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The “New” Normal: A Mixed Methods Study of the Effect of the COVID-19 Pandemic
on College Student Sense of Belonging

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A dissertation submitted to the Graduate Faculty of
JAMES MADISON UNIVERSITY

In

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Abstract

This mixed-methods study used the Culturally Engaging Campus Environments (CECE) model to examine the impact of the COVID-19 pandemic on college student sense of belonging. The purpose of this study was to explore how environmental changes related to the disruptive effects of the COVID-19 pandemic may have altered students' sense of belonging to their institution. The results revealed a strong relationship between the Culturally Engaging Campus Environments (CECE) engagement indicators and sense of belonging. Furthermore, the results suggest that the effects of the COVID-19 pandemic altered how students experienced the CECE indicators. The implications for change leaders in higher education and future research are discussed.

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CHAPTER ONE: INTRODUCTION

The COVID-19 pandemic will have a lasting effect on higher education in the U.S. In the spring of 2020, almost all college campuses transitioned to online instruction for at least a short time and the majority of colleges and universities adopted a primarily online or hybrid instructional model for the start of the 2020-21 academic year (The College Crisis Initiative, 2021). These shifts led to a drastic change in the campus environments for students. In addition to new virtual and hybridized instructional models, normal student life activities such as orientation, athletics, and social gatherings were canceled completely, went underground, or experienced radical changes in format due to new social distancing and capacity protocols. With no clear understanding of how the pandemic has reshaped higher education, colleges and universities must adapt to this “new” normal and consider the long-term impacts of the pandemic on student life in the traditional residential campus model.

One critically important impact of the COVID-19 pandemic is the major disruption of the existing residential campus environment. Opportunities for student involvement have changed drastically and faculty and staff are struggling to adapt to and find alternative ways to connect with students and make them feel supported. These changes have major implications for the sense of belonging of current college students. Put in simple terms, sense of belonging, as it relates to college students, has been described as feeling like a “member of the campus community”, and a “part of the campus community” (Locks, et al. 2008, p. 260). The phenomena of college student sense of belonging has been studied from both quantitative and qualitative methodological perspectives over more than 20 years, although rarely using mixed

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methodologies(Hurtado & Carter, 1997; Hausmann, et al. , 2007; Strayhorn, 2008b; Museus & Maramba, 2011; Strayhorn, 2011; Thomas & Teras, 2014; Museus & Saelua,, 2017; Museus, et al., 2018; Davis, et al., 2019).

Sense of belonging is important for several reasons. First, sense of belonging is a basic human need and a motivator of behavior (Maslow, 1954; Strayhorn, 2020). To paraphrase Strayhorn's (2020) theoretical framework of college student sense of belonging, if the college environment does not foster a sense of belonging, then higher-order functions critical to student outcomes such as self-actualization, creativity, and innovation are unlikely to be realized or "may become simply non-existent or be pushed to the background" (Maslow, 1954, p. 16). Second, research suggests that sense of belonging is a predictor of critically important student outcomes including persistence (Hausmann et al., 2007; Rhee, 2008) and academic achievement (Glass & WestmontGlass & Westmont, 2014).

Given the bleak outlook on overall college student enrollment trends over the coming decade – the result of longstanding demographic trends towards lower fertility rates and the tapering off of immigration rates(Grawe, 2018), it is important to note that research suggests a strong link between sense of belonging and persistence (Strayhorn, 2020). This is particularly timely because of the impending decline in the college-ready population that higher education will experience in the current decade, which will almost immediately follow the major decline in continuing student enrollment due to the COVID-19 pandemic (McGee, 2015; National Student Clearinghouse, 2020). Sense of belonging is an especially important factor for underrepresented student populations – a group of students that will continue to comprise a larger share of American college

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students (McGee, 2015; Strayhorn, 2018). According to Grawe (2018), “The distribution of college students across race/ethnicity will shift noticeably in the next 15 years. The share of non-Hispanic white and non-Hispanic black college students will closely follow shares in the 18-year-old population, falling approximately ten percentage points. Half or more of this reduced share is attributable to the five percentage point increase in the Hispanic share, with the remainder accounted for by smaller increases in the shares of Asian Americans and other students (pp. 53-54).

The ability to persist is obviously very important to the long-term success of individual students. However, persistence is also likely to become much more important for the success (and, for some, survival) of higher education institutions in the current era of declining tuition and fee revenue and the coming era of demographic change leading to shrinking enrollments and a more diverse student population (McGee, 2015; St. Amour, 2020). Unfortunately for the higher education field, the pandemic is stretching endowments as the financial impact of the pandemic is expected to be at least \$120 billion, while total enrollment in higher education dropped by over 500,000 students in fall 2020, although this number could rebound somewhat after the acute stage of the pandemic has concluded (Mitchell, 2020; National Student Clearinghouse, 2020).

Purpose and Rationale of the Study

Colleges in the U.S. have likely not ever experienced such an abrupt disruption to all aspects of campus life (world war two is the only possible exception). The pandemic quickly changed curricular, co-curricular, and extracurricular norms. Classes went online, sometimes with little ability for students to interact with faculty and peers in

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the “classroom.” Faculty moved office hours online. Summer internships, research projects, and lab work were canceled, postponed, or became virtual. Sporting events and even entire sports seasons were canceled. Student organizations and activities were largely canceled or adjusted to meet new capacity limits and social distancing protocols. Many students decided or were forced to study virtually and either went home or never started the traditional residential college experience. With a disruption of the campus environment and involvement opportunities on such a grand scale, it is essential to investigate the effect of the COVID-19 pandemic on student sense of belonging. It simply is not possible for higher education to return to the pre-pandemic “normal” because any attempt to return to the status quo ante will be colored by the immense changes the campus environment experienced. As a result, the relationship between students and their institutions has fundamentally shifted, necessitating change leaders in high education to guide effective organizational adaptations.

Existing research on college student sense of belonging borrows from Maslow’s (1954) hierarchy of needs to theorize that sense of belonging is a basic human need and a motivator of behavior. According to Strayhorn (2018), in terms of college, “sense of belonging refers to students’ perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g., campus community) or others on campus (e.g., faculty, peers) (p. 843).” A simple step-by-step explanation of this theoretical framework is: (a) sense of belonging begins as a cognitive evaluation of an environment, which can lead to (b) an affective response, which in turn may (c) influence behavior.

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The growing body of literature on college student sense of belonging has identified student demographic and campus environmental variables that predict sense of belonging. This chapter will briefly summarize the current literature to provide context for the study rationale and then explore the current literature in much more detail in chapter two. Demographic variables associated with predicting sense of belonging include race (Hurtado & Carter, 1997; Strayhorn, 2008d; Museus & Maramba, 2011; Museus et al., 2017), gender (Museus et al., 2017), and social class (Ostrove & Long, 2007). Researchers have operationalized environmental variables in various ways. For example, Museus (2017) created the Culturally Engaging Campus Environments (CECE) Model of College Success and used a combination of student inputs and the nine CECE constructs (broadly categorized into “cultural relevance” and “cultural familiarity”) to predict sense of belonging. Museus’ (2017) study found that six of the nine CECE engagement indicators were statistically significant predictors of sense of belonging. Since the current study uses CECE survey data for the quantitative portion of the mixed methods design, the CECE constructs are explained in much more detail in chapter two. Other environmental variables associated with predicting sense of belonging include participation in co-curricular activities (Glass & Westmont, 2014); and interactions with diverse peers (Strayhorn, 2008d).

Central to the rationale of this study is the notion that feelings of belonging can change over time. A student that felt a sense of belonging to their institution before the COVID-19 pandemic may not feel a sense of belonging now. According to Strayhorn (2018) “sense of belonging must be satisfied on a continual basis and likely changes as circumstances, conditions, and contexts change” p. 1074). In addition, research supports

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the view that sense of belonging is “largely malleable and susceptible to influence in both positive and negative directions” at all times (Goodenow, 1993b, p. 81). The pandemic has greatly changed the “circumstances, conditions, and contexts” of the normal campus environment. However, no research has investigated how these changes have affected student sense of belonging. The current study seeks to fill this gap by employing both quantitative and qualitative methods to develop a richer and more comprehensive understanding of this phenomenon.

