**ABSTRACT**

BRUMMITT, LAURIE CHARLENE. A Q Methodology Study of Community College Leaders' Viewpoints on Student Labor Market Success Measures in North Carolina. (Under the direction of Dr. Diane Chapman).

Student success is a movement mobilizing various community college stakeholders to make policy and institutional change. More recently, researchers, policy leaders, and other community college stakeholders suggest expanding definitions of student success to include community college student post-graduate labor market outcomes, as community college are now more than ever relied on to alleviate labor market supply and demand gaps. This research aimed to uncover the viewpoints of on-campus community college leaders towards the labor market success measures they believe demonstrates their students' labor market success. Less is known about the internal on-campus community college perspectives. Typically, external entities impose definitions onto community colleges that do not exemplify the unique characteristics of community college students and economic contexts in which schools are positioned. Understanding these internal community college stakeholder viewpoints strengthens the development of student success frameworks and definitions of labor market success. Q-methodology was the approach used to investigate the viewpoints of on-campus community college leaders, as it offers a way to uncover viewpoints by determining what groups of participants thinking similarly about a topic. This study explored the subjective viewpoints of a diverse sample of twenty-two on-campus community college leaders in North Carolina. Participants represented 17 community colleges, hold diverse leadership roles, and are positioned in different labor markets across the eight prosperity zones in North Carolina. Participants sorted 30 labor market measure statements using QMethod software.

Study participants sorted into two viewpoints. The first viewpoint "*Employers are Our Top Priority*" focused on employer satisfaction and workforce readiness. Leaders with this viewpoint believe the employer stakeholder perspective is the most important in communicating if the community college has effectively prepared students to meet the demands of industry. They believe employer satisfaction leads to development of a strong education to workforce pipeline, meaning the community college graduates become a talent pool resource for employers, which ultimately creates a healthy positive cycle of workforce and economic development for their community and the state. The second viewpoint, "*Graduates' Economic Well-Being Is Our Top Priority*" focuses on the importance of labor market success of the graduates. Leaders with this viewpoint are most concerned that their community college education has equipped students to earn a livable sustainable wage. They believe labor market success means credentials have high value and lead to long-term economic stability.

Findings from this study have implications for those developing student success frameworks, community college practitioners and policy makers. Findings can be used to enhance current student success frameworks by shedding light on a more comprehensive set of measures and broader definitions of student labor market success. Additionally, North Carolina community college governance entities can used findings for strategic planning discussion by using the two resulting viewpoints as a starting point for discussing the measures that communicate the goals, plans, and values of the community college system. The framework could also be foundation for a future study that converts the 30 statements into a survey and sent system-wide to more quickly and vastly ascertain opinions and ideas about how North Carolina's community colleges believe the labor market success of their students should be measured.

**Keywords:** community college, student success, labor market success, labor market outcomes, on-campus leaders, internal stakeholders, framework, Q methodology, and viewpoints.

# A Q Methodology Study of Community College Leaders' Viewpoints on Student Labor Market Success Measures in North Carolina

by
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# DEDICATION

This dissertation is dedicated to my parents Elliott and Charlene Brummitt, my husband, Ashish Bhattarai and my two sons. My parents instilled in me a constitution of grit, perseverance, and curiosity. Those qualities combined with their support, encouragement, love and belief that I can do anything I set my mind to has led me to this point. It is with that background that I was able to work through this long arduous process and earn my PhD.

I dedicate this to my husband who has and continues to support and inspire me. Watching how hard he works and with such grace has always provided a quiet yet powerful influence to keep going. His belief in me joined with an unwavering supportive environment in which time did not have to be of the essence allowed me to achieve this moment, and for that I am grateful. I also dedicate this to my two sons because they are simply the most incredible human beings and I want them to be proud of their mom.

# BIOGRAPHY

Laurie Brummitt is a native Chapel Hillian. She obtained her undergraduate degree in Interpersonal and Organizational communication from Appalachian in 2003. After graduating she worked in the sales and marketing field in different industries for almost ten years. After completing a master's in Human Resource Development at North Carolina State University, she continued her passion for learning and earned her doctorate in workforce development from North Carolina State University. Laurie's aspirations include teaching, learning, research and practice in the areas of organizational development, leadership, and workforce development in the Raleigh, NC area. She and her husband continue to learn the most from parenting their two incredible sons: Henry and Elliott.

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# Chapter One: Introduction and Background

Student success is a movement mobilizing various community college stakeholders to make policy and institutional change. In the last twenty years, there has been a shift in the definition of student success from a focus on access to a focus on degree completion (The Aspen Institute, 2017a). More recently, researchers, policy leaders, and other community college stakeholders suggest expanding definitions of student success to include community college student post-graduate labor market outcomes, as community college are now more than ever relied on to alleviate labor market supply and demand gaps. As such, research on community college student labor market success has gained significant attention (AACC, 2012; Saleh & Sentz, 2017; Higher Learning Commission, 2018, Minaya & Scott-Clayton, 2019; The Aspen Institute, 2014; and Zeidenberg, Scott, & Belfield, 2015). Recent research on community college student labor market success suggests the typical measures used to evaluate the labor market success of community college students, employment rate and wage earnings one-year post-graduation, are limited (Kalleberg & Dunn, 2015; Minaya & Scott-Clayton, 2020; The Aspen Institute, 2014; Zeidenberg, Scott, &Belfield, 2015). Research also shows there is disagreement about the time points at which institutions should capture this data (Minaya & Scott-Clayton, 2019). Additionally, different community college stakeholders hold different perspectives about labor market success. The AACC (2012) stated, on-campus community college leader perspectives are unclear and less understood. This study explored the viewpoints of on-campus community college leaders to enhance discussion and definitions of community college student labor market success.

The demand to track and report labor market data is not a new concept for community colleges. For example, wage and employment data have been collected for several years within

the Career and Technical Education side of the community college (The Aspen Institute, 2014). However, the public demand for accountability to demonstrate labor market outcomes for all programs, and types of students (credit and non-credit) is significantly increasing (AACC, 2012; Minaya & Scott-Clayton, 20219; The Higher Learning Commission, 2018; Zeidenberg, Scott & Belfield, 2015). The public demand for accountability in education originally cropped up in the Spellings Commission report, which called for higher education institutions to be transparent and accountable to the outcomes they produce (Department of Education, 2006). Specifically, the report states, "the lack of useful data and accountability hinders policymakers and the public from making informed decisions and prevents higher education from demonstrating its contribution to the public good" (p. 4). This call has been amplified by concerns about the nation's declining degree attainment, increasing student debt, and employer demands for qualified workers (The Higher Learning Commission, 2018).

This strong public demand for education institutions to demonstrate their value prompted changes in definitions of student success. Success or policy goals related to the success of community colleges have been traditionally defined as the extent to which all interested students, especially those from marginalized populations, have *access* to enroll in community college (Bailey, 2016; Jenkins, 2014). Therefore, in the past, high enrollment numbers constituted the most important measure of success and consequently how much funding a community college received (Bailey, 2016; Jenkins, 2014). Ideas and definitions of success have shifted towards an outcome's mindset. Now success is demonstrated in the number of students who have completed a postsecondary credential (e.g., certificate, diploma, or associate degree), but a completion metric is still not enough (AACC, 2012; Aspen, 2017b; Bailey, 2016; & Carnevale, Smith & Strohl, 2010). According to the Aspen Institute (2017b), "Real success involves producing

graduates who are truly prepared for what comes next, as evidenced by what they accomplish after leaving the institution" (p.4).

Community college completion data shows that less than 40% of students enrolled earn a degree within six years (Bailey, Jaggars, & Jenkins, 2015). This percentage of completion is even less (31.6%) when evaluating at "150 percent of normal time" or the 3-year mark (National Center for Education Statistics, 2018, Table 326.20). These outcomes do not look good when stacked up against the high demand to relieve skills and demand shortages (Carnevale, Smith & Strohl, 2010). A recent workforce assessment by Carnevale, Smith and Strohl (2010) suggested 30 percent of all job-openings will require some type of postsecondary vocational certificate, industry-based certification, college credits, or an associate degree; however, there are not enough educated and prepared workers to fill these jobs. Essentially, students are not completing and leaving with the appropriate credentials to meet workforce demands (Carnevale, Smith & Strohl, 2010; Rutschow, Richburg-Hayes, Orr, Cerna, Culinan, Kerrigan, Jenkins, Gooden, & Martin, 2011).

These realities have amplified the need for comprehensive reform at community colleges to improve student success and determine appropriate measures of student success beyond completion (Minaya & Scott-Clayton, 2019). Others argue that more needs to be understood about the persistent barriers towards completion (Bailey, 2016; Bragg and Krismer, 2016; Kinzie & Kuh, 2016). Additionally, other research points to the need to know more about the quality of the education that students receive, and that current measures that stem from accreditation are inadequate (American Council of Trustees and Alumni, 2007; Carnevale, 2016). Anthony Carnevale, an expert in higher education and workforce development in an interview with Carter (2016) of EducationDive stated that our current quality standards do not measure what is

meaningful for the changing nature of the education to work relationship. He states, “We have no quality standards that matter, accreditation doesn’t do the job because it has nothing to do with the job…” (p.1).

Organizations, constituencies and initiatives are also contributing to the conversation on evaluating and measuring how community colleges are meeting local, regional, and national workforce development needs (AACC, 2012). The Aspen Institute (2019) created The Aspen Prize for Community College Excellence. This prize evaluates learning, completion, labor market, and equity components. The goal is to improve the nation’s understanding of community college student success. They define their labor market dimension by “high rates of employment and earnings for graduates, as well as institutional practices and policies aligned with labor market needs” (p.8).

Likewise, the American Association for Community Colleges (2015) created the Voluntary Accountability Framework to improve quality and universality of success measures because in their comprehensive assessment of community college measures they found that “commonly used measures do not adequately capture data on progress and outcomes for community colleges” (p. 1). They have also recognized the need for relevant measures of student workforce, economic, and community development (WECD), but point out “this is an area for which data are woefully insufficient” (AACC, 2012, p. 46).

Too add to this complexity, community colleges are located in urban and rural areas, serve demographically different students, and have access to varying levels of resources. In examining how community colleges would like to be measured, it is important to understand their nuanced labor markets (Kasper, 2009; Lebesch, 2012). In rural areas that are more economically distressed, measuring unemployment rates and median wage post-graduation may

not honestly demonstrate their students' success. Acknowledging the contrasts in economic contexts supports the need to understand what, if any, differing viewpoints may emerge among internal community college leaders across different economic contexts.

It is crucial that colleges and external accountability systems not only use the right labor market information to understand their students' success. It is also critical they use the data to enhance career opportunities, programs, policies and practices that increase student outcomes. After all, the strength of local economies and productivity of their employers depends heavily on the quality of the workers community colleges produce.

**Nature of the Problem**

The link between community college education and the promise of a good job has never been more important (The Aspen Institute, 2014; Carnevale, Jayasundera, & Cheah, 2012). Community colleges are in an interesting position as they are challenged to meet the expectations of their mission, students (enrolled and prospective) and state (The Aspen Institute, 2014). Historically, external entities, such as associations, governments, accreditors, have decided what community college should be measuring to demonstrate their success (AACC, 2012; The Aspen Institute, 2014; Lebesch, 2012; Perez-Vergana, Lanthrop & Orlowski, 2018). Without a better understanding of how community colleges want student labor market success to be measured, these external associations, governments, accreditors, and other external entities will likely continue to impose their ideas on them. Furthermore, The AACC (2012) stated "failure by those within the community college sector to build a valid alternative and to propose a solution will leave in place measures that do not fit community colleges and that perpetuate a misunderstanding of mission," and economic context (p.20).

The Aspen Institute, American Association of Community Colleges (2012), and others (Dimino, 2019; Kasper, 2009; Lebesch, 2012; Minaya & Scott-Clayton, 2016; Minaya & Scott-Clayton, 2019; Minaya & Scott-Clayton, 2022; Saleh & Sentz, 2017) state that community colleges need data definitions and systems that provide a full picture of the value they produce. As local economies have nuances, universal measures might not work. Saleh and Sentz (2017) from EMSI stated, "Program development, workforce development, economic development, and talent acquisition are best done at the local level where organizations can apply a targeted, economics/data-centric strategy" (p.22). Therefore, data that is generated for larger geographic areas, such as national data produced in the aggregate, is likely of little use for decision making at the local institutional level (Lebesch, 2012).

The America Association of Community Colleges (2012) stated "community colleges need a system of accountability that is developed by community colleges, for community colleges" (p. 20). They further explain that community college accountability systems have not been designed based on based on missions and communities they serve. The America Association of Community Colleges (2012) stated, "Historically, the community college sector has been subject to data definitions and accountability systems designed predominantly for 4-year institutions or based on traditional concepts of education and community" (p. 20). Likewise, Dimino (2019) argues that because the federal government student outcomes reporting requirements are the same for two-year and four-year institutions, evaluating two-year institutions by these traditional outcomes metrics fails "to account for the multiple missions of community colleges, the diversity of the students they serve, and the variety of educational pathways those students pursue" (p.1). Community colleges need comprehensive but nuanced

measures of labor market success to communicate the full and true contribution they make to their stakeholders.

Moreover, the typical labor market outcome measures of graduates'—employment and wage earnings a year after graduation—are simply not enough (Minaya & Scott-Clayton, 2019). These measures are often used because they are accessible, available, arguably straightforward, and important outcomes to measure, but they are viewed by researchers as limited, unreliable or inadequate (Kalleberg & Dunn, 2015; Minaya & Scott-Clayton, 2019; The Aspen Institute, 2014; Zeidenberg, Scott, & Belfield, 2015). Using limited and narrow measures (e.g., only employment and earnings) may weaken the true contribution that participation in community college makes to local, state, and the national economy (Kalleberg & Dunn, 2015; Kasper, 2009; Minaya & Scott-Clayton, 2019). Moreover, "reliance on any one metric—particularly one measured early—may unintentionally undermine policymakers' ongoing efforts to accurately quantify institutional performance" (Minaya & Scott-Clayton, 2019, p. 99). Revealing community college leaders' beliefs about the labor market success measures that are most important in demonstrating their students' success, creates potential to expand definitions of labor market success and student success frameworks in ways "that fully account for the unique characteristics of community colleges and the unique educational and life experiences of their students" (AACC, 2012, p. 21).

**Problem Statement**

Although the labor market success of community college students is arguably the most important dimension of student success, there is a lack of research on the perspectives of on-campus community college leaders about the labor market success measures that are most important to them (The America Association of Community Colleges, 2012). Community

colleges have typically been subject to systems of accountability and definitions designed for four-year intuitions or based on traditional ideas of education and community. As a result, internal community college thinking about new useful possible labor market success measures may be constrained, making it hard for on-campus leaders to think outside the proverbial box given the oversight and imposed ideas previously mentioned. Furthermore, the current labor market success measures are insufficient and do not account for the varying economic contexts in which each community college is positioned.

A deeper understanding of how on-campus community college leaders that hold different positions and work in community colleges positioned in different regions and labor markets want the labor market success of their students to be measured, supports the development of richer nuanced conversations about community college student labor market success. Furthermore, findings form this study can be used to design frameworks that adequately address labor market success in ways that truly capture the unique characteristics of community college education, the unique educational and life experiences of their students, and their distinctive labor markets in which they are positioned.

**Purpose of the Study**

The purpose of this study was to explore on-campus community college leaders' viewpoints towards various measures of student labor market success. Discerning these different subjective viewpoints may help to strengthen the development of student success frameworks and definitions of labor market success, as individual on-campus community college leaders had the opportunity to make choices that communicated their beliefs about labor market success. The researcher used Q methodology and investigated the viewpoints of on-campus community

college leaders, who hold different leadership positions located in various community colleges positioned in different regions and labor markets in North Carolina.

**Research Questions**

The following research questions guided this study:

1. What are the viewpoints of on-campus community college leaders toward community college student labor market success measures? And why?
2. What consensus and distinguishing statements emerge across the viewpoints?
3. How do community college leaders in different leader positions characterize their stakeholder salience?

**Theoretical Framework**

Stakeholder theory is the theoretical framework used to guide this study. Stakeholder theory originated from Freeman's work in the 1980's. A stakeholder is defined as someone that "can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). This strategic management theory suggests that organizational success rests on the ability to simultaneously create value for and manage the interests of those that have a stake in the outcomes of the organization, regardless of their power or position (Freeman, 1984). The theory analyzes stakeholder relationships to explain the different realities that exist within an organization. Fundamentally, the theory recognizes all stakeholders as responsible for the sustained existence of an organization and therefore all stakeholders should be equally valued.

Stakeholder theorists Donaldson and Preston (1995) further described this theory by delineating three "uses": descriptive, instrumental and normative. The normative use (moral component) is at the center. Implementing the three uses is iterative and supports Freeman's

ideas to accept all stakeholders' interests as inherently valuable regardless of their power or financial influence, or "whether the corporation has any functional interest in them" (p. 67).

Mitchell, Agle and Wood (1997) contributed another important layer to the theory that diverges from the previously held notions about holding stakeholders as equals. They tie together these descriptive and normative aspects in their framework but address a reality that some stakeholders should take priority over others, or what they call salience. Salience is the "degree to which priority is given to competing stakeholder claims" (p. 869). They suggested stakeholder salience can be analyzed by identifying a stakeholder's possession or attributed possession of one, two, or all three attributes (power, legitimacy, and urgency).

Stakeholder theory is grounded in blending the concepts of business and ethics (Freeman, 1994). In this study, the theory raises questions about the unequal valuing of certain stakeholder interests and supports the call to solicit perspectives from on-campus community college leaders that hold different position titles to gain a cursory look at their self-perceived levels of stakeholder salience.

**Conceptual Framework**

The conceptual framework for this study is illustrated in Figure 1.1.

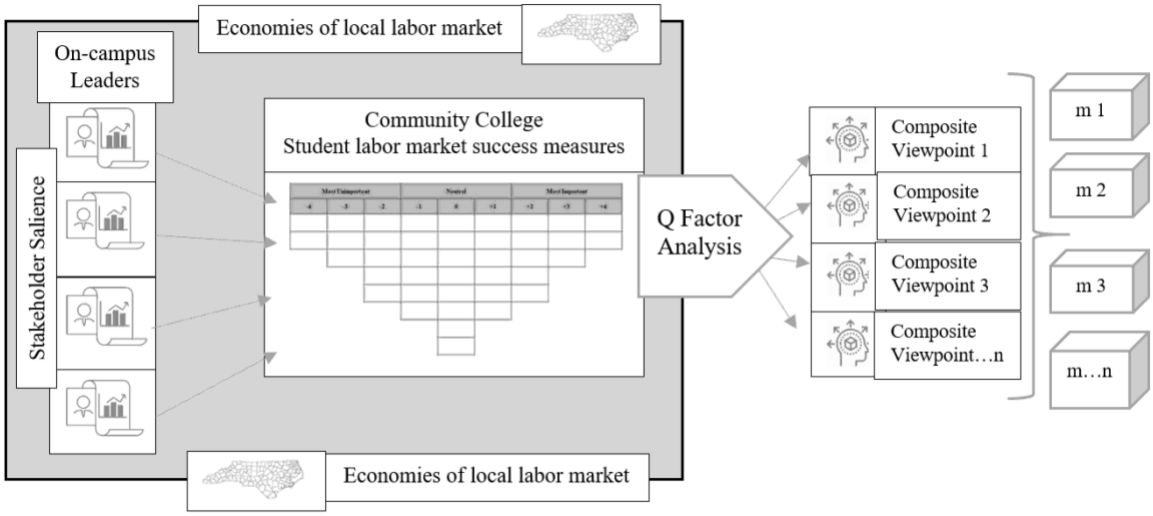


*Figure 1.1.* Conceptual Framework

From the left, the figure illustrates four stacked duplicate images, which were borrowed from an Aspen Institute report on labor market outcomes (The Aspen Institute, 2017a). The stacked stakeholder images represent the different on-campus leader roles and the knowledge they bring with them to inform the findings of the study. The individual stakeholder images are all the same size, as their interests and contributions to the study are considered equally legitimate (Freeman, 1984). The four stacked stakeholder images are framed by stakeholder salience. Stakeholder saliency may differ across stakeholders. Stakeholder salience was self-determined through a brief survey to add more context around the interpretation of findings.

The directional arrows from the stacked stakeholder boxes to the center box (Q sort response grid) represents the flow of their input into the main data collection activity (Q sort). The sorting grid is titled “Community college student labor market success measures” as the main question addressed in this study is what on-campuses leaders believe are the labor market success measures most important towards demonstrating their students’ labor market success. Participants completed the main data collection activity, which required each person to sort and

rank the digital deck of labor market success statements. Each statement was placed on the quasi normal forced distribution grid (shown in the image as the upside down distribution grid). The box bordering the stakeholders and distribution grid, labeled "economies of local labor market," acknowledges the context of their local labor market, defined by their urban or rural and state economic tier designations.

Leaders' Q sorts were processed through the Q factor box, which represents the analysis approach employed. The Q factor analysis calculations resulted in composite viewpoints about community college student labor market success. The last composite viewpoint box (… *n*) represents that at the start of the study, the number of composite viewpoints is unknown. The composite viewpoints are bracketed and pointing to a list of boxes with (m) inside, which illustrates the inquiry into where measures of consensus might exist among resulting composite viewpoints. Again, the last box shows (m…*n)* as the number of consensus items because at the start of the study the number was unknown.

**Significance of the Study**

There are three primary reasons why this study is significant: (1) community colleges are the most desired and viable solution to job supply and demand issues facing local, state, and United States' economy, so it is important we understand how well graduates perform post-completion, (2) there is a need for exploring the viewpoints of an internal perspective on the issue of labor market success, and (3) the findings could have practical implications for community colleges and policymakers on the topic of measuring community college student labor market success.

Community colleges are arguably the most crucial workforce development intervention for educating and upskilling the nation's workforce today (Aspen Institute, 2014; AACC, 2012).

They educate over 40% of the nation's postsecondary student population and offer vocational certificates, industry-based certifications, and associates credentials needed to fulfill labor market demands and shortages (Carnevale, Smith & Strohl, 2010). Community colleges are decidedly the most viable pathway to several middle skills jobs. If community colleges intend on meeting internal and external educational attainment goals, accountability and transparency requirements, student and employer needs, then more than ever they need broad and comprehensive labor market success measures to evaluate the outcomes of these endeavors. More comprehensive labor market success data can be used to monitor and evaluate graduate success, to inform institutional and programmatic improvements, and inform labor market and student success goals, as well respond to increasing accountability demands (The Aspen Institute, 2014; AACC, 2012; Saleh & Sentz, 2017).

Understanding definitions of labor market success from perspectives that intimately understand the dynamic of the local economies community colleges serve, could provide more accurate insights for internal and external entities developing frameworks that target student and institutional success goals. For example, findings from this study could be used to enhance external frameworks, such as the Voluntary Accountability Framework, created by the American Association of Community Colleges (2012), who believe that "community colleges need measures and approaches to document success in ways that fully account for the unique characteristics of community colleges and the unique educational and life experiences of their students" (p. 21). They admit their workforce, economic and community development dimension, which includes labor market outcome measures needs further development.

Additionally, state policymakers that may consider tying higher education funding to post-graduate labor market outcomes could use these findings to understand the nuanced

viewpoints of community college leaders on the labor market success measures they believe are best suited to describe their local community college performance. Therefore, findings from this study may increase the accuracy of performance based funding policies that support, rather than potentially undermine, the missions, values, and outcomes that community colleges intend to produce. For example, if performance based funding is tied to measuring graduates' employment rates one year after graduation for a community college focused on the rate of success of students who transfer to four-year baccalaureate institutions, then an employment rate metric may not reflect the genuine success of that college. Secondly, policies such as this may result in colleges weakening their transfer mission to focus on meeting a different performance policy, consequently impacting their original values and missions.

There is a wide array of community college stakeholders, which have competing interests. Likewise, different stakeholders impose nuanced accountability and transparency demands on community colleges. These competing interests and demands are compounded by data, personnel and resource constraints that community colleges leaders face. These interests, demands and constraints may limit community college leaders' imagining of alternative or new measures (Bers, 2012). This study makes an important contribution by giving priority to on-campus community college leaders by offering them an opportunity to provide their personal unconstrained, candid, and authentic, opinions and beliefs about community college student labor market success measures.

In general, this study generated a more comprehensive list of labor market measures for leaders to consider. The resulting list could be used to inform on graduates' performance in the labor market, the contribution community colleges make to their community, individual well-being of students, and workforce readiness for soon to be graduates. Furthermore, data gained

form a comprehensive set of labor market measures can be used to prepare more compelling marketing material to attract potential students and funders (Claggett, 2012), and help advise students in credit or non-credit programs to choose viable career opportunities that fit their needs (The Aspen Institute, 2014; Herndon, 2012).

**Overview of Research Methodology**

Q-methodology was developed by William Stephenson in the 1930s. It is a methodology used to quantify one's subjective beliefs about a topic. It is a mixed method approach that uses quantitative procedures (factor analysis) with qualitative goals in mind (McKewon & Thomas, 2013; and Watts & Stenner, 2012). Subjectivity pertains to "the sum of behavioral activity that constitutes a person's current point of view" (Watts & Stenner, 2012, p.26). Behavioral activity is the expression of one's beliefs, values, ideas manifested through the Q sorting activity. The methodology can provide insight into the current thinking on a topic. Q methodology was selected for this study for two reasons. First, the method generates the major shared subjective viewpoints about a topic and exposes the similarities and differences between them. Second, Q considers the need to preserve all voices. Q honors all voices by unearthing both "dominant" and "muted" ones. This study focused on surfacing the less known internal community college leader views about measures they believe demonstrate the labor market success of their students. Q methodology provides justification for exploring community college leaders' unconstrained internal frames of thinking.

Q studies are implemented through several steps (McKeown & Thomas, 2013):

(1) Develop a concourse of statements.

(2) From the concourse select a Q sample of statements.

(3) Recruit participants to form the P sample and design condition of instruction.

(4) Ask participants to sort statements on a prearranged distribution (Q sort), guided by the condition of instruction.

(5) Ask participants to complete post Q-sort data collection activities ( brief survey).

(6) Factor analysis using the Q technique.

(7) Interpret results.

The community leaders in this study held different leader positions and possessed different levels of influence and power within their community colleges. Leader participants represented 17 community colleges located in different labor markets, and regions in North Carolina. A wide range of labor market success measures, collected across various publications, and informal interviews with community college stakeholders were used to generate the list of 30 community college labor market success measures used for the Q sort. Data was collected from community college leaders, who are either held accountable to or assess labor market data within their community colleges as a part of their job responsibilities. Leaders in these positions have a deep understanding about what is happening in their local/regional labor market, what external stakeholders (employers, grants-making foundations, and funders) are looking for, and are experienced in working with the data that is reported to top leadership at their institution and other external accountability entities. Leaders were asked to sort the set of 30 statements based on their beliefs about the labor market measures most important towards demonstrating their students' success in their local labor market. Data from the sorts were analyzed through factor analysis procedures using KADE/KEN Q analysis software. Following the Q Sort, leaders completed a post-sort questionnaire, which provided more clarification to understand the participant composition of a viewpoint. All data were analyzed, interpreted and findings and

conclusions are reported in Chapters four and five. The details of the method and research design used in this study are outlined further in Chapter Three.

**North Carolina.** This study took place in North Carolina, which has the third largest community college system in the United States. The North Carolina Community College Systems Office (NCCCS) oversees 58 community colleges across 100 counties. Each resident lives within 30 minutes of a college and 681,187 North Carolinians were enrolled in community college education in the 2017-2018 year (NCCCS, 2019). The most recent reported graduation data shows that the North Carolina Community College system graduated over 38,000 students with a diploma, associates degree, or certificate in 2014-2015 year. In this same year, customized industry training programs served 37,000 individuals representing 861 companies. Economic impact results show that for every $1 dollar spent in taxes on community college education, $4.10 is gained (NCCCS, 2014).

Four different North Carolina maps were used to carry out the recruitment activities to ensure a geographically and economically diverse sample. North Carolina community colleges are positioned in different prosperity zones, they are in counties with unique labor markets, and each designated with an economic tier, and are labeled either rural or urban.

The North Carolina Department of Commerce (NCDOC) annually ranks each county's economic well-being based on four factors: (1) average unemployment rate, (2) median household income, (3) percentage growth in population and (4) adjusted property tax base per capita. The calculation is used to assign an economic tier designation (1, 2, and 3) for each county. The purpose of this system is to boost "economic activity in the less prosperous areas of the state" (NCDOC, 2019). In North Carolina, forty counties (40) are designated as Tier 1 (most

distressed), another forty (40) are in Tier 2 (somewhat distressed), and twenty (20) are designated as Tier 3 (least distressed).

**Limitations and Delimitations**

This section acknowledges the limitations and delimitations that may have impacted the outcomes of the study, and the researcher's efforts to counteract them. First, a goal of this study was to recruit community college leaders who are either accountable to or assess data that is regularly tracked by community colleges and reported at the community college system, state, and/or federal levels. Leader position titles are not consistent across community colleges, therefore the researcher targeted executive level (presidents, vice president) and administrative staff level (deans and directors) leaders that regularly deal with workforce development or student success data, and are knowledgeable about student labor market success, based on their roles at their community colleges. Leaders were recruited from community colleges housed across the state of North Carolina. The goal was to have a balanced and geographically, economically, and leader diverse sample. The researcher used four maps to ensure diverse participant recruitment: (1) The North Carolina Department of Commerce's County map, which illustrates the levels of economic distress by county, (2) The North Carolina Health and Human Services Office of Rural Health map, which showed which counties are designated as rural or urban, (3) the prosperity zone map and, (4) The North Carolina Department of Commerce's prosperity zone map, which shows the eight administrative regions in the state. Leaders were identified at colleges that met these criteria and were individually invited to participate in the study. At the time the researcher reached the adequate number of participants recruitment ended. Some geographic areas were more represented, as were leader positions, resulting in a slightly unbalanced sample. More could have been done to qualify the community colleges from which

leaders were recruited. For example, the community college strategic plans or missions could have been researched for their contents, or their academic standing/rating within the system could have been a factor. Less leader groups could have been used. For example, recruiting only presidents and vice presidents. These efforts may not have produced different outcomes but would have narrowed the aims of the study.

Likewise, the aims of the study would have had more structure if a theoretical framework related to labor market theory was used to undergird the study. For example, a labor market theory may have been used to structure the development of the concourse, and therefore Q sample. The research did not reveal a compelling theory to use, therefore the researcher reviewed the sourced literature to generate a community college framework for labor market success. Having a theory to facilitate a more structured Q sample, may have provided more form and support for each statement choice. The researcher attempted to review all pertinent literature and produce a large concourse for Q sample development.

The most difficult step in the Q-methodology is the development of the concourse of statements. The concourse should cover all possible views on the topic under study. The researcher attempted to gain the coverage and balance necessary to represent all views on the topic of community college labor market success, with the recognition that it is possible that some views may have been untapped. In order to ensure as many views as possible are represented, the normative tenet of stakeholder theory was employed, which requires a comprehensive description of the network of stakeholders associated with community colleges. Through this process, the researcher attempted to surface as many voices from the literature as possible.

Additionally, a methodological limitation is that the Q sorting activity was completed online due to Covid-19. The online tool allowed participants to complete their Q sort at their convenience. Although participants could contact the researcher with questions, very few did. Therefore, for example, a participant could have interpreted a statement not as intended. In-person sorting would have provided a more monitored environment, which may have helped leaders better understand the individual statements. However, participants were invited based on their deep knowledge of the topic. Likewise, participants needed to take time and give careful consideration for each statement before placement, which is reflected in amount of time it takes to complete a sort. The average time for completing a sort was 17 minutes; less than anticipated.

The researcher worried that leaders may consciously or unconsciously sort the statements in terms of their resource constraints (e.g., accessibility to data, personnel to analyze it, funding, what is required of them typically, etc.). To offset this limitation, the condition of instruction question given before the sorting activity, asked participants to complete the sorting activity as if they have no resource constraints. Priming on-campus community college leaders to think beyond any perceived constraints possibly lead to more candid viewpoints about labor market success measures,

Small sample sizes and limited geographic region render the results in a Q methodology study not generalizable, despite the use of the quantitative methods. Results are only generalizable to the participants in the study. Small sample sizes may seem like a limitation, but the goal of the study was not to generalize, but to understand viewpoints and similar thinking among the community college leaders in this study. However, findings may stimulate new conversations about community college labor market success for the local colleges in which

these participants are working. Then those ideas could crop up to the North Carolina community college systems office or state legislators and beyond.

Another methodological limitation of the study was related to researcher bias. The researcher made decisions about the literature sources, the concourse development, the final Q sample, the factor rotation methods and solution, and how each factor was interpreted. These choices invariable shaped the findings of this study. To counteract the bias, the researcher compared resulting factor solutions, read contrasting ideas about methodological approaches, worked with chair to revise and refine Q sample, and administered the post-sort questionnaire to understand participant sorting choices. The possibility of researcher bias was offset by the ability to report the findings using quotes taken verbatim from the post-sort questionnaire. The researcher stayed true to participants responses, by not inserting many personal assumptions. Although, some hunches were made.

**Definition of Terms**

It is important to understand the relevant key terms used throughout the study. See methodological key terms in Chapter three. These terms are defined as follows:

**Credential.** Credential is a broad term encompassing multiple nondegree postsecondary awards, including diplomas, licenses, certificates, badges, and professional/industry certifications. According to the National Center for Education Statistics, the following are nondegree credentials: **Certifications:** occupational credentials awarded by a certification body, such as a professional association or certifying board (e.g., medical technician certification). **Licenses:** occupational credentials awarded by a government agency that constitute legal authority to do a specific job (e.g., medical license). **Postsecondary educational certificates:** education credentials awarded by an

educational institution based on completion of all requirements for a program of study; postsecondary educational certificates below a bachelor's degree are typically awarded in occupational fields (e.g., culinary arts) (My Furture NC, 2020).

**Graduates/completers.** Community college students that have graduated or completed a specific credential or degree, such as, an associate degree, diploma, license, post-secondary certificate, or customized industry training.

**Community College Student Labor market success.** The measured success of a community college graduate/completer ". . . as evidenced by what they accomplish after leaving the institution" (The Aspen Institute, p.4).

**On-campus community college leader.** The stakeholder group identified for recruitment in this study. This included institutional researchers, presidents, vice presidents, faculty or staff who are knowledgeable about workforce development and student success policies and programs, work with institutional or grant data and work within at community colleges located in North Carolina.

**Stakeholder.** "Someone that can affect or is affected by the achievement of the [community college's] objectives" (Freeman, 1986, p.4).

**Stakeholder Salience.** The level at which a stakeholder possesses one or more of three attributes: power, influence, or urgency as defined by Mitchell, Agle and Wood (1997).

## Chapter Summary

This chapter presented the topic of community college student labor market success and the value in exploring the viewpoints of internal community college on-campus leader perspectives on the important measures of community college labor market success. The chapter also outlines the problem, purpose, research questions, and importance of the study. Current

student success frameworks have limited labor market success components, and literature suggests current definitions of labor market success are narrow. Together these ideas provide reasons to explore community college leaders' beliefs on a broader set of labor market success measures. Q-methodology was chosen for this study because it forces participants to decide what really matters to them and reveals where the similar and distinctive thinking is. The findings from the study are two distinct viewpoints among 22 leaders, who were asked to decide the measures that were most important to most unimportant. In Chapter Two, a literature review examined the elements that have led up to the call for broader definitions of community college labor market success and the significance of the on-campus community college stakeholder perspective, by highlighting the value in using stakeholder theory and stakeholder salience. Chapter three contains a detailed explanation of Q-methodology, research design, and procedures used for data collection and analysis. Chapter four lays out the statistical process, analysis choices, findings, and interpretation of those findings. Chapter Five presents conclusions, implications and future research.

# Chapter Two: Literature Review

The purpose of this study was to explore the viewpoints of on-campus community college leaders about the measures they believe are most important for demonstrating their students' labor market success. First this review presents the main factors that have increased attention to community college student labor market success, and why it is important to examine broader definitions of labor market success. The chapter includes the labor market success themes found in the literature and presents the important ways labor market success data can be used for community college decision making. The final section provides a description of how Stakeholder Theory provides theoretical support for the study.

## Why the Shift in Focus on Labor Market Success?

The shift to focus on labor market success of community college students can be attributed to two main components: the significant demand for workers to fulfill job openings that require at least some postsecondary education; and the governments increased role in monitoring the performance of higher education institutions. A high school degree used to be enough to get by in the US economy, but not anymore. In 1973, 72 percent of our workforce only had a high school diploma and by 2007, 59 percent needed a postsecondary degree to obtain a decent paying job (Carnevale, Smith & Strohl, 2010). "Community colleges are in a key position to move the needle on employment" (Sentz, 2013, p. 1) and are being given the responsibility of training the middle-skills jobs of America (U.S. Office of the President, 2010; Carnevale, Smith & Strohl, 2010; Lorenzo, 2013). Mid-skills jobs, for example, in advanced manufacturing and construction technologies, require an advanced technical degree but not a bachelor's degree. The greatest supplier of training and education in these areas is community colleges. In a forecast about the supply and demand of education in the US by Carnevale, Smith

and Strohl (2010), there will be more jobs available than skilled workers to match those available jobs. Therefore, improving postsecondary education systems such as community colleges is necessary for the lower and middle classes to survive.

Research suggests the American public has overlooked community college education opportunities because community college credentials are not as highly regarded as bachelor's degrees from a college or university. Carnevale, Smith and Strohl (2010) found that of the "21% of mid skills jobs, which is 29 million, pay at least $35,000 annually. Nearly 10 million pay more than $50,000, and 3.6 million pay more than $75,000" (p.22). Most of these jobs meet the living wage standard suggested by AACC. In their VFA framework, a livable wage is defined as 200% of the national poverty level for a family of four. For 2017, this amount was $49,200 in the continental US and $61,500 in Alaska and $56,580 in Hawaii (AACC, 2017).

The merit and importance of middle skills jobs is clear; however, the demand for middle skilled workers is greater than the supply. The National Skills Coalition's (2017) analysis revealed although 53 percent of the United States' labor market are middle skills jobs, only 43 percent of workers are trained at the middle skills level. Furthermore, from 2014-2044 it is expected that 48 percent of job openings in the nation's labor market will be middle skills jobs. Secondly, there is a mismatch between what people are being educated to do and what industry needs—labor market misalignment. Labor market misalignment combined with supply and demand challenges are met with low student completion numbers, rising tuition costs and increased accountability demands from the federal government (Coughlin, Laguilles, Kelly & Walters, 2016). More than ever, community colleges must put mechanisms in place to handle the various pathways that students can take to obtain credentials, industry training, and associate

degrees for programs that match up with the demands of employers (U.S. Office of the President, 2010; Carnevale and Smith, 2012, Lorenzo, 2013; Taylor, 2011).

A significant push for post-college labor market outcomes was given prominence during Obama's administration. In 2015, the Department of Education released the College Scorecard. This was part of President Obama's "continued efforts to hold colleges accountable for their "cost, value and quality" (U.S. Department of Education, 2013). Although the scorecard was designed for 4-year intuitions, it included some 2 year institutions and was expanded in 2016 to include data on 700 more community colleges (U.S. Department of Education, 2016). The college scorecard made clear that the most important metric was postgraduate earnings, a labor market success measure used to demonstrate a college's success.

The increased attention to postgraduate outcomes was intensified by additional federal government and reporting requirements associated with legislation, for example, Gainful employment (GE) regulations (Mullin, 2012; Coughlin, Laguilles, Kelly & Walters, 2016; and Powers & MacPherson, 2016). Although GE reporting has been around since 2011, in 2014 the U.S. Department of Education revised the regulations, which added more pressure to report on postgraduate outcomes (Powers & MacPherson, 2016). Essentially, the government believes that since it continues to loan money to students so they can obtain the training and education needed to gain employment, higher education institutions should be monitored as to whether students leave with a quality education and promising employment prospects (Coughlin, Laguilles, Kelly & Walters, 2016).

In summary, as community colleges offer a low cost, open access, education and training solution to meet labor market demands, increased monitoring requirements are needed to respond to the citizenry's call for transparency on the education outcomes they produce. As

governments loan more money to students, they need to ensure the student loan investments are worthwhile.

**Community College and External Accountability**

Being held accountable to labor market outcomes is not new for community colleges (Alfred et al., 1999; Bers, 2012; and Ewell, 2011). In the 1970s, US/American college enrollments were declining, graduates were not finding employment, and employers were dissatisfied, which fueled accrediting commissions' and other external accountability stakeholders' (e.g., government, general public, students) interest and pressures for more accountability in education. Ewell (2011) stated that the accountability movement took hold when the Southern Association of Colleges and Schools (SACS) made accountability a part of their review process in the 1980s. In this review process, colleges were required to demonstrate their quality through key performance indicators that were compared to institution the institution's mission (Head, 2011). This was an important moment in the accountability movement as community colleges began connecting institutional purpose to institutional performance, better known as institutional effectiveness (Head, 2011).

Institutional effectiveness has evolved in its definition over the decades. Alfred, Ewell, Hudgins, and McClenney (1999) developed the first real model for measuring effectiveness for Community Colleges. It was called Core Indicators of Effectiveness for Community Colleges and measured five mission areas: (1) student progress, (2) workforce development, (3) general education, (4) transfer preparation, (5) developmental skills, and (6) outreach. The model attributed indicators for each core mission and developed a "composite picture" of institutional effectiveness that is still used today.

Like the calls for accountability in the 1970s and 80s, in 2006, the Spellings Commission found that literacy numbers were low, graduates were not prepared for the job market, employers were dissatisfied with the quality of workers produced by post-secondary education institutions—United States was falling behind (Spellings Commission, 2006). In their report, they pointed out the need for higher education institutions to provide transparency and accountability for the outcomes they produce. They found, "There is inadequate transparency and accountability for measuring institutional performance, which is more and more necessary to maintaining public trust in higher education" (p.14). Therefore, in order to demonstrate the true performance and long-term abilities of those educated in the institutions of higher education in the United States, stronger systems of accountability using quality data were needed. Only through accountability and transparency from education institutions about the outcomes produced by students can the prospect of national workforce and economic needs, as well as institutional performance goals be met (Spellings, 2006). Essentially, the Spellings Commission report was a catalyst for all higher education leaders to take these significant accountability demands seriously.

