional Size			
University Partner	Large Four-Year	Large Four-Year	Large Four-Year
Community College Partner	Small Two-Year	Med. Two-Year	Large Two-Year
Program Mix*			
University Partner	13	11	16
Community College Partner	2	1	2
Percent Admitted (University)	57	34	68
12-month unduplicated headcount undergraduate enrollment (2011-12)			
University Partner	13699	19644	16744
Community College Partner	2566	8106	14875

Note. Adapted from “Use the data,” by National Center for Education Statistics, 2020.

*Code Legend

- 1 = Associate colleges: High transfer
- 2 = Associate colleges: Mixed transfer/vocational & technical
- 11 = Arts & sciences plus professions, high graduate coexistence
- 13 = Balanced arts & sciences/professions, some graduate coexistence
- 16 = Professions plus arts & sciences, some graduate coexistence

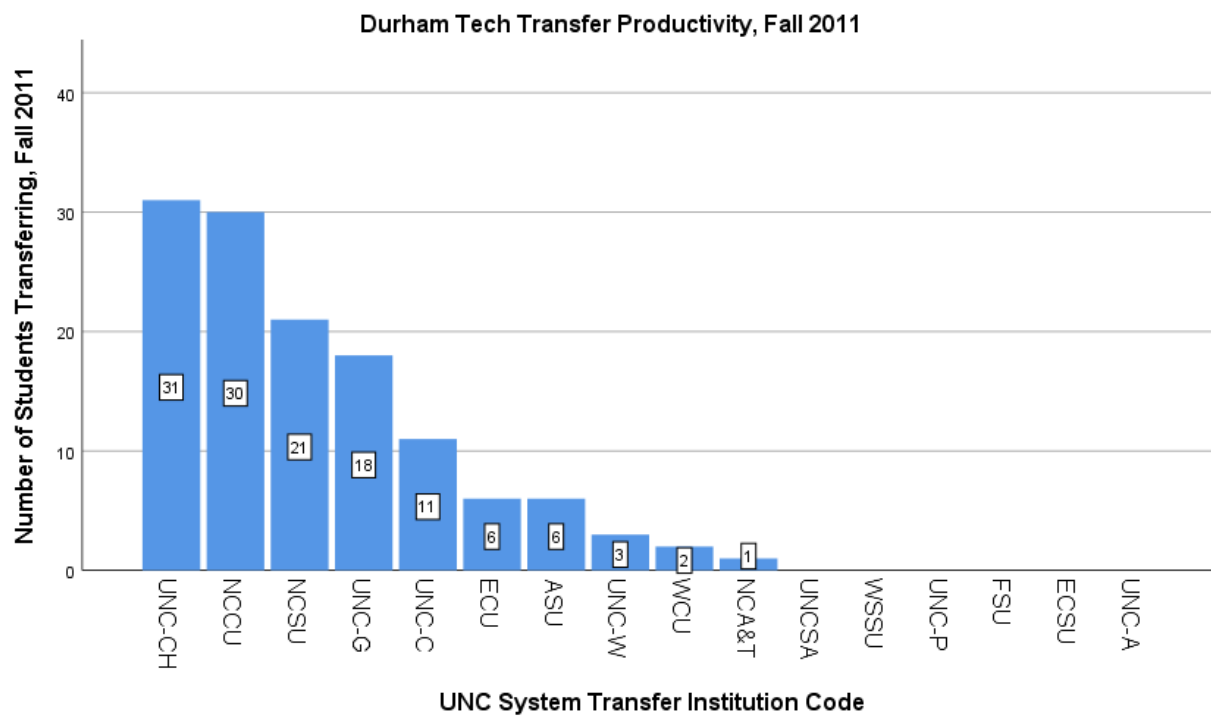


Figure 5. Transfer productivity of Durham Tech, Fall 2011, by UNC System transfer partner.