Sense of belonging is closely related to student involvement (Strayhorn, 2018). According to Astin’s (1999) student involvement theory, student involvement simply “refers to the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1999, p. 518). Words and phrases that capture some of Astin’s intended meaning behind the student involvement construct include “to devote oneself”, “to engage in”, “participate in”, “show enthusiasm for”, and “take an interest in.” (Astin, 1999, p. 519). A more detailed analysis of student involvement theory is provided in chapter two, but I have provided some examples of student activities and behaviors typically associated with student involvement to help guide the introduction to the study. In summary, typical student involvement activities include curricular, co-curricular, extracurricular, and social activities such as “working on campus, living on campus, engaging with peers, being a member of clubs, and socializing with faculty members are the types of involvement typically measured under this theory” Wolf-Wendel et al., 2009, p. 411). Student involvement in co-curricular activities that fit Astin’s (1999) construct of involvement (i.e., participation in student organizations, leadership positions, and activity in campus residence halls” has a positive correlation

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with retention and academics (Kuh and Pike, 2005). Many of the actions and activities associated with student involvement are also predictive of sense of belonging – or at least they used to be. Again, central to the rationale of this study is the notion that sense of belonging must be satisfied on a continual basis and is largely malleable and influenced by changes to the circumstances, conditions, and contexts of the campus environment (Goodenow, 1993b; Strayhorn, 2018). The impact of this disruption on the interconnected constructs of student involvement and sense of belonging is simply not yet known.

Evolutionary theories, as related to institutions of higher education, provide a useful framework for understanding organizational change induced by external factors – as well as providing strategies for effective responses by organizational leaders. Integral to the evolutionary theory of organizational change in higher education are the concepts of systems and openness (Birnbaum 1991; Morgan 1986). Systems refer to the concept of organizations being comprised of interrelated and interdependent structures, while openness refers to the relationship between the environmental effects and organizational change (Kezar, 2018; Birnbaum 1991; Morgan 1986). According to the concept of openness, organizational change is highly dependent upon the external environment – it follows that an environmental change of the magnitude of the COVID-19 pandemic would have an extreme impact on institutions of higher education. Systems theory suggests that an impact on one organizational structure will affect others since such structures are interdependent and interrelated. This suggests that changes to the campus environment will affect many other structures, including student involvement, and, because involvement and other environmental factors are related to sense of belonging, those feelings of belonging will also change in ways that will affect other interconnected

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structures. Because sense of belonging is central to the educational mission of institutions of higher education and the ability of students to achieve their full potential, it is critical to understand how sense of belonging has changed as a starting place for understanding impacts on other interrelated structures. The purpose of this study was to explore how environmental changes related to the disruptive effects of the COVID-19 pandemic may have altered students' sense of belonging to their institution.

Overview of Methodology

A mixed methods research design is essential to accomplish the purpose of this study. Specifically, the study employs a convergent mixed methods design (Creswell, 2017). Convergent designs pursue both the quantitative and qualitative research strands in parallel in order to obtain “to obtain different but complementary data on the same topic” (Morse, 1991, p. 122). The mixing of the quantitative and qualitative results explains, in detail colored by the lived experiences of new students, how the influences of sense of belonging may have been altered due to the effects of the COVID-19 pandemic.

Research Questions

RQ1 (quantitative): What student characteristics and college experiences predicted sense of belonging before the COVID-19 pandemic?

RQ2 (qualitative): How do college students currently experience sense of belonging after the disruption to the campus environment caused by the COVID-19 pandemic?

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RQ3 (mixed): How are the pre-pandemic influences of sense of belonging reflected by the lived experiences of new college students?

Implications for Leadership

This study will have implications for higher education leaders. In particular, the study will benefit change leaders, enrollment managers, diversity officers, and retention specialists. The COVID-19 pandemic is a major disruptive event that will require institutions of higher education to adapt. It is helpful for change leaders to view the impact of the COVID-19 pandemic through the evolutionary theory of organizational change. However, it is essential for change leaders in higher education to understand the context before committing to a change plan and gathering data is a good place to begin (Kezar, 2018). Buller (2014) suggested that change leaders should use 10 “analytical lenses” when considering implementing change in the higher education context. Buller’s (2014) analytical lenses are helpful for leaders encountering change on several fronts simultaneously, which is what is happening now with the massive disruption to campus norms and the impending demographic challenges to higher education. In the context of the current study, the first lens, the “20/20” lens is particularly relevant. The 20/20 lens consists of “seeing a proposed change objectively and clearly, assessing what is known about our situation, and interpreting documented evidence without subjectivity or prejudice. (Buller, 2014, p.50)” The current study will help provide change leaders with some of the objective evidence needed to promote sense of belonging.

Reactive and Evolutionary Change: A Leadership Perspective. The inability to promote sense of belonging through “normal” means creates a challenge for

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institutions of higher education. The forced transition to hybrid/virtual instruction and caps on in-person student activities brought on by the COVID-19 pandemic is the epitome of an external event that calls for institutions of higher education to manage reactive change. Reactive change in the context of higher education, as described by Buller (2014), is a change that is “utterly beyond an institution’s control” (p. 157). Buller’s concept of reactive change is related to evolutionary theories of organizational change. Kezar (2018), explained the evolutionary change in the context of higher education by stating that “the role of change agents and leaders is more about responding to forces that are coming from outside the campus or one’s unit” (p. 76). Evolutionary change borrows concepts from the study of biology such as systems theory, the interaction between the organization and its environment, openness, homeostasis, and evolution. Systems theory posits that organizations have interdependent and interrelated structures and that a change to one part of the structure will influence related parts of the structure (Kezar, 2018). Openness refers to the permeability between the external and internal environments and suggests that organizations are strongly influenced by the external environment (Berdahl 1991). Homeostasis refers to the ability of the organization to self-regulate – Birnbaum (1989) described this concept as an “organization thermostat” (p. 249).

While institutions of higher education are inevitably forced to change by external factors in some situations, institutional leaders still have the agency (within constraints dictated by the context) to decide how to guide organizational adaptation (Buller, 2014). Change leaders who do not respond rapidly in crises are likely to experience negative outcomes such as declining funding, poor morale, or institutional

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instability (Argyris 1982; Senge 1990; Steeples 1990). Therefore, change leaders should be creative, innovative, and entrepreneurial when responding to unplanned change (Buller, 2014; Kezar, 2018).

Before change leaders can react effectively to unplanned change, they must first gain an understanding of the challenges. To promote sense of belonging during a pandemic that has increased feelings of isolation, loneliness, stress, and sadness among students (Becker, 2021), it is important for change leaders to understand what has changed and why. According to organizational evolutionary theory, data can be collected and distributed to facilitate problem-solving (Kezar, 2014). Change leaders must also keep in mind how to navigate change in a way that promotes adherence to the institutional mission. As Morphey & Hartley (2006) found, the most common themes found in mission statements were outcomes related to helping students achieve self-actualization (e.g., civic duty/service, student development, and leadership). These are all student outcomes related to sense of belonging. Change leaders must recognize sense of belonging as the critical conduit that promotes fulfillment of the institutional mission and student success.

Conclusion

The extent of the disruptive impact of the COVID-19 pandemic on students' sense of belonging to their campuses deserves rigorous study because of the effect of sense of belonging on student persistence and achievement. To recap, the purpose of this study was to explore how environmental changes related to the disruptive effects of the COVID-19 pandemic may have altered students' sense of belonging to their institution.

CHAPTER TWO: REVIEW OF THE LITERATURE

The purpose of this chapter is to review the existing research related to college student sense of belonging and present the theoretical framework that guides this study. The first section of this chapter provides an overview of sense of belonging and a summary of the student inputs and experiences that influence sense of belonging in college. Next, I discuss the relevant literature on college student sense of belonging, including a review of the research demonstrating the relationship between sense of belonging and college student outcomes. The chapter ends with a brief summary of how reactive and evolutionary theories of leadership may help college leaders understand the disruptive impact of the pandemic on college student sense of belonging.