Just a few years later, during the Obama administration, significant accountability demands were placed specifically on community colleges to increase degree attainment rates (AACC, 2012; Higher Learning Commission, 2018). President Obama (2009) stated that the United States was essentially falling behind and he committed to ensuring that by 2020 the United States would once again have the highest proportion of college graduates in the world. Others joined in the call for community colleges to increase student completion rates. This prompted the collaboration between The American Association of Community colleges (AACC), Association of Community College Trustees, National Institute for Staff and Organizational

Development, League for Innovation in the Community College, Phi Theta Kappa, and Center for Community College Student Engagement, to join to solve the *completion challenge.* This collaboration produced the *Democracy's Colleges: Call to Action* report, which stated the "commitment to increase the number of community college students completing a degree or other credential by 50% by the year 2020 (McPhail, 2011).

More initiatives were created in response to the completion challenge. The Lumina Foundation, in 2009 vowed in *Goal 2025,* to "increase the proportion of Americans with high-quality degrees, certificates, and other credentials to 60 percent by 2025" (Lumina Foundation, 2017, p.3). The Bill and Melinda Gates foundation's postsecondary education initiative, *Complete College America* (CCA), was created in 2009 to increase graduation rates through state partnerships and individual grants. Prior to Obama's call, initiatives like *Achieving the Dream* (ATD), created in 2004, set out to prioritize community college education by working with community colleges "to achieve sustainable institutional transformation through sharing knowledge, innovative solutions and effective practices and policies leading to improved outcomes for all students" (ATD, 2019). *Completion by Design* (CBD) was created in 2011 to support nine community colleges across three states, remove student success barriers and increase student completion rates, which they report that on average they did successfully (CBD, 2019).

Initiatives like *Achieving the Dream* (ATD), *Complete College America* (CCA) and *Completion by Design* (CBD) set out to improve student success by transformation the community colleges at an institutional level and pledging to ensure students, especially low-income students, complete their education and obtain degrees and credentials of value. While ATD focused on measures that specifically evaluated completion, persistence and degree

attainments, CBD focused on what students needed to complete a degree. Brock, Mayer and Rutschow (2016) stated, CBD moved away from the "small-scale interventions that characterized ATD and focused on bringing greater structure and coherence to the community college experience by creating program pathways" (p. 28). Similarly, CCA works to improve student progress, completion and equity. It is from these calls for accountability, degree attainment, and institutional change, outcome measures for student success became a driver for policy and community college institutional change (The Higher Learning Commission, 2018; Kuh, 2016).

These ambitious calls for increased numbers of degree attainment of community college students, drove these above-mentioned external entities, as well as others, to develop student and or institutional success frameworks. For example, the Voluntary Accountability Framework (AACC, 2012), The Aspen Prize of Community College Excellence, and the Loss-Momentum Framework (Bill and Melinda Gates Foundation, 2017) all are student success frameworks. These frameworks were constructed to address of aspects of a student's education journey external to the community colleges, such as pre-college experiences, policy and workforce conditions, and internal aspects, institutional aspects, like academic advising, financial aid support and community college-employer relationships (AACC, 2012; Kinzie & Kuh, 2016; The Aspen Institute, 2019). At the core, these frameworks address different dimensions of student success namely, access, student learning and progress, completion of a credential, transfer to a baccalaureate institution and are beginning to examine labor market outcomes, such as job placement (AACC, 2012, The Bill & Melinda Gates Foundation, 2016; and The Higher Learning Commission, 2018). Community college researchers (AACC, 2012; Bers, 2012; Head, 2011; The Higher Learning Commission, 2018) continue to warn that if community college leaders do

not attend to the continued data and accountability demands by developing frameworks that work for them, external entities such as states, and third-party entities will continue to supply them with these answers.

**Community College Labor Market Success Measures**

Measuring community college student success is important because local economies and employers depend on the quality of the workforce, which depends on how well people are being trained, educated, and prepared for the labor market (Carnevale, Rose & Cheah, 2011; Saleh & Sentz, 2017; The Aspen Institute, 2014). Therefore, the definitions of community college labor market success are in question. What policymakers, students, parents, and funders continue to ask is: what is the real value of participation in community college education? The follow-up question and how should the value be measured?

The Aspen Institute (2017b) suggests that real student success "involves producing graduates who are truly prepared for what comes next, as evidenced by what they accomplish after leaving the institution" (p.4). Although current initiatives, accountability players and frameworks mention post-graduate outcomes, there does not appear to be suitable or comprehensive framework to define community college graduates' labor market success. Definitions of community college labor market success remain unclear, and current definitions seem to be narrow. However, some literature highlights a shift towards boarder and more nuanced definitions of success (The Higher Learning Commission). Matheny, Chan, and Wang (2015) confirmed that research on labor market outcomes for individuals who enroll in community colleges is limited and that theoretical support for understanding how to categorize or frame these outcomes is scant. The VFA framework developed by AACC (2012) recognized the need for relevant measures for student of workforce, economic, and community development

(WECD), as they point out that typically "this is an area for which data are woefully insufficient" (AACC, 2012, p. 46). The Higher Learning Commission (2018) suggested a "flexible student success framework" that is student centered and examines more appropriate measures, other than persistence, retention, and graduation rates. The Higher Learning Commission recommends finding ways to calculate students'/graduates' economic and social well-being, the return on investment of participation in their degree program, employer satisfaction, as well as employment and advancement opportunities in the job.

After examining empirical and conceptual literature, and through conversations with stakeholders affiliated with community colleges, several potential labor market success measures came to light. Twenty-one data sources were used to generate the list of 136 labor market success measures. The measures are shown by author in Table 2.1.

This list is what Q methodologists call the concourse, and it is presumed that all possible community college labor market success measures have been included. The concourse was further reduced to construct Q sample, a process explained in greater detail in Chapter Three. The concourse was categorized into four themes, and subcategories were created to illustrate the nuances within each theme.

**Employment.** The first category is employment. This is important, as the goal is for graduates to leave their education experience and obtain employment. Within this broad category are smaller subcategories that represent the highly discussed aspects of employment: *employment earnings, job placement rate, stability of employment,* and *advancement*. The assumption, as well as what is suggested by data, is that after completing a degree in post-secondary education (community college or 4- year university), one will earn more money over time, and have a

greater chance of obtaining a job (Carnevale, Rose & Cheah, 2011; and Carnevale, Jayasundra & Cheah, 2012).

*Employment earnings* is the most recognized and widely used metric to demonstrate labor market success. There is no consensus about what time points, colleges, researchers or legislatures should measure post-graduation wage earnings. Minaya and Scott-Clayton (2016) suggested measuring wages from year one to year seven post-graduation, while the North Carolina Community College Systems Office and the North Carolina legislature recommended measuring wages once, three years post-graduation (Personal communication, NCCCS Leader, 2019). In contrast, Mullin (2013) recommended tracking median annual earnings by program at 1, 3, and 5 years. The Aspen Institute (2014) suggested measuring percentage of students with wage increases from year-to-year, and in another report, they suggested capturing annualized salaries five years after graduation (Aspen, 2017b). Kasper (2009) simply suggested measuring wages annually. Likewise, Phillippe (2019) suggested measuring wage growth over time.

To add to the complexity of this measure, other questions arise about whether wages should be measured for students who participated in some community college, but never completed their intended credential (Zeidenberg, Scott, & Belfield, 2015). Furthermore, Kasper suggested (2009) wages can be calculated to include benefits and perks. Likewise, Kalleberg and Dunn (2015) suggested capturing wages plus benefits. Similarly, Minaya and Scott-Clayton (2019) claim that capturing data on benefits helps offset the appearance of lower wages. For example, "social service" sectors (such as teaching or government) usually have lower paying jobs but offer benefits and protections that are not captured by wages alone. Additionally, Mullin (2012) and Mullin (2013), and The Aspen Institute (2014) suggest that mean and median wages earning be measured, which presents another nuance that warrants discussion.

Moreover, wage earnings can be communicated based on whether one earns a livable sustainable wage, as The Aspen Institute (2017b) and Mullin (2012) noted in their research. Aspen (2017b) suggested capturing information about whether wages represent "family supporting wages", while Mullin (2012) suggested comparing livable wages for career and technical education completers versus non-completers. Phillippe (2019) also suggested capturing the percentage of Career and Technical Education students that earn a livable wage, which was defined as 200% of the national poverty level for a family of four, which was chosen because it is "readily available to all colleges and comparable across institutions" (p.66). The choice of wage variables and follow-up times in different studies contribute to varying outcomes.

In addition to wage earnings, *job placement rate* post-graduation is an employment data point important to labor market success (Alfred, Ewell, Hudgins, & McClenney, 1999; The Higher Learning Commission, 2018; Mullin, 2012; Mullin, 2013; Phillippe, 2019). There are conflicting viewpoints about the best time points for capturing job placement rate. Mullin (2012) suggested capturing the percentage of graduates who obtained a job within the first fiscal quarter after exit. The Aspen Institute (2014) suggested collecting employment rate at year one- and five-years post-graduation.

Moreover, researchers and on-campus community college leaders want to know the job placement rate for those who get jobs in the field of study in which they were trained/educated (Mullin, 2012; SACS representative, personal communication, March 28, 2019; and on-campus community college leader, personal communication, April 23, 2019). Also, on a larger scale, others want to know the number of job vacancies filled by community college graduates (personal communication, on-campus community college leader (April 23, 2019), which could be combined with The Aspen Institutes (2017) suggestion to capture and state unemployment, to

measure the employment or unemployment rate of community college students compared to the county and state's unemployment rates.

Others suggested evaluating the *stability and advancement* of an individual's employment status overtime. For example, capturing employment rate overtime leads to evaluating the stability and/or retention of an individual's employment status. Minaya and Scott-Clayton (2019) suggested capturing the stability of employment overtime such as, whether individuals are employed full-time for the entire year or how many employers they have had in each period. Furthermore, Mullin (2012) recommended to measure data on job retention, specifically whether graduates are retained each quarter after graduation. Additionally, the researcher's personal conversation/interview with a local employer in North Carolina in April 2019, revealed his company values whether a graduate is retained within the company and/or industry as far as five years out.

Additionally, collecting data about one's professional mobility is an important indicator of labor market success. According to a local community-based organization leader who works to train dislocated workers, being able to evaluate data on one's rate of mobility in their career post-education or training through their community college career pathway programs is essential to understanding their long-term success (Community-Based Organizational Leader, personal communication, March 29, 2019). Similarly, The Aspen Institute (2014) stated the importance in knowing whether graduates are in positions that offer growth and advancement. Therefore, knowing the percentage of employed graduates that have the opportunity for advancement, or capturing the number of students promoted into advanced positions post-graduation are important indicators of the labor market success (The Higher Learning Commission, 2018; The Aspen Institute, 2014).

Table 2.1.

*List of Labor Market Success Measures by Author*

| **Author** | **Labor Market Success Measures** | **#** |
|---|---|---|
| Alfred, Ewell, Hudgins, McClenney (1999) | Placement rate in the workforce | 1 |
| | Employer assessment of students | 2 |
| | Licensure/certification pass rates | 3 |
| | Client assessment of programs and services | 4 |
| | Number and rate who transfer | 5 |
| | Performance after transfer | 6 |
| Higher Learning Commission (2018) | Successful transfer and number of credits retained | 7 |
| | Entry into and completion of further education | 8 |
| | Employment or advancement | 9 |
| | Debt/default rate | 10 |
| | Licensure pass rate | 11 |
| | Employer satisfaction | 12 |
| | Community and civic engagement | 13 |
| | Well-being | 14 |
| | Return on investment for each credential | 15 |
| | Credential landscape | 16 |
| Kalleberg and Dunn (2015) | Disaggregated data on student | 17 |
| | Proportion of FTE (Fulltime enrollments) in CTE (career and technical) offerings | 18 |
| | Proportion of instructional budget allocated to CE (continuing education) programs | 19 |
| | Proportion of "applied" offerings in CU (curriculum) programs | 20 |
| | Rate of student transfer by cohort; | 21 |
| | Proportion of students in CIT/WBL (customer industry training/work-based learning) programs | 22 |
| | First-time student licenses pass rate | 23 |
| Kasper (2009) | Employment earnings plus benefits | 24 |
| | Percentage of students employed in their local labor market | 25 |
| | Percentage of students earning hourly, weekly and annual salary earnings (comparison of how employed graduates are paid -hourly, weekly, annually by occupation) | 26 |

Table 2.1. (continued)

| Author | Labor Market Success Statement | # |
|---|---|---|
| Minaya and Scott-Clayton (2016) | Stability of employment overtime (such as whether individuals are employed full-time for the entire year or how many employers, they have had in a given period); "full-time full year employment" | 27 |
| | Annual earnings conditional on full-time, full year employment (measure captures both variations in wages and variations in hours of work, since hours of work cannot be observed) | 28 |
| | Measures of health and well-being | 29 |
| | Measure for graduates only (but to examine these metrics alongside graduation metrics that are measured for all students) | 30 |
| | Measure outcomes for graduates and entrants | 31 |
| | Measure earnings from 1 to 7 years | 32 |
| | Transfer rates | 33 |
| | Transfer employment earnings post-graduation from 4-year university | 34 |
| | Transfers degree completion rate | 35 |
| | Percentage ever claiming unemployment since graduating | 36 |
| | Employment in "social service" sectors (such as teaching or government) - usually have lower paying jobs but offer benefits and protections that are not captured by wages alone. | 37 |
| Mullin (2012) | Gainful employment measures, for each GE program:<br>Loan repayment rate | 38 |
| | Gainful employment measures, for each GE program:<br>Debt to earnings- ratio | 39 |
| | Entered employment (employed first fiscal quarter after exit) | 40 |
| | Retained employment (for those employed in quarter after exit, the number of workers in the second and third fiscal quarters. | 41 |
| | Student placement for tech prep (Carl d Perkins and Technical education improvement act (2006). - The number of tech prep students place in a related field of employment no later than 12 months after graduation | 42 |
| | Student placement (number of CTE concentrators who were placed or retained in military service or apprenticeship programs in the second quarter following the program year in which they left postsecondary education | 43 |
| | Retained employment third quarter after exit | 44 |
| | Retained employment fourth quarter after exit | 45 |

Table 2.1. (continued)

| Author | Labor Market Success Statement | # |
|---|---|---|
| Mullin (2012) continued | Employment and credential rate (employed in the quarter after exit and received credential among adults and dislocated workers who received training | 46 |
| | Placement rate - the proportion of entering college students who acquire a marketable skill and obtain employment in a field directly related to that skill within one year of last attendance | 47 |
| | Average earning for first through fourth fiscal quarter after exit | 48 |
| | Livable wage for employed CTE program completers or completers of 300 credit hours | 49 |
| | Change in earnings- earnings in the second and third quarters after exit minus earning in the second and third quarters before participation among those who were employed in the quarter after exit | 50 |
| | Change in earnings third and fourth quarters after exit minus the earnings in the second and third quarters before participation among those who were employed in the quarter after exit | 51 |
| | Earnings replacement rate in the second and third quarters after exit (dislocated workers) | 52 |
| | Median wage growth | 53 |
| | Technical skill attainment- number of CTE who passed skill assessments aligned with industry recognized credentials | 54 |
| | Number of students that complete a state or industry recognized certification or licensure | 55 |
| | Proportion of students who graduate from a program and seek and obtain licensure or certification for the first time within a given year | 56 |
| Mullin (2013) | Program employment rate after 1year | 57 |
| | Program employment rate after 3 years | 58 |
| | Program employment rate after 5 years | 59 |
| | Median annual earnings by program 1 year | 60 |
| | Median annual earnings by program 3 years | 61 |
| | Median annual earnings by program 5 years | 62 |
| | range of wage values from 5th percentile to 95th percentile | 63 |
| | range of wage values from 25th to 75th percentile | 64 |
| | Participation in humanitarian efforts, enlistment in military or clandestine services, incarceration, or death | 65 |
| | Change in earnings post program completion (if already working before or is working while in schools) | 66 |
| | The amount of taxes paid by graduates | 67 |

Table 2.1. (continued)

| **Author** | **Labor Market Success Statement** | **#** |
|---|---|---|
| North Carolina Community College Systems Office (NCCCS) (2018) | Transfer performance among community college associate degree completers and those who have completed 30 or more credit hours who transfer to a four-year university or college, the percentage who earn a GPA of 2.00 or better after two consecutive semesters within the academic year at the transfer institution | 68 |
| | Aggregate institutional passing rate of first-time test-takers on licensure and certification exams. Exams included in this measure are state mandated exams which candidates must pass before becoming active practitioners. | 69 |
| NCCCS (Leader, personal comm. Jan. 25, 2019) | Wage earnings at 3 years after exiting the institution | 70 |
| Phillippe (2019) | CTE earnings outcomes (associates, certificate, left/no award) | 71 |
| | Median wage growth of CTE students post CTE | 72 |
| | Job placement rate | 73 |
| | Enrolled in higher education/transfer to 4-year university | 74 |
| | Passed licensure exam | 75 |
| | Completed 3rd party recognized industry credentials | 76 |
| S. Mei-Yen Ireland (2015) | the career landscape: the type of available jobs and their quality of job based on median earnings | 77 |
| | measure larger stratification outcomes of students (the proportion of students that moved out of poverty class after completing a degree) | 78 |
| The Aspen Institute (2014) | Return on investment per credential | 79 |
| | Percentage of jobs/positions/fields in decline | 80 |
| | Percentage of graduates whose wages have increased year to year | 81 |
| | programs with greatest Returns on Investment (earnings and employment) | 82 |
| | Percentage or number of students employed in the field in which they were educated/credentialed | 83 |
| | Market saturation data by program (completing programs and not getting jobs due to market saturation in the field in the area) | 84 |

Table 2.1. (continued)

| **Author** | **Labor Market Success Measures** | **#** |
|---|---|---|
| The Aspen Institute (2014) continued | Percentage of employed graduates that have room for growth and advancement (positions that offer growth and advancement) | 85 |
| | Number of students promoted of advanced in position | 86 |
| | Amount of state tax revenue as a result of community college grads (regional, state) | 87 |
| | outcomes related to job retraining programs(CIT)/ Total dollars contributed in tax revenue to state economy annually | 88 |
| | outcomes related to job retraining programs(CIT)/ pre and post wage data | 89 |
| | pre-post wage data in general for all graduates at 3-year mark | 90 |
| | average wage by occupation | 91 |
| | median wage by occupation | 92 |
| | local projected occupation growth (# of expected jobs) | 93 |
| | Project wage growth (annual salary) | 94 |
| | Number of new hires in area (are jobs growing in this field or contracting) | 95 |
| | Return on Investment by Tuition (cost of enrollment and lifetime earnings for graduate of your institution) | 96 |
| | Number of job postings in local area /Labor market supply and demand information | 97 |
| | debt to earnings ratio | 98 |
| The Aspen Institute (2019) | Job placement rate one year and five years after graduation | 99 |
| | Rate of continuous employment | 100 |
| | Annualized salaries and wages five years after graduation | 101 |
| | County unemployment rate | 102 |
| | County five-year employment change rate | 103 |
| | Average annual county wage | 104 |

Table 2.1. (continued)

| Author | Labor Market Success Measure Statement | # |
|---|---|---|
| The Aspen Institute (2017b) | Short-term labor market outcome for students: After 18 months, completers are employed with wages substantially higher than the average high school graduate in the region. | 105 |
| | Short-term labor market outcome for students: After 18 months, completers are employed with wages higher than their wages before beginning college. | 106 |
| | Long-term labor market outcome for students: After five years, completers are employed with family-supporting wages. | 107 |
| | The college is contributing to the competitiveness of the regional economy by filling existing skills gaps | 108 |
| | The college is contributing to a better economic future for its students and the region by anticipating future workforce demands in the regional economy | 109 |
| | The college is working with external partners to create pipelines that lead to equitable labor market outcomes for all students, including those who are underrepresented minorities | 110 |
| Zeidenberg, Scott, and Belfield (2015) | Wage earnings for non-completers by intended award (certificate; Associates; diploma); and intended field of study or major | 111 |
| | Wage earnings for non-completers by intended field of study or major | 112 |
| | Percentage of students that stayed employed in the labor market in which they graduated | 113 |
| | Employer satisfaction with graduates | 114 |
| Conversation with on-campus community college leader (April 2019) | Employment rate for those who get jobs in the field of study in which they were trained | 115 |
| | Wage earning by credential (i.e., diploma, associated, certificate) | 116 |
| | The rate of internships or apprenticeships that lead to a job | 117 |
| | Percentage of job vacancies filled by the community college | 118 |
| | Percentage of students retained within the industry 3 or 5 years out | 119 |
| | Employer satisfaction (is the college filling the demand that industry has) | 120 |
| | Rate of success of student who has been coached vs. un-coached for hiring process | 121 |

Table 2.1. (continued)

| Author | Labor Market Success Measure Statement | # |
|---|---|---|
| Conversation with employer (April 2019) | Wage earnings for customized industry training completers | 122 |
| | employment retention for customized industry training completers | 123 |
| | Advancement for customized industry training completers | 124 |
| | Debt to earnings ratio | 125 |
| | Retention - length of time within industry | 126 |
| | Number of opportunities to bring potential students to employers | 127 |
| | Number of opportunities to connect with employers | 128 |
| Conversation with community-based organization (April 2019) | Wage earning pre and post training/education of dislocated workers | 129 |
| | Average wage by career pathway (12-14/hr. is average) for dislocated workers | 130 |
| | Are those who were trained or educated through a career pathway better off/ rate of mobility in industry or career advancement | 131 |
| Conversation with Southern Association of Colleges and Schools Representative (April 2019) | FTE numbers over time by program- indirect measure to determine program viability and survival | 132 |
| | Completion rates- indirect measure to understand long term impact of tuition costs and impact to loan repayment and labor market | 133 |
| | Job placement rates in field of study in which a student was trained | 134 |
| | State licensure pass rates | 135 |
| | Number of national accreditation agreements per community college | 136 |

**Community contribution.** Community contribution is a broad category that evaluates different types of potential benefits or contributions that community college students make to the community. The subcategories include *completion, transfer, entrepreneurship, and state benefits.*

Capturing data on *completion*—the first subcategory—is not necessarily a post-graduate labor market outcome but speaks to the importance of increasing the number of skilled

individuals available to fill labor market demands (Carnevale, Rose, & Cheah, 2011). Similarly, research suggests data on students who *transfer* from community colleges to 4-year colleges or universities should be captured. Some students do not immediately join the workforce but chose to further their education, for example by transfer to a four-year university or college (Alfred, Ewell, Hudgins, & McClenney, 1999; Higher Learning Commission, 2018, Kalleberg & Dunn, 2015; Minaya & Scott-Clayton, 2016; Minaya & Scott-Clayton, 2019; NCCCS, 2019; and Phillippe, 2019). Although this category is not directly related to labor market success in the short-term, it is seen as relevant for the long-term. The research suggests that the higher the degree, the greater chances for labor market success and higher earnings in the long-term (Carnevale, Rose, & Cheah, 2011). Community colleges that can show high rates of completion, transfer, employment earnings and job placement rates of those who transferred, enhance their ability to demonstrate their value to the labor markets in which those students obtain employment.

There are different ideas about what data points to collect regarding transfer. Minaya & Scott-Clayton (2016) in their working paper and book chapter suggested to measure transfer rates, transfer employment earnings post-graduation from four-year University, and transfer degree completion rates. In contrast, (Phillippe, 2019; and The Higher Learning Commission, 2018) simply suggested to capture the rate of transfer to four-year institutions, and/or the number of credit hours retained after transferring. The NCCCS (2019), measures the percentage of transfers who earn a GPA of 2.00 or better after two consecutive semesters within the academic year at the transfer institution.  The research suggests the importance of capturing data not only on the rate of those that advance towards higher degrees, but how well community college transfer students perform during their advanced education and after they graduate.

For the purposes of this research study, the measures of transfer as it relates to labor market success will be captured in measures of transfer rate for transfer programs by community college, transfer success in 4-year University based on cumulative GPA 1 year after transfer, and transfer success based on whether the transfer students completed their 4-year degree.

A unique way to capture community contribution is through *entrepreneurship*, the third subcategory. Graduates may start their own businesses and in turn create jobs in the workforce. In North Carolina, there is a Small Business Center Network (SBCN) located at every one of the 58 community colleges. The SBCN stated "small businesses account for the majority of newly created jobs every year in North Carolina" (ncsbc.net, 2021). The purpose of this measure is to point out the multiple nuanced career pathways a student can take after leaving the community college. Although entrepreneurship as the number of jobs created by community college graduates within 5 years post-program completion, may not be able to inform programmatic level improvements, this measure speaks to future thinking and alternative possibilities beyond the status quo (wage earnings and employment in the short-term).

The last sub-category is *state benefits*. This category has three associated statements. The first is, the state benefits of each program relative to state investment. This is essentially asking about the return on investment to state investment in community college education. The Higher Learning Commission (2018) and Aspen Institute (2014) state that labor market success requires an understanding of the return on investment to each credential. In this example, the state's perspective is considered by asking how important the state's return on investment is to on-campus community college leaders relative to the other measures.

The second measure is the unemployment rate of community college graduates versus the state's unemployment rate. The Aspen Institute (2017b) suggested capturing the county

unemployment rate and the five-year county unemployment change rate. Lebesch (2012) and Kasper (2009) suggest capturing data about the local labor market to help develop the true understanding of the contribution community college students make to the community. Tangentially related, Kasper (2009) suggested capturing the percentage of students employed in their local labor market.

Community colleges train and retrain incumbent employees and dislocated worker, or those that have lost their jobs due to layoffs. The third measure within community contribution captures the percentage of dislocated workers who are retained in industry after entering industry. Similarly, Mullin (2012) suggested capturing the employment and credential rate for dislocated workers and their earning replacement rate. Tangentially related, the community-based organization representative interviewed in April 2019, suggested to measure wage earning, job placement rates, and the personal satisfaction of the impacts of participation in community college education to understand the labor market success of dislocated workers. The purpose of this measure is to demonstrate that nuanced and comprehensive measures that represent the various student groups participating in community college education is important. The measure also represents the state, community-based organization, and non-traditional student perspectives.

Other measures to consider that were not included in the final Q sample fell in these subcategories: *social service sector, local talent, and tax revenue. Social service sector* acknowledges the need to capture data beyond wages or in addition to wages. Some professions, such as those in the social sector may not pay high wages but are valuable to the community. For example, Minaya and Scott-Clayton (2019) recommended examining labor market success through the percentage of those employed in *social service sectors* (e.g., teaching or

government), as these jobs are not as high paying, but are high-value to the community. Examining a metric such as the social service sector can mitigate negative perceptions of student labor market success from a specific college, if that college seems to produce a lot of graduate pursing social sector jobs (Minaya & Scott-Clayton, 2019). For example, if labor market success is only measured by data points like wage earnings, where high earnings mean better education results, then a college with a lot of graduates obtaining jobs in social sectors may risk looking less successful to its stakeholders (e.g., students, parents, legislators).

Similarly, Mullin (2013) suggested examining whether graduates went on to participate in humanitarian efforts, enlisted in the military or clandestine services, were incarcerated or died. In another earlier article Mullin (2012) recommended more specifically to track the number of career and technical concentrators who were placed or retained in military service in the second quarter after graduation. These data measures are also considered in the social sector employment category. Higher Learning Commission (2018) likewise suggested the importance in capturing data on a graduates' civic or community engagement. These data points may not be financially quantifiable but examining whether graduates are more likely to participate in civic engagement makes for a presumably happier and healthier community within which people work.

Kasper (2009) and Zeidenberg, Scott, and Belfield (2015) suggested capturing whether *local talent* is retained, by capturing the percentage of students that obtained employment in the labor market in which they graduated. Alternatively, data could be captured to show how many students were employed outside of their local labor market to show whether students are leaving markets in which they were educated. Retaining local talent is especially beneficial for community colleges located in rural and more economically distressed areas. If, the talent stays,

the community is more likely to be improved by educated graduates who participate in the labor market in which they were trained.

The last subcategory that emerges as a community contribution is the amount of *tax revenue* that is contributed by community college graduates to the local, regional, state, and national economies. Mullin (2013) and The Aspen Institute (2014) specifically mention tracking and reporting the amount of taxes paid by graduates. The Aspen Institute (2014) was more specific and recommended capturing the amount of paid state tax revenue paid to region and state; as well as reporting on the total tax revenue dollars contributed by graduates to state annually, post completion of job retraining programs, such as, customized industry training programs.

**Individual well-being.** An emerging labor market success measure, individual well-being, looks beyond wages and examines one's personal satisfaction with where they are in life. Well-being is not clearly defined by the sources which suggested measuring it in the context of community college education (Minaya & Scott-Clayton, 2016; The Higher Learning Commission, 2018), but the mention of it signifies the importance in examining labor market success beyond economic gains. Likewise, The Aspen Institute (2018) noted new and needed attention to "social and emotional development" of students, comprised by "specific skills and competencies that people need in order to set goals, manage behavior, build relationships, and process and remember information" (p. 1). The Organization for Economic Co-operation and Development (OECD) examines well-being through several indicators that evaluate the social and economic well-being of people all over the world. In their framework, they focus on individual well-being, which is comprised of health status, education and skills, work-life

balance, social connections, civic engagement and governance, environmental quality, personal security, subjective well-being, income and wealth, housing, jobs and earnings (OECD, 2019).

Improving students' well-being is written into the mission of the North Carolina Community College system; however, the definition of well-being is not evident. The concept of well-being seems not as well-developed in the literature either regarding community college graduates' labor market success, therefore the researcher exercised judgment in defining what measures can represent this concept. The two sub-categories that emerged to address well-being in this study are *economic* and *education* and *skill*, which stem from the OECD's suggested framework.

*Economic* is represented by debt, student loan repayment requirements and whether a student has moved out of poverty status. Debt plays a part in one's economic well-being and is usually calculated against one's earnings. As discussed previously, wage earnings can be combined with other measures to calculate their net gain from participation in education. By weighing wage earnings against other costs (mortgage, rent, or student loan payments), an interested party (e.g., student, or legislator) can evaluate the amount of money a person spends each month towards their debts. This is known as one's debt-to-earnings ratio. Mullin (2012), The Aspen Institute (2014) and the local employer (personal communication, April 2, 2019) recommended debt-to-earnings ratio as an important measure to capture. The well-being aspect of economic well-being begs the question, does the level of wage earned post-graduation mitigate psychological stress or is the debt still so high that one's psychological stress remains high? Understanding debt accrued helps students determine the value of that credential or program in the labor market and helps community college understand the value of a credential (The Aspen Institute, 2014; The Higher Learning Commission, 2018; The Aspen Institute, 2014).

The Higher Learning Commission (2018) also recommended reporting on the percentage of students/graduates that have defaulted on their student loans, which the researcher connected to a student's long-term economic well-being. Another measure examining *economic* well-being is the percentage or number of those that have moved out of poverty status as a result of participation in community college education (community-based organization leader, personal communication, March 29, 2019).

The second subcategory for Individual Well-being is *education and skill.* This category comprises three measures, which are meant to capture labor market success beyond the wages and employment measures. Some careers are simply not high wage careers (i.e., social sector positions), but they may bring about more personal satisfaction, which can bring out other societal benefits. For example, students that are satisfied with the impacts of their program, are not high earning, still may have an improved sense of well-being. Asking if graduates are better socially, emotionally, and personally, conveys care for the whole person. Likewise, The Higher Learning Commission (2018) and Minaya and Scott-Clayton (2019) recommend examining the health and well-being of graduates to better understand the longer-term personal impacts of participation in community college education.

Secondly, the category of *education and skill* included ideas about whether graduates are working below their skill level after graduating or are not working full-time but would prefer to be. These measures can provide information about the credential landscape (Higher Learning Commission, 2018). Essentially, this examines how well their credential is working for them in the labor market. Said another way, are the specific skills for which they have been trained, needed in the market? Capturing these measures may help inform on what is happening in the local labor market, which helps community colleges to develop programs that better suit the

needs of employers and students (Kasper, 2009; Lebesch, 2012; The Aspen Institute, 2014; and The Aspen Institute, 2017b). The Aspen Institute stated (2017b) that community colleges should "contribute to a better economic future for its students and the region by anticipating future workforce demands in the regional economy" (p.9). Therefore, it is necessary for community colleges to watch the supply and demand changes that happen in industries in their local markets. As explained previously, saturating a market with graduates in occupations for which there are no need is irresponsible. Community colleges that continuously evaluate the health of their local labor market further ensure the *individual well-being* and labor market success of their students (Lebesch, 2012).

**Workforce readiness.** This theme contains success measures that evaluate the outcomes of students who received different types of supports, training and additional industry or state recognized credentials prior to entering the workforce. Three sub-categories emerged to better describe this larger theme: *work-based learning (WBL), employer satisfaction,* and *licensure/3rd party credentials.*

*WBL* includes students that participated in apprenticeships, internships or any type of work-based learning opportunity while enrolled in their community college program. In some scenarios these work experiences can be informal and short-term, such as working for a few weeks at a local manufacturer as a lineman. Alternatively, this sub-category includes apprenticeships and internships which are more formal working agreements, like ApprenticeshipNC, a state funded supported opportunity that requires a memo of agreement between the participating colleges and the business (https://www.apprenticeshipnc.com).

Mullin (2012) recommends a measure to capture the student placement (number of CTE concentrators who were place or retained in apprenticeships in the second quarter following the

program year in which they left postsecondary education). Kalleburg and Dunn (2016) also suggest to capturing placement rates of those that participated in work-based learning experiences, such as the percentage of students who participated in *WBL*. Beyond placement, one on-campus community college leader recommended the need to track the rate of internships or apprenticeships that lead to a job (personal Communication, April 23, 2019). He stated a desire to know how those experiences impacted their employment status. Other measures that were not suggested, but that the researcher felt important to capture, are the employment rate and long-term wage earnings of those that participated in some type of *WBL* experience while enrolled in their prospective programs. Examining the success of those who participated in *WBL* versus those that did not, could help colleges direct more funding towards supporting these types of learning and training experiences.

The second sub-category, *employer satisfaction*, is frequently cited as an important measure of labor market success. Alfred, Ewell, Hudgins and McClenny (1999) point out the "employer assessment" of the student as essential towards understanding labor market success. Similarly, The Higher Learning Commission (2018), Zeidenberg, Scott an Bedfield (2015) point to employer satisfaction as necessary to evaluate whether the community college has done an adequate job in training and preparing students for the workforce. The Aspen Institute (2014) and The Aspen Institute (2014) suggested engaging with employers to improve program quality, make program changes, create new programs, and create equitable education to workforce pipelines. The employer is more than a next step for a graduate. The employer is a valuable stakeholder with input necessary for community college student labor market success, are integral to the strength of the education to work pipelines.

The last sub-category is *licensure/3rd party credentials*. The North Carolina Community College System (2018) recommend capturing licensure pass rates "to ensure programmatic coursework prepares students to competently practice in their chosen profession" (p. 14). Others (Alfred, Ewell, Hudgins, McClenney, 1999; Higher Learning Commission, 2018; Phillippe, 2019; and SACS representative, personal communication, March 28, 2019) all suggest tracking first-time student licensure pass rates of the state mandated exams to gauge whether students are prepared for their chosen profession. An extension of this measure is to track the actual number or percentage of completers who received state or industry recognized credentials.

**Equity.** Providing equitable learning experiences that lead to equitable achievement for all students attending community colleges is the ethical standard. Tying equity to labor market outcomes offer important information necessary to assess student labor market achievement gaps**.** Community colleges' open access feature means equitable outcomes are possible, as they offer education and training to anyone who is interested. Disaggregating data by student characteristics (i.e., race, ethnicity), and Pell Grant status, are the federal level standard for measuring equity (Dimino, 2019). Pell Grants are for students that have not earned a bachelor's degree and have great financial need. This is still not enough.

Recent research suggests there is concern community colleges are not doing enough to ensure learning and achievement outcomes are equitable (Aspen 2018; Dimino, 2019; and Kalleberg & Dunn, 2015). Outcomes should be disaggregated by more student characteristics, such as: gender, age range, first-generation status, enrollment intensity, income quintile (Dimino, 2019); and sexual orientation, citizenship status, language, family background, and tribal status (Aspen, 2018). In an equitable education system, all students have the same chance and support regardless of these characteristics. Likewise, Kalleberg and Dunn (2015), The Aspen Institute

(2017b), S. mei-yen (2014) all argue for more disaggregation and stratification of outcomes on various student characteristics, with a focus on underrepresented groups. Christensen and Turner (2021) research produced some interested findings from there research tying demographics to labor market outcomes. Their findings show that "demographics are not destiny" for equity :

> "Program demographics are correlated with earnings and loan repayment, with those serving more students of color having worse outcomes. However, accounting for institutional inputs and program mix reduces the size of the association between loan repayment and student race/ethnicity. In the case of net earnings, accounting for field of study reverses this relationship, with the share of students who are underrepresented minorities being associated with higher net earnings. Lastly, we find that the majority of the variation in program-level earnings and much of the variation in loan repayment is largely explained by the mix of program offerings" (p.4).

This provides a different lens about equity, where program offerings by community colleges could be unknowingly perpetuating inequities. Labor market outcomes could be disaggregated by various student characteristics by program to inform inequities in community college labor market achievements, and better understand how whether program offerings are creating or contributing to unequal outcomes for their students. Overall, community colleges and external partners, like state governments and employers can work together to create programs and pipelines that lead to equitable labor market outcomes for all students (The Aspen Institute, 2014; 2017b; Christensen & Turner, 2021).

Although equity is a theme that warrants discussion, the researcher did compose it into its own category. However, equity type measures/statements are found in the employment, community contribution and individual well-being categories. For example, *employment rate by race/ethnicity*, *employment rate by gender*, *percentage of students who have moved out of poverty status within 3-years post-program completion*, and *percentage of dislocated workers who are retained in the same industry 5 years after entering that industry* are phrased to emphasize specific student-level characteristics. These five labor market success statements suggest capturing data on, race/ethnicity, gender, change in socioeconomic status, and dislocated workers (non-traditional student). Disaggregating all outcomes data by various student level-characteristics by program would be ideal.

**Additional measures**

Other measures that were not included in the final Q sample, but important to consider are: *local wages, local employment rates,* and *labor market supply and demand* statistics. For example, it would be helpful for students to know the average or median wage by occupation (The Aspen Institute, 2014), or the rate of unemployment in the county in which the community college is located (The Aspen Institute, 2017b). It is also necessary for community colleges to watch the supply and demand changes that happen in industries in their local markets. As explained previously, saturating a market with graduates in occupations for which there are no jobs is irresponsible. Community colleges that continuously evaluate the health of their local labor market further ensure the labor market success of their students (Lebesch, 2012).

Another measure to consider is *coaching/advising*. The internal on-campus community college leader (personal communication, April 23, 2019) suggested an important labor market measure would be to calculate the rate of success of students who have been coached versus

those who were for the hiring. Coaching and advising is an important element in student credential completion and workforce preparedness (Sentz, 2017; The Aspen Institute, 2017b). More needs to be understood about those students who participate heavily in advising and coaching resources while enrolled (On-campus community college leader, personal communication, April 23, 2019). To take this idea further, capturing more about the success of students beyond the hiring process, the researcher suggests the merit in capturing the post-graduation employment rate and earnings of students that participated heavily in coaching and advising while enrolled in community college. Knowing the extent to which coaching and advising impacts the hiring process, employment rate, and wage earnings, would also help school to better target funding to the right student supports.

Table 3.4 found in Chapter Three illustrates the theme, subcategories, and final list of 30 statements chosen to represent the final Q sample.

**The Importance of Labor Market Outcomes: The Uses**

Using data for decision making has become essential for survival in today's accountability culture (Mullin, 2012; Aspen, 2014; Christensen & Turner, 2021). Various types of data are used to understand the link between education and student success (e.g., enrollment, persistence, progress, credential type, completion), and labor market data are increasingly being viewed as powerful and in demand (The Aspen Institute, 2014). Most importantly, by using labor market data, community colleges can "better align the education they offer with what students need to succeed after graduating" (The Aspen Institute, 2014, p. 17). For example, labor market data can be used to make institutional and programmatic changes, help students make decisions about their career future, and community colleges can use labor market data to demonstrate their value to their stakeholders.

**Existing program changes.** Labor market data can help improve the efficiency of existing programs. For example, a college might use labor market data to "right-size" their program (The Aspen Institute, 2014, p. 9). This means evaluating the supply and demand ratio for specific positions/careers for which a community college offers credentials to determine whether an existing program is producing the right number of graduates for their job market. If a program produces too many graduates, it may saturate the market, while producing too few graduates might drive employers to look elsewhere for potential employees. This requires a balance between a community college's need for high enrollments, the largest source of community college funding, and a promise to graduates for a viable job.

Existing programs that maintain high enrollments in a saturated market may solve this problem by using labor market data to know where to geographically expand into new markets, which opens the door for more job opportunities for graduates (Lebesch, 2012). Additionally, labor market data can reveal where new segments in the market exist (Lebesch, 2012). For example, a community college might recognize that their labor market is dominated by a particular industry, such as healthcare or advanced manufacturing, which require workers to maintain licensure regularly. This could prompt the college to add to a short certificate course within an existing program to help fill the need for continuing education (Lebesch, 2012). Alternatively, labor market data can be used to decide to cut an existing program (Lebesch, 2012; The Aspen Institute, 2014). Community colleges can examine the return on investment (ROI) to specific credentials and/or programs to determine their viability. An ROI can reveal which programs show the highest and lowest returns, which helps colleges know where to devote their resources.

The Aspen Institute (2014) provided the example of Monroe Community College. At this college, they regularly evaluate their CTE programs using various data sources including labor market information to determine not only whether their students obtain a job, but whether the jobs offer advancement opportunities. The Vice President asks these questions: "(1) are students getting jobs, are those jobs providing a strong living wage, and do those jobs offer opportunities for advancement and growth over the long-term" (p.10)? If the answers show that this career pathway is not showing promise or seems like a "dead end", then they close the program. Another reason to cut a program is because although it may produce promising labor market opportunities for graduates, the program is not attracting students (Lebesch, 2012). Knowing which programs to cut prevents the misuse of financial resources (Lebesch, 2012; The Aspen Institute, 2014).