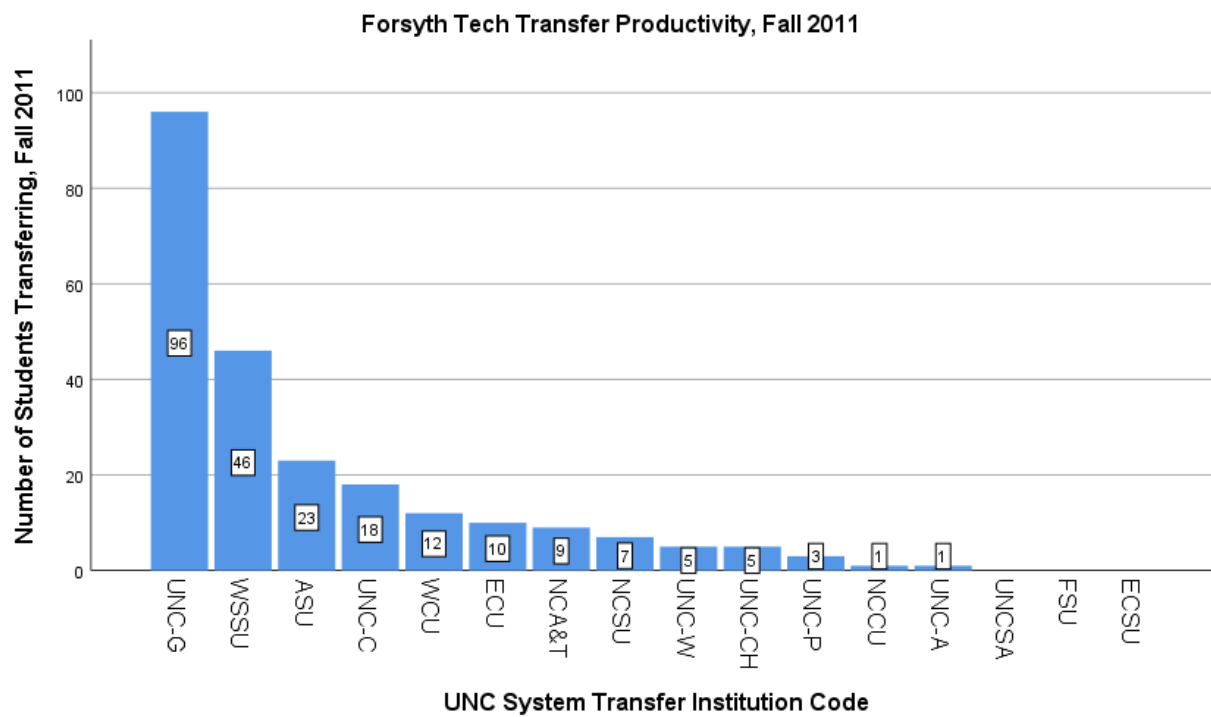


Figure 6. Transfer productivity of Forsyth Tech, Fall 2011, by UNC System transfer partner.