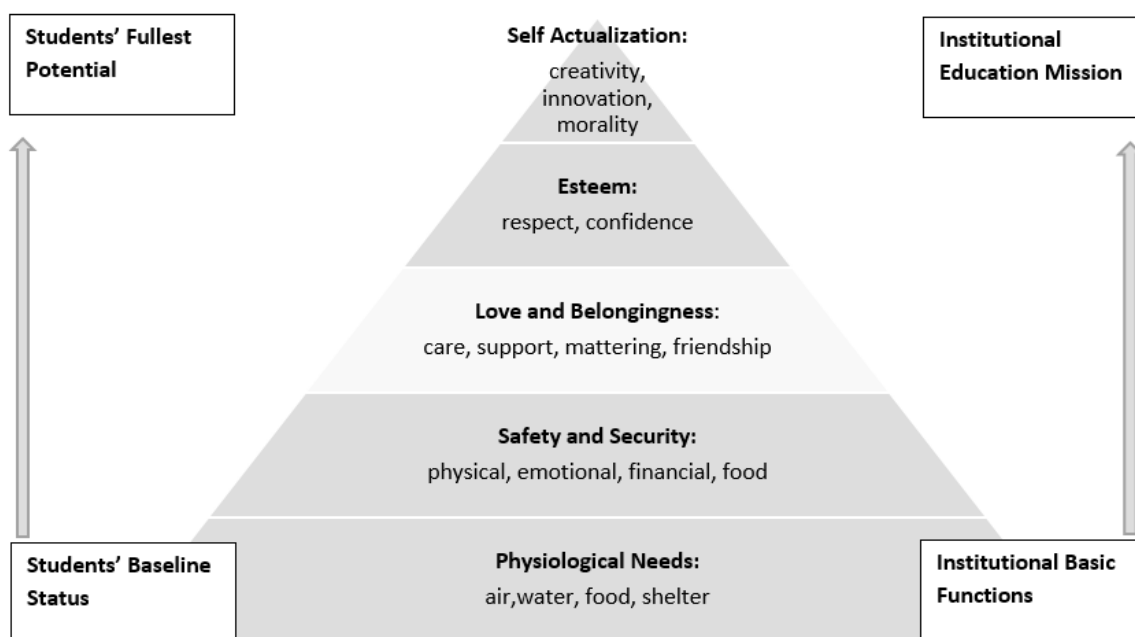
Theoretical Framework

Belongingness is a fundamental need and serves as a motivator of human behavior (Maslow, 1962). As Maslow (1954, p. 20) explained, “If both the physiological and the safety needs are fairly well gratified, there will emerge the love and affection and belongingness needs.” (Maslow, 1954, p. 16). Furthermore, until the need to belong is gratified, higher-order needs such as self-actualization, creativity, and innovation “may become simply non-existent or be pushed to the background” (Maslow, 1954, p. 16). While Maslow’s hierarchy of needs is perhaps too rigid, especially when considered outside of the Western European cultural tradition (Deiner and Tay, 2011), a convincing body of research supports Maslow’s premise that sense of belonging is important for human functioning and a critical factor in the psychological wellbeing of individuals (Hagerty, Lynch-Bauer, Patusky, Bouwsema, & Collier, 1992).

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Building on Maslow's theory, Strayhorn (2018) posits that, at its essence, sense of belonging is a basic human need and motivation, sufficient to influence behavior. According to Strayhorn (2018), sense of belonging is a critical rung in the college student hierarchy of needs. Sense of belonging is necessary for students to reach their fullest potential and it is necessary for institutions of higher education to foster an environment that promotes sense of belonging in order to fully realize their educational missions (Figure 1).

Figure 1. *Strayhorn's Revised Model of College Students' Sense of Belonging*



Note. Adapted from Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students*. Routledge. Kindle Edition, p. 163.

Sense of belonging is related to higher-order student outcomes such as enhanced self-esteem (Rosenburg and McCullough, 1981; Berger & Milem, 2002), critical thinking (Flowers, 2004), leadership skills (Kimbrough & Hutcheson, 1998)

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clarified values (Strayhorn, 2008b), and multicultural competence (Einfeld & Collins, 2008). As described in Strayhorn's (2018) revised model of college students' sense of belonging, these outcomes generally represent both students reaching their fullest potential and institutions achieving their educational missions. The importance of sense of belonging for students to reach their fullest potential is outlined later in this chapter in the discussion of the linkages between sense of belonging and student outcomes. For now, this section will focus on the importance of sense of belonging to the educational missions of higher education institutions.

According to Strayhorn (2018), the “consummate goals of higher education cannot be achieved (or even pursued) until students feel a sense of connectedness, membership, and belonging in college” (p. 906). A thematic analysis of the mission statements of institutions of higher education reveals that the aforementioned student outcomes associated with sense of belonging are also prevalent in educational mission statements (Morphew and Hartley, 2006). Morphew & Hartley (2006) found that, between both public and private bachelor's, master's, and doctoral-level institutions, the most common themes found in mission statements included: civic duty/service, student development, and leadership. These mission statement themes demonstrate the aspiration to help students achieve self-actualization and are all student outcomes related to sense of belonging. This strengthens the evidence for Strayhorn's model by positing that sense of belonging is a critical conduit linking student potential to the institutional educational mission. Other scholars support Strayhorn's position on the importance of belonging. As Baumeister & Leary (1995) explained, “if psychology has erred with regard to the need to belong ... the error has not been to deny the existence of

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such a motive as much as to underappreciate it” (p. 522). It is clear that positive feelings of belonging are a critical conduit that allows both students and institutions of higher education to achieve their full potential.

Student perceptions of belongingness result in behaviors that drive institutionally important student outcomes (Strayhorn, 2018). A simple step-by-step explanation of this process is: (a) sense of belonging begins as a cognitive evaluation of an environment, which can lead to; (b) an affective response, which may in turn; (c) influence behavior (Hurtado & Carter, 1997). For example, if a student believes that the campus community is welcoming to them and meets their needs for belonging, then they may have positive feelings toward the community and their role within it, which may motivate them to engage in activities leading to student success such as joining campus organizations, attending faculty office hours, and participating in class discussions. Again, sense of belonging is a basic human need, sufficient to drive behavior.

Relevant to the context of this study, it is important to reiterate that sense of belonging can change over time. Disruptions to the campus environment can lead students to new and different cognitive evaluations. In turn, these evaluations generate an affective response that is sufficient to drive behavior. Indeed, the last of Strayhorn’s seven key elements of belonging states that “Sense of belonging must be satisfied on a continual basis and likely changes as circumstances, conditions, and contexts change (Strayhorn, 2018 p. 1074). Research supports the notion that sense of belonging is “largely malleable and susceptible to influence in both positive and negative directions” at all times (Goodenow, 1993, p. 81). Summer “Bridge” programs provide a good example of this phenomenon. Summer bridge programs are typically multiple-week

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experiences for first-year students (often from disadvantaged backgrounds) designed to ease the adjustment to student life by promoting college readiness and acclimating students to the campus environment. When done well, bridge programs can promote a sense of belonging to the institution among participants and result in a higher sense of belonging at the end of the bridge program (Strayhorn, 2011). However, the boost to sense of belonging resulting from bridge programs may decline over time. In one study, gains from a summer bridge program had evaporated by the end of the fall semester, with bridge program participants reporting alienation, lack of support, and diminished feelings of belonging (Strayhorn, 2011).

Feelings of belongingness are surprisingly susceptible to disruption. In fact, Walton and Cohen (2011) found that even a single experience of isolation or rejection is enough to undermine sense of belonging. Once feelings of belonging are disrupted, a student must re-engage or find new activities or relationships within the campus community that foster belonging. It stands to reason then, that the larger the disruption, the greater the potential for a shift in feelings of belonging.