**Program quality.** Program quality can be improved by using labor market data to evaluate the short- and long-term performance of graduates. To maintain continuous program quality, colleges must "keep content and pedagogy current" (Lebesch, 2012, p 4). Therefore, program and community college leaders must look at labor market data to understand when to make these changes, and what to change (Saleh & Sentz, 2017). Evaluating program quality is especially crucial for industries that are constantly changing, which is the case for most, as technology advancements continue (Lebesch, 2012).

The Aspen Institute (2014) used the example of Cabrillo College, where the college realized that their graduates were not getting jobs in the medical field, which had the demand. This led them to have a discussion with employers in the field. After the discussion, they determined their program was not adequate in specific skills training and graduates were not prepared for these jobs. Therefore, the college decided to modify their program to make sure the

course content matched the skills needed to obtain a job in this field. After redesigning the pedagogy and structure of the program, students were succeeding.

**Creating new programs.** Labor market data can be used to determine whether a college should open a new program (Lebesch, 2012; Saleh & Sentz, 2017; The Aspen Institute, 2014). Creating new programs might involve creating "spin-offs", "subsets" or "totally new" programs altogether (Lebesch, 2012, p. 4). Creating new programs means balancing between labor market demand and supply, as well as the students' interest in that job or field. Through an analysis of the labor market data and conversations with employers, colleges can better evaluate the potential viability of a new program. The Aspen Institute (2014) gives the example of Lake Area Technical Institute (LATI). Students showed high interest in a veterinary technician program. After the college examined labor market data along with other data sources, they discovered that demand was high for training to work with large animals but low for small animals. Therefore, they expanded an existing program to meet the technician training needs to work with large animals only. In general, student demand alone is not enough, an employers' need for workers must also exist for a program to be successful.

Using labor market data to determine whether to create a new program ensures the best use of limited financial resources at the college (Lebesch, 2012; The Aspen Institute, 2014). Creating new programs requires a considerable amount of resources and financial investment, from new faculty to machinery. Colleges only using student demand as the data source for new programs, may bring in revenue to the college, but may not ensure positive post-graduate outcomes. Labor market data helps colleges to direct resources to programs that are trending and in demand, such as green jobs and cyber security (Lebesch, 2012).

**New and prospective students.** Labor market data can inform students about what programs to choose (Kasper, 2009; The Aspen Institute, 2014). Students who chose their programs early on or before entering school are more likely to complete than undecided students (The Aspen Institute, 2014). Labor market data can help to inform student career choices. Students can evaluate the number of jobs available in a specific field, whether the field is expanding, what the earnings are, whether benefits are offered, and/or opportunities for advancement exist (Kasper, 2009; The Aspen Institute, 2014).

Additionally, the same types of labor market data can be used to reach potential students. In the example of Monroe College, community college leaders use an online tool to showcase their Career and Technical Education programs connected to real jobs in the area (The Aspen Institute, 2014). In another example, Central Lakes hosts the Bridges Career Exploration Day, which brings together high schools and employers to demonstrate the many careers available in their market. As a part of the event, students are grouped by career interest and are presented with "wage and career outlook" data to help them narrow down career choices even before graduating high school (The Aspen Institute, 2014, p. 11).

**Demonstrating the value of community colleges.** Community colleges can demonstrate their value to legislators, employers, jobseekers, students and parents using labor market data (Kalleberg & Dunn, 2015; Kasper, 2009; Saleh & Sentz, 2017; The Aspen Institute, 2014). As the cost of tuition increases and state financial resources are limited, states and students need the best information to make informed decisions about where to invest their time and money. Claggett (2012) suggested that colleges should use labor market data to demonstrate in their marketing plans a "clear occupational profile and forecast for the regional labor market" to attract students and demonstrate value to their stakeholders (p. 56).

For example, colleges that show returns on investment to specific credentials will help potential students choose what community college to attend and the career path that fits their needs (The Aspen Institute, 2014; and Coughlin, Laguilles, Kelly, & Walters, 2016). Similarly, the same data along with other labor market data, such as area employers' satisfaction level with community college graduates, help state legislators to know where potential employers may want to expand. If employers know that there is a steady stream of qualified workers graduating with degrees that match their available positions, they may be more likely to expand in specific states or regions with strong community college programs. Community colleges that effectively demonstrate the value of their continuing education courses or customized industry training programs will help employers choose where to send their current employees for more job training. In summary, labor market outcome data has the power to tell compelling stories to many interested community college stakeholders, who rely on them to increase student educational attainment, labor market and workforce development achievement goals.

**Stakeholder Theory**

Stakeholder theory is the theoretical framework used to guide this study. Stakeholder theory originated from Freeman's work in the 1980's. A stakeholder is defined as someone that "can affect or is affected by the achievement of the organization's objectives" (p. 46). It is a strategic management theory that suggests that organizational success rests on the ability to simultaneously create value for and manage the interests of all those that have a stake in the outcomes of the organization, regardless of their power or position (Freeman, 1984).

Stakeholder theorists Donaldson and Preston (1995) further described the theory by delineating three "uses": descriptive, instrumental and normative. Descriptive is "a model for describing what the [organization] is" (p. 66). The descriptive use provides a framework for

describing an organization's network of stakeholders and their diverging interests: "It describes the corporation as a constellation of cooperative interests possessing intrinsic value" (p. 66). The Instrumental use "establishes a framework for examining the connections, if any, between the practice of stakeholder management and the achievement of various [organizational] performance goals" (p.67). This theoretical aspect implies organizations that pay attention to the connections between stakeholder interests and performance achieve better organizational performance. The normative use is central to stakeholder theory. Donaldson and Preston (1995) contend accepting all stakeholders' interests as inherently valuable regardless of their power or financial influence, or "whether the corporation has any functional interest in them" (p. 67). Stakeholder theory is used to establish the moral principles for the organization.

Mitchell, Agle and Wood (1997) contributed another important layer to the theory. They tie together these descriptive and normative aspects in their framework for stakeholder identification and salience. Salience is the "degree to which priority is given to competing stakeholder claims" (p. 869). They suggested stakeholder salience can be analyzed through a power, legitimacy, and urgency sorting process. These three constructs: power, legitimacy and urgency are the important "relationship attributes" of the stakeholder. They propose that "classes of stakeholders can be identified by their possession or attributed possession of one, two, or all three of the following attributes:

(1) the stakeholder's power to influence the firm,

(2) the legitimacy of the stakeholder's claim on the firm and

(3) the urgency of the stakeholder's claim on the firm" (864).

Power and legitimacy are the leading stakeholder relationship attributes but are always evaluated in terms of the stakeholder's sense of urgency. Power is the extent to which the

stakeholder "has or can gain access to coercive, utilitarian, or normative means, to impose its will in the relationship" (p.865). Mitchel, Agle and Woods (1997) do note that the access to power is not a "steady state" (p. 866), as it can be gained or lost. Power is dependent, and it can be stakeholder dominant (stakeholder has power over the firm), firm dominant (firm has power over the stakeholder), or mutual power dependent. Power is analyzed by a scale of low, medium, or high.

Mitchell et al. (1997) evaluated several definitions and proposals of how legitimacy has been defined in the literature. They agree a stakeholder's legitimacy rests on whether the individual or group possesses power in the relationship or an urgent claim; otherwise, the individual or group lacks salience. They site Schuman's (1995) definition that suggests legitimacy is socially constructed and must be analyzed across individual, organizational and societal levels. Legitimacy is described as a "desirable social good that is something larger and more shared than a mere self-perception, and that it may be defined and negotiated differently at various levels of social organization" (p. 867). Legitimacy and power are discrete attributes. Power is analyzed on a scale; legitimacy it is analyzed based on being present or absent.

Urgency must meet two conditions— "time-sensitivity" and "criticality" (p. 867). Time-sensitivity is when the stakeholder needs an immediate response to a claim; however, the claim itself must be of critical importance or important to the stakeholder relationship. Like legitimacy, it is analyzed based on presence or absence.

Beyond the three attributes of stakeholders—power, legitimacy, and urgency—is a stakeholder typology of eight categories. *Latent stakeholders* are those that only demonstrate one attribute, therefore have low salience. If they possess power, they are "dormant"; if they possess legitimacy, they are "discretionary"; if they possess urgency, they are "demanding" (p. 875).

*Expectant stakeholders* are those that demonstrate two attributes and therefore have moderate salience. If the stakeholder has power and legitimacy they are "dominant"; if they do not have power, but possess urgency and legitimacy, they are "dependent"; if the stakeholder has power and urgency, but not legitimacy, they are "dangerous" (p. 877). *Definitive stakeholders* are those that demonstrate all three attributes and therefore have high salience.

**Stakeholder theory's use.** In this study Stakeholder theory was not used to provide theoretical support for understanding what labor market success is. Instead, it provides a framework for describing and understanding the network of internal and external community college stakeholders that collaborate to reach workforce labor market success goals. The theory also provides support to invite less known perspectives to inform on the topic under study, as stakeholder theory suggests, there is a moral obligation to surface less known perspectives. As the literature suggests, it is not clear how much impact on-campus community college leaders have on shaping the discussion around student labor market success measures, therefore stakeholder theory provides justification for exploring these less understood viewpoints.

Mitchel et al.'s (1997) stakeholder research on salience further accentuates the importance of bringing to the surface underrepresented perspectives, in this case, on-campus community college leaders who may feel under prioritized. This approach/perspective combines well with Q-methodology, as this methodology prompts one to ask whether the viewpoints in the study "matter" and "can make a difference?" These internal/on-campus community college leader viewpoints matter greatly as they are more likely than external accountability agents to suggest measures "that fully account for the unique characteristics of community colleges and the unique educational and life experiences of their students" and the local communities they serve (AACC, 2012, p. 21). Although, the AACC claims the Voluntary Accountability

Framework includes the community college leader voice, they still admit more community college leaders' perspectives are needed in order to have community college student success frameworks that work for community colleges.

Stakeholder theory guided an additional genuine effort to understand how community college leaders perceive their own salience in impacting this issue of student labor market success at their community colleges. The community college leaders invited to participate in this study hold different leader positions with different job responsibilities. Understanding how these leaders perceived their salience towards impacting the measures used for evaluating student labor market success can add to the understanding and description of the findings or resulting viewpoints that emerge from within this group of participating leaders. Incidentally, it may also add to previous research on how these stakeholders have previously been categorized/prioritized in the literature (Burrows; 1999; and Hom, 2011).

**Community colleges stakeholder roles.** Internal community college stakeholders such as leadership, faculty and staff are focused on institutional performance and carrying out the multiple missions of the community college to serve the diverse student populations (Alfred, 1998, 2008). External public and private community college stakeholders, such as business and industry; federal and state and accrediting bodies; trustees, workforce, commerce, and labor boards; public k-12 schools; 4-yr universities; philanthropic organizations; supplemental community agencies; and other entities are interested in the labor market outcomes and outputs produced by community colleges.

In order to carry out different workforce and labor market development goals, on-campus leaders at community colleges are encouraged, empowered and in many cases required to collaborate with external public and private sector stakeholders (AACC, 2015; The Aspen

Institute, 2014; Hom, 2011; Orr, 2001; Alfred, Ewell, Hudgins, and McClenngy, 1999). As such, stakeholders from public and private sectors like business and industry, government agencies, education entities, and philanthropic organizations have become involved in the sustainability and effectiveness of community colleges and consequently, the value and outcomes they produce (AACC, 2015; The Aspen Institute, 2014; Hom, 2011; Orr, 2001; Alfred et al., 1999).

The trend to include more stakeholders is evident in many initiatives. For example, in the *Completion Agenda* proposed by American Association of Community Colleges and others accomplishment goals rested heavily on "Enhance external engagement practices" McPhail, 2011, p. 3). *Achieving the Dream* funded by the Lumina foundation found that reaching goals was not possible without "Co-creation—in which grantees and funders work side-by-side in creating a new change strategy and its components" (Clayton, 2008, p.3). Also, Brown (2018) from the National Skills Coalition contends that in order to create a more reliable pathway from community college education to work, multi-level industry/sector partnerships are invariably necessary.

Stakeholders—whether internal, external, public or private—hold different positions of authority and interest in the community college (Hom, 2011). Internally, at the institutional level, Alfred (2008) stated that within the community college, the power dynamic is shifting from a once centralized scheme where presidents hold all the power, to a wider group of centralized executive power. He also added that internal faculty and staff positions and networks are changing—resulting in a fight for power and survival due to "escalating demands" and mounting external accountability pressures "as new stakeholders holding more, and varied interests get into the game" (p. 82). State and federal agencies and other entities outside the

institution have high authority and are more intertwined with community college governance structures today, in part due to accountability demands, such as, higher percentages of funding being tied to institutional performance (Hom, 2011; Alfred, 2008).

At the program level within the community college complexity grows with the formal and informal relationships between community colleges and business and industry as business and industry leaders contribute towards shaping program level curriculum, continuing education, and customized industry training offerings (Orr, 2001). K-12 secondary schools have more influence on community college course, program, college and career counseling offerings as new legislation combines the two systems to build seamless pathways for students seeking transfer into 4-yr universities, or those seeking specific technical skills for mid-skilled workforce jobs (Carnevale & Smith, 2012; Orr, 2001). Even public and private philanthropic are presenting as important financial stakeholders by funding large grant projects to enhance student-training quality and offerings. These grant projects directly influence not only the roles that community college faculty and staff play, as they add 'grant coordinator' to their duties, but they also add pressure on the institution due to the accountability requirements tied to the receipt of their funding (Drummer & Marshburn, 2014).

The vocational arm within community colleges is a good example of the connectivity between students and faculty and the labor market. Not only are community colleges incorporating employers, community, workforce and labor boards, public K-12 schools, universities, and philanthropic/grantor organizations into their strategic plans, but these stakeholders are also including community colleges in theirs (Orr, 2001). In the case, especially in the vocational technical areas, employers engage with community colleges for customized industry training programs. These programs help to enhance and upskill incumbent workers'

technical skills as technology and academic requirements to operate new technology changes. Additionally, they look to community college for a talented pool of emerging workers beyond entry-level positions (Brown, 2018). They also use employers to make pedagogical and curriculum changes within the classroom to keep pace with the changes in industry technology and skills (Brown, 2018). Through these collaborations, they can reach the broader federal and state workforce development goals. Brown (2018) also acknowledged that business leaders must collaborate with "academic institutions and non-academic institutions—such as labor management partnerships, community-based organizations (CBOs), and adult education providers, as they also share the common goal of helping individuals' success in today's economy" (p.2).

At the individual level faculty and students work with each other towards reaching student success goals, through advising, coaching/mentoring, and connecting students to local job opportunities. Many faculty have relationships with local employers and can connect students to opportunities. Faculty, have a direct line to on-the-ground opportunities, barriers, and needs that connect their students and the labor market.

Stakeholder roles and partnerships can be formal and be complex because some can require approval from state boards of education or community college system offices. Furthermore, formal and informal partnerships can be complicated by disagreements about costs and benefits associated with such a partnership (Allen, 2002; Tyler, 2002). Workforce boards, and state and federal agencies work together often on common policy goals that lead to greater fulfillment of broader workforce and economic goals. These include bridging together K-12, community college, and colleges and universities to build the school to work pathways that result in students gaining post-secondary education credentials (Allen, 2002; and Sunberg, 2002;

Brown, 2018). The Carl D. Perkins Act and Tech Prep Act are two examples of vocational legislative acts that bring community college-industry and community partnerships into the fold as a necessary means for resource sharing for workforce development goals (Orr, 2001).

The web of stakeholder collaboration is vast, complex, and necessary to reach student educational attainment and student labor market success achievement goals. All voices must be attended to, but with caution. The Internal community college leaders have perhaps the strongest grasp of their students' needs, how their individual community college operates and how to best demonstrate the successes of their institution in ways that exemplify the true performance of their students. Ultimately, AACC (2012), stated that community colleges need frameworks that are created for them and by them to avoid continued misrepresentation of their missions, diverse student populations and labor markets.

The AACC (2012) stated, "Historically, the community college sector has been subject to data definitions and accountability systems designed predominantly for 4-year institutions or based on traditional concepts of education and community" (p. 20). For example, the College Scorecard and national level databases in general do not capture the local nuances or structures of community colleges (Lebesch, 2012; Mullin, 2012; Wright, 2015). The College Scorecard, the tool created by the Department of Education to help prospective students choose colleges that best suit their financial and educational goals does not represent the variations in programs and student populations unique to community colleges (Wright, 2015). In an interview with EMSI, the CEO of the Association of Community College Trustees (AACT) stated that the scorecard does not translate as well to the community college sector (Wright, 2015). Brown further explains the limitations of the scorecard to Wright (2015):

(1) "The data covers only students who receive federal aid—something 55% of community college students don't receive, according to the American Association of Community Colleges' analysis of the Scorecard.

(2) The data are available only by institution, not by program.

(3) The Scorecard lacks any regional context for a few key data points: salary after attending, costs, financial aid and debt, and other categories.

(4) The Scorecard website uses the same national averages, for comparison purposes, for two- and four-year institutions" (p. 1).

Similarly, AACC (2012) and Lebesch (2012) argue that data needs to better reflect the local nuances of community colleges. Lebesch (2012) comments that national databases such as Department of Education Data and even state level databases "lack the details to provide local specificities… [which are] demographically and economically diverse (p.10). The decision on how to measure and meet labor market success goals will likely be met with challenges of perspective from external stakeholders, whose perspectives are highly salient. However, in the absence of internal community college leader designed student success frameworks, community colleges will continue to be subject to external interpretations that do not capture a complete picture of the full contributions community colleges make to their community.

**How community college stakeholders have been categorized.** Two articles emerged from a search on stakeholder analysis of higher education or community college institutional stakeholders. Burrows (1991) identified a way to analyze all potential institutional stakeholders by labeling their stake and influence. Hom (2011) categorized stakeholders based on their interest and authority as it related to institutional effectiveness.

First, Burrows identified and labeled the types of stakes one might have: institutional, economic, social, scholarship, moral, and personal (Table 2.2). Then examines those stakes against one's influence, which is labeled as formal, economic or political. Burrows (1999) then borrowed, adapted, and added to Freeman's (1984) work on types of stakes and influence. In her categorization she notes that stakeholders can have multiple stakes and/or types of influence and therefore can fall within more than one a category.

Table 2.2. Burrows (1999) Stakeholder Categorization Matrix

| Stake | Formal | Economic | Political |
|---|---|---|---|
| Institutional | Board of trustees | Donors<br>Joint venture partners<br>Alumni<br>Trustees | President<br>Long-term employees<br>Trustees |
| Economic dependence | Administration<br>Creditors<br>Joint Venture partners | All employees<br>Students, parents, and spouses<br>Suppliers<br>Employers<br>Creditors<br>Competitors | Competitors<br>Local community<br>Potential employers<br>Internship/field placement sites |
| Social | Government regulatory<br>Foundations<br>Board of Trustees | Financial intermediaries<br>Foundations<br>Donors | Special Interest groups<br>Government leaders<br>Media<br>Local communities<br>Chamber of commerce |
| Scholarship | Faculty<br>Accrediting agencies | Students & families<br>Employers<br>Donors<br>Foundations | Academic associations<br>Professional associations<br>Employers |

Table 2.2. (continued)

| Stake | Formal | Economic | Political |
|---|---|---|---|
| Moral | Faculty<br>Administration<br>Student affairs<br>Religious affiliates | Students & families<br>Donors<br>Foundations | Special interest groups |
| Personal | | Students<br>Employers<br>Donors | Board of Trustees |

To categorize the community college stakeholder Hom (2011) constructs a descriptive table with categories: level of interest (low, medium, high) and level of authority (low and high), shown in Table 2.3. Hom's levels show the competing perspectives and influence commonly recognized community colleges stakeholders have over institutional effectiveness. He also takes a deeper dive into what shapes their differing perceptions and drills down the complexities involved in individual belief systems. Hom (2011) differs from Burrows, by only assigning one stakeholder group into one category in his table, but he clearly acknowledges that these stakeholders can change between groups depending on the issue under discussion and the changing nature of their roles as it relates to those issues. Burrows and Hom differ on naming and inclusion of certain stakeholders. They also analyze stakeholders using different concepts. While Burrows (1999) compares/contrasts the type of stake one has to their influence, Hom (2011) examines the perceived level of interest of that stakeholder and the authority they hold.

Table 2.3. Hom (2011) Interest/Authority Stakeholder Categorization Matrix

| Categorization | High Authority | Low Authority |
|---|---|---|
| High interest | Community College Administrators<br>Trustees<br>State Oversight and budget bodies<br>Accrediting commissions | Institutional Researchers |
| Medium interest | | Students (current and potential)<br>Administrative staff<br>Employers<br>External Researchers<br>Baccalaureate institutions |
| Low interest | | News media<br>Faculty<br>K-12 officials<br>Taxpayers |

Homs' (2011) article seems to be the most recent look at the categorization of community college stakeholders in the community college literature. However, Burrows' (1999) matrix, includes stakeholder groups that are not represented in Homs' (2011) article. For example, philanthropic stakeholders, such as donors or foundations might have more interest and authority than in the past. Both Burrows (1999) and Hom (2011) borrow ideas from stakeholder theory as they evaluate each stakeholder on similar concepts, such as interest, influence, and authority, which arguably relate the ideas of power and influence—two of the components for understanding stakeholder saliency. Below is a stakeholder map which combines Burrows' (1999) and Hom' (2011) ideas to simply represent the comprehensive array of stakeholders that regularly partner with the community college to reach various goals. The map has a dotted line that demonstrates the on-campus or internal stakeholders for community colleges, while the solid line demonstrates the off-campus or external partners to the community college.

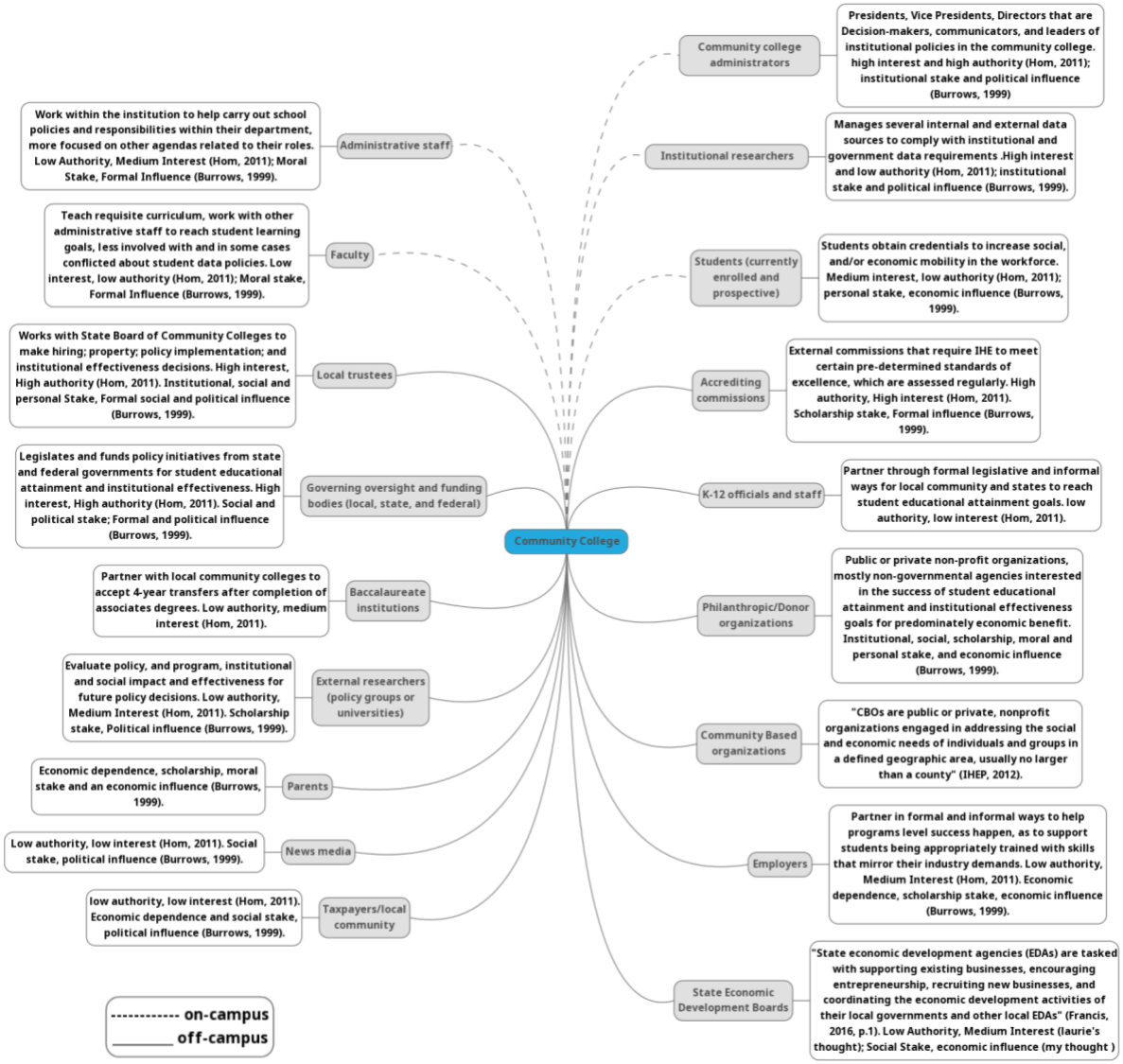


*Figure 2.1.* Stakeholder Map based on Hom (2011) & Burrows (1999) Categorizations

## Chapter Summary

This chapter described the accountability movement surrounding the community college sector and the shift in focus to labor market outcomes of community college students. Then the chapter reviewed the important uses of labor market measures to understand student success,

with a look at specific suggested measures in the literature. It concludes with a look at the stakeholder-community college relationships to showcase the numerous stakeholders that collaborate with community colleges to reach labor market success goals, such as students completing degrees and obtaining jobs that offer sustainable living wages. Stakeholder theory is used to scope out the network of community college stakeholders, while highlighting the value in exploring the perspectives of on-campus community leaders, who regularly work with data and plans to enhance student labor market success, but who might not have the power and influence to be heard over other more prioritized voices external to the community college.

# Chapter Three: Methodology

This study explored the viewpoints of 22 on-campus community college leaders in North Carolina on community college student labor market success. Leader participants represent seventeen community colleges, hold diverse leadership roles, and are positioned in different labor markets across the eight prosperity zones in North Carolina. The goal of this study was to explore the viewpoints of on-campus community college in North Carolina about the important measures they believe represent their students' labor market success. Q-Methodology was the methodology used in this study.

The following research questions guided this study:

1. What are the viewpoints of on-campus community college leaders toward community college student labor market success measures? And why
2. What consensus and distinguishing statements emerge across the viewpoints?
3. How do community college leaders in different leader positions characterize their stakeholder salience?

In this chapter, the reader will find the definition of important methodological terms, an overview of the characteristics, process and procedures of Q-methodology, and finally the step-by-step research design which was carried out to reach the goals of this study. In the first half of this chapter, an overview of the methodology is put forth to give the reader a succinct understanding of the methodology. In the second half of the chapter, the research design undertaken in this study is explained. The research design section details the use of Q-methodology, the data collection steps, population and selection criteria, and instrumentation analysis procedures for this study.

**Definition of Terms**

It is important to highlight the relevant methodological key terms used throughout the study. These terms are defined as follows:

**Subjectivity.** An individual's current first-person point of view expressed operantly, through the Q sort activity (Watts & Stenner, 2012).

**Concourse.** The population or collection of statements about the specific topic under study. The statements communicate the various perspectives or perceptions surrounding the topic. From this large population of statements, a representative sample is taken, known as the Q sample (Watts & Stenner, 2012).

**Q sample.** A representative sample of the concourse of statements. Usually 40-80 statements.

**P sample.** Represents those who recruited to carry out the Q sort activity, also known as the person sample or P set. They must be knowledge and have well-defined viewpoints that matter in understanding the topic under study (Watts & Stenner, 2012).

**Q sort.** The main data collection activity carried out by the P sample, whereby a deck of statements (Q sample)

**Composite viewpoint/Factor Array.** Both represent a single Q sort configured to represent a viewpoint. The composite viewpoint shows exemplifies the factor in the format of the forced distribution grid. The factor array lists the ranks for each statement for each factor in a table format (Watts & Stenner, 2012).

**Consensus statements.** Consensus items are those "items whose rankings that do not distinguish the two factors" (Watts and Stenner, 2018, p. 218). are sorted through a

ranking process on a forced choice distribution grid to demonstrate their viewpoint on the topic under study.

**Distinguishing statements.** Statements that significantly distinguish factors. Distinguishing statements require evaluation of the Z-diff score. The Z-diff expresses the magnitude of difference between how each viewpoint ranked each statement.

**Overview of Q-Methodology**

William Stephenson developed Q-methodology in the 1930s. He first published about his adaption of Charles Spearman's R method of factor analysis in 1935 in the Journal, *Nature* (Watts & Stenner, 2012). Q methodology is a science of subjectivity. Q honors the empirical aspects required by pure science by offering a way to generate an objective measure—a mathematical description—of one's subjective experience (McKeown, 1990). Q-methodology blends together both quantitative and qualitative data collection activities, and the disciplines of physics and psychology. Stephenson (1993) found profound value from inquiry of the infinite amount, and ever-changing subjective beliefs or experiences present in human consciousness.

Stephenson's development of Q-methodology was in response to his dissatisfaction with Spearman's traditional (R) factor analysis model, which he felt was disingenuous to understanding the true individual differences of the persons being studied (Watts & Stenner, 2012). He argued the real individual statistical differences were lost because of standardization procedures in traditional factor analysis. In traditional R, data are focused on correlations *by-variable* (e.g., a person's trait) to find how variables cluster across persons. In Q-methodology, data are factored *by-person.* The method is a holistic way to analyze the differences between individuals by uncovering how a combination of an individual's beliefs, attitudes, thoughts about

a subject matter (categorized as viewpoints) correlate by person (McKeown & Thomas, 2013). Thus, exploring which individuals think similarly about the topic under study.

McKeown and Thomas (2013) stated, “the primary purpose of undertaking a Q study is to discern people’s perceptions of their world from the vantage point of self-reference” (p. 1). Self-reference represents the unique conscious communicable statements that only each person can make from their own subjective experience. Through the Q sorting technique (described later in this chapter), an individual sorts a compilation of subjective statements, so the researcher can get a holistic understanding and structure of an individual’s frame of reference or overall *viewpoint* on a topic (McKeown, 1990). “Discovering and displaying those structures (the scientific component) in preparation for understanding and interpreting their meanings (the hermeneutical component)” is the goal of the Q-methodology (McKeown, 1990, p. 1). Q-methodology is more of a qualitative endeavor and results are not generalizable.

**Concourse of communication.** Developing the concourse is the first step towards the discovery of viewpoints about a topic. The concourse consists of a list of statements that represent “the whole set of possible expressions on a topic, gathered from all possible points of view” (Zabala, 2014, p. 164). Coined by Stephenson (1986) as a “universe of statements” or “Q universe” (p.44), the concourse can be generated for any topic or situation and in theory could be infinite in number. The concourse statements are subjective statements of opinion, not objective statements of fact, and are formed because of personal experiences (McKeown, 1990). Statements are created out of several data sources, namely, but not limited to literature, interviews, narrative writings, events, magazine or newspaper articles, etc. (McKeown, 1990; McKewon & Thomas, 2013; Zabala, 2014).

**Sampling: q sample and person sample.** The researcher must create a manageable number of statements, typically 40 to 80, but it can be less than 40 (Watts & Stenner, 2014). Therefore, the researcher must work to condense the concourse to a final set of statements to form a sample, called the *Q sample*. The Q sample is a representative sample of the concourse and must represent the range of perspectives pertinent to the topic under inquiry (Stephenson, 1986; Zabala, 2014). Q samples can have different structures. McKeown and Thomas (2013) explained that Q samples can be *unstructured* or *structured.* Unstructured sampling is risky and is used when there is no clear theory that supports the development of the concourse. Conversely, structured samples are created systematically and with theoretical support. Samples can also be *naturalistic*, meaning statements come only from interviews or personal narratives. Samples can be *adapted*, meaning "items may be factual in nature or of an aesthetic or subjective yet formulaic in nature" (p.20). Lastly, samples can be a *hybrid* of the *naturalistic* and *adapted*.

Q samples consist of a final set of statements that are ranked and sorted by the *P (person) sample* or P-set. The *P-sample* is the second form of sampling in Q methodology. Q studies require less participants than statements but recommend that in general studies have "a minimum ratio of two Q sample items to every participant" (Watts& Stenner, 2013, p. 72). P-samples do not need to be large and cannot exceed the number of statements the researcher uses in the Q sample; however, the P-sample must be diverse, as the goal is to obtain "the most diverse range of opinions…" (McKeown & Thomas, 2013, p.164).

**Data collection.** Even though statistical procedures are the same for Q and traditional R, the data collection process is different (McKeown, 1990). There are two forms of data collection in Q methodology. The first is called the Q sort. This is the sorting activity undertaken by the P-sample, whereby each person is asked to sort/rank the deck of statements (Q sample) according

to their personal opinions, beliefs, values, etc. (McKeown & Thomas, 2013). The Q sort creates a "model of self–reference" (p.25). It is essentially a visual representation of one's stream of consciousness in that moment (McKeown & Thomas, 2013). The second form of data collection is the post-sort questionnaire or interview that helps with the interpretation of the Q sort results (McKeown & Thomas, 2013). For example, the researcher might collect demographic information and/or clarification on sorting choices.

Important to the Q sort is the *Condition of Instruction* (COI). McKeown and Thomas (2013) lay out the steps and corresponding procedures for this important step. In the COI, the directions are given to the sorter/participant before the Q sort begins. The COI instruction is the guide for the sorting process. For example, the researcher might be asking employees to sort/rank the statements about their views of what a good leader is. The COI sorting instruction might instruct the sorter to rank the statements based what the sorter believes are the most important to most unimportant qualities of a good leader. Once participants are familiar with the sort question, and before placing the statements on the sorting force distribution grid, the sorter must read through and familiarize themselves with each statement. After the statement read through, the participant is asked to arrange the statements in three piles. A pile for most important, most unimportant and neutral. Next, the participant places their most important selections on the grid, followed by most unimportant selections (Figure 3.1). These steps are repeated until the participant narrows to the middle/neutral position. Once all statements are placed, the scores are recorded. Following the Q sort, other data collection activities such as a post-sort questionnaire are administered.

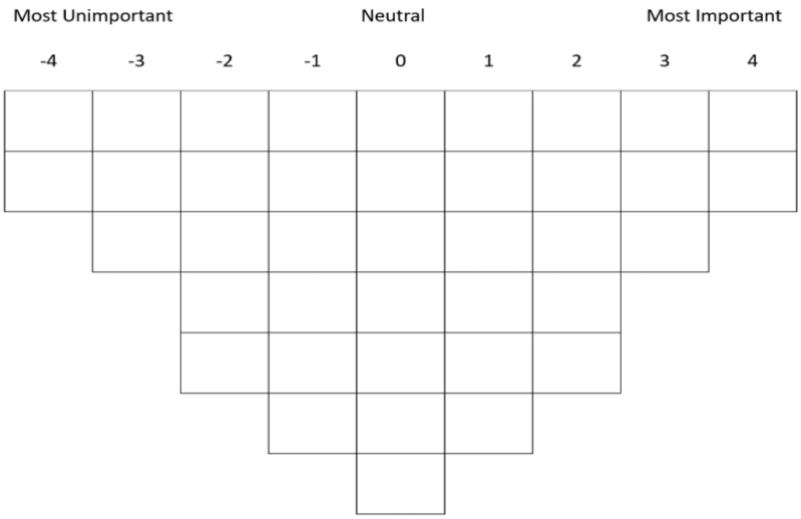


*Figure 3.1.* Q sort response grid example

The scale upon which participants sort the statements is called the "psychological significance scale", as participants rank items according to what is significant (important) to them (McKeown & Thomas 2013, p.49). The length of the scale (e.g., +4 to -4) is dependent upon the number of statements in the Q sample. The scale is represented in the form of a *forced choice distribution* and forces the participant to place statements on a predetermined distribution as seen in Figure 3.1 (Watts & Stenner, 2013).

**Data analysis.** In order to measure the subjective viewpoints of participants, a Q factor analysis is undertaken. Once the sorts are completed the data are arranged in a response matrix (Table 3.1), where the rows represent the statements, and the columns represent the respondents (Zabala, 2014). In each of the cells in the matrix is a number. The number in the cell matches the number that statement was placed on the distribution grid (Zabala, 2014).

Table 3.1.

*Example of Q sort Response Matrix*

| Statements | Person 1 | Person 2 | Person 3 | Person 4 |
|---|---|---|---|---|
| 1 | -4 | -2 | -6 | 1 |
| 2 | -3 | 3 | 4 | -6 |
| 3 | -2 | 1 | 2 | 3 |
| 4 | 4 | -2 | -1 | 2 |

After data has been organized in the response matrix, the first phase of data analysis begins with generating a correlation matrix, which illustrates the correlations between Q sorts (McKeown & Thomas, 2013; Zabala, 2014). Next, the researcher begins factorization. McKeown and Thomas (2013) stated the goal of factorization is to "simplify the interpretive task substantially, bringing attention to the typological nature of [how respondents sorted their statements]" (p.52).

Factorization of the correlations is completed by using one of the available factoring procedures (e.g., principal components analysis (PCA), or centroid), which transforms the correlation matrix into component matrix. Components (factors) are generated based on variability scores (eigenvalues) and are ordered based on how much variability they explain. So, factors with high eigenvalues (EV), greater than one, that explain high variance are kept for further analysis, while those with low EV that explain little variance are not kept for further analysis. Once, the number of factors is chosen, factor rotation is implemented to help simplify the factors to show the correlation between Q sorts and factors. The rotated factors are then analyzed. This phase of data analysis begins with "flagging" the Q sorts used to define each factor (Zabala, 2014, p. 165). Flagged Q sort are used for all future calculations. For example, calculating the z scores of statements, which shows the level agreement between each factor and statement. The ultimate outcome of Q factor analysis is the number of resulting distinct factors.

Factors are individually evaluated to develop the narrative analysis, which describes the viewpoint held by those composing each factor. Factors are also compared by their consensus and distinguishing statements.

**Research Design**

This Q-methodology study followed six steps. In step one, the concourse or list of statements was generated. Step two consisted of narrowing the concourse to a representative sample of statements, called the Q sample. In step three the researcher recruited participants to build the P sample. In step four, participants completed their Q sorts and post-sort questionnaire. In step five, the researcher used Q factor analysis to obtain the resulting factors. Lastly, in step six, factors were composed into viewpoints using a set of interpretative tools. Data collected from the post-sort questionnaire was used to aid in the understanding and description of the overall analysis, and interpretation of resulting viewpoints

**Concourse development (step one).** A concourse must be broad in nature, communicating all possible observable opinions or points of view on the researched topic (Watts & Stenner, 2012). There is no prescribed one way to build a concourse. An inductive approach was used in this study, as statements were generated by reviewing peer reviewed articles, reports, blog posts, other writings, and informal interviews and conversations with knowledgeable people who work with or for community colleges in North Carolina.

Five informal interviews took place with individuals who represent important community college stakeholder perspectives (Table 3.2). Stakeholder theory suggests in its descriptive component, that one must identify the network of stakeholders related to the organization in order to identify solutions or strategies for the organization (Freeman, 1980). Community

college stakeholders were identified with this theoretical support and through literature (Alfred, 1999; Burrows, 1999; Hom, 2011).

All interviews took place via phone for 30-45 minutes with individuals located in North Carolina. The researcher interviewed one representative from the Southern Association of Colleges and Schools; one top level leader within the North Carolina Community College Systems Office; one plant manager from a local manufacturer that regularly hires community college graduates; one representative from a North Carolina Career Works Center, a community based organization that helps North Carolinians find employment; and one community college project administrator that regularly works on grants to support students and local employers to reach student success goals. Each interviewee represented a stakeholder perspective identified in the community college stakeholder network (Figure 2.1). The researcher reached out to other stakeholder perspectives; however, some requests were met with no response. For example, a North Carolina Workforce Development Board member declined to participate.

Table 3.2.

*Concourse Interviewees and Associated Stakeholder Perspective*

| **Interviewee** | **Stakeholder perspective description** |
|---|---|
| Southern Association of Colleges and Schools representative | *Accrediting commission* that requires institutions of higher education to meet certain pre-determined standard of excellence, which are assessed regularly |
| Executive level leader within the North Carolina Community College Systems Office | *State oversight body* that oversees the administration of the 58 North Carolina Community Colleges |
| North Carolina manufacturing industry plant manager | *Employer* that partners informally or formally to help community college program and/or institutional level success, to better ensure students are appropriately trained and aligned to industry/employer needs |

Table 3.2. (continued)

| **Interviewee** | **Stakeholder perspective description** |
|---|---|
| North Carolina Career Works Center representative | *Community based organization* engaged in addressing the social and economic needs of individual and groups in a defined geographic region (IHEP, 2012). In this case, preparing individuals for employment through the extensive career services or helping connect businesses to workers |
| An on-campus North Carolina Community College grants project manager | *Administrative staff* work within the institution to help carry out school policies, responsibilities within their department, more focused on other agenda related to their goals. |

The goal of the interview was to have each stakeholder perspective discuss the measures they believe demonstrate labor market success for community colleges students. A semi-structured interview protocol was used to stay focused and generate creative thinking about community college student labor market success (Appendix A). The responses from the interviews contributed to the development of the concourse.

I also sourced and reviewed literature and other writings to understand the topic of community college student labor market success. I used different keywords and combinations of keywords to search different databases, such as, ERIC, Academic Source Complete, and Google Scholar. The keywords: *community college* and *labor market* and *outcome**, (or simply, *community college* and *labor market outcome**) or *post-college workforce outcome*, or workforce development outcome*, or workforce outcome* or labor market success or labor market success measure** were used. The researcher also conducted searches on recognized community college research association websites such as The Aspen Institute, The Higher Education Learning Commission, the American Association for Community Colleges, Georgetown University Center on Education and the Workforce, and EMSI.