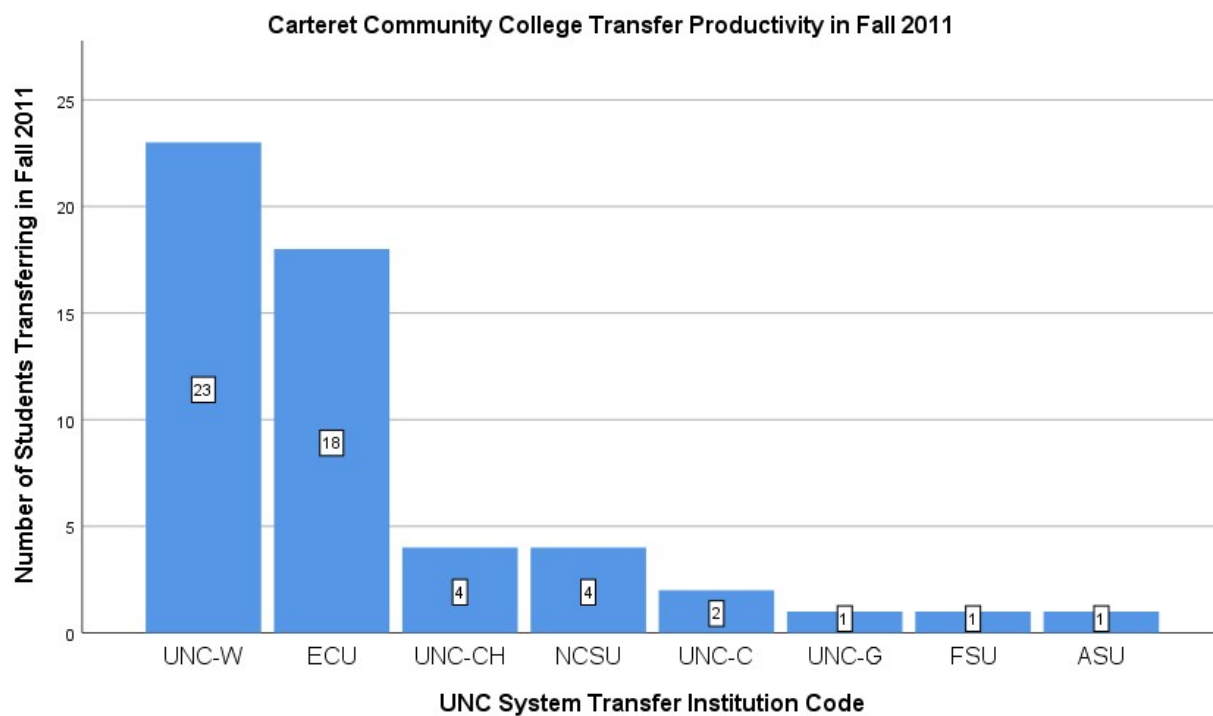


Figure 7. Transfer productivity of Carteret, Fall 2011, by UNC System transfer partner.

Table 16

Descriptive Statistics for Fall 2011 Partnership Pairs Selected for Case Study

Variable	Fall 2011 Cohort Means (N=110 Pairs)	UNCW and Carteret	UNCCH and Durham Tech	ASU and Forsyth Tech
Bachelor's Completion Rate (Attained)	.63	.83	.87	.83
Bachelor's Completion Rate (Predicted)	.64	.67	.72	.70
Inputs (Community College Transfers)				
Gender (% Female)	.54	.43	.42	.39
Race (% Non-Asian Minority)	.24	.13	.39	.13
SES (% Pell)	.62	.70	.65	.45
AA/AS (% transferring with degree)	.36	.30	.48	.17
AAS (% transferring with degree)	.14	.22	.03	.12
Average transfer credits (if no degree)	50	50	54	46
Number of transfers in partnership	35	23	31	23
Transfer Relationship (% of transfers in cohort among total transfers from CC in Fall 2011)	.28	.43	.24	.10
External Environment				
Distance	76.6	93.5	16.3	46.0
Public university in county	---	No	Yes	Yes
No = 0	.12	---	---	---
Yes = 1	.88	---	---	---
Average Median Income	\$30,754	\$28,551	\$31,707	\$31,528
Unemployment Rate	.08	.08	.06	.08
Minimum	.06	---	---	---
Maximum	.12	---	---	---
Internal Environment (University)				
Percent admitted	.63	.57	.34	.68
Minimum	.34	---	---	---
Maximum	.77	---	---	---
GPA of Cohort in 2012	3.0	2.97	3.2	2.62
Minimum	2.3	---	---	---
Maximum	3.7	---	---	---
Age – Percent 25 and over	.18	.15	.05	.07
Minimum	.05	---	---	---
Maximum	.46	---	---	---
Part-time enrollment	.25	.15	.27	.11
Minimum	.11	---	---	---
Maximum	.32	---	---	---
Expenses (Inst/Acad./Stud. Support)	.67	.66	.52	.73
Minimum	.50	---	---	---
Maximum	.75	---	---	---

Appendix D: Point of Contact Email

Dear [name of potential gatekeeper],

My name is [researcher] and I am writing on behalf of my research team [names of other researchers]. We are doctoral candidates in the Adult and Community College Education program at North Carolina State University. Our research focuses on the experiences of transfer students (those that are Pell recipients and those that participated in dual enrollment in high school) and the transfer partnership practices. The first step in our research was to identify NC community college and UNC school pairs that had higher than average rates of transfer students successfully completing bachelor's degrees. From this analysis, we found that students who transferred from [community college] to [university] were more likely to complete a bachelor's degree!