The COVID-19 pandemic has undoubtedly created an enormous disruption to the normal college experience, so the potential for a shift in student sense of belonging is proportionately great. Emerging research and opinion suggests that: a) the COVID-19 pandemic is the most disruptive event to higher education in at least several decades (Dua, Rousansaville, & Viswanath, 2020), and; b) students (especially the economically disadvantaged) report being less involved and engaged (Hope, 2020). The fact that students report being less involved and engaged could have an impact (perhaps even a large impact) on sense of belonging. Student involvement and student engagement are

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related, but distinct, constructs (Strayhorn, 2018). Both constructs are related to sense of belonging (Strayhorn, 2018).

Student involvement, as formulated by Astin (1999), refers to student behaviors rather than thoughts and feelings. As Astin described (1999), “It is not so much what the individual thinks or feels, but what the individual does, how he or she behaves, that defines and identifies involvement” (p. 519). As described earlier, sense of belonging is sufficient to motivate behavior – including the motivation to become involved. Student involvement can result in a “greater sense of attachment to the college (p. 523).” Student engagement, while related to student involvement, is conceptually different. Kezar & Kinzie (2006) described student engagement as “the time and energy and students devote to educationally purposeful activities and the extent to which the institution gets students to participate in activities that lead to student success” (p. 150). Engagement differs from involvement in two ways. First, engagement refers only to involvement activities that lead to student success (Kezar & Kinzie, 2006). Second, engagement refers to how institutions allocate resources and structure learning opportunities to encourage student participation and beneficial outcomes (Strayhorn, 2018; Wolf-Wendel et al., 2009). Sense of belonging and engagement are related (Museus et al., 2017; NAS, 2017).

The main takeaway is that both involvement and engagement are related to sense of belonging and opportunities for both involvement and engagement have been severely disrupted by the COVID-19 pandemic (Hope, 2020, Becker, 2021). Some of the disruptions may be permanent. For example, many collegiate sports activities were not only canceled, but partially due to the financial fallout from the pandemic, colleges are cutting hundreds of sports teams entirely (Treisman, 2020). Athletics is an example of an

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involvement activity associated with increased feelings of belongingness (Hurtado & Carter, 1997, Strayhorn, 2018). Considering the notion that sense of belonging is highly malleable and subject to change in either direction at any time, a disruption of the normal process for students to become involved and engaged with their institution is likely to shift feelings of belongingness.

Sense of Belonging and Culturally Engaging Campus Environments

Museus (2014) proposed a model of college success that positioned sense of belonging as a critical conduit between the campus environment, student inputs (i.e., student demographic characteristics and identities), performance and academic disposition, and college success outcomes. This model, the Culturally Engaging Campus Environments (CECE) model of College Student Success, drew inspiration from Tinto's (1993) student integration theory but sought to address the major critiques of Tinto's theory, incorporate the voices of diverse student populations, and create a model that would be relatively straightforward to test quantitatively (Museus, 2014).

The CECE model posits that external influences (i.e., finances, employment, family influences) shape individual influences (i.e., sense of belonging, academic dispositions, and academic performance) and success among diverse college students (Museus, 2014). The model also suggests that precollege inputs (i.e., demographic characteristics, initial academic dispositions, academic preparation) influence individual influences and success. The central area of the model underscores the relationship that the nine culturally engaging campus environment indicators and individual influences have on college success outcomes. According to Museus (2014) the "focal area of the model

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suggests that the degree to which culturally engaging campus environments exist at a particular postsecondary institution is positively associated with more positive individual factors and ultimately greater college student success.” Additionally, the “CECE model posits that undergraduates who encounter more culturally engaging campus environments are more likely to...exhibit a greater sense of belonging” (Museus, 2014, p. 210).

Museus et al.(2017) tested the notion that the CECE engagement indicators predict college student sense of belonging. The results of their study provided strong evidence for the efficacy of the CECE engagement indicators to predict college student sense of belonging (Museus et al., 2017). Specifically, their hierarchical multiple regression analysis explained 68 percent of the variance (using adjusted R^2) in sense of belonging. After controlling for student inputs (i.e., race, gender, age, and high school GPA) in the first block, external influences (i.e., family income, and first-generation college student status) and individual influences (number of completed credits, financial aid, and tuition) in the second block, the results revealed that six (holistic support, proactive philosophies, collectivist cultural orientations, cultural validation, cultural community service, and cultural familiarity) of the nine CECE engagement indicators were statistically significant in the third and final block of the regression model. Notably, the variance explained by the CECE constructs was quite meaningful. Through the first two blocks of the regression model, only 13 percent of the variance in sense of belonging had been explained (using adjusted R^2). However, the addition of the CECE engagement indicators to the model explained an additional 55 percent of the variance in sense of belonging.

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It is important to note the negative statistically significant association between the cultural community service engagement indicator and sense of belonging. Museus et al. (2017) explained that this counterintuitive result could be the result of the complex ways in which sense of belonging manifests among college students. They theorized that similar engagement indicators within the cultural relevance domain (e.g., cultural familiarity and cultural validation) in the regression equation “could account for much of these positive aspects of their service experiences, while the cultural community service regression coefficient might reflect the remaining (more negative) aspects of such experiences” (p. 210). This explanation is certainly plausible, but an alternative explanation could be suppression due to a number of moderately-to-strongly correlated predictors within in the same model. However, since Museus et al. (2017) did not report measures of multicollinearity such as variance inflation factors or tolerance values, this alternative explanation cannot be confirmed.

The immense contribution of the nine CECE engagement indicators to explaining sense of belonging within the CECE model framework, coupled with the disruption to the normal processes for engaging students in accordance with the definitions of the CECE engagement indicator constructs, helps guide the theory for the current study. Essentially, the CECE model has proven to be a powerful predictor of college student sense of belonging. However, given the disruption caused by the COVID-19 pandemic, the ability of institutions of high education to provide culturally relevant and responsive environments is likely somewhat comprised. Using the CECE model for the quantitative portion of this mixed-methods study provides an opportunity to develop a qualitative protocol that is likely to ask the right questions to develop an understanding of

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how (or if) the sense of belonging of college students has changed due to the COVID-19 pandemic.

College Student Sense of Belonging

Sense of belonging has been defined in a number of different ways, perhaps most succinctly as “a feeling of connectedness that one is important or matters to others” (Rosenberg & McCullough, 1981). McMillan & Chavis (1986, p. 9) used the term “sense of community,” which refers to “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together.” Goodenow (1993) described sense of belonging as a “membership” in school settings, which refers to “students’ sense of being accepted, valued, included, and encouraged by others (teachers and peers) in the academic classroom setting and of feeling oneself to be an important part of the life and activity of the class” (p. 25). In contrast, the absence of a sense of belonging has been described as a sense of alienation, rejection, social isolation, loneliness, or marginality, which has been linked to negative outcomes such as dissatisfaction, low self-esteem, depression, substance abuse, and suicide (Hagerty, et al., 2002).