Saved articles had to meet at least one of these three criteria. (1) The keyword or combination of keywords were in the title or abstract, (2) the articles came from respected journals/sources devoted to community college research, and (3) articles were published in 2008 or after, which is when the spellings commission called for more transparency of outcomes produced by higher education institutions, except for one seminal work on institutional effectiveness by Alfred et al. (1999).

An inductive approach was used to generate the concourse. The review of the above literature and interviews resulted in a concourse totaling 136 statements. This was not the final set of statements used for sorting in the Q sort activity. The concourse was reduced through an iterative approach with a second reviewer, which led to a final set of 30 statements, called the Q sample, explained next.

**Q sample (step two).** The Q sample is a representative sample of the concourse. The sample must be representative of the comprehensiveness and balance of perspectives identified in the concourse (McKewon & Thomas, 2013). The Q sample was composed out of the themes that emerged from the concourse of statements, which was generated from the literature review. Although a thorough literature search and review was undertaken, Q methodologists would likely consider it *unstructured* because I did not us an *a priori* labor market theory to develop the concourse. This was the case, because I did not find a theory that would have provided a sound basis for the development of the concourse. The structure of the Q sample was created from reoccurring ideas that emerged during the literature review and concourse generation. The concourse of 136 statements was reduced to a final Q sample of 30 statements.

The final Q sample was themed into four categories and thirteen sub-categories. These themes were selected based on the researcher's interpretation of the literature and informal

interviews with stakeholder representatives. See Table 3.3 for the structure of theme and sub-categories. The theme descriptions are presented in chapter two.

Table 3.3.

*Q Sample Structure*

| Theme | Subcategory | Number of Statements |
|---|---|---|
| Employment | wage earnings | 5 |
| | job placement rate | 4 |
| | stability of employment | 2 |
| | advancement | 1 |
| Community Contribution | completion | 1 |
| | transfer | 3 |
| | entrepreneurship | 1 |
| | state benefits | 2 |
| Individual Well-being | economic | 3 |
| | education & skill | 3 |
| Workforce Readiness | work-based learning | 2 |
| | licensure/3rd party credentials | 1 |
| | employer satisfaction | 2 |
| | **Total number of statements** | **30** |

The literature search revealed several nuanced ways to measure different aspects of community college labor market success. The literature review did not reveal strong theory supported pre-existing constructs and categories to frame the meaning of labor market success for community college students. The literature review revealed several student success frameworks, which may have a post-graduate measure included. However, the researcher did not find a tested framework specifically focused on post-graduate student success. Mullin (2012) provided a clear organization of what he called examples of “workforce metrics”, but his

categorization seemed limited as it referred to gainful employment funding and career and technical education, and it did not qualify as a theory. Therefore, the researcher ultimately made decisions about the final naming of the themes and sub-categories.

The creation of the Q sample was a difficult task. The research chose a hybrid approach for the Q sample, as a combination of naturalistic and adapted phrasing was used to compose the statements. The Q sample was reduced from 136 items to 30 items by comparing measures, removing duplicates, and condensing similar statements to remove redundancy. The researcher worked independently and then in collaboration with her dissertation committee chair to make sure: (1) statements addressed only one idea, which means no double-barreled items can exist; (2) perspectives were preserved while reducing the concourse of 136 statements to the Q sample of 30 statements; (3) a balanced representation stakeholder perspectives was present; and (4) statements were distinct from one another (Watts & Stenner, 2012). It took several weeks to decide on the organization of the concourse into themes and sub-categories, and several iterations to decide on a final structure. Condensing the statements to the list of final statements required more critical focus. The researcher made choices about the final wording of individual statements to create consistency and remained true to the essence of an author's intentions in their communication about a measure.

The following table (Table 3.4) provides a complete list along of the Q statements by theme and subcategory.

Table 3.4.

*Q Sample Structure*

| Theme | Subcategory | Q sample Statement |
|---|---|---|
| **Employment** | | |
| E1 | wage earnings | wage earnings for all students in the short-term (1-3 years) post-program completion |
| | | wage earnings for all students in the long-term (5-7 years) post-program completion |
| | | percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment |
| | | wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions |
| | | wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college |
| E2 | job placement rate | employment rate for all students 1 year post-program completion |
| | | employment rate for all students by race/ethnicity |
| | | employment rate for all students by gender |
| | | percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete program) |
| E3 | stability of employment | percentage of students who are retained in the same industry 5 years after entering that industry |
| E4 | advancement | percentage of students who advance to higher positions within 5 years |

Table 3.4. (continued)

| Theme | Subcategory | Q Sample Statement |
|---|---|---|
| **Community Contribution** | | |
| C1 | completion | Completion rate for all programs by community college |
| C2 | transfer | transfer rate for transfer programs by community college |
| | | transfer success in 4-year institution based on cumulative GPA 1 year after transfer |
| | | transfers success in 4-year institution based on whether the transfer completed a 4-year degree |
| C3 | entrepreneurship | number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion |
| C4 | state benefits | state benefits of each program relative to the costs of the states' investment dollars |
| | | unemployment rate of students compared to North Carolina's unemployment rate within 1-year post-program completion |
| | | percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry after entering the industry |
| **Individual Well-being** | | |
| P1 | economic | student loan debt compared to their earnings for all programs within 3 years of leaving the college |
| | | student loan default rate for all programs within 3 years of leaving the college |
| | | percentage of students who have moved out of poverty status within 3 years post-program completion |
| P2 | education & skill | percentage of students reporting level of personal satisfaction with the impacts of their program within 1-year post-program completion |

Table 3.4. (continued)

| Theme | Subcategory | Q Sample Statement |
|---|---|---|
| | | percentage of students who work below their skill level within 3 years post-program completion |
| | | percentage of students not working full-time but would prefer to be within 1 year post-program completion |
| **Workforce Readiness** | | |
| W 1 | work-based learning | number of students participating in work-based learning experience (including internships and apprenticeships) by community college |
| | | percentage of students who participated in work-based learning experiences (including internships and apprenticeships) that converted to full-time employment compared to students that did not participate |
| W2 | 3rd Party | percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 years of program completion |
| | employer satisfaction | employer satisfaction with the quality/technical skills of community college employees |
| | | employer satisfaction with graduates' employability skills (critical and analytical thinking, problem-solving and decision making, cultural sensitivity, interpersonal skills, communication, reliability and dependability, teamwork, and time and resource management, and job interviewing skills) |

**P sample (step three).** The sample of participants in a Q methodology study does not need to be large or representative of the population, but must be diverse (Zabala, 2014). The researcher used four maps to locate leaders at community colleges positioned in did geographic regions, different economic tier designations, and in urban and rural counties, to ensure a diverse range of leadership perspectives across the community college system in North Carolina were

obtained. See the four maps listed below. An important note: I added Haywood community college, as it was not shown in the map in Figure 3.2.

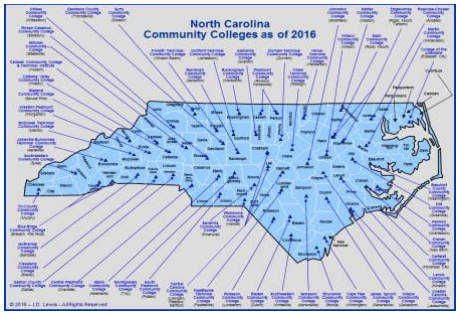


*Figure 3.2.* North Carolina Community Colleges Map (Lewis, 2016)

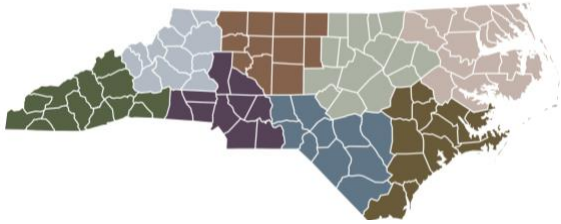

*Figure 3.3.* North Carolina Department of Commerce Prosperity Zone Map (2019)

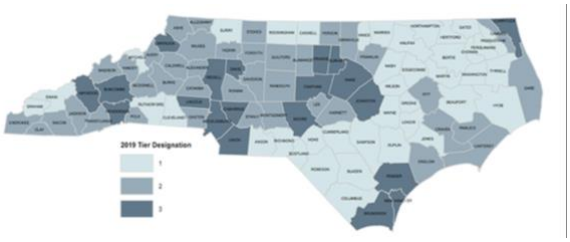


*Figure 3.4.* North Carolina Department of Commerce Economic Tiers Map (2019)

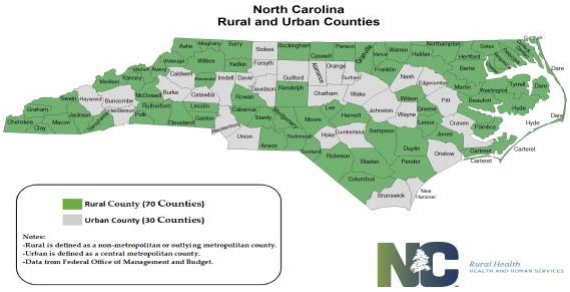


*Figure 3.5.* North Carolina Department of Commerce Urban/Rural Map (2019)

Leaders were purposefully selected because they have knowledge and opinions that can inform an understanding of student labor market success (Creswell, 2013; McKeown & Thomas, 2013). Participants in this study met the following criteria. (1) Hold a leadership role at one of the 58 North Carolina community colleges, and is either (2) responsible for educational policy and academic programs including, but not limited to, program review and improvement, accreditation and self-evaluation, assessment of student learning and advancement of student success, academic personnel decisions, budget development, fiscal accountability, program and curriculum development, and the encouragement and improvement of teaching and learning; development and implementation of innovative workforce development, continuing education, and personal professional development programs or, (3) for coordinating and conducting research to guide institutional decision makers, fulfilling reporting requirements to governmental agencies and accrediting bodies (*position typically held by directors/deans of institutional research);* or, (4) those that work with workforce development grants, and help carry out student success policies (*directors/deans of workforce development, and workforce development grants coordinators*).

Invitations to participate were sent to 57 community college leaders in North Carolina, representing 28 community colleges, eight prosperity zones and held administrative or executive leadership positions, namely:

1) Presidents/vice presidents
2) Deans/director institutional research
3) Dean/director of workforce development
4) Workforce development grant coordinators

Recruitment began by contacting everyone via email and inviting them to participate in the study (Appendix B). The researcher found that email was more productive than phone calls. The researcher explained the purpose of the study in simple language, the time commitments and participation requirements in the first email. If a leader agreed to participate then a second email was sent detailing the next steps of participation, which included a link to the Q sort activity and their unique participate passcode (Appendix C). Details of study processes and procedures were also detailed in the IRB informed consent form (Appendix D) presented for agreement before the participant could begin the study. Recruitment stopped after enough leader participants completed a Q sort. Q studies do not require high numbers of participants because in Q studies participants are considered the variables (Watts & Stenner, 2012). There are different ideas about the number of participants to be included in a P-sample (Watts & Stenner, 2012). Watts and Stenner (2012) recommend a P sample consist of less participants than the number of Q sample statements in a study. Another parameter to guide P-sample numbers is to have "a minimum ratio of two Q sample items to every participant" (Watts& Stenner, 2013, p. 72). I combined these recommendations and decided the acceptable number of participants for my study with a 30-item Q sample was 15-29 participants. Twenty-three leader participants participated in the study and

22 were kept for analysis. One leader, after several attempts, did not complete the post-sort of questionnaire and was not included for analysis. More details on the P sample are described in Chapter 4.

**Q sort (step four).** Using the online QMethod software, leaders completed two data collection activities—the Q sort and post-sort questionnaire. QMethod Software is an online platform specifically designed to conduct Q sorts for Q studies. The researcher paid for a private password protected account. QMethod software was chosen because it was more practical to conduct the study online due to COVID-19 protocols. Additionally, because leaders were located all over the state, an online approach allowed participants to safely access and complete their Q sort at a time convenient for their hectic schedules. Data was collected from February 8th to April 19th, 2021.

Leaders began the Q sort activity using their unique assigned passcode and reviewing the informed consent document, which is in accordance with the Institute for Human Subject Research guidelines approved by North Carolina State University (Appendix D). Each participant's identity was kept anonymous to other participants. A participant master list is stored on the researcher's password protected computer, which contains the names and contact information of each participant. The informed consent covered all data collection activities (Q-sort and the post-sort of questionnaire) and the goals of the study. If the participant had questions, they could contact the researcher via phone or by email. Participation was voluntary, and leaders understood that they could drop out of the study at any time. If a leader consented to participate, they were presented with the Instructions Overview (APPENDIX E), which provided the overall scope of instructions for the study. Next, leaders selected "Begin Q-Sort," and were given the Pre-sort Instructions (APPENDIX F), which instructed leaders to read through the 30-

labor market success measure statements to familiarize themselves with each one. Then they were asked to pre-sort the 30 statements of labor market success into three piles (most important, neutral and most unimportant).

The Final Sort Instructions (APPENDIX G), also known as the *condition of instruction* (COI), provided detailed directions to complete the Q sort. First, leaders were asked to familiarize themselves with the sorting instructions, specifically the COI prompt (see below) that guides a participant's thinking before finalizing the ranking and placement of each statement.

> COI: From your perspective as a community college leader, sort the following labor market success statements that you believe are the Most Important to Most Unimportant measures needed to demonstrate the labor market success of your students.

Next, participants began making selections according to their personal opinions, beliefs and values about the labor market success measures. Leaders were then instructed to place the community college labor market success statements from the three pre-sorted piles, dragging and dropping them one at a time from each pile and placing them into an open space on the forced-choice distribution grid (*Figure 3.6.).* The forced-distribution grid used in this study was a quasi-normal distribution with a 9-point scoring scale from most important (+4), on the far right to most unimportant (-4), on the far left, which are the extreme ends of the distribution. At the extreme ends, there are two placement spots reserved. Leaders were asked to make their *most important* selections first, by placing the 2 most important statements in the two available spaces in the +4 column of the distribution grid. Next, leaders must make their most unimportant selections, by placing their 2 most unimportant selections in the two available spaces in the -4

column of the distribution grid. These steps are repeated until all 30 statements were placed. Leaders continued placing statements in the available spaces from their three pre-sorted piles, working outward to inward from the tails of the distribution grid, the participant narrowed to the middle/neutral position. Participants were allowed to make changes and move statements around as they worked through their sort. The anticipated time to complete the sort was 30-40 minutes. The average time to complete was 14 minutes and 36 seconds. Once all statements were placed on the grid, participant's scores were recorded in real time in the Q Method Software application. A total of 23 leaders completed sorts, however only 22 were kept. One participant's sort was discarded because they did not complete the post-sort questionnaire. After a few attempts to reach the participant there was no response, therefore, the researcher chose not to include this participant.

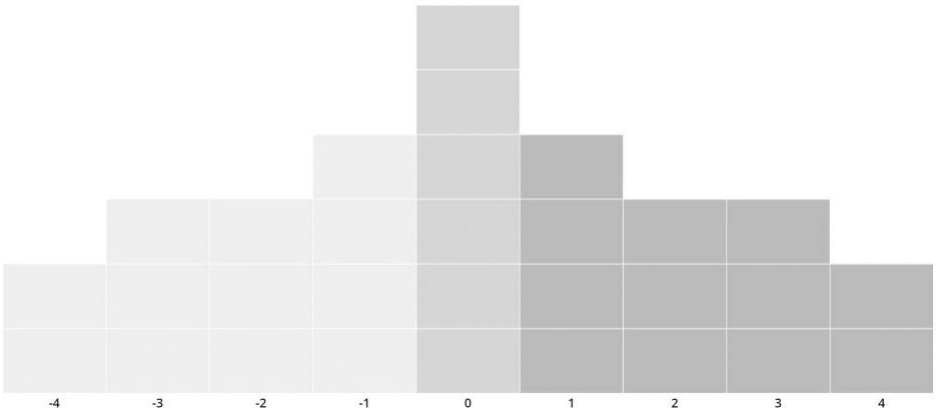


*Figure 3.6.* Quasi-normal q sort grid distribution with 9-point scale

Leaders completed their Q sort and were prompted to complete the post-sort questionnaire (Appendix H). The questionnaire was divided into three sections. The first asked specific questions about how or why participants sorted the way they did. The second section asked participants about descriptive data such as age range, gender, level of education, years of

service in community college work, years employed at their current institution, the size classification of their institution (small, medium, or large), the county in which their institution is located, and previous job before their current role (if at another community college, then what county was that college located). In the third section, participants were asked to identify their stakeholder salience. The purpose of this section was to understand how participating on-campus community college leaders view their power, legitimacy, and urgency in relationship to influencing student labor market success decisions at their community college. Questionnaire responses were used to deepen the researcher's understanding of the participants, their sort choices, and therefore strengthen the description of each resulting factor/composite viewpoint.

**Factor analysis (step five).** The Q-sorts were analyzed using KADE/KEN-Q Analysis software, a free desktop software application package specifically developed for Q studies. Q factor analysis comprise three main activities: correlation, factor extraction and factor rotation. The goal of factoring was "to bring attention to the typological nature of how participants sort the statements" (McKeown & Thomas, 2013, p. 52). Overall, Q factor analysis explains the integrity of the relationships between the Q sorts, which was done through a statistical multivariate technique that reduced the correlation matrix into components or factors and showed which participants thought similarly about community college student labor market success (Zabala, 2014).

First, the researcher generated the *correlation matrix* (Appendix G), which explained the "intercorrelation of each Q sort with every other sort" (Watts & Stenner, 2012, p. 97). The matrix also showed the strength of associations between Q sorts. The correlation matrix was subjected to specific statistical analyses explained next. Second, factor analysis required two stages: (1) factor extraction, and (2) factor rotation. The KADE/KEN-Q analysis package offers

different extraction method choices. The researcher selected Brown's Centroid Factors. This is the preferable method for Q methodologists because "of the permissiveness it allows in relation to data exploration" (Watts & Stenner, 2012, p. 100; Ramlo, 2016). This Centroid approach is criticized because of the "indeterminacy (there is no mathematically correct solution out of the infinite number possible). This infinite number of solutions while problematic for many Q methodologists, was a "virtue" to Brown and Stephenson, the creators of Q methodology. The virtue is there is no exact correct solution, which gives the researcher license to explore different "hunches" and "angles" (McKeown & Thomas, 2013, p. 56).

The Centroid approach "was developed alongside, and to be supportive of, the graphical, theoretical or by-hand method of factor rotation the many Q methodologist prefer" (Watts & Stenner, 2012, p. 100). Ramlo's (2016) article puts forth a justification for the use of Centroid with theoretical/judgmental or by-hand rotation. She stated that it is the preferred combination by Stephenson, the creator of the method and is considered as a more qualitative exploratory approach to the data. Stephenson (1953) stated Q studies should not simply be considered a statistical reduction technique with a correct solution like the PCA with Varimax approach promotes. Varimax rotation is another common factor rotation method and is preferred because, "it maximizes the variance of each factor loading by making high loadings higher and low loadings lower to simplify factor interpretation" (Akhtar-Danesh, 2016, p. 34).

Although centroid with hand rotation is the preferred statistical combination to analyze Q studies and there is a strong argument for it, this approach is best suited when data are more nuanced, and the researcher has more of a specific *a priori* theory to rely on in guiding decisions for rotation. There is also theoretical weakness in this approach because it may be hard to make certain that the results reflect the reality of a situation and not the researchers own potentially

biased understanding of it (Watts & Stenner, 2012). The researcher decided on centroid for extraction and varimax for rotation. The researcher determined that not having an *a priori* theory to justify judgmental rotation choices, as explained earlier, the researcher wanted to avoid misinterpreting the reality of the situation by placing potentially false assumptions on the data.

The second stage in factor analysis is *factor rotation*. Factor extraction alone is not enough, factors were rotated to provide simplistic structure and better interpretation (Watts & Stenner, 2012). Once factors were rotated using varimax, the resulting matrix showed the factor loadings, where Q-sorts represented rows and factors were columns. This matrix indicated the relationship between each Q-sort and factor (Zabala, 2014).

The researcher used certain criteria to decide on the number of factors to keep for rotation. The researcher evaluated how much variance was explained by each factor and whether a factor had an eigenvalue (EV) greater than 1. "The EV is indicative of the factor's statistical strength and explanatory power (Watts & Stenner, 2012, p. 105). Therefore, an EV greater than 1 demonstrates a strong relationship between the Q sorts in the factor. However, the researcher did not assume that an EV above 1 was certainty that a factor should be kept for rotation. The factor scores within a factor were also evaluated. Third, other tests including the scree test and Humphrey's rule were used to decide on the number of factors. These tests were used to prevent assigning inappropriate importance to all factors with greater than an EV of 1 (Watts & Stenner, 2012).

The standard error of the correlation SE=$1/\sqrt{N}$ was calculated at 95% and 99% confidence. These scores were used to determining levels of significance throughout the analysis an interpretation of results. The Z score for 99% confident is 2.58. Therefore, the SE=$1/\sqrt{N}$= X and, 2.58(X) =Y indicates that correlations or factor loadings exceeding ±Y are significant

(p<.01) or 99% confidence level. The SE=$1/\sqrt{N}$= X and, 1.96(X) =Y indicates that correlations or factor loadings exceeding ±Y are significant (p<.05) or 95% confidence level.

Therefore, the standard error (SE) used to determine significance in this study was SE = 1/√30 = .1825). At 99% confidence (p<.01), a factor loading was significant at SE (2.58) = .183(2.58) = ± .47214, and at 95% confident (p<.05), a loading was significant at SE (1.96) = .183(1.96) = ± .35868. The confidence level used to determine significance is noted where appropriate

The researcher systematically compared a two-, three-, four- and five-factor solution, because EVs were greater than 1 for factors 1-5. Lastly, the researcher examined the factor-solutions qualitatively. For example, consensus and distinguishing statements were evaluated to ensure the factors chosen represented distinct perspectives. A two-factor solution emerged as the most realistic result for this study. Chapter Four provides an in-depth description of decisions, procedures and results.

Once the researcher decided on a two-factor solution, each factor was evaluated individually to determine which sorts were most representative of each factor. Q sorts that were most representative of an identified factor were “flagged” based on two criteria: (1) whether the Q sort loads high/is significant (the significance threshold for a p-value < .05 or even more significant p-value < .01) and (2) the factor loading coefficient scores or Z-scores, which essentially indicated how much that Q sort agreed with the composite sort for each factor (Zabala, 2014). If a Q-sort loaded high in more than one factor, it was not flagged (Zabala, 2014). The coefficient scores or Z scores were computed to determine the significant relationships between the Q sorts and the factors.

The researcher evaluated the composite reliability and correlation between factors to ensure a sound factor solution was chosen. A composite reliability score is the result of the number of defining/significant Q sorts within a factor (Brown, 1980). The more defining sorts a factor has indicates greater reliability and confidence in the items/statements composing it. A high reliability, above the average of .80, indicated confidence in the viewpoint being expressed by the factor. In order to ensure sufficient composite reliability, Brown (1980) argued there must be at least two defining (significant) Q sorts for a factor to be included in the solution. "The more persons who render a viewpoint, the more confidence we have in the items composing it" (p. 245). Brown (1980) suggested using a composite reliability coefficient score of .80 or higher. The calculation is made using the equation shown below.

$$r_{xx}=\frac{(.80)p}{1+(p-1).80}$$

P is the number of persons defining a factor, .80 is their estimated average reliability coefficient and therefore $r_{xx}$ is the reliability of the factor. The composite factor reliability is important to the standard error of factor scores, as $r_{xx}$ must be known to calculate the factor z-score in this equation below.

$$SE_{fs}= s_x\sqrt{1-r_{xx}}$$

The above equation would indicate the higher the factor's reliability (.80 and above), the lower the standard error of factor z-scores will be (Brown, 1980).

Lastly, the correlation between factors (CbF) helped to further confirm that factors were distinct, and more factors were not selected falsely, meaning those that showed higher correlations were likely alternate manifestations of the same viewpoint. Factor interpretation followed factor analysis.

**Factor interpretation (step 6).** Factor interpretation involved using different evaluative and interpretative tools to develop the interpretation and associated narrative for each resulting factor viewpoint. In order to easily probe the viewpoints, factor arrays were generated for each viewpoint. Factor arrays are essentially a single composite Q-sort configured to represent the viewpoint of a factor (Watts & Stenner, 2012). Factor arrays are displayed in two ways. The first way is in a table format with statements and their scores listed for each viewpoint. The second way visually represents a factor's composite Q sort, in the format shown in Figure 3.2. A crib sheet was also created to interpret each factor array. The crib sheet prompts the researcher to examine the highest and lowest ranked statements within a factor array and how those statements ranked higher or lower in that factor array compare to other factor arrays. Additionally, the researcher attended to the ranking of every item in each factor array, asking why is this statement positioned here and what does its position mean? These steps prompt the researcher to hypothesize. These hypotheses were weighed against other collected data, for example, the post-sort questionnaire. As previously stated, the post-sort questionnaire asked why participants sorted the way they did, demographic and other information about the individual participants. Questionnaire data was used "to clarify and interpret the signs and clues contained in each array [to avoid imposing the researcher's] own views and expectations" (Watts & Stenner, 2012, p. 166).

The goal of interpretation of each factor array or *composite viewpoint* is to effectively illustrate, in this case, the different community college leader viewpoints about the measures they believe demonstrate their students' labor market success. Each viewpoint was carefully named, and composite viewpoint summaries are true to participant responses.

**Validity and Reliability**

McKeown & Thomas (2013) briefly discuss validity and reliability. Validity is not applicable in Q methodology, as the "Q sorts are anchored in self-reference and there is no external standard by which they can be compared to estimate their validity" (p. 64). Therefore, findings are only generalizable to those that participated in the study. They note reliability is concerned with the replicability of the factor scores. This means, there should be consistency in results if repeating the study with the same participant using the same data collection procedures (Thomas & Bass, 1992).

**Subjectivity statement.** During my coursework at North Carolina State University, I served as a graduate assistant on a 3-year long grant project (2013-2106), funded by Golden LEAF Foundation, called Essential Skills in Advanced Manufacturing Initiative (Essential Skills or the Essential Skills Initiative). This workforce development grant project funded eligible community colleges to purchase equipment that mirrored advance manufacturing industry equipment. The overall goal was to enhance or support the creation of training programs that taught necessary technical skills for obtaining jobs in advance manufacturing in NC. This was a part of a larger effort to close the skills gaps identified in these fields of advanced manufacturing. Grants were awarded to 21 programs from community colleges across NC. While working on this project, the importance of labor market success was essential in understanding the success of the grant. Additionally, it exposed the data and definition challenges community colleges have when it comes to labor market success. Opinions can vary across community colleges because of to their location, local labor markets, regions, college size and institutional goals. I also became curious about all the community college stakeholder perspectives on the topic, from employers, to workforce development boards to on-campus community college leaders. I noticed a need to

understand labor market success of community college students was not only important to states, but philanthropic organizations, employers, and the K-12 sector. Lastly, those designing student success frameworks are looking beyond completion of a degree to measures defining student labor market success. This experience combined with my interest in workforce development, and degree in the subject lead me to this topic.

**Chapter Summary**

The first half of this chapter provided an overview of Q-methodology. The second half described the research design used to explore the subjective viewpoints of community colleges leaders about the measures of community college student labor market success. The research design portion of the chapter covered the design steps: (1) concourse development, (2) Q sample creation, (3) P sample recruitment plan, (4) data collection using Q sort and post-sort questionnaire, (5) factor analysis and, (6) factor interpretation. The chapter concluded with the validity and reliability concerns, as well as researcher subjectivity statement. Next, Chapter Four presents the specific analysis processes, procedures and decisions that lead to the findings.

# Chapter Four: Findings

The purpose of this study was to surface on-campus community college leader viewpoints towards various measures of student labor market success. The research sought to answer these questions: (1) what are the viewpoints of on-campus community college leaders toward the labor market success measures that are most important towards demonstrating their students' success? And why? (2) What consensus and distinguishing statements emerge across the viewpoints? (3) How do community college leaders in different leader positions characterize their stakeholder salience?

First, a description of the P sample is provided. Second, the researcher describes the results and findings associated with the statistical steps taken for Q-factor analysis (correlation, factor extraction, factor rotation). Third, the resulting factors were analyzed for interpretation. Data from post-sort questionnaires were used to support the interpretation each factor, also known as a composite viewpoint. Composite viewpoints were described through a narrative approach, which explored the beliefs of each viewpoint. Lastly, the stakeholder salience for leader participants was explored and described based on their responses in the stakeholder salience section of the post-sort questionnaire.

Two data sources were used for analysis: The 22 community college leaders' Q sorts and their post-sort questionnaires. Data were collected through Q Method Software and analyzed in KADE/KEN-Q desktop software application.

## P sample description

The sample of participants in a Q methodology study does not need to be large or representative of the population, but must be diverse (Zabala, 2014). Participants chosen for the

study hold leadership positions at a North Carolina Community College, have relevant viewpoints about student labor market success, and regularly engage with student labor market success data. Twenty-two leader participants represented 17 community colleges positioned in both rural and urban counties and covering North Carolina's eight prosperity zones. See the map below (Figure 4.1) for representation of the 17 community colleges.

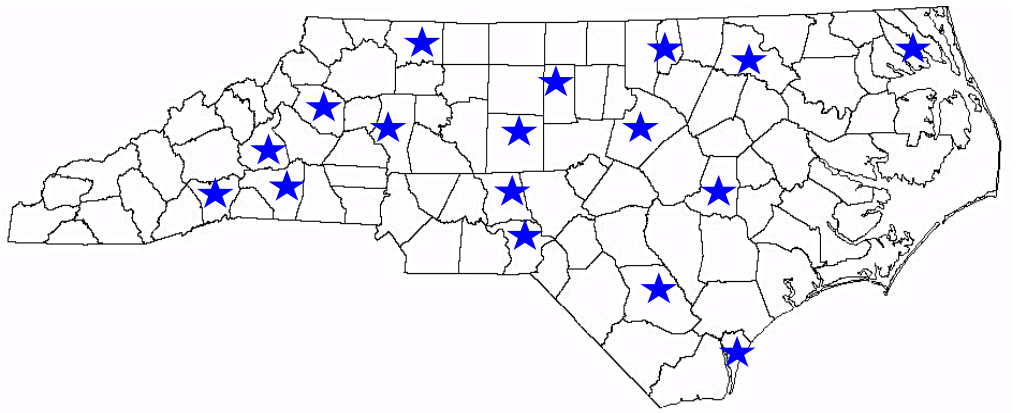

*Figure 4.1.* Locations of Community Colleges in Study by County

As described in Chapter Three, four maps were used to ensure a strategic approach to gain a diverse group of leader participants. Once the acceptable number of participants for a Q study with 30 statements was met, the researcher stopped collecting data. Watts and Stenner (2012) recommend a P sample consist of less participants than the number of Q sample statements in a study. Another parameter to guide P-sample size is to have "a minimum ratio of two Q sample items to every participant" (Watts& Stenner, 2013, p. 72). I combined these recommendations and decided the acceptable number of participants for my study with a 30-item Q sample was 15-29 participants. Thirty items were used in this study, therefore a sample size between 15 and 29 was considered acceptable. Originally 23 participants completed a Q sort, however, one

participant was removed from the study because they did not complete the post-sort questionnaire after three attempts requesting a response.

Several tables are presented below to illustrate the descriptive information about the P sample. The first, Table 4.1, shows the number of community colleges located in each prosperity zone, the participants contacted to participate in a prosperity zone, and the final column represents the actual number of that participated per region/prosperity zone. The goal was to recruit at least two to three participants per prosperity zone in order to gain a geographically diverse sample. In some instances, contacting more people in a region was necessary to obtain participation, which occasionally resulted in more participation from that region.

Table 4.1.

*Number of Leader Participants per Prosperity Zone*

| Region/ Prosperity Zone | Main CC Campuses by Prosperity Zone | Number of CCs Contacted by Zone | Number of Leaders Contacted* | Final Number of CCs Represented | Final Number of Leader Participants |
|---|---|---|---|---|---|
| Northeast | 6 | 2 | 3 | 2 | 2 |
| Southeast | 9 | 5 | 10 | 2 | 2** |
| North Central | 9 | 3 | 6 | 2 | 4 |
| Piedmont-Triad | 7 | 3 | 5 | 3 | 4 |
| Sandhills | 8 | 6 | 11 | 3 | 3 |
| Southwest | 7 | 3 | 5 | 1 | 2 |
| Northwest | 6 | 3 | 6 | 2 | 2 |
| Western | 6 | 3 | 8 | 2 | 3 |
| **Total** | **58** | **28** | **57** | **17** | **22** |

*Note: numbers are larger when there was little response from that region, more leaders were contacted to gain Participation

**note: one participant from this group was excluded which reduced group from 3 to 2

Table 4.2 shows the number of rural and urban counties represented. The researcher used the North Carolina Rural and Urban designation map created by the North Carolina Department of Health and Human Services (NCDHHS) Office of Rural Health to ensure participants represented both economic categories. Out of 100 counties, there are 70 rural, non-metropolitan or outlying a metropolitan area county: and 30 urban, central metropolitan counties. There were a few discrepancies with how leaders defined their county versus how the NCDHHS Office of Rural Health defined it. The researcher used the NCDHHS's designations. Therefore, eight or 36% of leader participants' colleges were in urban counties, while 14 or 63% were in rural counties.

Table 4.2.

*Rural or Urban*

| | | Reported | Map defined* |
|---|---|---|---|
| Which best describes the location of your community college? | Urban | 4 | 8 |
| | Rural | 18 | 14 |

*Note: the North Carolina Department of Health and Human Services Urban and Rural County Map defined the counties differently than participants

The researcher also used the North Carolina economic tier designation map (as discussed in chapter Three) created by the North Carolina Department of Commerce to further ensure labor market diversity was considered when inviting leaders to participate. North Carolina community colleges are positioned in different counties with unique labor markets. The North Carolina Department of Commerce (NCDOC) annually ranks each county's economic well-being based on four factors: (1) average unemployment rate, (2) median household income, (3) percentage growth in population and (4) adjusted property tax base per capita. The calculation is used to assign an economic tier designation (1, 2, and 3) for each county. The purpose of the designation

is to boost "economic activity in the less prosperous areas of the state" (NCDOC, 2019). In North Carolina, forty counties (40) are designated as tier one (most distressed), another forty (40) are in tier two (somewhat distressed), and twenty (20) are designated as tier three (least distressed). The 17 community colleges represented in this study composed of twelve tier one; five tier two; and six tier three counties.

The goal was to obtain a geographically diverse sample, with labor market diversity, and leader position diversity. Leader participants consisted of various position titles such as community college presidents, vice presidents of workforce development, directors of institutional effectiveness, and deans of continuing education. Leaders self-categorized as 12 *executive leaders (e.g., president, vice president)*, 6 *administrative staff (e.g., deans, directors)*, and 1 participant selected, *other*. See table 4.3. for a more specific categorization of leader participants.

Table 4.3.

*Leader Participant Categories (n=22)*

| Which category best describes your position? | Presidents | Vice President level positions | Institutional Research /Assessment | Dean of Workforce | Dean Misc* (CTE; Grants Co.; CE) |
|---|---|---|---|---|---|
| | 5 | 7 | 4 | 3 | 3 |

*Note: Career and Technical Education (CTE); Grants Coordinator; Continuing Education (CE)

Most leader participants have several years of experience in their current positions. Three leaders (14%) have served in their position at least 11-20 years, while ten (45%) have worked in their current position for 6-10 years. Six (27%) have served from 1 to 5 years, and three (14%)

have served for less than 1 year. Leaders are also experienced in their role, nine of the twenty-two (41%) have worked in the North Carolina Community College system for over 20 years, six (27%) for 11- 20 years, six (27%) for 6 to 10 years, and one leader has worked in the North Carolina Community College System for 1 to 5 years. Most leader participants have several years of experience in their current positions, and 68% of the leader participants have worked in the North Carolina Community College system for a decade or more. See Table 4.4.

Table 4.4.

*Leaders' Years of Experience*

| | Less than 1 year | 1 to 5 years | 6 to 10 years | 11- 20 years | Over 20 years |
|---|---|---|---|---|---|
| How many years in your current position? | 3 | 6 | 10 | 3 | - |
| How many years have you worked in the North Carolina community college system? | - | 1 | 6 | 6 | 9 |

All leaders possessed advanced degrees. Thirteen leaders have a *doctorate degree* (Ed.D or Ph.D), while nine leaders have completed a *master's* degree. Leaders self-identified as 12 *males* and 10 *females*. Of the 22 leaders, 15 were *white/Caucasian*, five were *African American/black,* one selected *two or more races, and* one selected *other race or ethnicity origin.*

Table 4. 5. indicates the number of small, medium, and large schools represented. The question, "How you would characterize the size of your community college?" was asked on the post-sort questionnaire to better understand the representation of small, medium, and large schools in the sample.

Table 4.5.

*Size of community colleges*

| How would you characterize the size (# of students) of your community college? | Small (Less than 2,000) | Medium (2,000-15,000) | Large (15,000 and up) |
|---|---|---|---|
| | 5 | 13 | 4 |

**Q Factor Analysis**

The statistical results related to the Q factor analysis are presented below. The purpose of Q analysis was to decide on the appropriate factor-solution for the study. The factor-solution is the primary result and is the basis for answering the first two research questions: What are the viewpoints of on-campus community college leaders toward community college student labor market success measures? And why (2) What consensus and distinguishing statements emerge across the viewpoints?

Twenty-two diverse leader Q-sorts were used for analysis. The goal of factoring was "to bring attention to the typological nature of how participants sort the statements" (McKeown & Thomas, 2013, p. 52). In other words, factoring is done through a statistical multivariate technique to reduce the resulting correlation matrix (n x n) into components or factors to show which participants think similarly about the topic under study (Zabala, 2014). Q-factor analysis was used to explain the integrity of the relationships between Q sorts. There are three parts to the Q factor analysis approach: correlation, factor extraction and factor rotation.

First the researcher downloaded two files from the Q Method software system: (1) the statements.txt file, which included the 30 individual statements about student labor market success that leaders were asked to sort; and (2) the Q sorts.csv file, which included the 22 leader Q sorts. Next, the researcher uploaded these two files into KADE/KEN-Q for Q factor analysis. From there, the software prompted the researcher to follow the necessary factor analysis steps.

The standard error (SE) was used to determine significance of a factor loading and other calculations used for making important decisions throughout the statistical analysis process. The SE is calculated by the expression 1 divided by the square root of the number of items/statements in the Q sample. Therefore, SE = $1/\sqrt{30} = .1825$). At 99% confidence ($p<.01$), a factor loading was significant at SE (2.58) = .183(2.58) = ± .47214, and at 95% confident ($p<.05$), a loading was significant at SE (1.96) = .183(1.96) = ± .35868. The confidence level used to determine significance is noted where appropriate.

**Correlation matrix.** The correlation matrix Appendix (G) shows how much each Q-sort is correlated to every other Q-sort (n x n, where n=22). The correlation matrix represents all the viewpoints of participants and "… encapsulates 100% of the meaning and variability present in the study" (Watts & Stenner, 2012, p. 98). Correlation scores shown in the output matrix in KADE/KEN-Q software range from – 100 or -1.00, which indicates the strongest negative relationship, and + 100 or +1.00, which indicates a weakest positive relationship, where 0 indicates the lack of relationship (Watts and Stenner, 2012). In this study, correlations are significant at $p<.01$ when the score is ± .47214 or above; and at $p<.05$ when the score is between ± .35868 and .47214.

The correlation matrix offered insight into which Q sorts have positive, and negative associations, but it could not indicate which persons group together to form a factor or viewpoint. Therefore, factor analysis is used to perform a "statistical inspection" of the correlation matrix to detect distinct shared meaning in all the individual viewpoints or Q-sorts voiced (Watts & Stenner, 2012, p. 96). In other words, the matrix was mined to find the "distinct portions of common variance," which can also be characterized as the "proportion of meaning

and variability in a Q-sort that is held in common with or by a group of persons" (Watts & Stenner, 2012, p.98).

Within the correlation matrix in this study, the strongest positive correlation is .62(62 %) between Q sort 8 and 22, the second highest is at .61(61%) between Q sort 11 and 13, and Q sort 11 and 17. The strongest negative correlation is -.31 (-31%) between participant 22 and 4. No statistically significant negative associations between sorts were present. The two highest correlated Q-sorts likely indicate that they shared the most in common in how they sorted, while the lowest correlation indicates that these two participants share the least in common in how they sorted. However, these initial correlations do not mean they will invariably end up on the same factor.

**Factor extraction.** Once the correlation matrix is generated, *Factor extraction* decides which factors to initially retain for further analysis. Brown's centroid method was used to extract factors for two reasons. First, Brown (1980)—considered one of the founders of Q factor analysis—argued that seven factors provided the best framework for factor analysis; explaining, that "insignificant factors frequently contain small amounts of systematic variance that can help in improving the loadings on a major factor. . . (p. 223). Second, centroid factor analysis allowed for more exploration of the data. While the common alternative, principal component analysis seems the likely choice because "it resolves itself into a single, mathematically *best* solution that should be accepted" (Watts & Stenner, 2012, p.99), it denies the researcher freedom to explore data using abductive reasoning or theoretical hunches (Watts and Stenner, 2012).

After extraction, an unrotated factor loadings matrix is generated (Table 4.6). The unrotated factor matrix included all 22 Q sorts and the 7 unrotated factors, which accounted for 58% of the total explained variance. While the correlation matrix showed the relationship

between the 22 individual Q sorts, the unrotated factor matrix showed the correlation between each Q sort and factor. To decide on the number of factors to keep for rotation the unrotated factor matrix was evaluated on three criteria, eigenvalues, variance, and scree test.

Table 4.6.