We would like to conduct research on your campus to examine why this may occur. We would like to speak with your administrators, faculty, and staff involved with transfer for a brief focus group. [We would also like to interview students who transferred to your institution from [community college] about their transfer experience.]

We currently have approval to conduct this research from the IRB Office at NCSU under eIRB number 11984.

We would like to conduct this research on your campus, with your approval and possible assistance, during the fall 2019 term. We would need [1 or 2] day(s) to conduct the focus group(s) [and interview students].

Participation in this study is completely voluntary [and has no bearing on your employment]. If you are willing to assist, please respond to this email. I will follow up with additional details once I hear from you.

Thank you for your consideration,

Carrie Bartek, cebartek@ncsu.edu, 919-xxx-xxx

Kara Battle, kabattl2@ncsu.edu, 919-xxx-xxx

Ashley Swing, answing@ncsu.edu, 336-xxx-xxx

Doctoral Candidates

Educational Leadership, Policy, & Human Development – Adult and Community College
Education

North Carolina State University

Appendix E: Focus Group Protocols for Chapter 3

Participants: _____ **Date:** _____
 _____ **Scheduled Time:** _____
 _____ **Start Time:** _____ **End Time:** _____
Interviewer: _____ **Location:** _____

Warm Up

Optional: Have all participants introduce themselves: name, title, and job duties as related to transfer. (Depending on the familiarity of the group this may not be necessary but may increase comfort of participants and foster better discussion.)

Thank you for taking time from your day for this focus group. We have asked to hold this group with people who are involved in transfer from many different perspectives in the college.

1. Can you each tell me about your work as it relates to transfer students?

Questions About Transfer Practices

1. [MAKE TRANSFER PRIORITY: MISSION] Do your leaders communicate the importance of student transfer? If so, how?
2. [MAKE TRANSFER A PRIORITY: PRESIDENT] Which leaders communicate the importance of student transfer?
3. [MAKE TRANSFER A PRIORITY: DATA] Do you regularly review data on transfer students at your college? How is this done at your college?
4. [MAKE TRANSFER A PRIORITY: RESOURCES] How does your college invest in its transfer function? For example, does your college provide release time to faculty and staff to work on student transfer, provide a transfer resource center, etc.?
5. [CLEAR PATHWAYS: COLLABORATE] Help us understand how your students find their way to a bachelor's degree:
 - a. When is a student identified as a transfer in the enrollment process?
 - b. How do you help students understand the steps they should take to attain bachelor's degrees? To what extent do you work with [partner] to do this?
 - c. What do you do to help students in programs whose course requirements cannot always be completed at a community college?
 - d. What transfer advising model do you use?
 - e. How, and how often, are program maps between your college and [partner] updated and improved?
6. [CLEAR PATHWAYS: PREPARATION-NCCCS COLLEGES]: How do faculty at your college design and deliver their courses to "prepare students to meet the expectations at the [4-year partner] college"?
7. [TAILORED TRANSFER ADVISING: NCCCS COLLEGES] How and when do you help students at your college "explore and select a field of study and potential transfer destination"?
8. [TAILORED TRANSFER ADVISING: UNC COLLEGES] How do you help students
 - a. transfer to your college,
 - b. move through their programs, and
 - c. attain bachelor's degrees?

9. [PELL STUDENTS] Are any practices or interventions tailored or targeted to low-income, Pell-eligible students?
10. [CHANGE IN PRACTICE] Think back to the time before CAA implementation was mandated in 2014, and then after revision of the CAA. Did anything change in your practice before and after that time?

Additional Probing Questions

Can you elaborate?

What do you mean?

I am not sure that I am following you. Would you explain that?

Give me an example.

Tell me about it.

Who else was involved?