The development of sense of belonging as a construct is well established, having evolved significantly over the past three decades (Bollen & Hoyle; Goodenow, 1993; Hagerty et al., 2002; Ostrove, 2003; Strayhorn, 2018). Bollen & Hoyle (1990) developed a three-item scale to capture the construct of sense of belonging that has proved to be valid and reliable and has often been used in studies of college student sense of belonging (Hurtado & Carter, 1997; Museus et al., 2017). Grounded in the work of

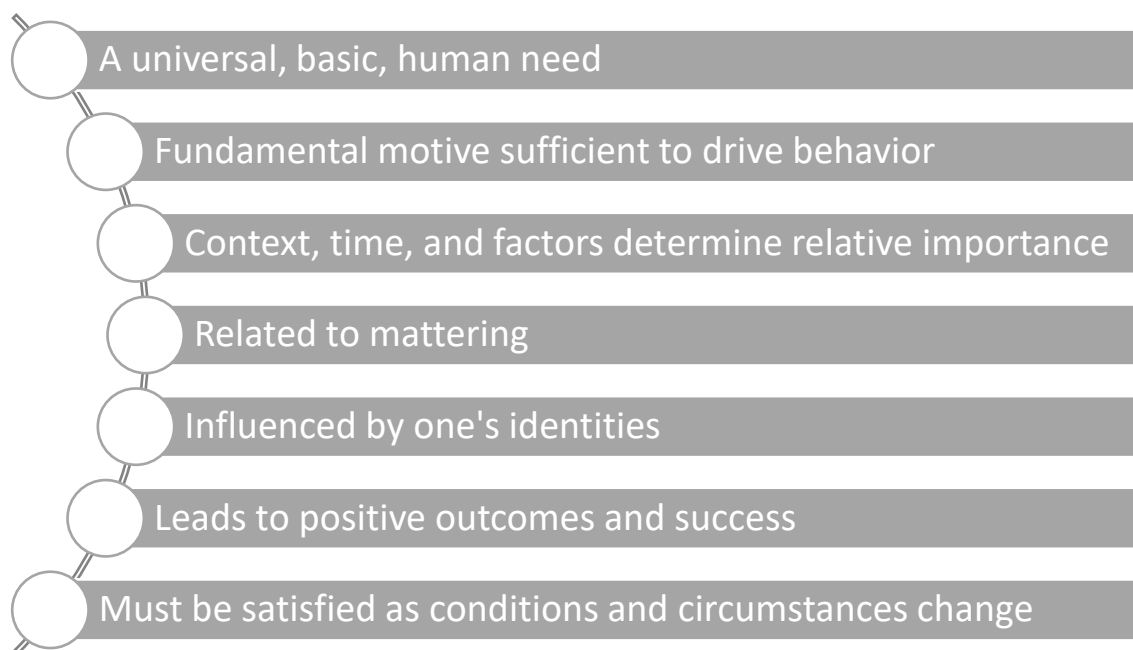
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Bollen & Hoyle and reflected in the aforementioned scale, sense of belonging as a conceptual construct relates to “an individual’s sense of identification or positioning in relation to a group or to the college community, which may yield an affective response” (Tovar & Simon, 2010, p. 200). It is the Bollen & Hoyle (1990) scale that is used to capture the construct of sense of belonging in the current study.

Sense of belonging is relevant to everyone, regardless of life stage. However, it may take on a “heightened importance for college students given where they are generally in their personal development—traditionally at the crux of identity exploration and vulnerable to peer influence” (Strayhorn, 2018, p. 843). In college, a lack of a sense of belonging may undercut academic success (Walton & Cohen, 2007) and negatively impact persistence (Berger, 1997). In particular, sense of belonging may have special importance for students who may be marginalized within the campus environment including (but not limited to) women, students of color, first-generation students, disabled students, LGBTQ+ students, and students from low socioeconomic status backgrounds (Strayhorn, 2018).

Core Elements of Sense of Belonging

According to Strayhorn (2018), there are seven core elements of sense of belonging (Figure 2). These elements help to holistically explain how the sense of belonging of college students develops, shapes experiences and perceptions lead to other outcomes and can change over time. This last core element, which asserts sense of belonging must be satisfied as conditions and circumstances change, is central to the current study.

Figure 2. *Strayhorn's Core Elements of Sense of Belonging*

Note. Adapted from Strayhorn, T. L. (2018). *College students' sense of belonging: A key to educational success for all students*. Routledge. Kindle Edition, p. 163.

Sense of Belonging as a Basic Human Need. Sense of belonging is a universal, basic, human need, outranked in hierarchy only by physiological needs and the need for safety and security. In the higher education context, the importance of sense of belonging is relevant to both the student and the educational mission of their institution, because sense of belonging must be “satisfied before any other higher-order needs such as knowledge and self-actualization, which some would argue are the desired outcomes of a college education” (Strayhorn, 2018, p. 836).

Sense of Belonging as a Motivator of Behavior. The premise that sense of belonging is a fundamental motive sufficient to drive behavior has special significance in

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the context of the college campus. In higher education, creating bonds of trust, support and friendship resulting in an increased sense of belonging to the campus community may drive behaviors that increase achievement such as taking leadership positions in campus organizations, engaging in class discussions, and collaborating with faculty on research. Conversely, feeling alienated from the campus community through experiences of marginalization may result in behaviors that drive disinvestment from social and academic goals such as disaffiliating from campus organizations, skipping classes, or dropping out (Strayhorn, 2018).

The Influence of Context on Sense of Belonging. Context, time and other factors determine the relative importance of sense of belonging (Strayhorn, 2018). The importance of sense of belonging is amplified in contexts including newcomers introduced to an established group; when considering major life questions (often in late adolescence and early adulthood) such as with whom to belong and where to invest time and energy (Chickering & Reisser, 1993; Sanford, 1962); and for members of traditionally marginalized groups, or any individual that feels marginalized in a certain situation (Goodenow, 1993). It is simple to apply these examples to the higher education setting – these contexts apply to sense of belonging within the classroom, study groups, student organizations, etc. Within these campus contexts, students “face serious difficulty in attending to the tasks at hand like studying, learning, and retaining information until they resolve one of their most fundamental needs – a need to belong in learning spaces” (Strayhorn, 2018, p. 961). The need to belong is felt most acutely when an individual feels threatened by possible harm (e.g., nightfall, danger signs) or uncertainty (e.g.,

uncontrolled futures, life transitions) (Baumeister & Leary, 1995). It should be noted that attending college during a serious pandemic could make students feel threatened by possible harm and uncertainty and suggest that the pandemic environment could increase the need to belong.

Mattering Leads to Feeling of Belongingness. Sense of belonging is related to and often a consequence of, mattering (Strayhorn, 2018). By definition, "mattering is a motive: the feeling that others depend on us, are interested in us, are concerned with our fate, or experience us as an ego-extension exercises a powerful influence on our actions" (Rosenberg & McCullough, 1981, p. 165). Rosenberg & McCullough (1981) proposed five dimensions of mattering: (a) attention or the feeling that one is noticed; (b) importance or the belief that one is cared about; (c) ego extension or the feeling that someone else will be proud of what one does; (d) dependence: feeling needed by others; and (e) appreciation: the feeling that one's efforts are appreciated by others. Rosenberg & McCullough (1981) identified negative correlations between perceived mattering and delinquency, depression, and anxiety, while self-esteem was positively correlated with perceived mattering. Subsequent research on college students has generally concurred with Rosenberg & McCullough's (1981) initial findings (Dixon & Robinson Kurpius, 2008; Flett et al., 2012). The more a student feels that they matter, the less marginalized they perceive themselves and the more receptive they are to feelings of belongingness. As Schlossberg (1985) explained, "marginality is at one pole, mattering at

the other” (p. 15). However, interactions that promote mattering are necessary but not sufficient for experiencing sense of belonging (Strayhorn, 2018).

The Impact of Intersectionality on Sense of Belonging. The intersectionality of social identities moderates how college students experience sense of belonging – in other words, while the need for belongingness is a universal human need, the lived experience of belonging differs and is influenced by intersecting and converging individual identities (Strayhorn, 2018). Typically, the study of intersectionality is considered to lend itself to qualitative research methods (Collins, 2019). Strayhorn (2018) provides a good example taken from a qualitative interview with an Asian gay male student: “Every part of me really shapes how I feel about belonging here [in college]. It’s not my Asian side saying, ‘Yes I fit here because I’m smart in science,’ while the immigrant or working-class side of me says ‘You’re alone here, so go home’ ... it’s actually all of them at once saying a combination of both things, I guess” (p. 1026).