*Unrotated Factor Matrix*

| Participant | Factor I | Factor II | Factor III | Factor IV | Factor V | Factor VI | Factor VII |
|---|---|---|---|---|---|---|---|
| 1 | 0.396 | -0.5099 | 0.1313 | -0.3349 | 0.1741 | 0.3367 | 0.0724 |
| 2 | 0.6172 | -0.0449 | -0.0704 | 0.1953 | 0.2861 | -0.1908 | -0.21 |
| 3 | 0.1014 | -0.6369 | 0.1363 | 0.0357 | 0.5251 | -0.1628 | 0.1833 |
| 4 | 0.1572 | -0.5663 | -0.4929 | 0.0598 | 0.0316 | 0.117 | -0.071 |
| 5 | 0.4192 | -0.007 | -0.1173 | -0.1123 | 0.1156 | -0.2332 | 0.2112 |
| 6 | 0.3569 | -0.0848 | 0.2303 | 0.2581 | -0.1738 | -0.1605 | 0.2265 |
| 7 | 0.5009 | 0.1323 | -0.249 | 0.0063 | -0.0431 | -0.3169 | -0.227 |
| 8 | 0.4931 | 0.4048 | -0.3354 | 0.039 | 0.0394 | 0.1718 | 0.2678 |
| 9 | 0.2068 | 0.2937 | -0.3184 | -0.2238 | 0.1094 | -0.2575 | 0.018 |
| 10 | 0.663 | 0.4172 | 0.2268 | 0.0875 | 0.1324 | -0.1618 | 0.1533 |
| 11 | 0.6719 | -0.1274 | 0.1444 | 0.3309 | -0.2815 | 0.0684 | 0.0368 |
| 12 | 0.4079 | 0.2018 | 0.4826 | -0.119 | 0.2649 | 0.081 | -0.2365 |
| 13 | 0.5254 | 0.0018 | 0.023 | 0.242 | -0.2033 | 0.0341 | -0.0261 |
| 14 | 0.3617 | 0.3066 | -0.1179 | 0.0916 | 0.1087 | 0.357 | -0.1744 |
| 15 | 0.5406 | -0.2067 | 0.1533 | -0.2963 | -0.3376 | -0.1396 | 0.0001 |
| 16 | 0.6076 | 0.4459 | 0.2835 | 0.1007 | -0.089 | 0.2768 | 0.2018 |
| 17 | 0.7606 | -0.1597 | -0.0797 | 0.4237 | 0.1299 | 0.1374 | 0.1618 |
| 18 | 0.4645 | 0.0666 | 0.1181 | -0.3018 | 0.1925 | -0.1636 | 0.2176 |
| 19 | 0.6689 | -0.0816 | 0.2499 | -0.2157 | 0.1882 | 0.1465 | -0.1651 |
| 20 | 0.5842 | 0.1175 | 0.0703 | 0.3607 | -0.1272 | -0.0394 | -0.151 |
| 21 | 0.7773 | 0.088 | -0.1209 | -0.1539 | -0.0915 | 0.1572 | 0.1691 |
| 22 | -0.0136 | 0.11 | 0.2736 | 0.1561 | 0.3491 | -0.2844 | -0.1876 |
| Eigenvalues | 5.7257 | 1.9001 | 1.227 | 1.0774 | 1.0256 | 0.9027 | 0.6475 |
| % Explained variance | 26 | 9 | 6 | 5 | 5 | 4 | 3 |

EVs are the product of the summed factor loading of all the sorts within that factor. Kaiser-Guttman criterion states that EV above 1 are typically signaled for further analysis, while those below 1 are not considered. EVs less than 1 indicates the unrotated factor's variance for that factor is less than that of a single Q-sort (Watts & Stenner, 2012). An EV greater than 1 demonstrates there are strong relationships between the Q sorts in the factor. Based on Kaiser-Guttman, the researcher examined up to 5 factors for rotation. In the unrotated factors Table 4.6 above, EVs are above 1 for factors 1-5.

The percent variance indicates how communal a factor is, or how much it holds in common with all the other factors (Watts & Stenner, 2012). For example, Factor I in Table 4.6. is 26%, meaning 26% of the common variance present in the study is in factor I, or said differently, over one quarter of everything that the Q-sorts have in common (Watts & Stenner, 2012). Factor I always explains the most variance, while each added factor explains less and less. Combined, the EV and variance help to understand the strength and explanatory power a factor has (Watts & Stenner, 2012). The percent variance can be explained by adding each factor (Factor I + Factor II= 35%); (I+II+III=41%); (I+II+III+IV=46%) and (I+II+III+IV+V=51%).

To avoid "arbitrary retention" of all factors with EVs above 1 and highest cumulative variance, the scree test is used. The scree plot in *Figure 4.2*. illustrates the plotted EVs and shows where the slope line begins to change, which is right at the elbow of the sloped line. The scree plot indicates a change at 2 to 3 factors, providing more guidance towards a decision for how many factors to keep for rotation and ultimately the final factor-solution. Using these two data points along with others (explained later) helped determine how many factors to keep for rotation

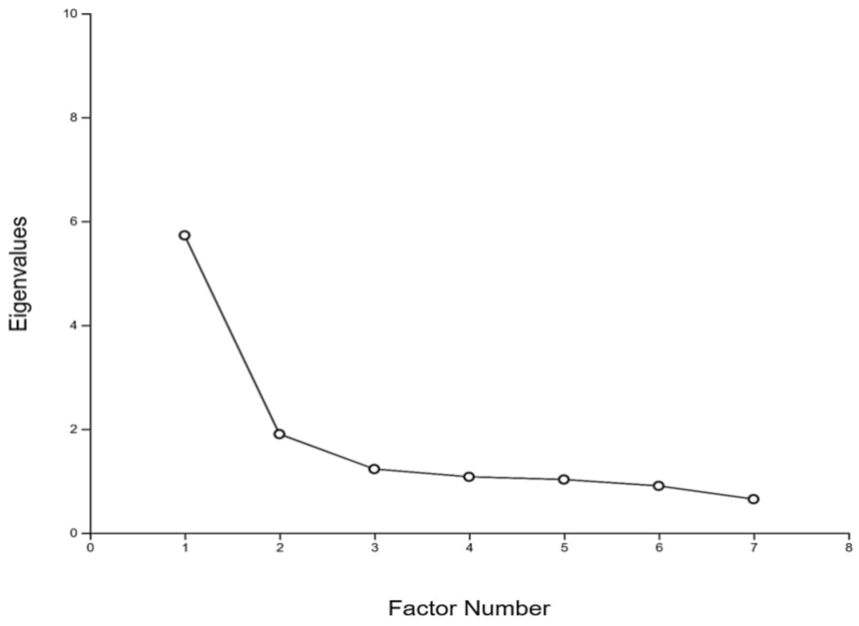


*Figure 4.2.* Scree plot of eigenvalues.

**Factor rotation.** To decide on the number of factors to rotate, the unrotated factor matrix was evaluated by EVs and percent variance, and the scree plot was visually reviewed for more support towards a factor solution. Factors were rotated after extraction to simplify structure for interpretation using *varimax rotation*, which "maximizes the variance of each factor loading by making high loadings higher and low loadings lower to simplify factor interpretation" (Akhtar-Danesh, 2016, p. 34), or constructs the individual factors to be more distinct.

The alternative, Judgmental or hand-rotation, was considered as many Q methodologist value and prefer this rotation approach because it gives the researcher the ability to use theoretical basis and abductive reasoning to further explore data (Ramlo, 2014). Using judgmental/hand-rotation is best suited when rotated results are more nuanced, and the researcher has a specific *a priori* theory to rely on in guiding decisions for rotation. Regarding the criteria of *more nuanced data*, the researcher found when comparing the various factor solutions using judgmental/hand-rotation, Q sorts continued to track in the same groups after

rotating several degrees on the x and y axes. Therefore, hand rotating did not add any interesting or compelling new arrangements of relationships; and arguably, theoretical weakness exists in the judgmental/hand-rotation approach because it may be hard to verify whether the results reflect the reality of a situation, or the researchers own potentially biased understanding of it (Watts & Stenner, 2012).

Many factor criteria were used to explore and decide on a factor-solution after rotating factors. As discussed above, initial objective criteria, EVs and explained variance were examined to understand the strength and explanatory power for each factor (Watts & Stenner, 2012). The scree plot indicates a factor solution by the slope change of the plotted EVs. Factor solutions were also compared. The researcher evaluated a 2-factor solution and compared to a 3-, 4-, and 5- factor solution. Each rotated factor solution generated its own calculations and Excel output files with at least 25 sheets. To understand what distinguished solutions from one another, the researcher compared dozens of tables and matrices containing both statistical and qualitative criteria.

First, the researcher examined rotated factor loading tables for how many Q sorts loaded on each factor within each factor solution. Next, the number of flagged or significant sorts at $p<.05$ and $p<.01$ were noted, keeping in mind the recommendations 4 or 5 participants in total load on a factor (Exel & De Graff, 2005), or two or more significant sorts load on a factor (Brown, 1980). Tables were evaluated for bipolar or confounding sorts. Bipolar sorts exhibit a negative coefficient score, so the Q sort was in direct opposition to others in their factor. Confounding sorts were those that loaded on more than one factor. The correlation between factors (CbF) was examined using the significance parameters of $\pm.3586$ at $P<.05$ and $\pm .4721$ at $P<.01$. Higher correlations between any pair of factors meant that pair of factors were less

distinct. Each individual factor within a factor-solution was checked to determine if Humphrey's rule was satisfied. Meaning, the two highest loadings had to be twice the study's standard error (Watts & Stenner, 2012).

The composite reliability and standard error of factor Z scores were also checked to ensure the best factor solution was selected. A composite reliability score is the result of the number of defining/significant Q sorts within a factor (Brown, 1980). The more defining sorts a factor has indicates greater reliability and confidence in the items/statements composing it. A high reliability, above the average of .80, indicated confidence in the viewpoint being expressed by the factor. The composite reliability coefficient rendered is important to the factor z-score, because the higher the reliability coefficient, the lower the degree of standard error. Brown (1980) explained that the standard error is important as it "makes possible, to state the probable range within which the true factor scores are likely to be located, hence, ultimately to determine which statements significantly distinguish one factor from all the others" (p. 298).

Distinguishing statements are those that distinguish any pair of factors. "If the difference between the z-scores of a statement is statistically significant then what both factors think about that statement is distinct" (Zabala, 2014, p.66). Distinguishing statements help build the narrative story of the viewpoint being communicated by a factor.

Consensus statements were evaluated during factor comparison. Unlike distinguishing statements, when z-scores of a statement between factors are not significant, it is considered a statement of consensus (Watts & Stenner, 2012). Evaluation of these additional characteristics ensures that false factor solutions based only on statistical criteria were not selected. Although statistical criteria are essential to Q factor analysis, they need to be weighed against other qualitative aspects of the data as Q is a more qualitative approach.

**Factor Solution Comparison.** Factor solutions were compared to affirm the appropriate factor solution was chosen. Table 4.7. illustrates the comparison of the factor solutions based on the number of flagged and unflagged Q sorts per factor, EVs, cumulative variance, and CbFs. The column "Flagged" represent the number of Q sorts that were significant at parameters of $\pm$.3586 at P<.05 and $\pm$ .4721 at P<.01. For example, in Table 4.7 below, the two-factor solution indicates 19 flagged Q sorts, which breaks down as 16 on factor I and three flagged on factor II. "Unflagged" represents the number of Q sorts that were not significant, but that also loaded on the factor-solution. The table also indicates that as the factor number increases so does the number of unflagged participants. Thus, as factors are added, participant representation decreases in each factor. However, in all factor solutions at least 77% of participants are represented, demonstrating a strong representation of the sample no matter the solution.

In the last column of Table 4.7, the correlation between factors (CbF) is shown, which indicates the relationship between each factor. The table indicates that as the factor number increases the correlation between factors (CbF) increases. The higher the CbF, the less distinct the factors may be from one another. Parameters of $\pm$.3586 at P<.05 and $\pm$ .4721 at P<.01 were used to understand where CbF's were significant. The two-factor solution is most distinct at .237 and not significant, while the four-factor solution is the least distinct and shows a significant correlation at .5093. The higher correlation means at least a pair of factors within the four-factor solution are highly correlated and should be examined further to see if they represent unique distinct viewpoints or are simply "alternative manifestations of the same factor" (Watts & Stenner, 2012, p. 212).

Table 4.7.

*A Comparison of Factor Solutions: Centroid with Varimax Approach*

| | Flagged | Unflagged | % Flagged | Eigenvalue | Cumulative % Explained Variance | CbF* |
|---|---|---|---|---|---|---|
| 2 factors | 19 | 3 | 86% | 1.9001 | 35% | 0.237 |
| 3 factors** | 18 | 4 | 82% | 1.2270 | 40% | .3893 |
| 4 factors** | 17 | 5 | 77% | 1.0774 | 44% | .5093 |
| 5 factors | 17 | 5 | 77% | 1.0256 | 49% | .4699 |

*CbF means correlation between factors
**A bipolar Q sort is present

Factor solutions were compared by more criteria to ensure the appropriate solution was chosen. The *two-factor solution analysis* shown in Table 4.8 indicates an EV above 1, explains 34% of cumulative variance and combined, had 19 participants flagged as significant at ($p<.05$). Most participants in the solution loaded as significant on Factor I (17 with 16 flagged loadings) and 5 participants loaded on Factor II with 3 significant loadings. The CbF is lowest in this solution at .237 (see CbF in table 4.7), which suggests these two factors are distinct. Composite reliability is higher than .80 for both factors, thus the standard error of factor z-scores is low, indicating that Q sorts in this factor are truly representative of this factor. There are 16 distinguishing statements that are significant and 14 consensus statements significant ($p< .05$).

Table 4.8.

*Two-factor solution characteristics*

| | Factor I | Factor II |
|---|---|---|
| # Of participants loading to factor (# of significant* loadings) | 17 (16) | 5 (3) |
| Composite Reliability | 0.985 | 0.923 |
| S.E. of Factor Z-scores | 0.122 | 0.277 |
| # Of distinguishing statements | 16 | 16 |
| # Of consensus statements | 14 | 14 |

*Indicates significance at p<.05

*A three-factor analysis* reveals a higher correlation between factors (.3893). Thirteen participants load on factor I, 3 confounding (participants loaded on more than one factor), leaving 10 significant flagged loadings. Five participants loaded on factor II, with one bi-polar sort, which meant a participant ranked items in direct opposition to the others in their group. This Q- sort was also confounding and for these reasons was removed, leaving 4 significant loadings on factor II. Factor III had four participant loadings and three were flagged as significant, however, two were confounding, leaving one, which was a bi-polar split Q-sort. One remaining Q sort was not enough to make a compelling viewpoint, also indicated in the low composite reliability score of .80. After only keeping one bi-polar sort, there were eleven distinguishing statements on factor I, nine for factor II, and thirteen for factor III and nine consensus statements across all factors. See Table 4.9.

Table 4.9.

*Three-factor Solution Characteristics*

| | Factor I | Factor II | Factor III |
|---|---|---|---|
| # Of participants loading to factor (# of significant loadings) | 13 (10) | 5 (4) | 4(1) |
| Composite Reliability | .976 | .941 | .8 |
| S.E. of Factor Z-scores | .155 | .243 | .447 |
| # Of distinguishing statements | 11 | 9 | 13 |
| # Of consensus statements | 9 | 9 | 9 |

*Indicates significance at p<.05

The *four-factor analysis* overview shown in Table 4.10 revealed a higher correlation between factors, another participant was lost, with 17 Q sorts represented, which was 77% of participants, more explained variance was gained, adding an additional 5%, and the EV was above one. In this solution, less participants load on Factor I, with one confounding Q sort, leaving 6 significant loadings. Factors II and III remain the same, where Factor III continued to be weak as described above. Factor IV had six participant loadings on the factor, and four significant loadings. These same four significant loadings were also significant on Factor I in the other solutions. Therefore, the correlation between Factors I and IV was the highest at 50% (see CbF in table 4.7), and higher than the SE parameters ($\pm$.3586 at P<.05 and $\pm$ .4721 at P<.01) describe above. Although, this solution may look interesting statistically, it appeared that Factor IV was likely an alternative manifestation of factor one's viewpoint.

Table 4.10.

*Four-factor Solution Characteristics*

| | Factor I | Factor II | Factor III | Factor IV |
|---|---|---|---|---|
| # Of participants loading to factor (# of significant loadings) | 7(6) | 5 (4) | 4(1) | 6(4) |
| Composite Reliability | .96 | .941 | .8 | .941 |
| S.E. of Factor Z-scores | .2 | .243 | .447 | .243 |
| # Of distinguishing statements | 7 | 6 | 9 | 5 |
| # Of consensus statements | 4 | 4 | 4 | 4 |

*Indicates significance at p<.05

The *five-factor solution* was essentially not viable. Far too few participants loaded on at least two of the factors (e.g., 2), and two factors did not have enough distinguishing statements for interpretation of factors.

The researcher ended up selecting the *Two-factor solution*. Although, some Q methodologists may argue too many participants loaded on Factor I and the distinguishing statements were high, the other factor solutions did not statistically or qualitatively reflect additional strong and distinct viewpoints. Most leaders loaded on Factor I in this sample and thought similarly about community college student labor market success.

**Final two-factor solution.** After comparing the factors, a *Two-factor* solution emerged as the accepted solution and is the primary finding for this study. Two factors explained 35% of the total study variance of 58% (see Table 4.6). Watts and Stenner (2012) agreed with Kline (1994) and stated that “anything in the region of 35–40% or above would ordinarily be considered a sound solution” (p. 107). Most of the common variance in the study was found in Factor I, meaning most participants loaded on Factor I as they shared most in common in how they sorted the 30 student labor market success statements.

The two factors combined totaled 19 significant Q sorts at p<.05, and of those, 15 were significant at p<.01. Factor one has seventeen Q sorts loaded with 12 significant flagged loadings at p<.01 and 4 more at p<.05 for a total of 16 significant loadings on Factor I. In the rotated factors table, when the "requires a majority of common variance" box was checked, Q sort 16 which was not confounding at p<.01, loaded on both factors at P< .05. However, the Q sort was kept on Factor I, as this Q sort was completed by a community college president. Factor II loaded 5 Q sorts of which 3 were significant loadings at p<.01. Table 4.11 shown below illustrates the number of sorts, the participants loaded on each factor and the percent of the total participants included in that factor.

Table 4.11.

*Sorts Loading on Each Factor*

| | Factor I | Factor II |
|---|---|---|
| Sorts | 2 | 1 |
| | 5 | 3 |
| | 6 | 4 |
| | 7 | 9 |
| | 8 | 22 |
| | 10 | |
| | 11 | |
| | 12 | |
| | 13 | |
| | 14 | |
| | 15 | |
| | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| | 21 | |
| Participant number loaded on each factor | 17 | 5 |
| Percent of participants loading out of total (n=22) | 77% | 23% |

Table 4.12 is the factor loadings table. The table features the *coefficient scores* for each participant, how many participants loaded on each factor, and of those which loads were significant. The coefficient scores denote the proportion of agreement that participants had within their factor compared to other factors, where confounding sorts (loading on more than one factor) existed, and well as which sorts were bipolar (those with a negative sign). Overall, in the final *two-factor solution* 19 of the 22 participants loaded significantly at $p<.05$ ($\pm.36$) and 15 participant loads were significant at $p<.01$ ($\pm.47$). Only the significantly loaded participants were kept for further analysis. There were no significant bi-polar sorts and only one confounding sort describe above (participant 16), which was kept for further analysis.

Table 4.12.

*Factor Loadings with significant Q sorts*

| Participant # | Factor I | Factor II |
|---|---|---|
| 21 | 0.7823** | 0.0075 |
| 17 | 0.7354** | 0.2513 |
| 10 | 0.7089** | -0.3332 |
| 16 | 0.6575** | -0.3684 |
| 19 | 0.654** | 0.1626 |
| 11 | 0.6514** | 0.2084 |
| 2 | 0.6071** | 0.1199 |
| 20 | 0.5942** | -0.0454 |
| 8 | 0.5388** | -0.3416 |
| 13 | 0.5217** | 0.0624 |
| 7 | 0.5133** | -0.0702 |
| 15 | 0.5113** | 0.2711 |
| 18 | 0.4692* | -0.0095 |
| 12 | 0.4295* | -0.1505 |
| 5 | 0.4152* | 0.0581 |
| 14 | 0.3964* | -0.2602 |
| 6 | 0.3438 | 0.1278 |
| 1 | 0.3308 | 0.5544** |

Table 4.12. (continued)

| Participant # | Factor I | Factor II |
|---|---|---|
| 9 | 0.2411 | -0.2663 |
| 4 | 0.0869 | 0.5813** |
| 3 | 0.0229 | 0.6445** |
| 22 | -0.0001 | -0.1108 |

Note: Asterisk (*) Indicates Significance at $p < 0.05$
Note: Asterisk (**) Indicates Significance at $p < 0.01$

***Correlation between factors.*** Watts and Stenner (2012) advise close examination of the CbF before interpretation. In this study, adding more factors resulted in more significant CbF scores above the study SE parameters of $\pm$.3586 at P<.05 and $\pm$ .4721 at P<.01. In the three-factor solution, the CbF was acceptable; however, after removing the confounding sorts, there was one significant bipolar sort remaining. Meaning Factor III itself, with one sort loaded, was not a compelling standalone viewpoint. In the four-factor solution, Factor III continued to be weak, and Factors I and IV were significantly correlated at .5093, indicating Factors I and IV were too similar, and likely alternative manifestations of the same viewpoint. Table 4.13 below shows the CbF for the two-factor solution, the lowest of all factor solutions.

Table 4.13.

*Correlations between Factor Scores: 2-factor solution*

| | Factor I | Factor II |
|---|---|---|
| Factor I | 1 | .2370 |
| Factor II | .2370 | 1 |

***Humphrey's Rule.*** Another test to ensure the right solution was chosen is Humphrey's rule. This rule states, "A factor is significant if the cross product of its two highest loadings (ignoring the sign) exceeds twice the standard error" (Watts & Stenner, p.107). When comparing solutions factors within each solution that did not satisfy this rule in the 3-, 4, and 5-factor solutions. Humphrey's calculation added affirmed the two-factor solution was appropriate (Table 4.14).

Table 4.14.

*Humphrey's Rule for Two-Factor Solution*

| | Factor I | Factor II |
|---|---|---|
| Standard Error $(1/\sqrt{30})$* | .1825 | .1825 |
| Standard Error x 2 | .3651 | .3651 |
| Cross products of two highest loadings** | (.7823 x .7354) =.5753 | (.6445 X .5813) =.3746 |
| Difference | .2102 | .0095 |

Note (*) 30= the number of Q sample items/statements; (**) see Table 4.12 for highest loading

## Q Factor Interpretation

While the first half of this chapter focused on the statistical findings related to the two-factor solution, the second half is devoted to the qualitative interpretation of that finding. The tools used for interpretation are explained and presented, and the research questions which guided the study are answered.

In order to understand the viewpoints behind the factors Watts and Stenner's (2012) diligent and "simple system for delivering sound and holistic factor interpretations" (p. 153) was followed. A step-by-step process, using interpretive tools such as factor arrays, composite sorts, crib sheets, consensus and distinguishing tables, was followed. These tools combined with the

qualitative data gained from the 22 leaders' post-sort questionnaires were used to answer both research questions.

The KEN/KADE software automatically computed and produced the initial crib sheets, factor arrays, consensus and distinguishing statement tables, which were in the final downloaded two-factor solution excel output document. These tools were created based on the factor score calculation explained next.

**Factors score calculation.** The factor z-score is calculated based on the *factor weights* of each significant Q-sort representing a factor. Brown (1993) explained, for precision, Q methodologists need to go beyond simply combining the separate Q sorts by taking an average score for each statement. Not every significantly flagged Q sort equally represents a factor. To account for this inequality a factor weight is assigned to the Q sorts, which helps account for the fact that "some Q sorts are closer approximations of their factor than others" (p.118). Weights ($\boldsymbol{w}$) are calculated by dividing each factor loading by 1 minus the square of the factor loading ($\boldsymbol{w = fl/(1 - fl^2)}$ ). Dividing the factor loading by 1 minus the square of the factor loading allows for participants with the highest factor loading to get the most weight, as they are more representative of their composite viewpoint.

Next, the significantly flagged Q sort factor weights (FW) are multiplied by the factor score (FS) a participant ranked an item/statement in their original Q sort, which is expressed as, (composite score for statement #X= (participant 1 fw x participant 1 fs) + (participant 2 fw x participant 2 fs) + (participant 3fw x participant 3fs) + (participant *n* fw x participant *n* fs). The result from the equation is a numerical composite score for one statement. This process was repeated for all Q sample statements (n=30) in this study. The composite score for statements is converted to the appropriate rank on the nine-point *scale of importance* (+4 to -4), on which the

participants originally sorted the statements during data collection. For example, the two highest weighted composite statement scores were assigned +4 (most important), the next highest +3, the next +2 and so on… -4 (most unimportant).

Once the factor score calculations were completed, interpretive tools were created. The arrays, crib sheets, and composite sort tools facilitate simple and digestible ways to analyze the viewpoint of a factor.

**Factor arrays**. A factor array or "factor exemplifying Q sort" (Watts & Stenner, 2012, p. 140) is one way of illustrating the composite sort or general viewpoint for each factor. Said differently, factor arrays are the "empirical generalizations of a subjective viewpoint shared by those whose individual sorts are significantly loaded on the same factor" (McKeown & Thomas, 2013, p.60). Factor arrays allowed the researcher to systematically compare the factors quickly, revealing where important points of agreement, disagreement, and consensus existed. During factor interpretation, meaning is extracted from a factor array using the *contextuality principle*, which states "rather than focus on the placement of individual statements, an effort is made to examine the patterns of meaning within the broader contextual constellation provided by a given factor array…" (McKeown & Thomas, p.6). For example, focus was not limited to the statements at the extreme ends of the scale. Each viewpoint configuration was examined for the interrelationships of statements, based on the placement of each statement relative to all other statements. Table 4.15 shows the factor arrays for the two factors. The table indicates the Q sample statement number from 1-30, the corresponding statement, and computed rank for that statement for Factor I and II.

An example from Table 4.15 is item 1 "wage earnings for all students in the short-term (1-3 years) post-program completion". Item 1 was relatively important to Factor I (placed at +2),

and slightly more important to Factor II (+3). Another example is item 11, “percentage of students not working full-time but would prefer to be within 1-year post-program completion.” This item was deemed neither important nor unimportant (placed at 0) for Factor I, while placed at most unimportant (-4) to Factor II. The factor arrays were evaluated when building the composite viewpoint interpretations for each factor, described later in this section.

Table 4.15.

*Factor Arrays*

| Item | Statement | Factor I | Factor II |
|---|---|---|---|
| 1 | Wage earnings for all students in the short-term (1-3 years) post-program completion | 2 | 3 |
| 2 | Wage earnings for all students in the long-term (5-7 years) post-program completion | 0 | 0 |
| 3 | Percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment | 2 | 4 |
| 4 | Wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions | 1 | 4 |
| 5 | Percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete a program) | 1 | 3 |
| 6 | Number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion | -3 | -2 |
| 7 | Employment rate for all students 1-year post-program completion | 3 | -3 |
| 8 | Employment rate for all students by race/ethnicity | 1 | 1 |
| 9 | Employment rate for all students by gender | 0 | 0 |
| 10 | Percentage of students who work below their skill level within 3 years post-program completion | -1 | 0 |
| 11 | Percentage students not working full-time but would prefer to be within 1-year post-program completion | 0 | -4 |

Table 4.15. (continued)

| Item | Statement | Factor I | Factor II |
|---|---|---|---|
| 12 | Percentage of students who participated in work-based learning experiences (including internships & apprenticeships) that converted to full-time employment compared to students that did not participate | 0 | 2 |
| 13 | Percentage of students who are retained in the same industry 5 years after entering that industry | -4 | -3 |
| 14 | Percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry | -1 | 1 |
| 15 | Percentage of students who advance to higher positions within 5 years | -1 | -3 |
| 16 | Completion rate for all programs by community college | 0 | -4 |
| 17 | Transfer rate for transfer programs by community college | -2 | -2 |
| 18 | Transfers' success in a 4-year institution based on cumulative GPA 1 year after transfer | -2 | -1 |
| 19 | Transfers' success in a 4-year institution based on whether the transfer completed a 4-year degree | -4 | 0 |
| 20 | Employer satisfaction with quality/technical skills of community college employees | 4 | -1 |
| 21 | Benefits of each program relative to the costs of the state's investment dollars | -2 | -2 |
| 22 | Unemployment rate of students compared to North Carolina's unemployment rate within 1-year post-program completion | 1 | 0 |
| 23 | Percentage of students who have moved out of poverty status within 3 years post-program completion | 2 | -1 |
| 24 | Wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college | 3 | 3 |
| 25 | Students' loan debt compared to their earnings for all programs within 3 years of leaving the college | -3 | 2 |
| 26 | Student loan default rate for all programs within 3 years of leaving the college | -3 | 1 |
| 27 | Percentage of students reporting level of personal satisfaction with the impacts of their program within 1 year post-program completion | 0 | 0 |

Table 4.15. (continued)

| Item | Statement | Factor I | Factor II |
|---|---|---|---|
| 28 | Number of students participating in work-based learning experiences (including internships and apprenticeship by community college) | -1 | 1 |
| 29 | Employer satisfaction with graduates' employability skills (critical and analytical thinking, problem-solving and decision making, cultural sensitivity, interpersonal skills, communication, reliability and dependability, teamwork, and time and resource management, and job interviewing skills) | 3 | -1 |
| 30 | Percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion | 4 | 2 |

**Composite sorts.** Composite sorts are another way of illustrating the overall general viewpoint of a factor array. It does so visually, in the form of the inverted quasi normal forced distribution grid, as described in Chapter Three. During data collection each participant was asked to sort then rank the 30 statements on a blank forced distribution grid along a scale of importance (+4, being most important; and -4, being most unimportant). The composite sort conveniently shows what the Q-sort for that factor would look, as if that factor group represented one person. Figures 4.2 and 4.3 are the composite sorts for Factor I and II, respectively. The green color represents the 14 statements of consensus between the two factors, while the grey color represents the 16 statement that distinguished the factors.

| -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| 19. transfers success in a 4-year institution based on | 25. students loan debt compared to their earnings for all | 21. benefits of each program relative to the costs of the states | 15. percentage of students who advance to higher positions | 9. employment rate for all students by gender | 8. employment rate for all students by race/ethnicity | 1. wage earnings for all students in the short-term (1-3 years) | 29. employer satisfaction with graduates employability skills | 20. employer satisfaction with ality/technical skills of |
| 13. percentage of students who are retained in the same industry 5 | 6. number of jobs created by community college graduates | 18. transfers success in a 4-year institution based on | 10. percentage of students who work below their skill level within 3 | 2. wage earnings for all students in the long-term (5-7 years) | 22. unemployment rate of students compared to | 23. percentage of students who have moved out of poverty status within 3 | 24. wage earnings for students who have completed a degree or | 30. percentage of students that pass/earn state es/certificates |
| | 26. student loan default rate for all programs within 3 years of | 17. transfer rate for transfer programs by community | 14. percentage of dislocated workers (students that enrolled after | 16. completion rate for all programs by community college | 5. percentage of students employed in the field in which they were | 3. percentage of students who complete programs and who earn below | 7. employment rate for all students 1-year post-program completion | |
| | | | 28. number of students participating in work-based learning | 12. percentage of students who participated in work-based learning | 4. wage earnings for students who complete community | | | |
| | | | | 27. percentage of students reporting level of personal satisfaction | | | | |
| | | | | 11. percentage of students not working full-time but would prefer to | | | | |

*Figure 4.2.* Composite Q-Sort for Factor I

| -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| 11. percentage of students not working full-time but would prefer to | 7. employment rate for all students 1-year post-program completion | 21. benefits of each program relative to the costs of the states | 29. employer satisfaction with graduates employability skills | 22. unemployment rate of students compared to | 26. student loan default rate for all programs within 3 years of | 12. percentage of students who participated in work-based learning | 24. wage earnings for students who have completed a degree or | 3. percentage of students who complete programs and who earn below |
| 16. completion rate for all programs by community college | 15. percentage of students who advance to higher positions | 6. number of jobs created by community college graduates | 18. transfers success in a 4-year institution based on | 19. transfers success in a 4-year institution based on | 14. percentage of dislocated workers (students that enrolled after | 25. students loan debt compared to their earnings for all | 1. wage earnings for all students in the short-term (1-3 years) | 4. wage earnings for students who complete community |
| | 13. percentage of students who are retained in the same industry 5 | 17. transfer rate for transfer programs by community | 23. percentage of students who have moved out of poverty status within 3 | 9. employment rate for all students by gender | 8. employment rate for all students by race/ethnicity | 30. percentage of students that pass/earn state es/certificates | 5. percentage of students employed in the field in which they were | |
| | | | 20. employer satisfaction with ality/technical skills of | 10. percentage of students who work below their skill level within 3 | 28. number of students participating in work-based learning | | | |
| | | | | 2. wage earnings for all students in the long-term (5-7 years) | | | | |
| | | | | 27. percentage of students reporting level of personal satisfaction | | | | |

*Figure 4.3.* Composite Q-Sort for Factor II

The results from the Q factor analysis support a final two-factor solution. Factor interpretation is the focus of the remaining sections of this chapter.

**Research Question One: Viewpoints that Emerged**

The first research question posed in this study is: What are the viewpoints of on-campus community college leaders toward community college student labor market success measures? And why?

The factor arrays and composite sorts presented above provide a first glimpse of the viewpoints. Using a crib sheet, each viewpoint was further analyzed individually to deepen understanding (Watts & Stenner, 2012). The crib sheet included the highest ranked statements (+4), the positive statements ranked higher in a factor than in any other factor, the negative statements ranked lower in a factor than in other factors, and the lowest ranked statements (-4).

After the crib sheet analysis, each factor array was studied (Table 4.15) and a statement-by-statement analysis took place. Questions were posed such as: (1) why is this statement ranked here? (2) What does it mean or what is this statement placement trying to tell us? At this point, analysis involved "oscillating" between the placement of each statement and the whole story of the viewpoint being conveyed in the array. In other words, the placement of one statement was taken into consideration against the placement of all other statements. Factor arrays were evaluated twice to ensure that nothing was missed and to further "clarify and/or qualify" the interpretation being constructed (Watts & Stenner, 2012, p. 157). After a second evaluation of the factor array, additional statements not included in the original crib sheet were added and the original crib sheet was updated.

The last step involved attending to the demographic information. Watts and Stenner (2012) argue, demographic information are best left for the end of analysis to ensure composite

viewpoints and statements were analyzed without preconceived notions and expectations based on who comprised the composite viewpoint. In Q studies, demographics are typically evaluated to add support or move the story of the viewpoint forward, they are not used for generalizations.

After interpretative analysis was complete, the final narrative account for each viewpoint was developed. The final narrative interpretation is discussed below in the *Viewpoint I* and *Viewpoint II* sections. These interpretations illustrate the researcher's holistic understanding of each composite viewpoint. Within each viewpoint section, there are three parts: (1) summary (2) crib sheet, (2) and narrative interpretation. The summary section is a summarized version of full interpretation for each viewpoint and some demographic information about the participants associated with each viewpoint is presented. The crib sheet section includes the fully developed crib sheet for each viewpoint with a short description. The narrative interpretation is the full narrative description using the crib sheets and written responses collected on the post-card sorting activity questionnaire. Finally, research question three is answered in the stakeholder salience section.

**Viewpoint I: Employers are Our Top Priority.**


***Viewpoint I: Summary.*** Leaders in Viewpoint I have an eigenvalue of 5.7257 and explains 26 % of the study variance. Twelve significant flagged loadings at $p<.01$ and 4 more at $p<.05$ for a total of 16 significant loadings. Nine leaders hold an executive leadership position of president or vice president, and five hold a dean or director position, while two participants identified as a leader in institutional effectiveness. All community college presidents

participating in the study are represented in this viewpoint. Ten leaders are male and six are female. All participants have advanced degrees. Eleven leaders associated with this viewpoint have doctorates (PhD or EdD) and five leaders have a master's degree. Eleven leaders are Caucasian/white, three are African American/Black, and two leaders identified as having more than one race/ethnicity.

Two leaders out of the sixteen represent large colleges (15,000 +), ten leaders represent medium college (2,000-15,000), and four represent small (less than 2,000) colleges. Most leaders are positioned in rural counties, with only two urban counties represented.

One leader out of the sixteen has 11-20 years of experience in their current position, eight leaders have 6-10 years of experience, four leaders have 1-5 years, and three have less than one year. Leader's report having more years of experience when asked how long they have served the North Carolina Community College system. Five leaders have 6-10 years of experience, five have 11-20 years; and six have over 20 years of experience.

Community college leaders within this viewpoint are focused on employer satisfaction. They believe the employer stakeholder perspective is the most important in communicating whether the community college has effectively prepared students to meet the demands of industry. They believe employer satisfaction leads to development of a strong education to workforce pipeline, meaning the community college graduates become a talent pool resource for employers, which ultimately creates a healthy positive cycle of workforce and economic development for their community and the state.

Leaders in this viewpoint want to know wage differences for those that complete community college credentials versus those that do not. Viewpoint I leaders want to know that community college training results in completing essential credentials that lead to employment

and sustainable wages. Leaders in viewpoint I value data they can capture in the short-term. Transfer, job advancement and retention, and wage earnings as it relates to student loan data are too far out and/or beyond the scope of what is important.

***Viewpoint I Crib sheet.*** The crib sheet (Table 4.16) for viewpoint I is shown below. Twenty-five statements were included on the first draft of the crib sheet. After the factor array evaluation took place, the remaining five statements were added, and the crib sheet was updated to support a holistic interpretation for Viewpoint I. The table includes the statement number, statement and corresponding rank.

Table 4.16.

*Factor Interpretation Crib Sheet for Viewpoint I*

| Highest Ranked Statements | | Rank |
|---|---|---|
| 20 | employer satisfaction with quality/technical skills of community college employees | 4 |
| 30 | percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion | 4 |
| Positive Statements Ranked Higher in Factor 1 Array than in Other Factor Arrays | | |
| 29 | employer satisfaction with graduates' employability skills (critical and analytical thinking, problem-solving and decision making, cultural sensitivity, interpersonal skills, communication, reliability and dependability, teamwork, and time and resource management, and job interviewing skills) | 3 |
| 24 | wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college | 3 |
| 7 | employment rate for all students 1-year post-program completion | 3 |
| 23 | percentage of students who have moved out of poverty status within 3 years post-program completion | 2 |
| 8 | employment rate for all students by race/ethnicity | 1 |

Table 4.16. (continued)

| | | |
|---|---|---|
| Positive Statements Ranked Higher in Factor 1 Array than in Other Factor Arrays | | |
| 22 | unemployment rate of students compared to North Carolina's unemployment rate within 1-year post-program completion | 1 |
| 9 | employment rate for all students by gender | 0 |
| 2 | wage earnings for all students in the long-term (5-7 years) post-program completion | 0 |
| 16 | completion rate for all programs by community college | 0 |
| 27 | percentage of students reporting level of personal satisfaction with the impacts of their program within 1-year post-program completion | 0 |
| 11 | percentage of students not working full-time but would prefer to be within 1-year post-program completion | 0 |
| Negative Statements Ranked Lower in Factor 1 Array than in Other Factor Arrays | | |
| 9 | employment rate for all students by gender | 0 |
| 2 | wage earnings for all students in the long-term (5-7 years) post-program completion | 0 |
| 12 | percentage of students who participated in work-based learning experiences (including internships & apprenticeships) that converted to full-time employment compared to students that did not participate | 0 |
| 27 | percentage of students reporting level of personal satisfaction with the impacts of their program within 1 year post-program completion | 0 |
| 10 | percentage of students who work below their skill level within 3 years post-program completion | -1 |
| 14 | percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry | -1 |
| 28 | number of students participating in work-based learning experiences (including internships and apprenticeship by community college) | -1 |
| 21 | benefits of each program relative to the costs of the state's investment dollars | -2 |
| 18 | transfers success in a 4-year institution based on cumulative GPA 1 year after transfer | -2 |
| 17 | transfer rate for transfer programs by community college | -2 |

Table 4.16. (continued)

| | | |
|---|---|---|
| Negative Statements Ranked Lower in Factor 1 Array than in Other Factor Arrays | | |
| 25 | students loan debt compared to their earnings for all programs within 3 years of leaving the college | -3 |
| 6 | number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion | -3 |
| 26 | student loan default rate for all programs within 3 years of leaving the college | -3 |
| Lowest Ranked Statements | | |
| 19 | transfers success in a 4-year institution based on whether the transfer completed a 4-year degree | -4 |
| 13 | percentage of students who are retained in the same industry 5 years after entering that industry | -4 |
| Additional Statements* | | |
| 1 | wage earnings for all students in the short-term (1-3 years) post-program completion **(supports the idea of short-term data and earnings importance)** | 2 |
| 3 | percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment (**bears on issue of economic mobility, effective training and the question, do credentials mean higher wages?)** | 2 |
| 4 | wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions (**adds support to the need to prove community college value through a "compared to" benchmark)** | 1 |
| 5 | percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete a program) **(adds support to the idea that success is not just employed but employed in credentialed area- which again speaks to the quality of training students receive- there is a strong need for CCs to prove their value)** | 1 |
| 15 | percentage of students who advance to higher positions within 5 years **(longer term impacts do not mean as much as short term- and wages and employment rates are more important than within job advancement).** | -1 |

Note: (*) additional statements are those not included on the first crib sheet, but were added in on the 2nd round of analysis

***Viewpoint 1 Narrative.*** Leaders associated with Employers Are Our Top Priority believe the role of community college education is to train and educate students to produce a skilled workforce that meets employer demands. Although, "equity is the heart of what we do" as one president stated, viewpoint I clearly believes student labor market success depends on whether employers are satisfied with the quality/technical skills of community college employees and employability skills of community college graduates (20: +4; 29: +3). "Community college employees" was taken to mean both the actual employees training students at the community college and the employed community college graduates, as denoted on the post-sort questionnaire responses. One vice president of workforce development explained,

> Industry representatives must believe in the preparedness of faculty and workforce development employees at the community college. Without that trust and belief, our colleges will be less effective at improving opportunities for students and outcomes for our community partners.