Interviewer notes

Appendix F: Focus Group Consent Form

North Carolina State University INFORMED CONSENT FORM for RESEARCH

Title of Study: Mixed Methods Analysis of Effective Transfer Partnerships at Two- and Four-Year Colleges in North Carolina and eIRB number 11984

Principal Investigator: Carrie Bartek, cebartek@ncsu.edu, 919-265-9668

Kara Battle, kabattl2@ncsu.edu, 919-215-5445

Ashley Swing, answing@ncsu.edu, 336-971-0878

Faculty Point of Contact: Dr. Audrey J. Jaeger, ajjaeger@ncsu.edu, 919-515-6240

What are some general things you should know about research studies?

You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate and to stop participating at any time without penalty. The purpose of this dissertation study is to gain a better understanding of transfer partnerships between two-year and four-year colleges in North Carolina.

You are not guaranteed any personal benefits from being in this study. Research studies also may pose risks to those who participate. You may want to participate in this research because you may find the discussion interesting and insightful about your transfer practices. You may not want to participate in this research if you do not wish to share any information about your involvement with student transfer.

In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researchers named above or the NC State IRB office (contact information is noted below).

What is the purpose of this study?

The purpose of the study, which is a dissertation in partial fulfillment of the Ed.D. program at NC State in the Adult and Community College Education program, is to investigate transfer partnerships between North Carolina community colleges and UNC System universities and the practices that lead to higher than average success rates.

Am I eligible to be a participant in this study?

There will be approximately 12-60 participants in this study.

In order to be an advisor participant in this study you must be a current employee of a NC community college or UNC System university, and be involved in student transfer practices in some capacity.

You cannot participate in this study if you are not an employee of a NC community college or UNC System university, or not involved in transfer work.

What will happen if you take part in the study?

If you agree to participate in this study, you will be asked to participate in a single 90-minute focus group during the 2019-2020 academic year, which I will be digitally audio recording in order to produce a transcript for later use. All focus groups will be conducted in a quiet space on campus that is mutually convenient for all participants. The focus group will consist of other employees at the same institution that are also involved in transfer work. There will be between 2-10 participants in the focus group. In the event that an in-person focus group is not feasible, then I will arrange a video conference with you at a time that is mutually convenient. I would audio-record our conversation with your consent.

The total amount of time that you will be participating in this study is approximately 90 minutes.

I will also be observing meetings and/or events relating to transfer at your institution, in which you may be in attendance. A college point of contact will inform me of when and where these meetings and/or events will occur so I can attend. My role in observation will be an observer. I will not interfere in any meetings unless you ask me a question. I will record data through field notes (no recording device will be used in the observations).

Audio

If you want to participate in this research, you must agree to being audio recorded. If you do not agree to being audio recorded you cannot participate in this research.

As a part of this research, I would like your consent to audio record you.

☐ I consent to be audio recorded

☐ I do not consent to be audio recorded

Risks and benefits

There are minimal risks associated with participation in this research. The length of the involvement is moderate, so care will be taken to ensure that the timeframe for the focus group is not violated.

The risk involved is social/reputational. You may feel uncomfortable answering some questions in your focus group. The questions in the focus group protocol ask about topics related to your involvement with transfer practices and partnerships. The likelihood of you experiencing anxiety or discomfort is slim, although it may be dependent on your experiences at your institution or with your partner school. You likely have discussed these topics with peers, family, or university faculty/staff, thus minimizing your anxiety discussing their experiences. The steps taken to minimize these risks include allowing you to take your time with responses during focus groups. You can also skip a question or withdraw participation at any point.

The risk involved is financial/employability. Employees may feel uncomfortable answering some questions in their focus group. The questions in the focus group protocol ask about topics related to your role in the transfer process. The likelihood of you experiencing anxiety or discomfort is slim, although it may be dependent on your experiences at the institution and with partner institutions. Participants who meet the criteria for this study are likely to have discussed these topics with other college faculty/staff, thus minimizing their anxiety discussing their

experiences. The steps taken to minimize these risks include allowing you to take their time with responses during focus groups. You can also skip a question or stop participation at any point.

Preserving your confidentiality is the primary concern and every effort will be made to do so during the study (see confidentiality section below). Participants will not be identified in the discussion of findings using real participant names. All public sharing of the study's findings and discussion will remove identifiers and replace participant names with appropriate pseudonyms.