Unraveling how intersecting social identities (such as sexual orientation, gender, race, socioeconomic status, and religion) impact sense of belonging is challenging to measure quantitatively and quantitative research methods must be carefully developed (Collins, 2019). Over the past 15 years, several significant contributions to the current understanding of the ways critical paradigms such as intersectionality can be applied to quantitative methods (e.g., Bensimon & Bishop, 2012; Carter & Hurtado, 2007; Stage, 2007a, 2007b; Wells & Stage, 2015). Appreciating and understanding intersectionality as a quantitative analytic tool empowers scholars to recognize that "people's lives and the organization of power in a given society are better

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understood as being shaped not by a single axis of social division, be it race or gender or class, but by many axes that work together to influence each other" (Collins & Bilge, 2016, p.2). Scholars who strive to carefully account for the intersecting identities of participants when conducting quantitative research are often referred as quantitative criticalists. While this study cannot be considered a work of quantitative criticalist research, primarily because the small sample sizes of some groups make more sophisticated statistical analyses (such as interaction terms by race, gender, first-generation status, etc.) impractical, quantitative criticalist principles were considered when creating the research design. According to Stage & Wells (2014), quantitative criticalists must work toward three important ends: 1) "use data to represent educational processes and outcomes on a large scale to reveal inequities and to identify social or institutional perpetuation of systematic inequalities in such processes and outcomes" (p. 2); 2) "question the models, measures, and analytic practices of quantitative research in order to offer competing models, measures, and analytic practices that better describe the experiences of those who have not been adequately represented" (p. 3); 3) "conduct culturally relevant research by studying institutions and people in context" (p. 3). The convergent mixed methods design combines a quantitative approach with qualitative analysis that allows for the lived experiences of intersectionality to emerge, similar to the quote provided by Strayhorn (2018) in the previous paragraph.

The Relationship between Sense of Belonging and Student Outcomes. Sense of belonging influences a number of beneficial student outcomes including ease of adjustment, persistence, satisfaction, well-being, engagement, and academic achievement

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(Hausmann, Schofield, & Woods et al., 2007; Strayhorn, 2008; Museus & Maramba, 2011; Strayhorn, 2011; Glass & Westmont, 2014; National Academies of Sciences, Engineering, and Medicine [NAS], 2017). However, more research on the relationship between sense of belonging and student outcomes is needed. Especially considering the ongoing effects of the COVID-19 pandemic and the simultaneous four percent decline in college enrollment - 31 percent of that decline is due to continuing students dropping out (Sedmak, 2020). At this moment, the link between sense of belonging and persistence is perhaps the most important consideration for leaders of higher education institutions. Fortunately, the influence of sense of belonging on student persistence has been widely researched (Hausmann et al., 2007; Hausmann, et al., 2009; Thomas, et al., 2014; Davis, et al., 2019). Sense of belonging predicts persistence among students of color and can be especially important for those student populations (Hausmann et al., 2007; Strayhorn, 2008b; Hausmann, Schofield, Ye, and Woods, 2009, Museus et al., 2018). Kuh et al. (2005) explain succinctly how sense of belonging contributes to student persistence: “feelings of belonging help students connect with their peers and the institution, relationships that, in turn, are associated with persistence and satisfaction” (p. 119). Another aspect of the impact of sense of belonging on student persistence that is especially encouraging given the shift to virtual and hybrid instructional methods is the finding by (Thomas, et al., 2014), that using methods to foster sense of belonging in online programs helped increase retention and engagement.

An important factor to keep in mind when discussing the relationship between student outcomes and sense of belonging is that sense of belonging is malleable and susceptible to change at all times (Goodenow, 1993; Strayhorn, 2018). Many factors may

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influence an individual's experience of belongingness in both positive and negative directions, which, in turn, may affect student outcomes. The notion that sense of belonging is highly susceptible to change from external factors is a key aspect of the theoretical framework for this study and is explored in more detail in the following section of this chapter.

Conclusion

The literature outlining college student sense of belonging is relatively rich. However, sense of belonging is malleable and disruptions, even small ones, may cause a change in either direction at any time. Very little research has evaluated the disruptive effect of the COVID-19 pandemic on college student sense of belonging despite the special importance of belongingness now considering its positive relationship with student retention and the current era of declining enrollment at institutions of higher education. In order for change leaders to react to the forced disruption of the COVID-19 pandemic, they must first gather data and understand the situation.

CHAPTER THREE: METHODOLOGY

The purpose of this mixed methods research was to investigate if predictors of student sense of belonging changed due to the disruptions caused to the campus environment due to the COVID-19 pandemic. To accomplish this, the study utilized a convergent mixed methods design (Creswell & Plano Clark, 2017) to: a) use quantitative research methods to identify predictors of sense of belonging before the COVID-19 pandemic; b) use qualitative research methods to gain an in-depth understanding of the lived experiences of students at the same institution and why those predictors may have been altered due to the effects of the COVID-19 pandemic, and c) integrate the quantitative and qualitative results to provide a comprehensive understanding higher education leaders. I use Strayhorn's (2018) Key Elements of Sense of Belonging as a guiding theoretical framework for the study and utilize the CECE model as the basis for the regression model and in developing the focus group protocol. In this chapter, I explain the epistemological assumptions, research design, participants, procedures, instruments, data analysis, and validity methods used to conduct this mixed-methods study.

Epistemological Assumptions

Mixed methods research designs have been used for decades and have become much more common in recent years. One of the main drivers for the increase in the use of mixed methods research design is the increase in complexity of overarching research

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questions and the desire of researchers to provide a more comprehensive analysis of these complex questions (Creswell & Plano Clark, 2017). Mixed methods designs allow researchers to “answer [questions] beyond simple numbers in a quantitative sense or words in a qualitative sense. A combination of both forms of data provides the most complete analysis of complex problems” (Creswell & Plano Clark, 2017, p. 22). A significant number of mixed methods scholars embrace the worldview of pragmatism, which values combining objective and subjective knowledge, places paramount importance on selecting the best method(s) for answering the research problem and rejects the notion that a researcher must choose between a constructivist or a positivist orientated paradigm (Tashakkori & Teddlie, 2003a; Creswell & Plano Clark, 2017).

The collection, mixing, and interpretation of both quantitative and qualitative data provide the best approach to answering the complex research question. I can rely on the previous sense of belonging studies (Museus et al. , 2017) to inform the creation of research questions, variable selection, and statistical methods to develop the quantitative research questions that seek to determine predictors of sense of belonging before the COVID-19 pandemic. However, quantitative methods alone are insufficient to tell, with rich description, the story of how and why student sense of belonging may have been altered. Sense of belonging is a complex and highly malleable construct (Strayhorn, 2017). A holistic understanding of how and why the sense of belonging of college students may have been altered due to the remarkable impact of the COVID-19 phenomena calls for gathering rich descriptions of the lived experiences of students. Quantitative methods are necessary for identifying statistically significant predictors of sense of belonging before the pandemic but are not sufficient for answering the research

questions. By engaging in multiple forms of inquiry, I can gain a richer holistic understanding of the phenomena that would not be possible through a single approach alone (Creswell, 2018).

Therefore, it is important to employ qualitative methods to gain a rich understanding of how and why predictors of sense of belonging may have been altered. In fact, within this mixed-methods study, I place equal emphasis on the qualitative research strand because my goal is to focus on the current context and to “rely as much as possible on the participants’ views of the situation” (Creswell, 2007, p. 20-21).

Research Design

A mixed methods research design is essential to accomplish the purpose of this study. Specifically, the study will employ a convergent mixed methods design (Creswell, 2017). Convergent designs begin with the collection and analysis of quantitative and qualitative data along a parallel timeline. Then, the results from both streams are compared and integrated. According to the concise explanation by Creswell & Plano Clark (2017), “the basic idea is to compare the two results with the intent of obtaining a more complete understanding of a problem” (p. 64). Higher education researchers have effectively used convergent mixed methods designs to answer related research questions (Kerrigan, 2017; Garcia, Heurta, et al., 2017; Tisher, 2019; Barros-Lane, et al., 2021). It is important to note that, in the current study, while the analysis was conducted at the same time, the data were collected at different times.