For leaders holding this viewpoint, it is important that community colleges teach the skills that employers need. As one leader stated, "If we are not teaching the skills that our employers are looking to hire, and teaching them effectively, then none of the other metrics will apply." An associate dean and the highest loading participant for viewpoint 1 stated that "If employers are happy with our graduates, they are likely to hire more, which means more graduates moving into good paying jobs." *Employers are Our Top Priority* believe community colleges must teach the skills employers are looking to hire and must do so effectively, so they continue to use their colleges as a talent pool resource. A vice president of economic workforce development explained, "By having a skilled workforce and a strong community college to

provide continuous training, industry is more likely to locate to a specific region. This translates to the creation of jobs and wealth . . . [T]hey need to be given top priority."

Leaders associated with *Employer Are Our Top Priority* believe that labor market success is demonstrated through the percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion (30: +4). Passing/earning state licensures/certificates was valued more than the completion rate for all programs (16:0). Certificates/licensure are required by many employers to obtain employment, which further demonstrates leaders associated with this viewpoint believe tending to employers' needs is highly important.

Leaders holding this viewpoint value capturing the employment rate for all students 1-year post program completion (7:3) and specifically want to know the percentage of students employed in the field in which they were educated within 1 year after leaving the college (5:1). For this viewpoint, capturing data on job placement is more important than completion of a degree data. This signifies that Viewpoint I view labor market success as beyond completion.

Leaders in this viewpoint agree wage earnings measured in the short-term (1-3 years) are more important than those measured in the long-term (5-7 years). Three leaders acknowledge that shorter term measures were easier statements to place as important. One leader explained, shorter time frame measures help to "quickly identify trends (e.g., wages, and employability) and adjust programming accordingly."

Leaders holding this viewpoint value comparative wage statements. For example, leaders believe that wage earnings for students who have completed a degree or credential compared to those who did not complete within 1 year of leaving the college (24: +3) are marginally, but nonetheless, more important than wage earnings for all students in the short-term (1-3 years)

post-program completion (1: +2). Leaders associated with this viewpoint also believe wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions (4: +1) is an important metric of labor market success. A director of institutional effectiveness explained:

> We are constantly trying to communicate that community college graduates often make more money than students with 4-year degrees and it is a living-sustainable wage. Also [students earn degrees] in fields where they can find work easily/quickly.

Comparative wage statements (24: +3; 4: +1; 22: +1) were seen as ways to demonstrate the value of community college education to their community. Another executive director of institutional effectiveness explained, "Showing our community the importance of workforce credentials in positively impacting one's wages is good for social and community reasons and also provides useful information to the college." Overall, statements that offered a way to demonstrate both student labor market success and community college effectiveness were of high importance. A community college president explained, "statements that reflect our commitment to assist students in gaining the knowledge and skill necessary for their chosen career fields, while able to indicate our success in delivering on that commitment" are of high importance.

Economic mobility and issues of equity surfaced as important *Employers Are Our Top Priority*. Employment rate for all students by race/ethnicity (8:1) and all students by gender (9:0) are positively ranked statements. Statements that addressed "ALL" were important to a community college president who stated, "It is paramount that ALL of our completers leave the community college system with greater earning potential." However, different views were expressed about "all" statements. Contrary to the president's belief that "all" statements mean

equity, for one director of institutional effectiveness, “all” measures were considered not as useful for identifying where gaps may exist.

Other statements provoked feelings of equity and economic well-being, such as the importance of the percentage of students who have moved out of poverty status within 3 years-post program completion (23: +2) and the percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment (3: +2). A vice president of workforce development made the point that “breaking the poverty cycle is important.” Another president explained that easiest statements to place were “those based on improving the lives of the graduates.” Statements that captured earning livable wages were valued more than those comparing wage success by student loan debt. Wage earnings compared to students’ earnings for all programs within 3 years of leaving the college (25: -3) and student loan default rate for all programs 3 years after leaving the college (26:-3) were both placed as highly unimportant. Given student loan debt can be a hindrance to economic progress and mobility for many, (24: +3; 1:+2; 4:+1; 2:0), many leaders in this viewpoint viewed student loan debt measures as “beyond our control”.

Statements representing a graduate’s level of success and satisfaction did not rise to a level of importance, but also did not rise to the level of extreme unimportance. Notably, these statements were less important than employer satisfaction, wages earnings and employment rates. For example, the percentage of students reporting their level of personal satisfaction with the impacts of their program within 1 year post-program completion (27:0), the percentage of students not working full-time but would prefer to be within 1-year post-program completion (11:0), and the percentage of students that work below their skill level within 3-years post program completion (10: -1) were not deemed as noteworthy to these leaders. It could be that

this data is harder to capture and knowing the percentage of those employed and earning wages are more direct, practical measures that answer the common questions that community college stakeholders want to know. Said another way, leaders want data that indicates what IS happening versus what is not happening.

It is evident leaders holding this viewpoint valued the statements related to obtaining employment, employer satisfaction and wages, rather than long-term impacts after employment. One community college president explained that preparation for long-term success through effective training— "relevant, valuable, transferrable skills"—is of higher importance than whether graduates are retained in industry over-time, which was ranked extremely unimportant (13:-4). Other leaders commented retention in industry was too far out to track, beyond the scope and did not have much value to them as a measure. The percentage of students who advance to higher positions within 5 years (15:-1), was also labeled as "too late." Several unimportant ranked statements were deemed "beyond the scope", "not our primary mission", and "too far out." For this viewpoint, transfers' success in a 4-year institution based on whether the transfer completed a 4-year degree was also extremely unimportant (19:-4). For leaders in this group, transfer related data was not of concern. One dean, also the highest loading leaders for *Employers Are Our Top Priority* explained:

> Information related to successful transfer is also not a good indicator of labor market success. It tells us nothing about the graduate's field of study or whether their degree has helped them find a good paying job in their field.

Transfer rate for transfer programs by community college (17: -2) and transfers' success in a 4-year institution based on cumulative GPA 1 years after transfer (18: -2), were equally

unimportant but not as unimportant as the longer term measure related to transfer, which affirmed leaders holding this viewpoint value shorter term measures.

**Viewpoint II: Graduates' Economic Well-Being Is Our Top Priority.**


***Viewpoint II: Summary.*** Viewpoint II has an eigenvalue of 1.9001 and explains 9% of the study variance. Three significant flagged loadings at $p<.01$. One vice president of workforce and continuing education, one vice president of institutional advancement, and one director of assessment are significantly associated with this viewpoint. There are two females and one male in this group. All leaders have advanced degrees. One leader associated with this viewpoint has a doctorate (PhD or EdD) and two leaders have a master's degree. Two leaders are Caucasian/white, and one is African American/Black.

Two leaders represent large colleges (15,000 +), and one represents a medium size college (2,000-15,000). There are two leaders work in urban counties, and one leader works in rural county.

One leader has 11-20 years of experience in their current position, one has 6-10 years of experience, and one has 1-5 years. When asked how long they have served the North Carolina Community College system, one leader reported 1-5 years, one reported 11-20 years, and one has over 20 years of experience.

Leaders associated with *Graduates' Economic Well-Being* agree that labor market success is best demonstrated through graduates' wage earnings. They are most concerned with whether their community college education has earned them a livable sustainable wage.

Likewise, leaders in this viewpoint believe labor market success means showing how community college graduates' wage earning compared to those who graduate from both high school and four-year universities. In addition to wage earnings, they believe it is important to capture employment data that indicates the percentage of community college graduates employed in the field in which they were trained, and capturing employment rates for all students, broadly, is not specific enough to demonstrate labor market success.

Leaders in this viewpoint believe knowing how well each program is preparing their students to obtain employment is a proxy for employer satisfaction. The assumption is if graduates get the job, then the employers must be satisfied. Leaders in this viewpoint are interested in both short and long-term data related to wages. They believe student loan default rates and loan debt compared to earnings are important data to capture to demonstrate the longer-term economic well-being of their students. These leaders are less interested in broad measures about completion and employment rates. Leaders in this viewpoint ultimately want completion and employment rate measures tied to wage earnings. Statements like, the percentage of students who advance to higher positions within 5 years of employment are not important to this viewpoint, because from one leader's perspective within this viewpoint, advancement does not necessarily indicate higher wages. This response further bears on the interpretation that wages, economic well-being, increasing wages overtime are most important to demonstrate student labor market success.

***Viewpoint II Crib sheet.*** The crib sheet (Table 4.17) for viewpoint II is shown below. Twenty-six statements were included on the first draft of the crib sheet. After the factor array evaluation took place, the remaining four statements were added, and the crib sheet was updated

to support a holistic interpretation for Viewpoint II. The table includes the statement number, statement and corresponding rank.

Table 4.17.

*Factor Interpretation Crib Sheet for Viewpoint II*

| | | |
|---|---|---|
| Highest Ranked Statements | | |
| 3 | percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment | 4 |
| 4 | wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions | 4 |
| Positive Statements Ranked Higher in Factor 2 Array than in Other Factor Array | | |
| 24 | wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college | 3 |
| 1 | wage earnings for all students in the short-term (1-3 years) post-program completion | 3 |
| 5 | percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete a program) | 3 |
| 12 | percentage of students who participated in work-based learning experiences (including internships & apprenticeships) that converted to full-time employment compared to students that did not participate | 2 |
| 25 | students loan debt compared to their earnings for all programs within 3 years of leaving the college | 2 |
| 26 | student loan default rate for all programs within 3 years of leaving the college | 1 |
| 14 | percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry | 1 |
| 8 | employment rate for all students by race/ethnicity | 1 |
| 28 | number of students participating in work-based learning experiences (including internships and apprenticeship by community college) | 1 |

Table 4.17. (continued)

| | | |
|---|---|---|
| Positive Statements Ranked Higher in Factor 2 Array than in Other Factor Array | | |
| 19 | transfers success in a 4-year institution based on whether the transfer completed a 4-year degree | 0 |
| 9 | employment rate for all students by gender | 0 |
| 10 | percentage of students who work below their skill level within 3 years post-program completion | 0 |
| 2 | wage earnings for all students in the long-term (5-7 years) post-program completion | 0 |
| 27 | percentage of students reporting level of personal satisfaction with the impacts of their program within 1 year post-program completion | 0 |
| Negative Statements Ranked Lower in Factor 2 Array than in Other Factor Arrays | | |
| 22 | unemployment rate of students compared to North Carolina's unemployment rate within 1-year post-program completion | 0 |
| 9 | employment rate for all students by gender | 0 |
| 2 | wage earnings for all students in the long-term (5-7 years) post-program completion | 0 |
| 27 | percentage of students reporting level of personal satisfaction with the impacts of their program within 1 year post-program completion | 0 |
| 29 | employer satisfaction with graduates' employability skills (critical and analytical thinking, problem-solving and decision making, cultural sensitivity, interpersonal skills, communication, reliability and dependability, teamwork, and time and resource management, and job interviewing skills) | -1 |
| 23 | percentage of students who have moved out of poverty status within 3 years post-program completion | -1 |
| 20 | employer satisfaction with quality/technical skills of community college employees | -1 |
| 21 | benefits of each program relative to the costs of the state's investment dollars | -2 |
| 17 | transfer rate for transfer programs by community college | -2 |
| 7 | employment rate for all students 1-year post-program completion | -3 |
| 15 | percentage of students who advance to higher positions within 5 years | -3 |
| Lowest Ranked Statements | | |
| 11 | percentage of students not working full-time but would prefer to be within 1-year post-program completion | -4 |

Table 4.17. (continued)

| Additional Statements* | | |
|---|---|---|
| 6 | number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion (**not promoted or expected/out of scope)** | -2 |
| 13 | percentage of students who are retained in the same industry 5 years after entering that industry **( too far out; advancement doesn't mean advanced in wages)** | -3 |
| 16 | completion rate for all programs by community college (**supports this idea that completion rates do not help tell the labor market success of students- but completion rates when tied to earnings does)** | -4 |
| 18 | transfers success in a 4-year institution based on cumulative GPA 1 year after transfer (**transfer success is less important, but transfer data in the short-term is more desired)** | -1 |
| 30 | Percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion (**this combines well with, employed in the field in which one was trained, as in they need to earn the licensure for that employment)** | 2 |

Note: (*) additional statements are those not included on the first crib sheet, but were added in on the 2nd round of analysis

***Viewpoint II Narrative.*** Leaders associated with *Graduates' Economic Well-Being* believe wage earnings measures are the most important towards demonstrating student labor market success. Whether graduates are earning sustainable livable wages for North Carolina within 3 years after employment (3: +4) is of the highest priority for this viewpoint. A director of assessment stated, "Earning below a livable sustainable wage 3 years after completing a program would be antithetical to our priorities in labor market success." Wage earning for students who complete community college programs compared to students who graduate from high school and 4-year universities is extremely important to this viewpoint (4: +4). The vice president of institutional advancement explained, "It is important to show how community colleges prepare students compared to high school and 4-year schools and how employable they

are." Leaders in this viewpoint also believe that demonstrating wage earnings for graduates in the short-term (1-3 years) post-program completion (1: +3) is more important than long-term (5-7 years) data (2:0).

Leaders in viewpoint II focus on sustainable living wages in how they ranked the importance of Student loan measures. Student loan debt compared to earnings for all programs within 3 years of leaving the college (25: +2) and student loan default rate for all programs within 3 years of leaving the college (26: +1) were ranked higher than the percentage of students who have moved out of poverty status within 3 years post-program completion (23:-1). A focus on student loan debt indicates a concern for the whole economic well-being of a student long-term. Additionally, it seems leaders holding this viewpoint are interested in tracking and reporting on the value of a credential/program as it relates to the cost of earning that credential. Student loan data offers understanding about the economic well-being of an individual, while being able to assess the value of a specific credential/program and whether it is worth the investment.

Although, leaders in this viewpoint are interested in knowing wage earnings for *all* programs (1: +3). They are not interested in employment rates for *all* students 1 year post-program completion (7: -3) or completion rate for *all* programs by community college (16: -4). Leaders holding this viewpoint believe that capturing employment rate based on whether community college graduates are employed in the field in which they were trained is of high importance (5: +3). Combined with their belief that measuring the percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion (30: +2), signals, leaders in this viewpoint value specific data on whether students are credentialed, licensed and obtaining employment. Capturing employment rate by

gender (9:0) and race/ethnicity (8: +1) also hold some importance and certainly more importance than the broad measure of employment rate for "all" programs (7: -3). This indicates that leaders associated with *Graduates' Economic Well-Being* value measuring demographic differences, which likely expresses care for equitable outcomes. One vice president of workforce and continuing education commented that they would have liked to have seen a statement about wage earnings by race/ethnicity as well.

Leaders associated with *Graduates' Economic Well-Being* agree that there is value in knowing the number of students participating in work-based learning experiences (28:0), but more value in knowing the percentage of students who participated in work-based learning experiences that converted to full-time employment compared to students that did not participate (12:2). One leader explained, "Work-based Learning experiences continue to be of high priority, and it will be important to know how they translate into full-time positions compared to programs that do not offer these experiences." Therefore, leaders in this viewpoint believes in capturing data on the strategies and programs that support workforce readiness and the impact those strategies have on job placement.

Leaders representing viewpoint II believe the percentage of students not working full-time but would prefer to be within 1-year post-program completion is extremely unimportant (11: -4), as is the employment rate for all students 1-year post program completion (7: -3), while measuring the percentage of students employed in the field in which they were educated within 1 year after leaving the college (5:+3) is of high importance. A director of assessment explained, "statements that are specific in stating students who completed programs connected with earning a living wage and employed in the field in which they were trained [are important program and

institutional level indicators].” Leaders holding this viewpoint prefer specific versus broad statements, except for some wage earnings statements.

Viewpoint II is less concerned with whether employers are satisfied with the employability skills (29: -1) of graduates, and with the quality/technical skills of community college employees (20:-1), which was interpreted as the actual community college employees training the students. One leader stated, “If they are satisfied with the graduates that will likely reflect positively on the employees.” Neither employer satisfaction statement was ranked positively by this viewpoint, which may indicate this viewpoint is more concerned with the student and impacts of the programs on their well-being, especially their economic well-being. Also, they noted looking to other measures as proxies for employer satisfaction. Overall, wage earnings data is highly important to this viewpoint and characterizes their definition of community college labor market success.

**Research Question Two: Consensus and Distinguishing**

The second research question posed in the study is: What consensus and distinguishing statements emerge from the composite viewpoints?

While analysis of research question one used the converted rank scores based on factor weights, the unconverted z-scores are used to answer question two. For this analysis, ranks are converted back to standard z-scores for cross-factor comparison. “Allocation to a specific ranking value (i.e., +4, -4), actually entails a loss of information relative to the z-scores because continuous or scale data are being reduced to an ordinal form” (Watts & Stenner, p. 140). Therefore, Z-score ranks and degree of difference between z-scores associated with each Q sample statement were examined during factor interpretation. Cross-factor comparisons are guided by the KEN/KADE software table outputs: ‘Consensus Items’, and ‘Distinguishing

Items' tables. KEN/KADE software finds the consensus and distinguishing statements, based on the absolute differences between factor z-scores being greater than the standard error of differences (SED) for a given pair of factors. The SED is .476 for viewpoint I and .695 for viewpoint II. The cut off used for both is then +/-.695. Findings indicate 14 consensus statements and their z-score differences ranged from -.525 and +.348, all lower than +/-.695 SED. Findings indicate 16 distinguishing statements, with all z-score differences above +/-.695.

**Consensus items.** Consensus items are those "items whose rankings that do not distinguish the two factors" (Watts and Stenner, 2018, p. 218). This means both viewpoints have ranked and valued certain statements about student labor market success similarly. Table 4.18 below lists the 14 statements of consensus, the rank and corresponding z-score for each. Consensus items are important as they help to further define the composite viewpoints of each factor. For example, leaders share viewpoints on nearly half the total number of statements. Leaders representing the two viewpoints have shared beliefs about statements 2, 9, 22, 10 and 27, as all were ranked in the "neutral" columns, which indicates neither viewpoint showed strong beliefs either way about these statements. Both viewpoints shared beliefs about statements 1,5,8,24 in the "important" columns, and statements 6,13,17,18, and 21 indicate shared beliefs about these statements as being "unimportant".

In the example of statement 2, Viewpoint I and II ranked wage earnings for all students in the long-term (5-7 years) post-program completion a (0) with z-scores (.171; -.177) respectively. Comparatively, wage earnings for all students in the short-term (1-3 years) post-program completion was also a consensus statement and ranked +2 (1.024) by viewpoint I and +3(1.339) by viewpoint II. This signals that leaders from both factors agree that capturing data on short-term wage earnings is significantly more important than long-term wage data.

In another example, Viewpoints I and II agree that the percentage of students who are retained in the same industry 5 years after entering that industry (13), ranked -4 (1.853) by viewpoint I and -3(1.356) by Viewpoint II. Those associated with *Employer Are Our Top Priority* believe that long-term data (5 years) is too far out to track and changing industries is not a negative thing, therefore, being retained or not does not demonstrate success to this leader. However, it is imperative and important to both viewpoints that in the short-term, graduates are employed in the field in which they were educated within 1 year after leaving the college, which was ranked +1(.594) by Viewpoint I and +3(.976) by Viewpoint II, nearly a distinguishing point.

Another point of consensus ranked highly important was wage earnings for students who have completed a degree or credential compared to those who did not complete within 1 year of leaving the college (24). Viewpoint I and II ranked this statement +3 with z-scores 1.046, and 1.405 respectively, indicating that all leaders highly value demonstrating labor market success through comparative wage earnings that prove/show completing community college education means a better return on investment for students than alternative education pathways.

The consensus items convey leaders representing the two viewpoints agree that labor market success should be demonstrated through certain wage and employment measures that demonstrate community college efficacy, credential value in the market, and whether graduates' demographic differences lead to different experiences/outcomes in the labor market. Leaders do not value measuring long-term stability and advancement of graduates, transfer success, whether students are job creators, and the return to states investments in community college programs. The neutral consensus statements further affirm long-term measures are not desired, and neither are personal student level data. It can be determined from this consensus that on-campus community college leaders want to know who and how many are employed in the field in which

they were trained and how much graduates are earning in comparison to students that did not complete their degrees.

Table 4.18.

*Consensus Items--Those That Do Not Distinguish Between ANY Pair of Factors*

| | | Viewpoint I | | Viewpoint II | |
|---|---|---|---|---|---|
| Item | Statement* | Rank | Z-score | Rank | Z-score |
| 1 | wage earnings for all students in the short-term (1-3 years) post-program completion | 2 | 1.024 | 3 | 1.339 |
| 2 | wage earnings for all students in the long-term (5-7 years) post-program completion | 0 | 0.171 | 0 | -0.177 |
| 5 | percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete a program) | 1 | 0.594 | 3 | 0.976 |
| 6 | number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion | -3 | -1.389 | -2 | -0.89 |
| 8 | employment rate for all students by race/ethnicity | 1 | 0.718 | 1 | 0.453 |
| 9 | employment rate for all students by gender | 0 | 0.219 | 0 | 0.11 |
| 10 | percentage of students who work below their skill level within 3 years post-program completion | -1 | -0.426 | 0 | 0.099 |
| 13 | percentage of students who are retained in the same industry 5 years after entering that industry | -4 | -1.853 | -3 | -1.356 |
| 17 | transfer rate for transfer programs by community college | -2 | -1.156 | -2 | -1 |
| 18 | transfers success in a 4-year institution based on cumulative GPA 1 year after transfer | -2 | -0.77 | -1 | -0.487 |
| 21 | benefits of each program relative to the costs of the state's investment dollars | -2 | -0.605 | -2 | -0.826 |
| 22 | unemployment rate of students compared to North Carolinas unemployment rate within 1-year post-program completion | 1 | 0.617 | 0 | 0.32 |

Table 4.18. (continued)

| | | Viewpoint I | | Viewpoint II | |
|---|---|---|---|---|---|
| Item | Statement* | Rank | Z-score | Rank | Z-score |
| 24 | wage earnings for students who have completed a degree or credential compared to those who did not complete within 1 year of leaving the college | 3 | 1.066 | 3 | 1.405 |
| 27 | percentage of students reporting level of personal satisfaction with the impacts of their program within 1-year post-program completion | 0 | -0.052 | 0 | -0.244 |

*All Listed Statements are non-Significant at p<0.01, and Those Flagged with an * are also non-Significant at p<0.05)

**Distinguishing items**. Items that distinguish the two viewpoints are shown in Table 4.19. There are16 distinguishing significant statements at p> .01. Distinguishing statements require evaluation of the Z-diff score, which is the difference in the two-factor statement z-scores. The Z-diff expresses the magnitude of difference between how each viewpoint ranked each statement. The Z-diff changes sign (+/-) for each respective viewpoint.

For both viewpoints, many statements ranked at the extreme ends of the scale (+4/-4; +3/-3) are the statements that most distinguish each viewpoint. Statement 20 has the highest z-diff (2.535). It is evident that leaders representing Viewpoint I significantly value whether employers are satisfied with the quality/technical skills of community college employees (20), and employability skills of graduates (29), while viewpoint II ranked both statements as unimportant focusing on wage earnings statements as most important towards demonstrating community college student labor market success.

Leaders holding Viewpoints I and II disagree about the importance of capturing data on the employment rate for all students, 1-year post-program completion. This statement generated the second highest z-diff (2.367). Viewpoint I is concerned with the employment rate for ALL

students one year after program completion (7: +1.06), conversely viewpoint II ranked this as unimportant (-1.37), and valued more, that graduates obtained employment in the field in which they were trained (5).

The viewpoints have significant disagreement on the importance of statements related to student loan debt compared to their earnings for all programs within 3 years of leaving the college (26) and student loan default rate for all programs within 3 years of leaving the college (25), which represent the third highest z-diffs: 2.062, and 2.095 respectively. It is evident Viewpoint II believes these aspects of the long-term economic well-being of graduates is important, while leaders representing Viewpoint I believe these measures are outside the scope and concern of the community college.

Other salient points of distinction are the completion rate for all programs by community college (16), the percentage of students not working full-time but would prefer to be (11), and transfers' success in a 4-year institution based on whether the transfer student completed a degree (19). All these statements were ranked as neutral for viewpoint I, while viewpoint II believed these statements to be extremely unimportant to student labor market success.

Table 4.19.

*Distinguishing Statements for Viewpoint I and II with Respective Z-Score and Z-Diff*

| Nm | Statement | VP I Z-score | VP II Z-score | Z-diff VP I | Z-diff VP II |
|---|---|---|---|---|---|
| 20 | employer satisfaction with quality/technical skills of community college employees | 1.72 | -0.815 | 2.535 | -2.535 |
| 30 | percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion | 1.61 | 0.615 | 0.995 | -0.995 |

Table 4.19. (continued)

| Nm | Statement | VP I Z-score | VP II Z-score | Z-diff VP I | Z-diff VP II |
|---|---|---|---|---|---|
| 29 | employer satisfaction with graduates' employability skills | 1.25 | -0.304 | 1.554 | -1.554 |
| 7 | employment rate for all students 1-year post-program completion | 1.06 | -1.307 | 2.367 | -2.367 |
| 23 | percentage of students who have moved out of poverty status within 3 years post-program completion | 1.01 | -0.664 | 1.674 | -1.674 |
| 3 | percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment | 0.84 | 2.087 | -1.247 | 1.247 |
| 4 | wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions | 0.31 | 1.551 | -1.241 | 1.241 |
| 16 | completion rate for all programs by community college | 0.13 | -1.633 | 1.763 | -1.763 |
| 12 | percentage of students who participated in work-based learning experiences (including internships & apprenticeships) that converted to full-time employment compared to students that did not participate | 0 | 0.957 | -0.957 | 0.957 |
| 11 | percentage of students not working full-time but would prefer to be within 1-year post-program completion | -0.11 | -1.49 | 1.38 | -1.38 |
| 15 | percentage of students who advance to higher positions within 5 years | -0.41 | -1.328 | 0.918 | -0.918 |
| 14 | percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry | -0.57 | 0.565 | -1.135 | 1.135 |
| 28 | number of students participating in work-based learning experiences (including internships and apprenticeship by community college) | -0.58 | 0.405 | -0.985 | 0.985 |
| 25 | students loan debt compared to their earnings for all programs within 3 years of leaving the college | -1.17 | 0.925 | -2.095 | 2.095 |
| 26 | student loan default rate for all programs within 3 years of leaving the college | -1.48 | 0.582 | -2.062 | 2.062 |

Table 4.19. (continued)

| Nm | Statement | VP I Z-score | VP II Z-score | Z-diff VP I | Z-diff VP II |
|---|---|---|---|---|---|
| 19 | transfers success in a 4-year institution based on whether the transfer completed a 4-year degree | -1.78 | 0.132 | -1.912 | 1.912 |

The notable statements of distinction relate to employer satisfaction, broad versus specific measures of employment rate, and student loan debt statements. Leaders holding Viewpoint I are clearly comfortable with employer assessment, while leaders representing Viewpoint II would rather rely on specific wage and employment data to inform on student labor market success. Leaders in Viewpoint I believe that capturing employment data on ALL students post-completion, perhaps they are more comfortable with broad level data. Conversely, leaders holding Viewpoint II are against using the "all" and would rather have specific targeted success measures that evaluate program efficacy. For example, they value the percentage of students employed in the field in which they were trained significantly more than the employment rate for "all". Similarly, Viewpoint II ranked data on the percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry as important to capture. Again, this denotes program specific level data and a long-term.

Another observation of the distinguishing statements reveals Viewpoint II is interested in the impacts of work-based learning strategies meant to strengthen students' employment opportunities and long-term performance post-graduation while leaders in Viewpoint I feel neutral about such efforts. This could mean leaders in Viewpoint II are driven by data that communicates program efficacy and that more needs to be understood about how programs like work-based learning impact graduates' employability and earnings.

**Research Question Three: Stakeholder Salience**

A third research question was posed in this study: How do community college leaders in different leadership positions view their level of influence over what labor market success measures are tracked and reported at their community college?

In the post-sort questionnaire (Appendix H), a section on stakeholder salience required responses on three attributes of stakeholder salience: power, legitimacy, and urgency. It is important to note that the researcher did not conduct an in-depth investigation into stakeholder salience, rather the questions offer an initial exploration of the perceived stakeholder salience of on-campus community college leaders. The three questions posed in the questionnaire are listed below.

> Question 1: *Power* means the degree to which you have influence over the student labor market success measures that your community college tracks and reports. Please rate your level of power.
>
> Question 2: *Legitimacy* means the degree to which you perceive your community college values your input about student labor market success measures as valid/sound. Please rate your level of legitimacy.
>
> Question 3: *Urgency* means the degree to which your community college gives priority to tracking student labor market success measures beyond what the state requires. Please rate your level of urgency.

As described in the theoretical framework section. A stakeholder is someone that can affect or is affected by the achievement of the organization's objectives, or in this case, the community college's objectives. It is not clear in the literature how much impact on-campus community college leaders have on shaping the discussion around student labor market success

measures. Stakeholder theory provides justification for exploring these viewpoints. Mitchell, Agle and Wood (1997) defined stakeholder salience as the "degree to which priority is given to competing stakeholder claims" (p. 869). They suggested stakeholder salience can be analyzed through three attributes: power, legitimacy, and urgency and propose that "classes of stakeholders can be identified by their possession or attributed possession of one, two, or all three of the following attributes.

The original definitions of each attribute were adapted to better fit the population and goals of the study.

1. Power means the degree to which you have influence over the student labor market success measures that your community college tracks and reports.
2. Legitimacy means the degree to which you perceive your community college values your input about student labor market success measures as valid/sound.
3. Urgency means the degree to which your community college gives priority to tracking student labor market success measures beyond what the state requires.

Leaders were asked to rate their level of power, legitimacy and urgency on a scale of low, medium, or high. *Low* means *little* influence, *medium* means *some* influence, and *high* means *significant.*

**Stakeholder Salience by Viewpoint.** Table 4.20 below breaks down the stakeholder salience by presidents, vice presidents and deans/directors. For each leader group the power, legitimacy, and urgency across the low, medium, high scale is reported in the aggregate. The table breaks down the responses by leader type for each viewpoint. First, a description for results related to viewpoint I is provided, following are results related to viewpoint II.

Table 4.20.

*Stakeholder Salience for Viewpoint I and II*

| n=19 (VPI=16; VP2=3) | | Power means the degree to which you have influence over the student labor market success measures that your community college tracks and reports. | | | Legitimacy means the degree to which you perceive your community college values your input about student labor market success measures as valid/sound. | | | Urgency means the degree to which your community college gives priority to tracking student labor market success measures beyond what the state requires. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Low | Med | High | Low | Med | High | Low | Med | High |
| Viewpoint I | President | - | 1 | 4 | - | - | 5 | 1 | 4 | - |
| | Vice President | - | 2 | 2 | - | 1 | 3 | - | 2 | 2 |
| | Dean/ Director | 2 | 5 | - | 1 | 5 | 1 | 1 | 6 | - |
| Viewpoint II | President | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| | Vice Presidents | - | - | 2 | - | - | 2 | - | - | 2 |
| | Dean/ Director | - | 1 | - | - | 1 | - | - | - | 1 |

Note: Low=little; Medium= some; High=significant

Four of the five participating presidents responded as having high power or significant influence over the student labor market success measures tracked and reported at their community college. One president reported having medium power or some influence. All five presidents identified as having high legitimacy, meaning their community college significantly values their input about student labor market success measures as valid and sound. Four presidents responded that there is medium urgency, or some priority given to the tracking student labor market success measures beyond what the state requires. One president reported low urgency or little priority is given to track and report beyond the state requirements.

Vice presidents reported in similar ways to thee three categories. Two of four participating vice presidents reported having high power, or significant influence over the student labor market success measures that their community college tracks and reports. The other two vice presidents reported as having medium power, or some influence. Three vice presidents reported high legitimacy, meaning their community college significantly values their input about student labor market success measures as valid and sound. One vice president reported medium legitimacy, meaning their input has some value. Two vice presidents reported high urgency, meaning their college gives significant priority to tracking student labor market success beyond North Carolina's requirements, while two vice presidents reported a medium level of urgency.

Five of the seven deans/directors reported having medium power or some influence over the labor market success measures that are tracked and reported at their community college. The remaining two deans/directors reported as having low power, or little influence over what is tracked and reported. Five deans/directors reported medium legitimacy, meaning their community college somewhat values their input about student labor market success measures as valid and sound. One dean/director reported high legitimacy, while another reported low legitimacy, meaning they believe their input has little value to their community college. In the category of urgency, one dean/director reported that their community college gives little priority to tracking and reported student labor markets success beyond North Carolina's required measures. The other six deans/directors reported a medium level of urgency, or that some priority is given to tracking and reporting measures beyond North Carolina's state requirements.

For viewpoint I, most presidents, as expected, reported the highest levels of power and legitimacy, with medium to low levels of urgency. Similarly, vice presidents reported medium to high levels of power, and legitimacy. They reported higher levels of urgency than both

presidents and dean/directors. Dean/directors reported low to medium levels of power, while the majority reported medium levels of legitimacy and urgency, with one leader reporting low urgency.

For viewpoint II, out of the three leaders associated with this viewpoint, two vice presidents reported having high levels of power, or significant influence over the student labor market success measures that their community college tracks and reports. The same two vice presidents reported having high levels of legitimacy and urgency. This indicates their community college significantly values their input about student labor market success measures as valid and sound, and their college gives significant priority to tracking student labor market success beyond North Carolina's requirements.

There is one dean/director representing this viewpoint. This leader reported medium levels of power and legitimacy. This indicates they have some influence over the student labor market success measures that their community college tracks and reports, and their community college somewhat values their input about student labor market success measures as valid and sound. This leader reported a high level of urgency, indicating their college gives significant priority to tracking student labor market success beyond North Carolina's requirements.

In viewpoint II, as anticipated the two vice presidents reported higher levels of power and legitimacy than the dean/director, while all three reported high levels of urgency.

**Community College Leaders' Stakeholder Typology.** Mitchell, Agle, and Wood's (1997) research guides this next step of analysis. They created a typology for categorizing stakeholder salience based on the levels and possession of the three attributes (power, legitimacy, urgency). They divide stakeholders into two zones. Leaders in the latent zone possess only one of the three attributes. Leaders in the expectant zone, must moderately possess at least two of the

three attributes. Within these zones leaders are further characterized by the magnitude and presence of each attribute (power, legitimacy, an urgency).

For this analysis, all 22 participating leaders were evaluated individually on this criterion, see Table 4.21 for results. The final characterization of each leader shown in the zone/type column in Table 4.21 was dependent on the reported levels (low, medium, high) by each leader for each attribute. The first column indicates the stakeholder group each leader represents. The second indicates the leader position, the third, fourth and fifth columns illustrate the individual reported levels of power, legitimacy and urgency for each leader and the last column indicates the stakeholder type. The zone/type column is guided by Mitchell, Agle, and Wood's (1997) definitions and typology, it is not an exact interpretation of their research, as this research did not fully undertake a comprehensive stakeholder salience assessment.

Table 4.21.

*Community College Leaders Categorization for All Participating Leaders*

| Role | Leader Position | Power | Legitimacy | Urgency | Zone/Type |
|---|---|---|---|---|---|
| Executive Leadership | President | High | High | Medium | Expectant/Dominant-Definitive |
| | | Medium | High | Medium | Expectant/Dependent-definitive |
| | | High | High | Medium | Expectant/Dominant-Definitive |
| | | High | High | Medium | Expectant/Dominant-Definitive |
| | | High | High | Low | Expectant/Dominant |
| | Vice President | High | High | High | Expectant/Definitive |
| | | Medium | High | High | Expectant/Dependent-Definitive |
| | | Medium | High | Medium | Expectant/Dependent-Definitive |
| | | High | High | Medium | Expectant/Dominant-Definitive |
| | | High | High | High | Expectant/Definitive |
| | | High | High | High | Expectant/Definitive |
| | | Medium | Medium | Medium | Expectant/Definitive |
| | | Medium | Medium | Medium | Expectant/Definitive |

Table 4.21. (continued)

| Role | Leader Position | Power | Legitimacy | Urgency | Zone/Type |
|---|---|---|---|---|---|
| Administrative Staff | Dean/ Director | Medium | Medium | Medium | Expectant/Definitive |
| | | Low | Low | Medium | Latent/Demanding |
| | | Medium | Medium | Medium | Expectant/Definitive |
| | | Medium | Medium | Medium | Expectant/Definitive |
| | | Medium | Medium | Medium | Expectant/Definitive |
| | | Medium | Medium | High | Expectant/Dependent-Definitive |
| | | Medium | Medium | Medium | Expectant/Definitive |
| Institutional Effectiveness (IE) | IE | Medium | High | Medium | Expectant/Dependent-Definitive |
| | | Low | Medium | Low | Latent/Discretionary |

Note: n=22

Twenty of the 22 leaders are characterized in the expectant zone because they reported medium to high levels for at least two of the attributes (power, legitimacy, and urgency). Within the zone of expectant leaders, leaders are further characterized as definitive. This means leaders reported medium to high levels for all attributes. In some instances, the characterization is extended even more. For example, the first president is characterized as expectant/dominant-definitive. This leader reported higher levels of power and legitimacy, as these areas were accentuated compared to urgency, the researcher chose to further characterize. Mitchell, Agle and Wood (1997) explain that dominant stakeholders matter to the organization and have freedom to choose to act on claims within the organization. In another example, expectant/dependent-definitive stakeholders lack power, but have legitimate and urgent claims within the organization.

There are two latent leaders, one holds an institutional research/effectiveness position, and the other is a dean. They both reported *low* levels in at least two attributes. The institutional effectiveness leader is characterized as latent/discretionary because they reported as having a medium level of legitimacy, and low levels of power and urgency. Based on Mitchell, Agle, and Wood's (1997) research, low perceived levels of power and urgency, may mean little input is solicited about student labor market success from other administrative and executive level leaders, or it is possible they believe their input is not valued. In the dean/director's case, latent/demanding indicates high reported levels urgency, but low levels of power and legitimacy, which could mean this leader sees student labor market success as urgent but has no influence to work on or contribute to the issue.

Overall, the table illustrates most leaders perceive to possess moderate to high levels of power and influence within their community college. Only in two cases power was reported as low. More leaders reported higher levels of perceived legitimacy than power and urgency. This indicates leaders believe their input is valued as sound and valid within their community college. Most leaders reported a moderate urgency to track and report student labor market success beyond the state's requirements, which indicates there is a concern and focus on the outcomes community colleges student produce post-graduation internal to the colleges. The leaders representing the 17 community colleges in this study believes their college values knowing more than what is required by the state.

**Additional Findings**

The post-sort questionnaire was completed by the 22 participating leaders, immediately following the completion of the Q-sorting activity. They answered several questions across the four sections. The first section consisted of five open-ended questions. The second was about the

leaders, specifically their demographics information, the third section asked questions about their community college, and the last section was about perceptions of stakeholder salience. All responses have been included in the analysis of findings thus far, except for responses for one of the open-ended questions: Were there any labor market success measures that you feel were not listed here? If so, please list them here and explain their importance to you?

While most participants felt this list was comprehensive, or at the moment, they could not think of any to add, six suggestions were made and are listed below.

1. More wage related data.
2. Labor market success data for Career and College promise demographic.
3. Measures tied to entrepreneurship an innovation in re-imagining the workforce of the future.
4. Data from employers related to near future expansion or trends. For example, do they expect their workforce to grow, remain the same, or decrease in the next 1-3 years?
5. Entry and advancement [into employment] that does not require completion of a long-term (2yr) program.
6. Wage earnings by race/ethnicity

**Common and important.** A second additional finding was generated by simply reviewing both factor composite sorts to see the statement that were ranked positive and important. Findings from this study showed the viewpoints ranked seven of the same measures as positive and important (+1 through +4) (Figures 4.1 and 4.2), of which 1 through 4 were consensus items: (1) wage earnings for all students in the short-term (1-3 years) post-program completion, (2) wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college, (3) percentage of students employed in the field in which they were educated within 1 year after leaving the college (takes into account students with some credit hours but who did not complete a program, and (4) employment rate for all students by race/ethnicity, (5) wage earnings for community college graduates versus high

school and four-year degree programs, (6) percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment and, (7) percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion.

**Common and unimportant.** Findings showed six of the same labor market success measures as negative and unimportant (-1 through -4) (Figures 4.1 and 4.2), of which the first five were measures of consensus: (1) transfer rate for transfer programs by community college (2) transfers success in a 4-year institution based on cumulative GPA 1 year after transfer, (3) percentage of students who are retained in the same industry 5 years after entering that industry Retained in industry, (4) benefits of each program relative to the costs of the state's investment dollars, and (5) number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion, and (6) and percentage of students who advance to higher positions within 5 years.

## Chapter Summary

This chapter explained and presented the factor analysis process and findings. The two main research questions were answered with evidence that supported a two factor solution, which served as the basis for the two resulting viewpoints. Most participants loaded on Factor I, meaning that overall, there similar thinking among the group of participating leaders about the labor market success measures that demonstrate success. The third research question about stakeholder salience revealed most participating community college leaders, which held higher executive/administrative level positions within their colleges, reported medium to high levels of stakeholder salience with a couple of exceptions.

In chapter five, after a summary of the findings, the discussion will focus on broader themes that emerged and how well this study answered the research questions. Included in chapter Five is a discussion on how findings compare with the literature reviewed in Chapter Two. Implications for practice, policy, and research are presented. Recommendations for future research are presented. Finally, a broad summation concludes the study.

# Chapter 5: Discussion and Implications

The purpose of this study was to surface on-campus community college leader viewpoints towards various measures of student labor market success. On-campus leaders, such as community college presidents, vice presidents, and dean/directors were asked to complete a Q-sorting activity, which captured at the time of the sort, their thinking about measures they believe demonstrate community college student labor market success. This chapter discusses findings, implications, future research directions and conclusions. First, brief summaries of findings presented in Chapter Four are reviewed before concluding the study.

## Summary of Findings

The research study sought to answer three research questions: What are the viewpoints of on-campus community college leaders toward community college student labor market success measures? And why (2) What consensus statements emerge across the viewpoints, and what statements distinguish the viewpoints? (3) How do community college leaders in different leader positions characterize their stakeholder salience?

**Finding 1: Viewpoints.** Two viewpoints resulted from the Q factor analysis. The goal of factoring was to understand how participants think similarly about the statements of community college student labor market success. Each viewpoint was evaluated using crib sheets, factor arrays, and composite sorts. The tools helped to develop a holistic understanding of each viewpoint. The names of each viewpoint were decided based on what these community college leaders prioritized as important. The names of each perspective do not capture the full range of the viewpoint. The names accentuate the dominant thinking within the viewpoint (*Figure 5.1.)*.