Participating in this study can provide direct benefits such as insight that leads to new learning. The study will facilitate a better understanding about the practices and partnerships of two-year and four-year NC colleges that have higher than average bachelor's degree completion rates. The insights gained from the study may have useful implications for practitioners and scholars at your institution and the field of higher education.

Right to withdraw your participation

You can stop participating in this study at any time for any reason. In order to stop your participation, please tell me to stop the focus group and that you are no longer interested in participating. Remember, being in a study is up to you and there will be no penalty if do not want to participate or change your mind and want to stop participating.

If you choose to withdraw your consent and stop participating you can expect me to thank you for your time and reiterate the confidentiality procedures described below. No one on your campus will be told about your participation withdrawal.

Confidentiality

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely on a password protected personal laptop. Electronic data will be stored in a Google Drive folder within my personal North Carolina State University Two-Factor Authentication Google Drive. Unless you give explicit permission to the contrary, no reference will be made in oral or written reports which could link you to the study. Individual data with identifiable details removed may be made available to the public as required by a professional association, journal, or funding agency. All audio recordings of the interviews will be destroyed post successful final dissertation defense.

Compensation

There will be no compensation for participating in this study.

What if you are a college employee?

Participation in this study is not a requirement of your employment, and your participation or lack thereof, will not affect your job.

What if you have questions about this study?

If you have questions at any time about the study itself or the procedures implemented in this study, you may contact the researchers via email or phone.

What if you have questions about your rights as a research participant?

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact the NC State IRB (Institutional Review Board) Office via email at irb-director@ncsu.edu or via phone at 919-515-8754. An IRB office helps participants if they have any issues regarding research activities.

You can also find out more information about research, why you would or would not want to be a research participant, questions to ask as a research participant, and more information about your rights by going to this website: <http://go.ncsu.edu/research-participant>

Consent To Participate

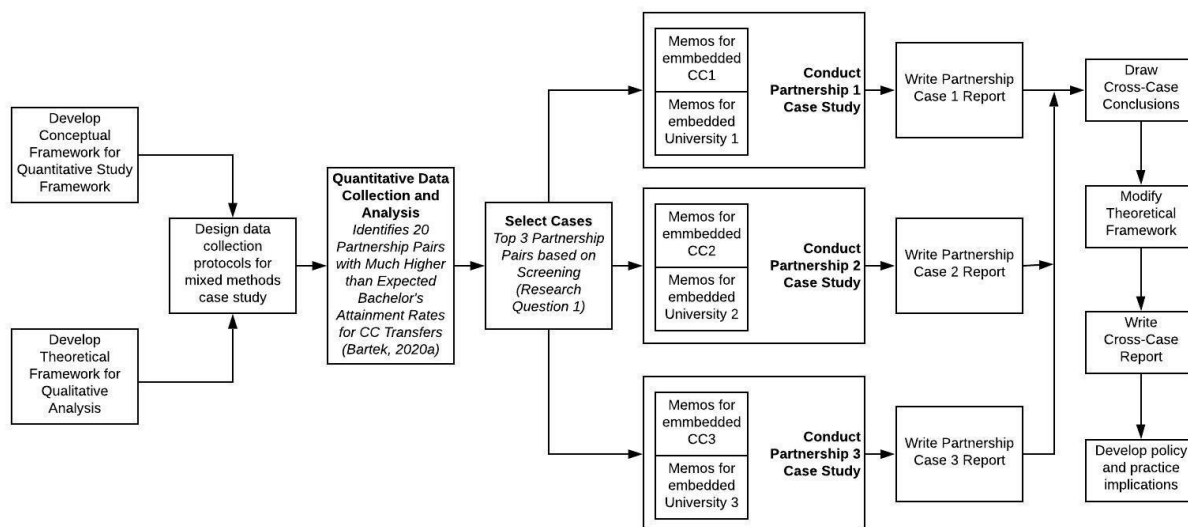
“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

Participant's printed name _____

Participant's signature _____ **Date** _____

Investigator's signature _____ **Date** _____

Appendix G: Mixed Methods Analytical Procedures for Multiple-Case Study



Procedures used in multiple case study design. Adapted from *Case study research and applications: Design and methods* (6th ed.) by R. K. Yin, 2018, Thousand Oaks, CA: SAGE Publications, p. 57.