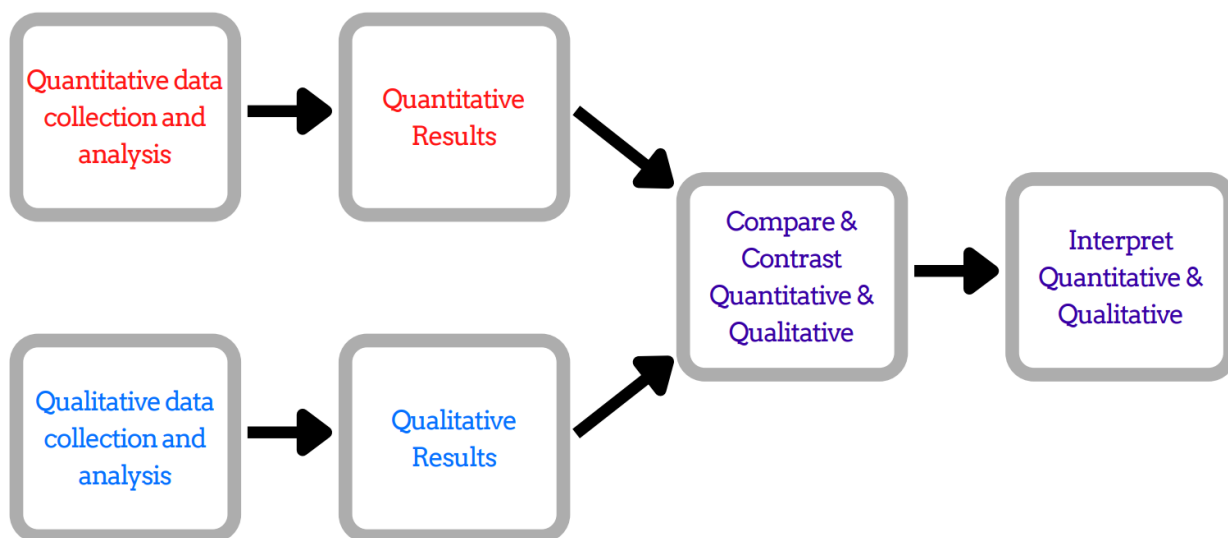
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Garcia et al. (2017) provide a particularly relevant example of the use of a convergent mixed methods design in their study of Latino male college student leadership development. As described by Garcia et al (2017): “Essentially, using a convergent parallel mixed-methods approach enabled us to complicate our understanding of the contexts that contribute to the leadership development, capacity, and experiences of Latino male college students, which a single method alone could not provide” (p. 4). This essentially explains my rationale in choosing this mixed methods design (Figure 3) as I am seeking to “complicate” the understanding of sense of belonging in the context of the COVID-19 pandemic. Like Garcia et al (2017), I also “made sense of each source of data on its own” before integrating the two sources (p. 9). Most importantly, the convergent design allows for a more inductive qualitative approach and integrative analysis than an exploratory sequential mixed methods design and the convergent approach is better suited for equal emphasis to be placed on the qualitative stand than an explanatory sequential mixed methods design.

The quantitative survey data was analyzed using a hierarchical multiple regression approach similar to the one used by Museus et al. (2017) to determine statistically significant predictors of sense of belonging using the CECE survey data. The focus group protocol was developed with special consideration to investigating the degree and frequency of the impact of the six CECE indicator constructs used in the quantitative analysis on the lived experiences of the current cohort of recent college students in the context of the COVID-19 pandemic. The protocol also allowed for the emergence of new factors impacting sense of belonging in the context of the COVID-19 pandemic. Once both the qualitative and quantitative data were collected and analyzed the findings from

both strands were integrated, with a focus on how the results confirm, disconfirm, or expand our understanding of the predictors of sense of belonging.

Figure 3. *Convergent mixed-methods research design.*



Phase 1A: Quantitative

The quantitative design for this phase is based on the hierarchical multiple regression approach used by Museus et al. (2017) to determine predictors of sense of belonging. I chose to model the quantitative analysis after Museus et al. (2017), because these researchers used CECE survey data to predict college student sense of belonging.

Participants. The sample for the quantitative portion of this study are students who completed the Culturally Engaging Campus Environments (CECE) survey in

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December 2017 at a small, liberal arts, and religiously affiliated institution in the South (n=258). The survey results were not collected by the institution for the current research study – the study is using archival data that aligns with the rationale for the study. The participants are undergraduate students who agreed to participate in the survey research. Participants were informed that the purpose of the survey was to gather data in order to make evidence-based decisions to improve the campus environment for all students. As an incentive, participants were given a chance to win one \$20 Amazon gift card (10 total), but participation was entirely voluntary. All responses (n=258) were collected by January 2018 and the survey link was disabled. Total undergraduate enrollment at the institution was 1253 (FTE) in the fall of 2017. The response rate for the survey was approximately 21 percent.

The descriptive statistics of the sample are presented in Table 1. The demographic characteristics of the sample were generally reflective of the overall student body. Nearly two-thirds of the sample were female. The majority of the sample (73%) was not affiliated with the Mennonite faith tradition. Since the institution has strong historical and cultural ties to the Mennonite Church USA and Anabaptist traditions, there are two religious categories (Mennonite, Brethren, Anabaptist, or other religion/non-religious). Students identifying as Brethren or Anabaptist were grouped with Mennonites since all of these faith traditions share a common ancestry and students identifying as Anabaptist or Brethren would likely be familiar with Mennonite cultural and religious traditions (Anderson, 2013). Of these three groups, by far the greatest number of students identified as Mennonite, with a sizeable minority identifying as Anabaptist and a smaller number identifying as Brethren.

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White students comprised a majority of the sample (61%), followed by Multiracial (10%), Black (9%), Asian (5%), and Latino/a/x (4%). Nearly two-thirds (68%) had a high school GPA between 3.5-and 4.0, while 22% had a GPA between 3.1-and 3.5, 9 percent had a GPA between 2.6-and 3.0, and about one percent had a GPA below 2.6. The majority of all students in the sample were second-generation college students or beyond (78%) and 22 percent were first-generation college students (defined as neither parent completed a bachelor's degree). In terms of socioeconomic status, the majority self-identified as middle class (73%), while 19 percent identified as working-class and 7 percent as upper class. In terms of completed credits, 17 percent were at the end of their first term and had not yet completed any credits, while 19 percent had completed between 1 and 30 credits, 20 percent had completed 31-60 credits, 27 percent had completed between 61-90 credits, and 19 percent had completed more than 90 credits. Credits earned were not recorded as a continuous variable on the survey.

Table 1. *Descriptive statistics of the quantitative sample*

Variables	n (total = 258)	% (percent)
Gender		
Male	119	36.0
Female	212	64.0
Mennonite		
Mennonite or Brethren	88	26.6
Not Mennonite or Brethren	243	73.4
Race		
White	201	60.7
Black	25	9.0
Latino/a/x	11	3.9
Asian	13	4.7
Multiracial	29	10.4
High School GPA		
Below 2.6	3	1.1
2.6-3.0	23	9.0
3.1-3.5	56	21.6
3.5-4.0	176	68.2
2nd Generation in College or Beyond		
2nd Generation in College or Beyond	201	78.0
First Generation	58	22.0
Socioeconomic Status		
Working Class	50	19.0
Middle Class	189	73.0
Upper Class	19	7.4
Completed Credits		
0	44	17.1
1-30	48	18.6
31-60	50	20.2
61-90	67	26.6
More than 90	48	18.6

Instrument. The Culturally Engaging Campus Environment (CECE) survey has been used to predict the sense of belonging of college students (Museus, Yi, et al., 2017).

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In addition, The CECE survey is designed to collect a wide array of student demographic and student experience data. In addition, the CECE collects data related to the nine CECE engagement indicator constructs, which are divided into two categories, Cultural Relevance and Cultural Responsiveness. The cultural relevance indicators focus on the extent to which campus environments are culturally relevant to diverse student populations while the cultural responsiveness indicators focus on the extent to which campus environments are responsive to the cultural norms and needs of diverse populations (Museus, et al. (2016). The construct and content validity of CECE survey have been thoroughly evaluated (Museus, et al.. (2016). The CECE uses the three-item scale developed by Bollen & Hoyle (1990) to capture the construct of sense of belonging – the dependent variable in the current study. The Bollen & Hoyle (1990) scale has been utilized to measure the sense of belonging of college students and has demonstrated strong validity and reliability over the last few decades (Hurtado & Carter, 1997, Museus, et al., 2017). Each construct was measured by several items (ranging from three to five) on a five-point Likert-type scale. In the following chapter, the reliability, as measured by coefficient alpha, of the CECE constructs on the current data is provided.