*Figure 5.1*. Two Viewpoints Names

***Most important and unimportant measures by Viewpoint.*** The 30 statements of labor market success were provided to each leader to sort. Figure 5.2 indicates what leaders representing Viewpoint I: Employers are our top priority believed to be most important (+3, +4) and most unimportant (-3, -4).

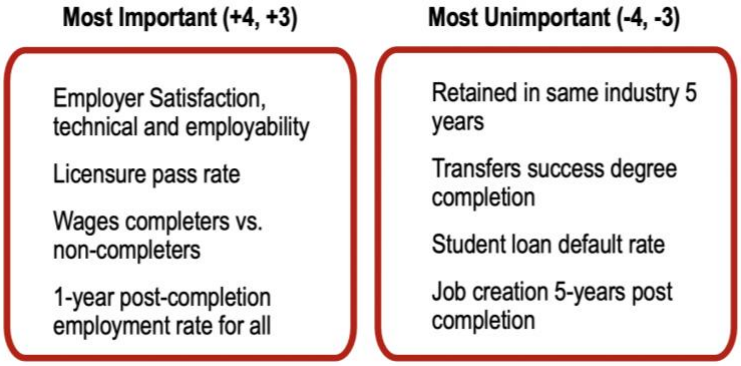


*Figure 5.2.* Most important and Unimportant statements for Viewpoint I

Below, the 30 statements for Viewpoint I are numbered from most important to most unimportant.

**Viewpoint I: Employers Are Our Top Priority**

1. Employer satisfaction with quality/technical skills of community college employees
2. Percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion
3. Employer satisfaction with graduates' employability skills (critical and analytical thinking, problem-solving and decision making, cultural sensitivity, interpersonal skills, communication, reliability and dependability, teamwork, and time and resource management, and job interviewing skills)
4. Wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college
5. Employment rate for all students 1-year post-program completion
6. Wage earnings for all students in the short-term (1-3 years) post-program completion
7. Percentage of students who have moved out of poverty status within 3 years post-program completion
8. Percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment
9. Employment rate for all students by race/ethnicity
10. Unemployment rate of students compared to North Carolinas unemployment rate within 1-year post-program completion
11. Percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete a program)
12. Wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions
13. Employment rate for all students by gender
14. Wage earnings for all students in the long-term (5-7 years) post-program completion

15. Completion rate for all programs by community college
16. Percentage of students who participated in work-based learning experiences (including internships & apprenticeships) that converted to full-time employment compared to students that did not participate
17. Percentage of students reporting level of personal satisfaction with the impacts of their program within 1 year post-program completion
18. Percentage of students not working full-time but would prefer to be within 1-year post-program completion
19. Percentage of students who advance to higher positions within 5 years
20. Percentage of students who work below their skill level within 3 years post-program completion
21. Percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry
22. Number of students participating in work-based learning experiences (including internships and apprenticeship by community college)
23. Benefits of each program relative to the costs of the state's investment dollars
24. Transfers success in a 4-year institution based on cumulative GPA 1 year after transfer
25. Transfer rate for transfer programs by community college
26. Students loan debt compared to their earnings for all programs within 3 years of leaving the college
27. Number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion
28. Student loan default rate for all programs within 3 years of leaving the college
29. Transfers success in a 4-year institution based on whether the transfer completed a 4-year degree
30. Percentage of students who are retained in the same industry 5 years after entering that industry

Figure 5. 3 indicates what leaders representing Viewpoint II: Graduates' Economic Well-being is our top priority believed to be most important (+3, +4) and most unimportant (-3, -4).

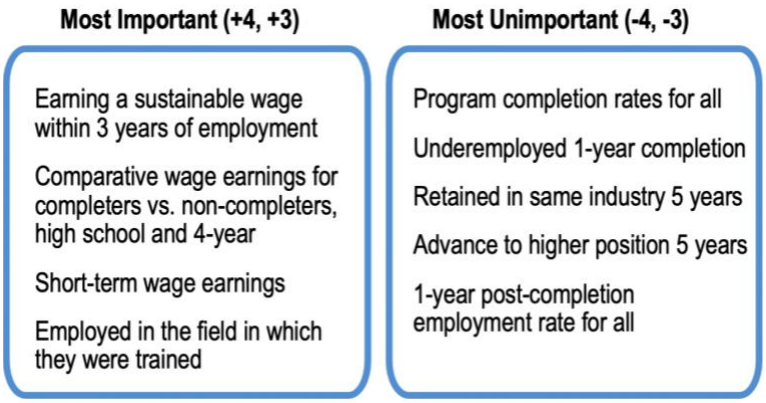


*Figure 5.3.* Most important and Unimportant statements for Viewpoint II

Below, the 30 statements for Viewpoint II are numbered from most important to most unimportant.

**Viewpoint II: Graduates' Economic Well-being is our Top Priority**

1. Percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment
2. Wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions
3. Wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college
4. Wage earnings for all students in the short-term (1-3 years) post-program completion
5. Percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete a program)

6. Percentage of students who participated in work-based learning experiences (including internships & apprenticeships) that converted to full-time employment compared to students that did not participate
7. Students loan debt compared to their earnings for all programs within 3 years of leaving the college
8. Percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion
9. Student loan default rate for all programs within 3 years of leaving the college
10. Percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry
11. Employment rate for all students by race/ethnicity
12. Number of students participating in work-based learning experiences (including internships and apprenticeship by community college)
13. Unemployment rate of students compared to North Carolina's unemployment rate within 1-year post-program completion
14. Transfers success in a 4-year institution based on whether the transfer completed a 4-year degree
15. Employment rate for all students by gender
16. Percentage of students who work below their skill level within 3 years post-program completion
17. Wage earnings for all students in the long-term (5-7 years) post-program completion
18. Percentage of students reporting level of personal satisfaction with the impacts of their program within 1 year post-program completion
19. Employer satisfaction with graduates' employability skills (critical and analytical thinking, problem-solving and decision making, cultural sensitivity, interpersonal skills, communication, reliability and dependability, teamwork, and time and resource management, and job interviewing skills)
20. Transfers success in a 4-year institution based on cumulative GPA 1 year after transfer
21. Percentage of students who have moved out of poverty status within 3 years post-program completion

22. Employer satisfaction with quality/technical skills of community college employees
23. Benefits of each program relative to the costs of the state's investment dollars
24. Number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion
25. Transfer rate for transfer programs by community college
26. Employment rate for all students 1-year post-program completion
27. Percentage of students who advance to higher positions within 5 years
28. Percentage of students who are retained in the same industry 5 years after entering that industry
29. Percentage of students not working full-time but would prefer to be within 1-year post-program completion
30. Completion rate for all programs by community college

**Finding 2: Consensus and Distinguishing Statements**. The second main finding answered research question two: What were the consensus and distinguishing statements? Results reveal 14 consensus statements, and 16 distinguishing statements. These statements were evaluated based on their Z-score values. Consensus statements were those that did not distinguish the two viewpoints, because they showed little or insignificant difference in their z-score values for each viewpoint, while distinguishing statements indicated significant differences between the magnitudes of z-scores for each viewpoint. Consensus demonstrates agreement and distinguishing statements indicates disagreement.

First *Figure 5.4.* shows the six most compelling consensus statements out of the total 14 statements of consensus. Following it the list of all 14, listed from highest most important Z-score values to highest most unimportant Z-score value.

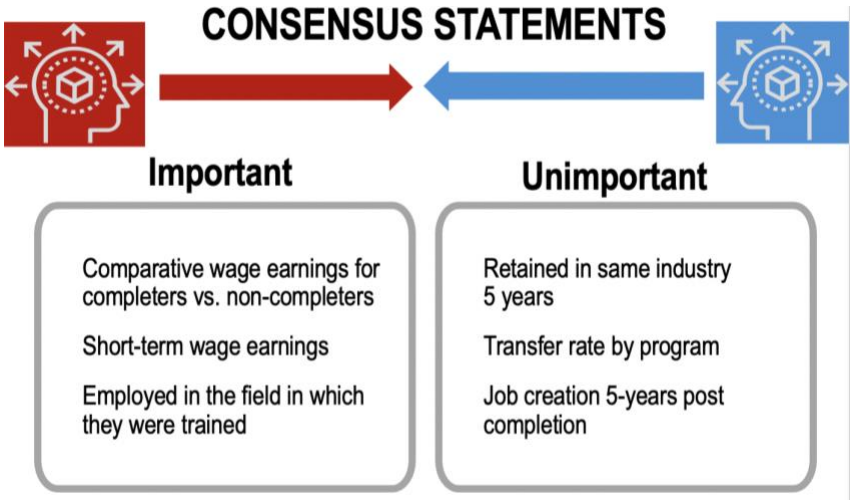


*Figure 5.4.* Most Notable Consensus Statements

**Consensus Statements:**

1. Wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours but did not complete degree or credential) within 1 year of leaving the college

2. Wage earnings for all students in the short-term (1-3 years) post-program completion

3. Employment rate for all students by race/ethnicity

4. Unemployment rate of students compared to North Carolina's unemployment rate within 1-year post-program completion

5. Percentage of students employed in the field in which they were educated within 1 year after leaving the college (considers students with some credit hours but who did not complete a program)

6. Employment rate for all students by gender

7. Wage earnings for all students in the long-term (5-7 years) post-program completion

8. Percentage of students reporting level of personal satisfaction with the impacts of their program within 1 year post-program completion

9. Percentage of students who work below their skill level within 3 years post-program completion

10. Benefits of each program relative to the costs of the state's investment dollars

11. Transfers' success in a 4-year institution based on cumulative GPA 1 year after transfer

12. Transfer rate for transfer programs by community college

13. Number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion

14. Percentage of students who are retained in the same industry 5 years after entering that industry

There were 16 total distinguishing statements, of which four were most compelling because these statements had the highest Z score differences (*Figure 5.5*). Following is the list of 16 distinguishing statements, which are also listed from highest most important Z-score value to the highest most unimportant Z- score values. See Chapter Four for a comprehensive analysis of both consensus and distinguishing statements.

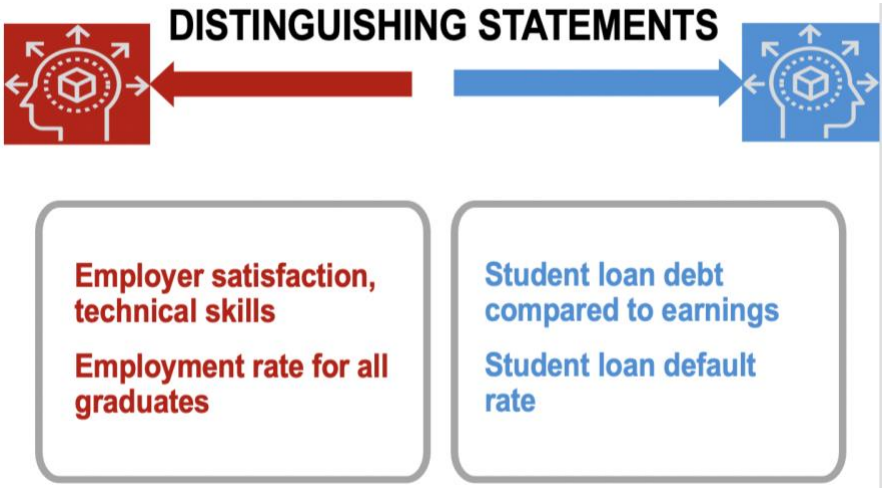


*Figure 5.5.* Most Notable Distinguishing Statements

**Distinguishing Statements:**

1. Employer satisfaction with quality/technical skills of community college employees

2. Percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion

3. Employer satisfaction with graduates' employability skills (critical and analytical thinking, problem-solving and decision making, cultural sensitivity, interpersonal skills, communication, reliability and dependability, teamwork, and time and resource management, and job interviewing skills)

4. Employment rate for all students 1-year post-program completion

5. Percentage of students who have moved out of poverty status within 3 years post-program completion

6. Percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment

7. Wage earnings for students who complete community college programs compared to students who graduate from high school and 4-year institutions

8. Completion rate for all programs by community college

9. Percentage of students who participated in work-based learning experiences (including internships & apprenticeships) that converted to full-time employment compared to students that did not participate

10. Percentage of students not working full-time but would prefer to be within 1-year post-program completion

11. Percentage of students who advance to higher positions within 5 years

12. Percentage of dislocated workers (students that enrolled after losing their job due to layoffs) who are retained in the same industry 5 years after entering that industry

13. Number of students participating in work-based learning experiences (including internships and apprenticeship by community college)

14. Students loan debt compared to their earnings for all programs within 3 years of leaving the college

15. Student loan default rate for all programs within 3 years of leaving the college

16. Transfers success in a 4-year institution based on whether the transfer completed a 4-year degree

**Finding 3: Stakeholder Salience.** How do community college leaders in different leadership positions view their stakeholder salience within their community college? In the post-sort questionnaire, a section on stakeholder salience solicited responses on three attributes of stakeholder salience: power, legitimacy, and urgency, based on Mitchell, Agle, and Woods' (1997) stakeholder salience model. Community college leaders in this study consisted of presidents and vice presidents, more broadly are categorized as executive-level leadership/community college administrators; deans/directors, more broadly referred to as administrative staff; and institutional researchers which are in their own category.

Table 5.1 below illustrates the counts for each of the three attributes (power, legitimacy, urgency) by leader position. Presidents reported the highest levels of power and legitimacy, with lower reported urgency. Vice presidents reported as possessing medium to high levels of power, legitimacy, and urgency. Most deans and directors reported medium levels for each attribute, and institutional effectiveness/researcher (IE) leaders reported lower levels of power and urgency and medium to high levels of legitimacy. For a deeper look at the stakeholder analysis see the stakeholder salience section in Chapter Four.

Table 5.1.

*Stakeholder Salience Counts by Leader Position by Attribute*

| | **Presidents (n=5)** | | | **Vice Presidents (n=8)** | | | **Deans/Directors (n=7)** | | | **IE (n=2)** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H | M | L | H | M | L | H | M | L | H | M | L |
| Power | 4 | 1 | - | 4 | 4 | - | - | 6 | 1 | - | 1 | 1 |
| Legitimacy | 5 | - | - | 6 | 2 | - | - | 6 | 1 | 1 | 1 | - |
| Urgency | - | 4 | 1 | 4 | 4 | - | 1 | 6 | - | - | 1 | 1 |

**Discussion**

Community colleges play a large role in training and educating students for the workforce and undoubtedly have the opportunity to impact the economy at local, state, and national levels. Due to this foreseeably large economic impact, the labor market outcomes of graduates have become an important topic of interest to the diverse group of internal and external stakeholders who invest time and money on institutional, programmatic, and student level outcomes. As the definitions of student success have shifted to include post-graduate labor market outcomes, this research aimed to uncover the viewpoints of on-campus community college leaders through a Q methodology study, which is a method used to explore subjective viewpoints about a topic.

The two arguments throughout this study suggest are: (1) Typical measures used to demonstrate labor market success—wage earnings and employment rates in the short-term—are limited, uncomprehensive and may weaken or undermine the whole contribution that participation in community college education makes to the community; and (2) it is necessary researchers explore the viewpoints of on-campus community college leaders because if on-campus community college leaders do not attend to the continued data and accountability demands by developing frameworks that work for their students, external and third party entities, such as governments, employers, and foundations, will continue to impose their ideas upon them.

The research questions attend to these arguments in three ways. First internal on-campus community college leaders were invited to share their viewpoints on the labor market success measures they believe demonstrate their graduates' labor market success. Second, leaders' viewpoints were explored for consensus and disagreement. Third, leaders were given an

opportunity to report their perceived stakeholder salience (power, legitimacy, and urgency) as it related to influencing decisions about labor market success within their community college.

The purpose of the discussion section is to discuss the findings and compare those results to previous literature. First, I briefly recap the two viewpoints and then explain from those viewpoints what measures were important in defining labor market success and which labor market measures were unimportant in defining labor market success.

**Two Viewpoints.** The first research question asked what are the viewpoints of on-campus community college leaders towards labor market success measures? The findings and interpretation resulted in two viewpoints. *Employers Are Our Top Priority* and *Graduates' Economic Well-being Is Our Top Priority* were the two resulting viewpoints in this study. Most participating leaders in this study represent Viewpoint I: *Employers Are Our Top Priority*. Leaders holding this viewpoint believe that the employer perspective matters most when evaluating the labor market success of their students. This viewpoint confirms much of the literature that suggests community colleges engage in strong partnerships with employers to ensure workforce alignments and an optimal education to workforce pipeline. Although, engaging, creating and relying heavily on these partnerships is necessary and logical, stakeholder theorists would caution leaders holding this viewpoint of an instinct to then maximize their interest above other stakeholders connected to other important educational/organizational goals.

***Viewpoint I: Employers Are Our Top Priority.*** *Leaders in Viewpoint I align with the calls to action from the completion agenda, the Aspen Institute, and the American Association of Community Colleges, which all strongly encourage employer engagement at various levels, for example, pedagogical and programmatic feedback, in order to create systems for optimal student success. Leaders in Viewpoint I appear to be aligned with the ideas that policies, programs, and*

*funding should remain focused on middle skills gap/worker supply and demand needs of the market in order to build stronger education to workforce pipelines (Carnevale & Smith, 2012). Likewise, it appears leaders holding Viewpoint I would agree that community colleges must rise to the challenges facing the US economy. For example, these schools might give more attention to increase educational attainment percentages to produce technically educated and skilled workers to fill known workforce gaps.*

***Viewpoint II: Graduates' Economic Well-being is Our Top Priority.*** Leaders in Viewpoint II, Graduates' Economic Well-being is Our Top Priority, places emphasis on wage earnings, specifically whether graduates earn a sustainable livable wage, and how community college graduates' earnings compare to other education options. This viewpoint confirms much of the literature that suggests wage earnings and earning a livable sustainable wage is the goal and a top measure for defining labor market success. This in part aligned with the Aspen Institute (2019), who emphasized measuring whether graduates earn family supported wages, defined as the amount of wages needed to cover housing, food, childcare, transportation, health, and other necessities, plus relevant taxes, five-years post completion (The Aspen Institute, 2019). However, other authors raise the point that not all professions are high wage professions and that many lower wage professions are important and needed in the community and they would caution leaders holding this viewpoint in relying too heavily on wages earnings in defining labor market success. Also, Minaya and Scott-Clayton (2019) would raise the point that only focusing on wages overlooks other job benefits and protections that some sectors offer but likely are not captured in a stand-alone wage metric.

Leaders representing Viewpoint II do not believe that employer satisfaction rises to the level of importance compared to many other measures, especially wage earnings measures, as

both employer satisfaction statements were ranked unimportant by leaders in Viewpoint II. Leaders in Viewpoint II believe labor market success should be defined by the longer-term return on investment to community college education calculation, which is measured by comparing a graduate's wages against their financial investment in earning the credential based on student loan debt information. This also denotes an important distinction between the two viewpoints, as leaders holding *Viewpoint I* believed student loan debt to be out of scope or not the responsibility of the community college to track.

***Summary of the two viewpoints.*** The differences in the two viewpoints signal two potential models of thinking around defining labor market success. The predominant model of thinking being more economic development driven, where community college are seen as a part of the larger project of developing the regional and state economies and being in lock-step with the job market supply and demand realities. The second model of thinking examines whether community college education literally pays off for students through earnings and debt calculations. Model two thinking focuses on students as the primary beneficiary to the social and economic outcomes of participation in community college education and model one thinking focuses on employers as the primary stakeholder through which all economic and social benefits to students and the larger community are possible.

**Measures important in defining labor market success.** The two viewpoints combined help to define community college student labor market success. For example, both viewpoints ranked seven of the same labor market success measures as positive and important (+1 through +4). The first four were also items of consensus: (1) wage earnings for all students in the short-term (1-3 years) post-program completion, (2) wage earnings for students who have completed a degree or credential compared to those who did not complete (those that have some credit hours

but did not complete degree or credential) within 1 year of leaving the college, (3) percentage of students employed in the field in which they were educated within 1 year after leaving the college (takes into account students with some credit hours but who did not complete a program, and (4) employment rate for all students by race/ethnicity, (5) wage earnings for community college graduates versus high school and four-year degree programs, (6) percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within 3 years of employment, and (7) percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion. Not surprisingly, both viewpoints agree wage earnings and employment rate remain priority.

***Short-term measuring wage earnings.*** Findings from this study are supported by findings in the literature which suggested that measuring wages in the short-term is preferred and advantageous. Many community college stakeholders believe that shorter term data is needed to make programmatic and institutional changes and quickly demonstrate the value of a credential in the market to the interested community stakeholders (i.e., prospective students, and parents). Findings from this study parallel Mullin (2012), who proposed very short follow-up times, in quarterly increments, and Mullin (2013) who proposed 1-, 3-, and 5-year follow-up times. The Aspen Institute (2014), and North Carolina Community College Systems Office, likewise suggest a three-year mark post-graduation. Findings in the study oppose other authors, who suggested longer-term follow-up times like Kasper (2009) who recommended to capture wages annually and Minaya, Scott-Clayton (2016) who suggested annually up to seven years. Moreover, Minaya, Scott-Clayton (2019) opposed shorter term measures or suggested a "cautious approach" to only using simple short-term measures, like wage earnings 1-year post

program completion, that may undermine and miscalculate a student's program or institution's performance, as they argue calculating wealth and wage success is a longer-term endeavor. One on hand, capturing wages in the short-term may undermine the longer-term value of a credential. Conversely, it may provide a false sense of value of that credential, meaning, a shorter-term credential may look like the best return on investment and path to higher earnings sooner, while long-term wages associated with this shorter-term credential stagnate 10 plus years in the field compared to graduates with associates degrees (Minaya & Scott-Clayton, 2022).

***Wages earnings for completers versus non-completers.*** Leaders representing both viewpoints believe reporting wage earnings for completers versus non-completers is also important towards demonstrating labor market success. This finding echoes Zeidenberg, Scott, and Belfied (2015) who argue capturing wage earnings data for non-completers has value because so many community college students do not complete degrees and knowing the difference between the two groups is essential towards communicating a more accurate picture of the labor market return to credentials. Likewise, this finding echoes Minaya and Scott-Clayton (2019) who also agreed that measuring graduates' outcome compared to other student groups (i.e., entrants, and non-completers), helps to add to a broader understanding of the contributions community college students make to their communities. Similarly, Phillippe (2019), suggested capturing earnings for career and technical education completers versus those that left or receive no award to better show the value of earned credentials. Also, Mullin (2012) suggested measuring whether a completer earned a livable wage compared to non-completers. It is evident that both viewpoints, parallel previous literature and are attracted to comparative measures that communicate a broader story about the impacts of programs/credentials on students, while offering valuable information about the value of community college education.

***Graduates employed in trained field.*** Leaders representing both viewpoints believe capturing the percentage of graduates employed in the field in which they were trained is a highly important employment measure. This finding aligned with several authors like Mullin (2012) and The Aspen Institute (2014) who suggested capturing data on graduates employed in the field related to the skill obtained within 1 year of leaving the college or employed in the field in which graduates were credentialed. Similarly, the Sothern Association of Colleges and Schools Commission on Colleges accreditor (April 2019 interview), and Alfred et al., (1999) in general agree this measure communicates program efficacy, and job market specifics. For example, if there is too much supply and not enough jobs available for that skill set in the local or regional markets (reference), then the program may need to be cut or scaled back.

***Employment rate by race/ethnicity.*** Another point of consensus between the viewpoints is the importance of capturing data on employment rate for all students by race/ethnicity. This finding signal support for community colleges to consider if their outcomes are equitable (Aspen Institute, 2019). Leaders holding both viewpoints care about who is and who is not benefiting. Therefore, these on-campus leaders would likely agree with Kalleburg and Dunn (2015) and Carnevale, Cheah and Winzinger (2021) who believe that disaggregating data about labor market outcomes is the only way to truly understand the payoff of earned degrees. Carnevale, Cheah and Winiznger (2021) found that, “Other factors—from field of study and occupation to gender, race and ethnicity, and location—drive differences in earnings” (p.30). This finding is further aligned with S. mei-yen (2014) who also suggested to measure larger stratification outcomes of students, to examine inequities in the system. Similarly, this finding echoes the Higher Learning Commission’s (2018) point to build student success frameworks that are more representative of

different student experiences. They add that “disaggregating data by the diverse learners allows for more than one type of student to be successful” (p. 8).

However, the current finding from Christensen and Turner (2021) adds a bit of nuance to the connection between equity and labor market outcomes. They find that program level demographics have diminished effects on labor market success compared to other factors like program type, institutional and state level factors, which they found impact earnings more. They suggest that these new findings have important implications for federal accountability standards that would provide incentives to community colleges to offer the right mix of programs that provide the greatest economic stability and outcomes for students. However, this raises questions. What happens if there are no jobs connected to the “right” programs in a local region? How would community colleges have to adjust when not meeting proposed federal incentives? Christensen and Turner (2021) do attend to the fact that community colleges “do not have control over the students they enroll… their geographic location or strength of the surrounding labor market” (p.26). It is these factors which likely make it nearly impossible to hold community colleges accountability on universal accountability standards. More needs to be understood about measuring demographic differences by program on a college-by- college basis perhaps

***Community college wages compared to high school and four-year.*** Another measure important to both viewpoints is wage earnings for community college graduates versus high school and four-year degree programs. This result aligns with The Aspen Institute (2019), who pointed out the importance of conveying completers were employed with substantially higher wages than high school graduates. Similarly, this desire to compare and demonstrate value is found in Carnevale, Cheah and Winzinger’s (2021) research that showed that higher levels of

education typically result in more lifetime earnings. However, this outcome is not always true because "other factors—from field of study and occupation to gender, race and ethnicity, and location—drive differences in earnings" (p. 30), which aligns with the previous viewpoint on the importance of disaggregating outcomes by different student level characteristics.

***Earning a livable sustainable wage.*** Another wage measure that leaders holding both viewpoints ranked as positive and important was the percentage of students who complete programs and who earn below a livable sustainable wage for North Carolina within three years of employment. This measure was most important to leaders in viewpoint II. This finding aligns with The Aspen Institute (2019) and Mullin (2012) which state the importance of capturing data on whether degrees lead to "family supporting wages" or "livable wages." Similarly, Phillippe (2019) suggested capturing the percentage of Career and Technical Education students employed with a livable wage.

***Pass and earn state licensure.*** Lastly, leaders holding both viewpoints valued the percentage of students that pass/earn state licensures/certificates in the field in which they were educated within 1 year of program completion. State licensure and 3rd party credentials indicate workforce readiness to employers as it has become a standardized way to communicate students are ready for the position. Licensure pass rates are important as they are state mandated exams which candidates must pass before becoming active practitioners (NCCCS, 2018). These on-campus leaders would agree with the reviewed literature in this study, which showed licensure pass rates to be the most agreed upon and suggested measure for gauging community college student labor market success (Alfred, et al., 1999; HLC, 2018; Kalleberg & Dunn, 2015; Mullin, 2012; NCCCS, 2018; Phillippe, 2019; and SACS representative, 2019).

**Measures Unimportant in Defining Labor Market Success.** Defining labor market success in this study also pertained to measures of unimportance. Overall, findings from this study showed the leaders holding *Viewpoint I and II* ranked six of the same labor market success measures as negative and unimportant (-1 through -4) (Figures 4.1 and 4.2), of which the first five were measures of consensus: (1) transfer rate for transfer programs by community college (2) transfers success in a 4-year institution based on cumulative GPA 1 year after transfer, (3) percentage of students who are retained in the same industry 5 years after entering that industry Retained in industry, (4) benefits of each program relative to the costs of the state's investment dollars, and (5) number of jobs created by community college graduates through entrepreneurship within 5 years post-program completion, and (6) and percentage of students who advance to higher positions within 5 years.

***Transfer.*** Participating leaders in this study surprisingly go against several authors' suggestions to capture transfer data. This is surprising because transfer is an important mission of community college education in North Carolina. The North Carolina Community College systems office works in collaboration with the University of North Carolina System and private colleges and universities to ensure the pathway from community college to a four-year degree is available, viable and effective and measuring transfer is mandated by the North Carolina Community College System. Leaders representing the viewpoints in this study would disagree with many authors reviewed here, who discuss the importance in capturing transfer success data. Alfred, Ewell, Hudgins and McClenny (1999) included it as important in the workforce development effectiveness component in the institutional effectiveness framework from decades ago. Phillippe (2019), Minaya and Scott-Clayton (2016) and Kalleberg and Dunn (2015) all discuss capturing transfer rates and/or success as long-term measures of labor market success.

Surprisingly, participating leaders felt these measures were “out of scope,” “too far out,” and no longer could be considered a direct result of participation in community education as too much time has passed between student participation in community college education and their career outcomes after attending a four-year college. Leaders in this study lack of interest in transfer further suggests their greater interest in shorter term outcomes, and that perhaps leaders prefer to separate labor market success from transfer success outcomes altogether.

Surprisingly, leaders in both viewpoints find transfer outcomes unrelated to labor market success, which differs from prior research suggesting that capturing information on transfer students’ rates and GPA success is common. Moreover, transfer is a prevalent and common mission for several North Carolina community colleges and Transfer rates are mandated measures by the North Carolina Community College Systems office. One hypothesis is that participating leaders prioritize vocational education over the long-term academic career of transfer students in general, or that all participating leaders represent colleges whose missions are not transfer focused. If the former is the case, this could mean a bias towards vocational education is present. While it may be useful to focus on the community college mission that begets quicker and perhaps better labor market outcomes, like earnings (Kalleburg & Dunn 2017); this bias could mean less attention is given to the other preparation activities related to long-term academic careers for transfer students. This raises questions about students and prospective students entering community colleges. Will they be pushed towards vocational versus longer-term academic careers? How will transfer programs suffer in colleges with comprehensive missions if leaders are focused on vocational education missions? Could this weaken the quality or preparation for students transferring into four-year universities, and ultimately their long-term success?

***Stability, retention, and entrepreneurship out of scope***. Other measures leaders in this study deemed out of scope were, students retained in industry five years after entering industry, and percentage of those who have advanced into higher positions within five years. These leaders disagree with several authors who argue for capturing stability of employment or retention in industry as important measures beyond earnings. Whether students are retained in industry was important to the employer that was interviewed in April 2019. He stated that retention helped to demonstrate whether an employee likes and is committed to the occupation. Likewise, Mullin (2012) suggested measuring "retained employment" in the short term from quarter to quarter. In addition, Minaya, Scott-Clayton (2019) pushed for capturing the stability of employment, and whether graduates are employed for the full-time full year as another measure beyond earnings in efforts to understand the "percent of graduates who are substantially and consistently engaged in the labor market" (p.78). Neither viewpoint in this study agreed with authors that career advancement is important data to capture compared to other measures, as advancement may not directly be tied to the immediate training efforts of community colleges and the five-year follow-up time is too far out. These findings further support the finding that leaders in this study value shorter-term measures that will more precisely communicate the efficacy of community college education.

Another measure of unimportance is the number of community college graduates creating jobs through entrepreneurship and the benefits of each program relative to the costs of the state's investment dollars. The purpose of these measures was to gauge leaders' interest in labor market outcomes beyond wage earnings. Entrepreneurship has a notable and known impact on jobs and economic growth, so this may present an area of opportunity and focus for labor market outcomes.

***Benefits to state investment.*** Leaders representing both viewpoints did not believe that benefits of each program relative to the costs of the state's investment dollars was important towards demonstrating labor market success. Leaders representing Viewpoint II do believe examining student debt-to-earnings ratio and student loan default rate are important measures, which relate to return on investment to programs or credentials. The return on investment for the state, however, was not essential. It is the researcher's belief that leaders are not interested in this type of measure compared to others, because a return to state investments does not directly relate to how well community college students are doing in the labor market. One of the data points used to calculate return to state investment is the amount of tax dollars community college graduates contribute to the state, which could be a labor market outcome. In hindsight, this measure may not have attracted attention because it did not specifically speak to a student or employer, or community college perspective.

***Disagreement about work-based learning, student loan debt, & employer satisfaction.*** *Viewpoint I* and *Viewpoint II* disagree about the importance of outcomes related to work-based learning programs as measures of student labor market success. For example, Leaders in *Viewpoint II* would agree with Kalleburg and Dunn (2015), Mullin (2012) and the on-campus interviewed leader that capturing data on work-based learning and apprenticeships is important. These are workforce development programs that play a role in students obtaining employment. Collecting data on whether work-based learning programs lead to better jobs or decrease job search times is useful to know. As community colleges and state policy put more emphasis on these strategies that link students to work, understanding the outcomes related to these endeavors may be more important.

*Viewpoint I* also did not believe that capturing data on student loan debt and default rate was important and felt that was beyond the scope, while leaders representing *Viewpoint II* found this information to be important and valued a more holistic understanding of graduates' long-term economic standing. *Viewpoint II's* beliefs aligned with the Higher Learning Commission (2018), The Aspen Institute (2014), Minaya, Scott-Clayton (2016), who advocated for calculating debt-to-earnings ratio, default rates, or looking beyond wages as a simple measure to examine the long-term economic well-being of community college graduates.

On the other hand, *Viewpoint II*, differs from many authors and disagrees with *Viewpoint I* that employer satisfaction is an important measure of labor market success. This is a surprising finding, as eminent emphasis has been put on employers as strategic partners for workforce and economic development at the community college (Eddy et al., 2021). As discussed in the previous section, *Viewpoint II* goes against many authors who advocate for capturing employer satisfaction.

**Summary.** Based on the findings, leaders in this study agree, community college student labor market success is predominately demonstrated through shorter term comparative wage earnings, job placement rates in the field in which a student was trained, and licensure pass rates. *Viewpoint I* is distinctively focused on the employer perspective, specifically their satisfaction with the employability and technical skills of community college graduates and licensure pass rate. *Viewpoint II* is distinctively focused on the student/graduate economic perspective. Additionally, they believed in capturing data on students preparing for the workforce preparation through workforce development programs like work-based learning/apprenticeships and dislocated worker pathways programs. Community college leaders in this study agree measures outside of the "scope" of community college training efforts, such as long-term wage earnings,

transfers' success, employee job advancement and stability do not demonstrate labor market success. Further, it is apparent leaders value measures that are reflective of the employer, student, and/or community college perspective.

**A Labor Market Success Framework Is Important.** In this section, the findings are compared against the Q sample framework which was generated from the literature review for this study, discussed in Chapter Three. The literature review in this study revealed 136 potential measures, which when condensed resulted in 30 measures that were categorized into four categories: Employment, Community Contribution, Individual well-being, and Workforce Readiness. Each broad category consisted of sub-categories as well, shown in Table 5.2.

Table 5. 2 and Figure 5.1 visually illustrate where the priorities and preferences of the leaders in the two viewpoints are. There continues to be disagreements about what measures demonstrate labor market success, with both nuanced and sharp differences. Most participants hold Viewpoint I: *Employers Are Our Top Priority* and a few made up Viewpoint II: *Graduates' Economic Well-Being is Our Top Priority.* The table indicates the number of measures within a category that were deemed important (+1 through +4) and unimportant (-1 through -4) by each viewpoint; neutral selections are not noted here.

For example, both viewpoints found that four of the five wage earnings statements were important, indicating a strong preference towards wage earnings to illustrate community college student labor market success. Interestingly, neither viewpoint found the measures within 'Community Contribution' important apart from *Employers Are Our Top Priority* ranking the return on investments to state benefits as important. Moreover, 'Community Contribution' received several unimportant rankings, with transfer being a notably unimportant sub-category for both viewpoints. Economic well-being was prioritized as more important to *Graduates'*

*Economic Well-being* than to *Employers Are Our Top Priority.* Employer satisfaction was a defining point of disagreement between the two viewpoints.

Table 5.2.

*Number of Important and Unimportant Statement by Category by Viewpoint*

| | | Employer Are Our Top Priority | | Graduates' Economic Well-being | |
|---|---|---|---|---|---|
| | | IM | UN | IM | UN |
| Employment | Wage earnings | 4 | 1 | 4 | 1 |
| | Job placement rate | 3 | 1 | 2 | 2 |
| | Stability | 0 | 2 | 1 | 1 |
| | Advancement | 0 | 1 | 0 | 1 |
| Community Contribution | Completion | 0 | 0 | 0 | 1 |
| | Transfer | 0 | 3 | 0 | 2 |
| | Entrepreneurship | 0 | 1 | 0 | 1 |
| | State benefits | 1 | 1 | 0 | 1 |
| Individual Well-being | Economic | 1 | 2 | 2 | 1 |
| | Education & skill | 0 | 1 | 0 | 1 |
| Workforce Readiness | Work-based Learning | 0 | 2 | 2 | 0 |
| | Licensure/3rd party | 1 | 0 | 1 | 0 |
| | Employer satisfaction | 2 | 0 | 0 | 2 |

Similarly, Figure 5.6 below represents this information visually in a bar graph. Red represents *Viewpoint I: Employers are our top priority* and blue represents *Viewpoint II: Graduates' Economic well-being is our top priority.* The scale represents the number of measures in a category that leaders ranked important. For example, *Viewpoint I* believed the three measures attributed to "Transfer" were unimportant, and *Viewpoint II* believed two measures of "transfer" were unimportant the third transfer measure also did not rise to the leave

of importance to this viewpoint. This graph quickly illustrates what areas received the most attention and least attention.

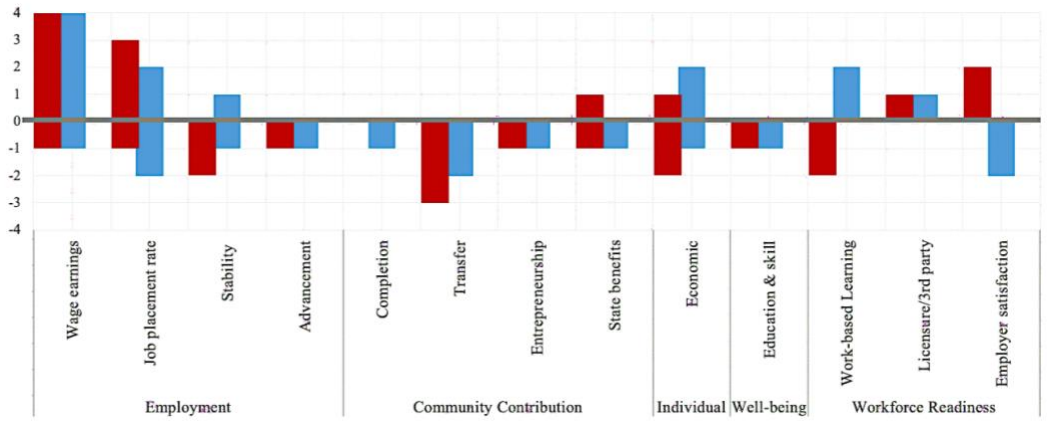


*Figure 5.6.* Number of Important and Unimportant Statements by Category by Viewpoint

Research shows that various versions of student success frameworks include a labor market outcome or workforce development type component, and within each component are different categories and recommended measures. This table and figure would be a useful place for community college leaders to start when thinking about developing a community college student labor market success framework for their colleges. It may also be useful because it briefly demonstrates the areas of similar and distinguished thinking among the viewpoints. Additionally, Table 5.2 can be used to quickly highlight the areas that got the most (employment and workforce readiness) and least attention (i.e., community contribution and individual well-being). Although findings remain consistent with prior research to prioritize employment rates and short-term wage earnings, focusing only on wages and employment in the short-term can undermine the complete picture that community college educated and trained individuals make in the community and economy, and "may fail to capture" the many other positive aspects of

education, like measures of health and well-being, which also have value to external stakeholders such as policymakers and students (Minaya and Scott-Clayton, 2019, p.99).

The framework was generated out of the reviewed literature and through this endeavor, highlighted the ideas discussed or not discussed within the community college student labor market success domain. More needs to be understood about the areas that received less attention. Measures of equity could have been emphasized more in this study by either receiving its own category or incorporating more equity-type statements into each category. Q sample statements that disaggregated information based on race/ethnicity and gender for example, gave a nod to issues of equity, however it is necessary community colleges take a closer look at an equity dimension to understand labor market achievement outcomes for all students. However, this contrasts with a recent report from the Christensen and Turner (2021), that stated "on-balance, we find that demographics are *not* destiny for program-level outcomes in the community college sector. Negative associations between program-level demographics and earnings shrink after controlling for a rich set program-, institution, and state-level factors" (p.26). Considering this new finding, to ensure equity is addressed at community colleges, labor market outcomes of different students may need to be viewed in connection to other variables to truly capture the holistic picture of equitable education for all students.

**Findings and Connection to Theoretical and Conceptual Framework**. The purpose of this section is to connect the findings to the theoretical and conceptual frameworks that guided the thinking for this study, which can be found in Chapters One and Two. Stakeholder theory (Freeman, 1980) and salience (Mitchell, Agle & Wood, 1997) were used to understand the importance of gaining input from an internal community college stakeholder perspective or on-campus leaders that understand the day-to-day community college tasks, policies, and programs

related to student labor market success. It is not clear in the literature how much impact on-campus community college leaders have on shaping the discussion around student labor market success measures; therefore, stakeholder theory provides justification for exploring these less understood viewpoints. Secondly, the salience typology helped to give an initial surface understanding of how on-campus leaders view their power, legitimacy, and urgency as it relates to influencing efforts to understand labor market success at their colleges. Third, stakeholder theory and salience shed light on the descriptive, instrumental and normative aspects of network of network of community college stakeholders.

***Stakeholder theory.*** As a reminder, a stakeholder is defined as someone that "can affect or is affected by the achievement of the organization's objectives" (p. 46). Stakeholder theory can help explore the possible impacts of biases and how to mitigate against them, as it requires an organization to bring together the descriptive, instrumental and normative components of stakeholder management. The descriptive component involves describing the constellation of cooperative interests needed to carry out student labor market success goals at the community college. The instrumental component implies organizations that pay attention to the connections between stakeholder interests and performance achieve better organizational performance. Then the normative component translated for application here, asserts that value-creation activities, such as creating frameworks of measures of community college student labor market success, must be joined with the community college system and individual colleges' espoused missions and moral claims (Freeman, 1994).