Appendix H: Subtle Leadership Code Book

Code	Description	Count	% of Codes
PRIORITY-PRESIDENTS	"Personal involvement of Presidents is critically important to prioritizing transfer" (Fink & Jenkins, 2017); Involves meeting with other presidents to determine how to better meet the needs of transfer students. Support of campus leaders important to collaboration (Kisker, 2007)	6	0.8%
PRIORITY-CONNECT TRANSFER TO MISSION	Leaders share the importance of transfer to the mission of the college. They" build and sustain a transfer culture by infusing it into conversations, as well as recognizing those who have forged partnerships with programs" (Fink & Jenkins)	12	1.6%
PRIORITY-USE DATA TO IMPROVE TRANSFER	"Leaders at both two- and four-year colleges used data on transfer students disaggregated by race, age, income and sending/receiving institution to build awareness and debunk myths." To be clear, this implies not only using data at the institutional level, but actively creating opportunities to share that data with faculty and staff. (Fink & Jenkins, 2017).	42	5.4%
PRIORITY-RESOURCES Adequate Funding for Collaboration	Adequate funding needed for faculty and staff to go to one another's campuses for collaboration (Kisker, 2007) ."Faculty and staff need release time to align and clarify pathways". Fink and Jenkins, 2017	3	0.4%
University Presence/ Teaching on CC Campuses	Kisker (2007) found this to be important to collaboration among CCs and universities. Fink & Jenkins (2017) also found "establishing a visible presence on partners' campus is another investment with a high return". One way to do this is for university teach on the cc campus and cc to teach on university campus	12	1.6%
Transfer Center	Building/Area/Website Designed for Transfer Students	3	0.4%

Appendix H: Shared Values Coding

Code	Description	Count	% Codes
Student Centered Culture (Community College)	<p>“... Emphasiz[es] personal attention, ease of service convenience, collaboration, and innovation. All their outreach and support programs, including TRIO Student Support Services, tutoring, and advising operate on flexible schedules designed to meet the needs of both day and evening students.”</p> <p>“A culture of transfer ensures that...students are well-informed about the transfer process and are supported, both academically and socially”. (Miller,2013)</p>	2	0.3%
Transfer Receptivity (University Culture)	<p>The institutional commitment by a four-year college or university to provide the support needed for community college students to transfer successfully (Jain et.al., 2011, p. 253)</p> <p>Also referred to as “transfer affirming cultures” at universities (Handel & Williams, 2012)</p> <p>Addresses the presence or absence of community college stigma and culture of the universityShifts the focus to the institutional policies and practices of the receiving institution (Bahr et.al., 2013)</p>	15	1.9%
Accountability	Faculty and staff are accountable to each other in the success of their students	2	0.3%
Analysis of history	Institution builds culture through the analysis of history (Orton & Weick, 1990)	5	0.6%
Enhancement of ceremonies and rituals	Institution builds culture through “the identification of heroes and heroines, the enhancement of ceremonies and rituals (Orton & Weick, 1990)	2	0.3%
Small College	An asset that helps community college be student-centered – students are “known” by faculty and staff	7	0.9%

Appendix H: Focused Attention Coding

Category	Code	Description	Count	% Codes
FOCUSED ATTENTION\ CLEAR PATHWAY S- COLLABOR ATE TO CLARIFY THE PATHWAY DYAD PARTNERS HIPS	TAC	Authority to interpret CAA policy rests with the TAC. The TAC is an eight-member committee appointed by the Presidents of the North Carolina Community College System and The University of North Carolina.	3	0.4%
	CAA	North Carolina Comprehensive Articulation Agreement. Purpose is to optimize the transfer of credits between the institutions of the North Carolina Community College System and the University of North Carolina institutions.	47	6.1%
	Degree Plans	Baccalaureate Degree Plans (BDPs) detailing the courses that transfer between specific pairs of NCCCS and UNC colleges for specific programs	37	4.8%
	AAS/Bi-Lateral Agreements	Articulation agreements between specific pairs of NCCCS and UNC colleges for specific programs	9	1.2%
	RELATIONSHIPS	Establishing and sustained relationships key to collaboration (Kisker, 2007).	18	2.3%
	External Communication	Communication between community college and university partner	21	2.7%
	ADVISING COMMITTEE	Internal cross-functional committee of faculty and staff devoted to advising	12	1.6%
	Professional Development	Support for faculty and frontline staff members by creating strong professional development opportunities around clear pathways for students (Jenkins et. al., 2014).	13	1.7%