Stakeholder theory is a foundation for community colleges to examine how they are describing and connecting with their network of stakeholders to their institutional/organizational goals. Stakeholder theory gave the researcher motivation to examine viewpoints through a

stakeholder lens, which gave a bit more meaning to the finding that most on-campus leaders largely prioritize the employer perspective. The heavy emphasis towards the employer perspective could be likened to Freeman's (1994) discussion about corporations' biases towards stockholders. Freeman (1994) warns against prioritizing "stockholders," because it can get organizations into moral trouble. This finding is also confirmed by what Eddy et al (2021) found in their analysis of the strategic plans of the 58 North Carolina community colleges, most labor market outcomes goals included a broad focus on local and regional economic development and partnerships with businesses to meet workforce demands. They also found that most of these labor market goals were tied to the outcome of bolstering local economies instead of student academic success. It is rather necessary to think of community colleges as a part of the bigger economic development system. The American Association of Community Colleges' workforce and economic development goals are, in part to " Improve economic prosperity of workers, business, and communities" (AACC, 2022, para 1). The challenge for community colleges is to balance these economic development, workforce development and student success goals. Stakeholder theory can be used to understand and balance the emphasis on the multiple goals community colleges must reach for, while avoiding getting into moral trouble, which may arise if community colleges are maximizing the economic development goals at the cost of student learning and academic goals.

***Stakeholder Salience Framework.*** The findings from this study demonstrated at a glance that the community college leaders in this study, with two exceptions, feel that they are expectant-dominant or expectant-definitive stakeholders. Mitchell Agel, and Wood's (1997) expansion of stakeholder theory helps to understand stakeholders based on three relationship attributes: power, legitimacy and urgency, which can change based on the problem/issue topic at

hand. The results from stakeholder salience loosely maps to how Burrows (1999) and Hom (2011) categorize community college presidents, vice presidents, deans/directors, and institutional researchers in their matrices. The leaders' self-categorizations of stakeholder salience aligned with categorizations in the literature. The most noticeable difference between these other matrices and Stakeholder theory/salience, is that the stakeholder salience has an urgency component which is not shown in other categorizations. Additionally. Stakeholder salience provides perhaps a more deeply rooted philosophy for describing, building, and executing those varied interests from a moral center.

Findings in this study showed consistency within leader position on how leaders categorized their stakeholder salience regardless of institution or region. For example, five of the six presidents reported high power and legitimacy. This finding is interesting given these leaders were from various colleges, located across the state. Similarly, findings are consistent with the ideas that presidents hold the most power, then vice presidents, and deans/directors, and then institutional researchers. The power tracked and tapered as expected. Another finding that merits further research is that although internal community college leaders find themselves as possessing power and legitimacy, they may still find themselves at the mercy of external entities imposing and deciding what is measured, tracked and reported regarding community college student labor market success.

***Conceptual Framework.*** The findings in this study connect to the conceptual framework, as it brings to the fore the two viewpoints that give meaning to a definition of community college student labor market success. The conceptual framework consisted of all the aspects of the study (Figure 1.1). The findings revealed that most participants loaded on Viewpoint I, regardless of the leader role, geographic location, economies of labor market, or stakeholder salience. These

demographic aspects did not give context to resulting perspectives since most leaders participating in this study held Viewpoint I. However, these ideas should still be included as "economies of labor market," "stakeholder salience," and other demographic aspects acknowledge the need to consider other contextual variables that may be important in other studies (Minaya & Scott-Clayton, 2022). In order to enhance the conceptual framework, one could look to Gregory Haile's speech: The Power of Proximity (2021), which examined three powers of proximity (physical, social, and financial) for access to community college education.

## Implications

In this section, three main implications are discussed to illustrate why and how these viewpoints matter to the creation of student success frameworks, practitioners, and policymakers.

**Student success framework developers.** Presently, student success frameworks like the Volunteer Accountability Framework include labor market dimensions titled "labor market outcomes," "workforce development," "post-graduate measures," "Exit point outcomes," "External Measures," and more, yet there are no more layers/dimensions within these large overarching ideas, with a couple exceptions. For example, Mullin (2012) broke down "workforce metrics" into earnings, pass rates, and employment. Overall, the labor market success/outcomes dimensions shown in student success frameworks could be more extensively developed, with distinctive dimensions and comprehensive measures as illustrated in the framework present in this study.

***Apply Stakeholder Theory.*** A second refinement to current frameworks would be to use the descriptive, instrumental and normative tenets of stakeholder theory during framework development. Using stakeholder theory would prompt a complete description of the community college stakeholder network, and their interests as they relate to community college student labor

market success goals, while community colleges are "sensitized to their moral actions with respect to each stakeholder" (Mitchell, Agle & Wood, 1997, p. 880). Overlaying stakeholder theory onto framework development would enable a more systematic approach to designing the measures that represent student labor market success. Furthermore, stakeholder theory combined with stakeholder salience could be used to mitigate against stakeholder bias by exposing the stakeholder perspectives that are more emphasized and prioritized or conversely, exposing perspectives that are not being heard and seen.

Frameworks help shape and form ideas. This study provided one way to frame community college student labor market success. Findings from this study provoke questions that could be useful during labor market success framework development. (1) Who are the stakeholders that should inform community college student labor market success measures? (2) What are the individual stakeholder interests and saliency as it relates to student labor market success goals? (3) How are measures phrased and do measures communicate the college's espoused values and beliefs? (i.e., are we looking at equity?) (4) Where do biases exist? Or whose perspective has been overlooked? And (5) In what ways do these measures report on student impacts, college/institutional performance, and employer satisfaction?

These insights may empower framework developers to assert how their community college student labor market success is nuanced compared to other institutions. Further, these insights provide initiative to assess and/or modify the current definitions/frameworks of labor market success at community college, systems, and philanthropic levels.

***Flexible Frameworks***. As the literature showed, there is no one-size fits-all framework for labor market success. Even within this small group of 22 participants there were two distinctive viewpoints. Knowing these divergent viewpoints can inform the framework

development process by building in flexibility so that different colleges or community college systems can account for their local or state nuanced labor markets, stakeholders, programs and institutions (The Higher Learning Commission, 2018). The framework developed in this study could serve as a starting point for thinking about broader ways to measure the impacts of community college education on labor market success outcomes. Statements included in each category generated from this work could be changed and worded to align with the values and missions of different institutions. For example, within the set of 30 measures in this study, statements denoting successful earnings were phrased in different ways. For example, "Moving out of poverty status" and "earning livable sustainable wages" were highly important and more meaningful than simply saying "wages 1-3 years post-graduation."

**Community College Leaders.** To build on the previous implication, findings from this study have implications for different practitioner groups who participate in carrying out community college labor market success goals. From the viewpoints, we can see what a diverse group of community college leaders in North Carolina believe to be important and unimportant as it relates to community college student labor market success. For example, most on-campus leaders in this study put strong emphasis on employer satisfaction, as well as the perspective that community colleges are instruments for regional economic development, while leaders holding the second viewpoint believed student economic mobility was the best definition of labor market success, and employers were not seen as an important indicator.

***Align priorities and determine emphasis*.** Individual colleges could use findings to engage in discussions about where they are placing priorities and emphasis and whether it is aligned with their program, sector, and student strategic plans(Eddy et al, 2021). Furthermore, conversations about connecting values to strategies, to desired outcomes, and measures can lead

to better implemented strategic plans (Eddy et al, 2021). The findings from this study should also be used to engage in productive dialogue between community college governance entities and the colleges to ensure cohesiveness in strategic planning. For example, the findings reveal a bias towards employer satisfaction, which could have implications for strategic planning at the state level. For example, if the emphasis on employers is misplaced, then training is needed to balance those perceptions and improve cohesiveness between state and schools about the reliance on employer perceptions. Alternatively, if employer emphasis is the current model of thinking, these findings could serve as confirmation that the system message is being implemented.

Also, findings could be used to help with strengthening definitions of student success. For example, transfer was not considered a labor market success outcome, but it is a part of student success. Findings such as this one, could help the community college system, and state and local schools to think about how they are parsing out aspects of student success and what the definitions of success are for those different goals (e.g., transfer, completion, labor market success for different types of students).

Eddy et al (2021) found that many strategic plans written by community colleges in North Carolina lack specifics on how their aspirational goals were being met through specific metrics and that little was provided on how steps for implementing the identified goals. The framework generated in this study could be used as a starting point for community college leaders to use a framework for connecting labor market goals to measures, and from there create a way to connect goals with measures and action. Additionally, the framework that was generated, could be used by the community college system to quickly ascertain opinions about what is important to community colleges regarding community college student labor market

success, and from there, actions, plans, and policies could be created and implemented with greater fidelity.

***Explore definitions and values.*** Similarly, community college leaders could use the two viewpoints to engage in discussion about how beliefs compare with required reporting documents such as, the North Carolina Community College System's foremost accountability document, "The Performance Measures for Student Success Report." For example, measures about transfer were not seen as important measures of labor market success by leaders in either viewpoint or were viewed as "beyond the scope." However, transfer is a main component of the missions of most community colleges as well as for the North Carolina Community College system, which is evidenced in policies such as the new articulation program for teacher preparation programs between the North Carolina community college and university system (NCCS, 2021). The view that transfer is not an indicator of labor market success to participating leaders in this study, could be compared with the beliefs of governance structures, like the State Board of Community Colleges and the North Carolina Community College System. Again, engaging in discussions about discrepancies in definitions at all levels may help align beliefs and values within the state's system.

To build on the previous point. As community colleges continue to align program areas with filling industry supply and demand needs, findings from this study (framework and viewpoints) could be used to reimagine the North Carolina system's overarching mission statement or could be compared with the mission statement to see if expansions or modifications could be made. The current mission statement could use more precise language informed by community college leaders' and researchers' definitions of students' well-being. The labor market success framework in this study included a category for "Individual Well-being" broken

into two parts, economic and education and skill. Maybe these ideas could be used to more purposefully define well-being in the mission statement as shown below:

> The mission of the NC Community College System is to open the door to high-quality, accessible educational opportunities that minimize barriers to post-secondary education, maximize student success, develop a globally and multi-culturally competent workforce, and improve the lives, ~~and well-being~~ **skills, and economic capacity of individuals** by providing: education, training and retraining for the workforce, including basic skills and literacy education, occupational, and pre-baccalaureate programs; support for economic development through services to and in partnership with business and industry and in collaboration with the University of north Carolina System and private colleges and universities; and services to communities and individuals which improve the quality of life.

The viewpoints gained from participants in this study draw on extensive expertise and knowledge about community college student labor market success goals. Understanding how on-campus leaders prioritize and rank measures can speak to the prevalent thinking within the system and how that reflects or contrasts with system goals and values.

**Policymakers**. Creating efficient and equitable policies to achieve student success goals is challenging. As definitions of success continue to include the post-graduate outcomes of students, findings from this study add knowledge and perspectives about post-graduate success in three ways. First, the framework and viewpoints from this research could be used to inform the development of community college scorecards for North Carolina. Second, findings can be used to engage in productive dialogue about strengthening strategic planning and cohesiveness between state and individual schools. Third, the framework and findings could be used to add

perspectives and enhance discussions about high stakes accountability policies, like performance based funding.

***Flexible scorecards.*** In particular, the framework and findings from this study could be used to inform the development of a community college scorecard for North Carolina. The two viewpoints could be used to argue for flexible scorecards with broader definitions of labor market success that account for the different ways in which community college leaders believe they should be evaluated. A scorecard using broader definitions beyond average wage earnings and employment rates and including the nuanced disaggregated ways of looking at wages and employment measures, give policy makers a fuller view of the impacts of participation in community college education. For example, leaders in this study found it important to use comparative wage earnings for completers versus non-completers and community college graduates' earnings compared to high school and four-year colleges. Carnevale, Cheh and Van der Wert (2021) found community colleges have higher return on investment in the short-term (10-year horizon), compared to other four-year and private college options, using their Net Present Value calculation. More and better data will give students better information for decision-making.

Furthermore, broader and nuanced data helps policymakers create more targeted student success policies. Building on this point, this research sheds light on current researched perceptions of student labor market success, not anecdotal ones. Policymakers should therefore use these viewpoints as lenses to explore how to balance policy to attend to the community college-employer dynamic, while caring for the long-term well-being of the students.

***Performance based-funding policy.*** More states are tying funding to post-graduate outcomes, this framework and findings could be used to strengthen the argument for broadening

definitions of post-graduate labor market success to avoid the one-size-fits all mindset. Issues with high-stakes accountability policies, such as performance-based funding, happen when schools used an institution wide wages metric of performance. This would be harmful for schools that are positioned in low performing counties, or train in low wage fields that are still meaningful and needed in the labor market. Moreover, community college leaders ranked short-term and other wage data of high importance, but states and community colleges should be cautious about designing funding models where wages are only important. Again, some community college credentials may meet community labor market demands, while not being high wage jobs. Therefore, findings from this study can be used to support performance-based policies that consider different perceptions of labor market success and argue against single wage metrics as the best performance measure.

A current example would be Leaders in Viewpoint II believe a sustainable living wage is extremely important towards demonstrating labor market success. According to myFurture NC (2020), a family supporting wage in NC is considered 300% more than the federal poverty level. The federal poverty level for a one-person household is $12,880 (excluding Alaska and Hawaii). Therefore, a supporting wage for one person in North Carolina would be 12,880 multiplied by 300%, which equals $38,640. However, some jobs in social service sectors, or in other professions (i.e., preschool teachers) may not rise to the level of “family supporting” wage, however, we need students to continue to complete degrees in these lower wage fields. NC Tower, the data dashboard for the NC community colleges, shows that students completing certificates in the 2015-2016 year have a mean wage of $30, 346 and median wages of $29, 596. Kindergarten through grade twelve (K-12) teachers in North Carolina barely earn a sustainable living wage in the first three years of teaching. Given the new articulation agreement between

North Carolina Community Colleges and North Carolina Universities to educate prospective NC teachers to meet teacher supply and demand issues in NC, begs the question how policy leaders will determine labor market success, when a short-term wage metric would not suffice. Continued recognition of the number of low wage high needs jobs may also consequentially provide justification for policy makers to raise wages.

In general, as policymakers seek to understand how to improve student success of community college students, they could use these findings to engage in initial discussions about the alternative thinking of some leaders on the topic and apply this knowledge to the policy decision-making process. Also, findings reinforce the ideas that demonstrating success through program and specific wage data in consideration of the unique characteristics of each school is necessary for understanding the true contribution community colleges make to their communities.

## Future Research Directions

This study could be reimagined for future research in several ways.

**Labor market success framework development.** Researchers could build on this work by creating two models of thinking about labor market success based on the two viewpoints in this study and ask community college leaders the extent to which each model exemplifies their thinking. Future research could examine the factors or influences that led to leaders' responses about the important and unimportant measures. The post-sort questionnaire briefly asks why they sorted the extremes (+4 and -4), future research could explore more about the why and create a typology of the factors influencing leaders' mindsets.

Another idea would be to work with one or two categories, for example wages, and list all the possible ways to phrase measures of wages and ask community college leaders, or students to narrow down the desired phrasing to exemplify earnings success.

Another limitation in this study is that a labor market theory was not used to ground the development of the framework. Future research could use labor market theory to strengthen framework development to refine or add categories as needed to develop more reliable flexible frameworks for understanding community college labor market success.

These measures were mainly generated from past literature, but other measures could have been added, current ones modified or removed. Another study could continue with the broader categories—Employment, Community Contribution, Individual Well-being and Workforce Readiness—but refine or change the sub-categories and associated measures. For example, ideas of equity may not have been given enough attention in this study. Eddy et al (2021) would agree that community colleges need more focus on equity in their strategic plans. There were several measures that spoke to issues of equity, but more needs to be done to enhance a dimension of equity in this framework. Ensuring that labor market success measures reflect ideas of equity by listing more statements that disaggregate data by gender, age, race/ethnicity, or socioeconomic status could be added into each category.

**Use for other methods.** One limitation in Q studies is the small sample sizes. Future research could ascertain more opinions about community college student labor market success by converting the Q sort into a survey and sending it to the whole community college system to quickly understand system-wide, how important each measure is in demonstrating labor market success. Additionally, the framework could be used to guide the development of a qualitative questionnaire for interviewing different stakeholder groups.

**Reimagine the study: new contexts, locations, and stakeholder groups.** Researchers could conduct this same study in new contexts, locations, and stakeholder groups. This study sought to gain perspectives from a diverse group of geographically dispersed on-campus community college leaders who have knowledge and can inform the topic of community college student labor market success. Future studies could administer this same Q study but with one specific position title to explore if different viewpoints exist within certain positions (i.e., presidents, institutional researchers, vice presidents or workforce and economic development). Similarly, a future study could target community colleges in a particular region or prosperity zone. Moreover, a future study could solicit viewpoints from community colleges leaders positioned in rural and urban areas and compare results. Additionally, this same Q-sort could be administered within other community college systems to see how beliefs about student labor market success compare across community college leaders positioned in different states. A future study could also be administered with the same group of participants from this study three years later to see if thinking has changed, and if so, asking what influenced their change in thinking.

There is a myriad of stakeholders who participate in carrying out the workforce development and student success goals for community colleges. The Q sort could be administered to the State Board of Community Colleges, leaders serving on the 23 workforce development boards, the North Carolina Community College Systems Office, or to other governing entities to explore their viewpoints on the topic of labor market success.

Another unanswered question in this study is the impact the labor market health of a local region has on leaders' thinking about how community college labor market success should be demonstrated. Likewise, future researchers could group selected schools based on county labor market health, or missions, or regions to explore whether these categorizations have impact on

beliefs about labor market success measures. Carnevale, Cheh and Van de Wert (2021) note in their report on the return on investment to education, “there are geographically specific earnings variations” (p.21). They state that rural and urban settings would have different forgone earnings. They explained that they could not account for these differences in there, but it is important to bring attention to these differences for students to consider.

Labor market health could also be defined by the three powers of proximity. One could look to Gregory Haile’s speech: *The Power of Proximity* (2021), which examined three powers of proximity (physical, social, and financial) for access to community college education. An assessment of each college based on their three powers of proximity could be tied to labor market outcomes of students. This may show the connections between equity in terms of access and equitable student labor market outcomes.

**Availability and accessibility of data.** Data and availability of data was not covered in this dissertation. The purpose was to ask leaders in this study to rank and sort measures important in defining student labor market success as if they had no constraints. I wanted to access the true viewpoints towards measures of labor market success. However, this is another area for research. Future research could look deeply into the issues of how community colleges, especially small colleges with less resources, handle tracking and reporting various types of data as well as their accessibility to data, and why it seems an impossible challenge. An article from Inside Higher Ed (Weissman, 2021) reported that although community college was to collect more and better data on their students, community colleges face obstacles. Weissman states that survey results showed financial obstacles to be a barrier to access more and better data. The survey also revealed “about 90 percent of campus leaders reported that accreditors majorly

influenced their data collection practices, and 81 percent felt the same way about their state education department or college system" (para 12).

Future research could take this list of 30 statements or the most important ones and assess how well each of the 58 community colleges could track and report on these measures. Then examine the data challenges by school size, location (urban/rural), on other contextual characteristics to identify a typology of barriers and how to overcome them.

**Conclusion**

A review of literature about community college student labor market outcomes and models of student success using an inductive approach, led to a concourse of 136 statements that was condensed into a Q sample framework of 30 statements, which suggested that labor market success for community college students, in general, consists of four broad categories the researcher named: *Employment, Community Contribution, Individual Well-being and Workforce Readiness*. The consensus found in the literature is that labor market success outcomes data must be measured in order to fulfill transparency, improvement, and accountability demands across the community college education system.

Twenty-two on-campus community college leaders sorted the 30 statements into a forced distribution Q-sort tool on a scale of importance, ranging from most important (+4) to most unimportant (-4). Nineteen of the 22 participants loaded onto two factors resulting in different sets of defining statements. Viewpoint I: *Employers are Our Top Priority*, consisted of 16 (73%) of participating leaders; and Viewpoint II: *Graduates' Economic Well-being is Our Top Priority* consisted of 3 (14%) of participating leaders. Three leaders did not significantly load on either factor. In general, leaders holding *Viewpoint I* emphasized the importance of the employer-community college relationship and focused on measures related to workforce readiness and

employer satisfaction, while leaders holding *Viewpoint II* emphasized the student experience, program efficacy and focused on measures related to their long-term economic well-being. Leaders' responses in the post-sort questionnaire, overall, revealed a need to communicate community college value to its community of stakeholders through comparative measures like outcomes for completers versus non-completers, and community college outcomes versus other education pathways outcomes. Leaders agreed that employment, and wage earnings were most important, while aspects of the community contribution category, such as transfers' outcomes, were not. Q Methodology was a worthwhile approach to explore the viewpoints of 22 on-campus community college leaders towards 30 measures of community college student labor market success. The method allowed the researcher to quickly ascertain viewpoints on the topic, and it forced leaders to decide on the measures most important and unimportant to them.

The study also investigated the leaders' self-perceptions of stakeholder salience based on three attributes (power, legitimacy, and urgency). In general, stakeholder salience survey showed, leaders reported medium to high levels of power and legitimacy, and predominantly medium levels of urgency. As expected, presidents reported higher levels of all three attributes than other leader groups. In general, these findings mirrored the previous categorizations found in the literature. However, executive leaders, community college and/or governing entities should continuously check stakeholders' self-perceptions of salience against their perceptions to ensure all stakeholders feel their voice and interests are included. Alignment is such perceptions is likely to promote morale and improve the social and economic expectations and duties to and among them. Findings from this study shed light on how Stakeholder theory can deepen framework development, by ensuring all important stakeholder voices are given attention and stakeholder biases are understood.

Findings show that most leaders in this study prioritize employer satisfaction and communicating community college value. As previous literature suggests, the call to collaborate with external stakeholders, such as business and industry/employers has been a long-time strategy community college have used to ensure that an education-to-workforce pipeline exists and is promising. However, stakeholder theorists may warn community colleges be cautious of an instinct to maximize employer interests so much that it monopolizes or morally impacts how the organization acts in favor of them. Strongly prioritizing employer satisfaction is logical and necessary as the research and responses from the questionnaires in this study suggest; and as the research suggests, there are no current quality standards that measure what is meaningful for the changing nature of the education to work relationship and accreditation is not enough. It is evident that leaders in this study defer to employers as perhaps accreditors of labor market success. Although logical, these priorities still raise questions: How might this bias impact policy and community college level decisions? Or should employers be the formal accreditors of labor market accountability as the Southern Association of Colleges and Schools Commission on Colleges is the accreditor to learning accountability?

Community colleges should carefully consider the values, beliefs and interests that motivate their definitions of student labor market success. Community college should keep in mind that measures should communicate the espoused value and beliefs upon which community colleges intend to operate. Additionally, community colleges should keep in mind broader definitions of labor market success. This study sheds light on some of these overlooked, but potentially valuable measures and provides some support for why community colleges should incorporate different or alternative measures of labor market success. Community college student labor market success measures be viewed as more than measures, but rather a set of deeply held

beliefs that guides and impacts the work and decisions of all who are included in the broad network of stakeholders.

My study contributes to the literature by adding two distinct viewpoints from a diverse group of knowledgeable and experienced community college leaders and supports the ideas that community colleges should develop flexible frameworks that encompass broader definitions of labor market success, which can be used to more fully fulfill the transparency, improvement and accountability demands of the diverse stakeholders invested in community college labor market outcomes.

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# APPENDICES

## APPENDIX A: SEMI STRUCTURED INTERVIEW PROTOCOL FOR CONCOURSE DEVELOPMENT

1. How important are community college student labor market success measures to your organization?
2. It seems there has been a shift in focus on the labor market success of students participating in community college education or education in general. Do you have a sense of why this shift has happened?
3. What are the labor market measures that you currently track and report?
4. Removing all resource constraints from your mind, what are any other labor market success measures that you can think of that would be desirable to track?

**APPENDIX B: INVITATION TO PARTICIPATE IN THE STUDY EMAIL**

Date: [Date]
To: [Participant Name]
From: Laurie Brummitt
Re: Inviting you to participate in a research study on the important labor market success measures of community college students

Good Morning/Afternoon [Title Last Name],

My Name is Laurie Brummitt. I am inviting you to participate in my dissertation research. My dissertation is focused on community college student labor market success. The purpose of this study is to uncover the viewpoints on-campus community college leaders have about the important labor market success measures needed to best demonstrate the labor market success of their students. Your important perspective will contribute unique insight into this topic and will be useful for the study of community college student labor market success in North Carolina and beyond.

I am conducting the study as I work to complete a Ph.D. in Workforce and Human Resource Education at North Carolina State University. I would really appreciate your feedback as I enthusiastically look forward to completing my degree!

Participation involves a convenient online statement sorting activity called a "Q-Sort" and a brief post-sort survey that will all take approximately 30-35 minutes to complete.

The sorting activity and post-sort questionnaire are all done by using a drag and drop online application housed on my password-protected Q Method Software account. It is convenient and can be completed at a time in your day that is most opportune for you.

The NC State University Institutional Review Board has approved this study. If you are so kindly willing to participate in this study, please reply to this email or email me at lcbrummi@ncsu.edu and I will send you the link to this study along with your unique participation code. If you choose to participate, please know that you may withdraw from this study at any time. Your participation is voluntary.

If you cannot participate but can recommend colleagues from within your department/college or other colleges, I would greatly appreciate that as well.

Thank you kindly for your time,

Laurie

**APPENDIX C: AGREED TO PARTICIPATE/STUDY LINK EMAIL**

Thank you for the quick response! I am so thankful for your participation and support. Your feedback is invaluable.

1. Please click on this link to begin the study: study link
2. When prompted, please use your unique participation code: *******
3. Please complete by 11:59 pm on Date and Year. --if you need more time, let me know.
4. It's best to use a laptop or desktop

Attached, you will find directions with screenshots to walk you through the Q-sort process. It is not necessary that you use them. They are only there if you need them. I am also available if you have any questions about the study or technology (lcbrummi@ncsu.edu)

**Note**: It is important to read the instructions carefully once in the study. Q Method software makes the Q-sorting activity easy for you, but it is important to give your full attention so that the Q-sort you submit reflects **your personal viewpoint** accurately.

All the best and happy sorting,

Laurie

## APPENDIX D: IRB CONSENT FORM

**North Carolina State University**
**Adult Informed Consent Form**

**Title of Study:** Surfacing Viewpoints of On-campus Community College Leaders in North Carolina: A Q Methodology Study of Community College Student Labor Market Success Measures **(eIRB #** 20494
**Principal Investigator:** Laurie Brummitt, lcbrummi@ncsu.edu, 919-428-0954
**Funding Source**: None
**Faculty Point of Contact:** Diane Chapman, diane_chapman@ncsu.edu, and 919-593-4872

**What are some general things you should know about research studies?**
You are invited 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 research study is to gain a better understanding of the phenomenon being examined. We will do this through Card Sorting Activity.

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 it helps to add to current research about the phenomenon being examined. You may not want to participate in this research because if presents some type of conflict of interest, which is unforeseeable at this time.

Specific details about the research in which you are invited to participate are contained below. If you do not understand something in this form, please 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 in this research, do not hesitate to contact the researcher(s) named above or the NC State IRB office. The IRB office's contact information is listed in the *What if you have questions about your rights as a research participant?* section of this form.

**What is the purpose of this study?**
The purpose of the study is explore the viewpoints of on-campus North Carolina community college leaders about the types of labor market success measures believed to be most important towards demonstrating student labor market success. The aim is to find out how different types of labor market success measures are perceived to be important to participants as to identify groups of perspectives that will highlight distinguishing factors of these viewpoints.

**Am I eligible to be a participant in this study?**
There will be approximately 20-29 participants in this study.

In order to be a participant in this study, you must agree to be in the study and hold one of these on-campus North Carolina community college leader positions at one of the 58 community colleges within the North Carolina Community College System: (1) Community College

Presidents; (2) Chief academic officers; (3) directors/ deans of institutional research; (4) directors/deans of workforce development; (5) workforce development grants coordinators.

You cannot participate in this study if you do not want to be in the study or if do not hold one of these positions in the state of North Carolina stated above.

**What will happen if you take part in the study?**

If you agree to participate in this study, you will be asked to do all of the following:

1. Participate in either an online or face-to-face card sorting activity that asks you to rank and prioritize statements about community college student labor market success. This could take from 45-60 minutes to complete. text>
2. Once the card sorting activity is complete, you will be given a brief post-sort questionnaire that asks questions about your sorting choices, as well as a bit about who you are and your position. If participating through the online software, this will be an online survey. If face-to-face, this will be a brief paper-based questionnaire. This may take approximately 10 minutes to complete.
3. Once data analysis is complete, you may be selected to participate in a short phone or Zoom interview, at the participant's discretion, to deepen an understanding of resulting viewpoints. For those selected, this interview should approximately 30 minutes to complete.

The total amount of time that you will be participating in this study is 55-70 minutes. If asked to participate in item 3, the amount of time could be 75-90 minutes, total. .

## Recording and images

As a part of this research, I would like your consent to audio record you. The only time that audio recording will take place, is if you are selected for the post-analysis interview (item #3 above). Please initial next to the sentence(s) that you agree to.

_____I consent to being audio recorded.

_____I do not consent to being audio recorded

## Risks and benefits

There are minimal risks associated with participation in this research.

Aside from adding to the body of knowledge about community college student labor market success and having access to the findings of the study, there are no direct benefits to your participation in the research. Indirect benefits, include providing a space for participants to enjoy thinking about, reflecting on, and expressing their own opinions on this topic.

## 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 by emailing Laurie Brummitt, lcbrummi@ncsu and simply state that you would like to withdraw from the study. If you choose to withdraw your consent and to stop participating in this research, you can expect to that any data collected from you will be deleted or shredded and removed from any place in which it was recorded, followed by a confirmation email that this has be completed.

## Confidentiality, personal privacy, and data management

Trust is the foundation of the participant/researcher relationship. Much of that principle of trust is tied to keeping your information private and in the manner that we have described to you in this form. The information that you share with me will be held in confidence to the fullest extent allowed by law. Protecting your privacy as related to this research is of utmost importance to me>.

How we manage, protect, and share your data are the principal ways that I protect your personal privacy. Data generated about you in this study will be de-identified.

> **De-identified**. De-identified data is information that at one time could directly identify you, but that I have recorded this data so that your identity is separated from the data. I will have a master list with your code and real name that I can use to link to your data. While I might be able to link your identity to your data at earlier stages in the research, when the research concludes, there will be no way your real identity will be linked to the data I publish.

Data that will be shared with others about you will be de-identified as, results will only be presented in the aggregate or if sharing individual results with dissertation committee members, only participant codes will be used.

**Compensation**

You will not receive any compensation for participation in this study.

## 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 researcher, Laurie Brummitt, lcbrummi@ncsu.edu, 919-428-0954. Also, Diane Chapman, diane_chapman@ncsu.edu, 919-513-4872.

**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. An IRB office helps participants if they have

any issues regarding research activities. You can contact the NC State IRB Office via email at irb-director@ncsu.edu or via phone at (919) 515-8754.

## Consent To Participate

By signing this consent form, I am affirming that I have read and understand the above information. All of the questions that I had about this research have been answered. I have chosen to participate in this study with the understanding that I may stop participating at any time without penalty or loss of benefits to which I am otherwise entitled. I am aware that I may revoke my consent at any time.

Please select “I AGREE” if you consent to research

OR select “I DO NOT AGREE” if you do not consent to research

## APPENDIX E: INSTRUCTIONS OVERVIEW

*Thank you for your willingness to participate in this study!*

**The purpose of this study is to determine the viewpoint you, as a North Carolina community college leader, have about the measures needed to understand the labor market success of your community college students.**

In order to understand your viewpoints, you will be asked to:

1. Pre-sort 30 statements about student labor market success.
2. Place the 30 sorted statements on a response grid.
3. Participate in a post-sort questionnaire.

Note: Specific directions are provided for each step in their individual section. Please read carefully. Thank you!

*A reminder: Your responses will be de-identified. Therefore, all personal identifiers will be removed before making any published quotes or responses anonymous.*

**APPENDIX F: PRE-SORT INSTRUCTIONS**

1. Read through all 30 labor market success statements on the cards below (scroll down to see statements).

2. Next, sort the statements into three piles (important, neutral, and unimportant) by clicking the icon that aligns most with your view about that labor market success statement.

- thumbs up = important
- thumbs down = unimportant
- question mark = neutral, mixed feeling about, or not sure about

Tips for pre-sort:

- You can put any number of cards in each pile, just make sure that you are true to how you feel about the statements.
- There are no right or wrong answers.
- Continue sorting into these three piles until you have no items remaining.
- Don't worry if you feel you have made a mistake, you will have another opportunity to make changes in the final step.

3. After you have made your selections for each statement, you will automatically be taken to the "Final Sort" page.

**IMPORTANT: On the "Final Sort" page,** please click on the blue question mark ( **?** ) for the final set of directions. Please read the directions carefully before placing the statements on the grid.

## APPENDIX G: FINAL SORT INSTRUCTIONS

You should have statements sorted into three piles. If your initial sort leaves you with uneven piles, that is okay, it just means you must move some of your original selections to another category in this final step. Please make sure your adjustments continue to align most with your views.

*****Consider the following instruction while sorting the statements on the response grid:**

*From **your perspective*** as a community college leader, sort the following labor market success statements that you believe are the ***Most Important to Most Unimportant*** measures needed to demonstrate the labor market success of your students.

**For this final sorting step,** you are working to place the cards from the outside of the distribution grid towards the neutral position until all cards are placed.

1. From the pile on the right (most important pile), *drag and drop* the 2 cards that you perceive as most important in the far right column under +4 on the grid and the next 3 most important cards under the +3 column, in any order.
2. Next, from the left pile (most unimportant pile), *drag and drop* the 2 cards that you perceive as most unimportant in the far left column -4 and the next 3 most unimportant cards under -3, in any order in the column.
3. Now, from the pile on the right (most important pile) choose 3 cards that represent the most important statement and place these under the +2 column, in any order. From the pile on the left, choose the next 3 cards that represent most unimportant and place under the -2 column, in any order.
4. Continue to follow this pattern as you work your way to the neutral center of the distribution.
5. You may change your mind and switch items around as long as **selections are made for each space on the grid.** You can also "Reset Q Sort" completely if you wish to start over.
6. Once you are done placing the cards on the distribution grid and feel that your selections reflect your perspective about student labor market success, hit the green check ( ✅ ) to submit.
7. Then, you will be prompted to complete the final section, the Post-Sort Questionnaire.

Thank you for your participation!

## APPENDIX H: POST-SORT QUESTIONNAIRE

**Section I**

1. Consider the two statements you placed in the +4 “Most Important” column. Why did you select these as the most important?

2. Consider the two statements you placed in the -4 “Most Unimportant” column. Why did you select these as the most important?

3. Were there any labor market success measure that you feel were not listed here? If so, please list them here and explain their importance to you?

4. Which statements were the most difficult to place? Why?

5. Which statements were the easiest to place? Why?

**Section II**

1. Age (yrs): ☐ 25 and under ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ 56-65 ☐ Over 65

2. Gender: ☐Male ☐Female

3. Education: ☐High School ☐Bachelor ☐Master ☐Doctoral ☐Other_____

4. Race/Ethnicity: ☐African-American/Black ☐Asian ☐Caucasian ☐Hispanic

☐Native American ☐Multi-racial/Multi-ethnic ☐_____

5. What is your position? _____

6. Is your college characterized as ☐ small ☐ medium ☐ large

7. What County is your community college located? _____

8. Experience in yrs in current position): ☐Less than 1 ☐1-5 ☐6-10 ☐11-20 ☐Over 20

6. Experience in yrs in NC community college system): ☐Less than 1 ☐1-5 ☐6-10 ☐11-20 ☐Over 20

**APPENDIX H CONTINUED: POST-SORT QUESTIONNAIRE**

**Section III**

This section is to understand how much you, as internal community college stakeholders, influence or are influenced by the activities of your community college. In your opinion, select the amount of (1) power, (2) legitimacy, and (3) urgency you feel you have with respect to the labor market success measures that you/your community college is responsible for tracking and reporting. Make a selection on the scale for each category.

Power means the degree to which you have influence over the labor market success measures that your community college tracks and reports. Rate your level of power

☐ Little

☐ Some

☐ Significant

Legitimacy means the degree to which your community college considers your interests about student labor market success as valid/legitimate. Rate your level of legitimacy.

☐ Little

☐ Some

☐ Significant

Urgency means the degree to which your community college gives the necessary immediate attention that it should (even if it currently does not) to student labor market success. Rate the level of urgency.

☐ Little

☐ Some

☐ Significant

# APPENDIX I: CORRELATION MATRIX

| Participant | 8T5NK | O841LR | WKT5 | Z16L3WFE | Y1JEX | 12U722E | QX9WE | TSPS | 5SN9 | JWTKY | INZTUF | HT5XXGO | EEZ4YJP | 5YO2ZN | OUUC5 | JW8R | Y8FC | 797598 | 4Q0VLLI | 1E2NO | 1CV0UC | VX2N6NI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8T5NK | 100 | 34 | 39 | 19 | 17 | 2 | -15 | 12 | -13 | -1 | 28 | 31 | 10 | 3 | 45 | 11 | 35 | 24 | 55 | 12 | 33 | -12 |
| O841LR | 34 | 100 | 36 | 25 | 24 | 19 | 45 | 39 | 17 | 27 | 30 | 17 | 31 | 27 | 22 | 18 | 45 | 29 | 39 | 54 | 30 | 11 |
| WKT5 | 39 | 36 | 100 | 20 | 24 | 7 | -13 | -17 | -21 | 7 | 13 | 8 | -5 | -22 | 9 | -22 | 29 | 10 | 28 | -3 | -5 | 20 |
| Z16L3WFE | 19 | 25 | 20 | 100 | 13 | 7 | 14 | -7 | 1 | -9 | 18 | -16 | 9 | 7 | 16 | -24 | 33 | -12 | 17 | -9 | 9 | -31 |
| Y1JEX | 17 | 24 | 24 | 13 | 100 | 3 | 33 | 18 | 27 | 43 | 19 | 2 | 17 | -1 | 19 | 11 | 30 | 28 | 27 | 15 | 40 | -5 |
| 12U722E | 2 | 19 | 7 | 7 | 3 | 100 | 19 | 3 | -11 | 30 | 47 | 11 | 11 | 5 | 35 | 37 | 40 | 31 | 13 | 28 | 14 | -3 |
| QX9WE | -15 | 45 | -13 | 14 | 33 | 19 | 100 | 25 | 35 | 35 | 33 | 21 | 29 | 21 | 31 | 16 | 35 | 21 | 24 | 41 | 41 | 4 |
| TSPS | 12 | 39 | -17 | -7 | 18 | 3 | 25 | 100 | 31 | 41 | 23 | 7 | 21 | 37 | -4 | 57 | 45 | 27 | 13 | 37 | 62 | -13 |
| 5SN9 | -13 | 17 | -21 | 1 | 27 | -11 | 35 | 31 | 100 | 28 | -7 | 2 | 9 | 18 | 20 | 6 | 6 | 32 | 6 | 2 | 18 | -3 |
| JWTKY | -1 | 27 | 7 | -9 | 43 | 30 | 35 | 41 | 28 | 100 | 42 | 43 | 45 | 23 | 21 | 60 | 44 | 43 | 40 | 47 | 59 | 27 |
| INZTUF | 28 | 30 | 13 | 18 | 19 | 47 | 33 | 23 | -7 | 42 | 100 | 19 | 61 | 23 | 41 | 41 | 61 | 17 | 37 | 48 | 46 | -9 |
| HT5XXGO | 31 | 17 | 8 | -16 | 2 | 11 | 21 | 7 | 2 | 43 | 19 | 100 | 8 | 41 | 29 | 41 | 13 | 41 | 53 | 30 | 25 | 23 |
| EEZ4YJP | 10 | 31 | -5 | 9 | 17 | 11 | 29 | 21 | 9 | 45 | 61 | 8 | 100 | 21 | 29 | 43 | 42 | 9 | 35 | 46 | 35 | -7 |
| 5YO2ZN | 3 | 27 | -22 | 7 | -1 | 5 | 21 | 37 | 18 | 23 | 23 | 41 | 21 | 100 | -1 | 41 | 37 | 14 | 15 | 21 | 24 | -5 |
| OUUC5 | 45 | 22 | 9 | 16 | 19 | 35 | 31 | -4 | 20 | 21 | 41 | 29 | 29 | -1 | 100 | 24 | 29 | 29 | 38 | 31 | 42 | -21 |
| JW8R | 11 | 18 | -22 | -24 | 11 | 37 | 16 | 57 | 6 | 60 | 41 | 41 | 43 | 41 | 24 | 100 | 45 | 37 | 38 | 49 | 54 | -5 |
| Y8FC | 35 | 45 | 29 | 33 | 30 | 40 | 35 | 45 | 6 | 44 | 61 | 13 | 42 | 37 | 29 | 45 | 100 | 13 | 45 | 49 | 57 | 7 |
| 797598 | 24 | 29 | 10 | -12 | 28 | 31 | 21 | 27 | 32 | 43 | 17 | 41 | 9 | 14 | 29 | 37 | 13 | 100 | 38 | 1 | 30 | 5 |
| 4Q0VLLI | 55 | 39 | 28 | 17 | 27 | 13 | 24 | 13 | 6 | 40 | 37 | 53 | 35 | 15 | 38 | 38 | 45 | 38 | 100 | 37 | 56 | 9 |
| 1E2NO | 12 | 54 | -3 | -9 | 15 | 28 | 41 | 37 | 2 | 47 | 48 | 30 | 46 | 21 | 31 | 49 | 49 | 1 | 37 | 100 | 47 | 16 |
| 1CV0UC | 33 | 30 | -5 | 9 | 40 | 14 | 41 | 62 | 18 | 59 | 46 | 25 | 35 | 24 | 42 | 54 | 57 | 30 | 56 | 47 | 100 | -23 |
| VX2N6NI | -12 | 11 | 20 | -31 | -5 | -3 | 4 | -13 | -3 | 27 | -9 | 23 | -7 | -5 | -21 | -5 | 7 | 5 | 9 | 16 | -23 | 100 |