Category	Code	Description	Count	% Codes
PATHWAY\INTERNAL COLLABORATION	INTERNAL COLLABORATION GENERAL	The extent to which institutions collaborate internally on student pathways.	28	3.6%
	Transfer Priority/Flexibility in Scheduling	Evidence that community college or university focuses on making sure transfer students can enroll the courses they need to transfer and when they transfer	5	0.6%
FOCUSED ATTENTION\ CLEAR PATHWAYS- PREPARATION	Prepare students for upper level coursework	Extent to which students at community college are prepared for upper level course work.	18	2.3%
	RIGOR	Perception among university staff as to whether or not community college courses have adequate rigor for transferring to university	5	0.6%
FOCUSED ATTENTION\ TAILORED TRANSFER ADVISING\ CC TRANSFER ADVISING	ACA	ACA 122, College Transfer Success - required course in the A.A. and A.S. curriculum standards. Helps students develop clear academic and professional goals beyond the community college experience.	11	1.4%
	CAREER/ MAJOR EXPLORATION	Community college advising works with student's to explore careers.	7	0.9%
	Early Selection of Transfer Destination	Community college guides students to select a university destination early.	12	1.6%
	CC Advising General	-Field of Study: Helped Students Explore and select a field of study and potential transfer destination as early as possible (Fink & Jenkins, 2017; Handel & Williams, 2012). -Monitor student's	57	7.4%

Category	Code	Description	Count	% Codes
		progress through software -Assist with making a financial plan		
	Credit Accumulation/Excess Credit	Accumulation of credit not aligned with degree	10	1.3%
	Monitoring Student Progress	Community college intentional efforts to monitor the progress of students along there pathway	2	0.3%
FOCUSED ATTENTION\TAILORED TRANSFER ADVISING\	Credit Acceptance	Universities conducting transparent transfer credit evaluations (Handel and Williams, 2012) and are flexible in swapping courses.	19	2.5%
UNIVERSITY ADMISSIONS\	Guaranteed Admission Programs	Exclusive programs that guarantees admission for students who complete an academic contract delineating required courses and grades, and guarantee junior standing in one's major (Jenkins et.al., 2014). Examples: C-STEP Program with UNC-Chapel Hill	8	1.0%
TRANSFER PROGRAMMING	FINANCIAL AID	Financial aid offered at university	30	3.9%
	University Admissions Advisors on CC Campus	University outreach to transfer students (Handel and Williams (2012). Examples include bridge advisors for transfer students in transition; transfer orientation;	17	2.2%
	Transfer Registration	Adjusting course registration deadlines for transfer students.	3	0.4%
	TRANSFER PROGRAMMING	Includes transfer student orientation that shows the university is welcoming to transfer students and to "recognize the value of transfer students' prior experiences". Hiring former transfer	36	4.7%

Category	Code	Description	Count	% Codes
		students to lead orientations establishes credibility and encourages a sense of belonging (Fink & Jenkins, 2017). The timing of these orientation is also important to make sure students are not shut out of classes.		
	Co-Admission Programs	Create co-admission/concurrent enrollment agreements where students have access to services, as well as classes, at both institutions, and put in place reverse transfer process to award transfer students' credit toward associate degrees taken at the university (Jenkins et. al., 2014)	3	0.4%
	TRANSFER CENTER/ SERVICES	Create a campus “home” for transfer students by establishing a campus transfer center that has strong connections to academic departments, student services and the registrar (Jenkins et.al., 2014).	4	0.5%
	Transfer-Specific Advising	University student services specifically focused on advising transfer students	12	1.6%