Analytical Strategy. In their study of sense of belonging, Museus et al. (2017) created a hierarchal multiple regression model comprised of three separate blocks of variables - this regression technique aids in the interpretation of the results for similar groups of variables. The current study utilizes four blocks of variables (Figure 4). The first block of variables in the current study includes pre-college input variables. The second variable block is individual influences and includes academic performance (as measured by high school GPA), and the number of credits completed at the institution.

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The third and fourth blocks of variables are comprised of the CECE engagement indicators. The CECE model and survey have nine engagement indicators, which are divided into two categories, Cultural Relevance and Cultural Responsiveness. The cultural relevance indicators focus on the extent to which campus environments are culturally relevant to diverse student populations while the cultural responsiveness indicators focus on the extent to which campus environments are responsive to the cultural norms and needs of diverse populations (Museus, et al., 2016). In their study of sense of belonging (Museus et al. , 2017) found that only six engagement indicators (Cultural Familiarity, Cultural Community Service, Cultural Validation, Collectivist Cultural Orientations, Proactive Philosophies, and Holistic Support) were statistically significant predictors of sense of belonging. Therefore, I used only these six engagement indicators in the regression model and included the Cultural Relevance indicators (Cultural Familiarity, Cultural Community Service, Cultural Validation) in the third block and the Cultural Responsiveness indicators (Collectivist Cultural Orientations, Proactive Philosophies, and Holistic Support) in the fourth block of the regression model. Also, testing only these six engagement indicators instead of the original nine may reduce the potential for introducing multicollinearity caused by including a relatively large number of moderately to strongly correlated variables within the same regression model. The multicollinearity diagnostics of the regression model in the current study were evaluated by calculating variance inflation factors (VIF). The VIF measures how much multicollinearity has increased the variance of a slope estimate and, generally, values greater than 5-10 are considered problematic (Stine, 1995; Chatterjee & Price, 1991). No VIF values above 2.6 were observed in the current study.

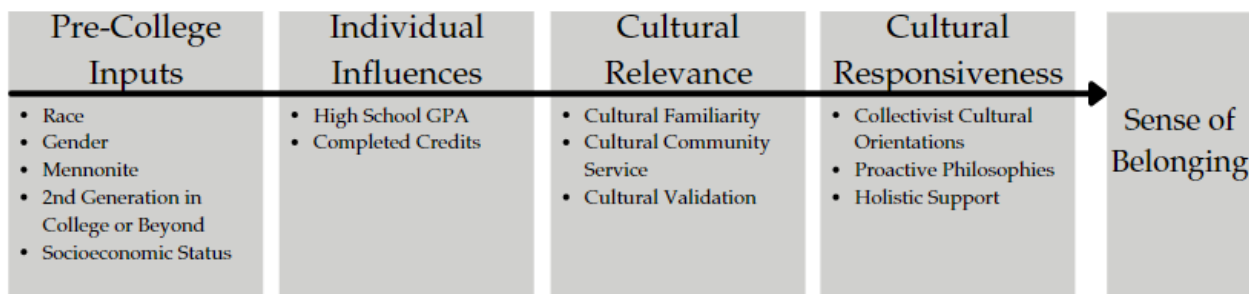
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Quantitative criticalists have noted the importance of understanding the interactions between student inputs and experiences (Zuberi, 2000, Duran et al., 2020). To examine whether the relationships between the six CECE indicators and sense of belonging varied by race, a post-hoc analysis similar to the post-hoc analysis used by Museus, et al., 2017 was conducted. First, A dichotomous *non-White* variable (0=White, 1=non-White) was created. It should be noted that, if the sample sizes of Black and Latino/a/x students were larger in the current study, the interactions between each racial group and the CECE indicators would have been evaluated. However, due the relatively small sample sizes of these racial groups, all non-white respondents were grouped together. Each of the independent variables were centered by subtracting the constant from each individual value of the variable to reduce the potential for multicollinearity. Then the multiplied the non-White variable were multiplied by each of the six CECE indicators, resulting in six corresponding interaction variables. These interaction variables can help understand whether the relationship between each CECE indicator and sense of belonging depends on whether participants are White and or non-White. If the *R*-squared change resulting from adding the interaction terms into the regression model is significant, it would indicate that the interaction terms explained a significant amount of variation in the sense of belonging outcome above and beyond the individual variables analyzed in the main analysis. If the regression standardized beta coefficients are significant, it would be an indication that the nature of the relationship between the corresponding CECE indicator and sense of belonging depends on whether

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participants perceive themselves as being White or non-White. When the interaction terms were added to the post-hoc regression equation, the R -squared change for the additional block of interaction variables was statistically significant but only explained a small amount of additional variance (R^2 change=.04, $F(6,234)=3.11$, $p<.01$). The only interaction term that was statistically significant in this additional model was the interaction between Proactive Philosophies and non-white students ($\beta = -.18$, $p = .04$). Considering the negative beta coefficient, the result indicates that non-white students were less likely to agree that faculty and staff proactively ensured that they had access to information, opportunities, and support than their white peers.

Figure 4. *Outline of the hierarchical multiple regression model.*



Phase 1B: Qualitative

The qualitative phase was planned in parallel with the quantitative phase following the convergent mixed methods design. To aid in the comparing, contrasting, and integration of the qualitative and quantitative data, a directed content analysis technique was utilized for the qualitative strand. The goal of directed content analysis is

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to validate or extend an existing theoretical framework (Hsieh & Shannon, 2005). The participants in the qualitative strand were students at the same institution where the quantitative data was collected, however, the qualitative data was collected after the pandemic has disrupted the campus environment.

Participants. Three focus groups were conducted with between five and seven participants in each group. There were 17 participants in total all of whom were students in their first or second year at the institution where the CECE survey was conducted. The focus groups were conducted in April of 2021. At that time, the institution was back to offering a mix of in-person and hybrid courses, but many pandemic-related restrictions were still in place (e.g. limits on the size of in-person gatherings, masking, and quarantine for positive test results). The demographic characteristics of the sample are outlined in Table 2. The participants were recruited by an administrator at the institution and were selected in an effort to approach a stratified random sample representing the student body along gender, racial, and religious demographics. Each focus group was an hour-long. I facilitated the focus groups and took broad notes. I did not use a note-taker as the focus groups were automatically recorded and transcribed through Zoom. The participants were not offered any incentives to participate in the focus groups.

Table 2. *Descriptive statistics of the qualitative sample*

Student Demographic Characteristics	n (total = 17)	% (percent)
Gender		
Male	6	35
Female	11	65
Mennonite		
Mennonite or Brethren	7	41
Not Mennonite or Brethren	10	59
Race		
White	11	65
Black	4	24
Latino/a/x	0	0
Asian	1	6
Multiracial	2	12

Positioning Statement. In qualitative research, “the researcher is the primary instrument in data collection” (Creswell, 2009, p. 198). The researcher’s positionality within the context of the research design “affects the research process, and their outputs as well as their interpretation of other’s research” (Holmes, 2020, p. 3). Therefore, in reporting qualitative findings, understanding the viewpoint through which the researcher is approaching his or her work is critical (Jones, et al., 2006).

I approached the focus group setting from an etic standpoint and a pragmatic worldview, although I acknowledged the fact that working in higher education at a small private liberal arts institution, placed me somewhat between etic and emic standpoints. Furthermore, my current role places me in a position that causes me to believe in the importance of sense of belonging in college student outcomes and it also means that this research has implications for my own practice. I approached the focus groups from a pragmatist worldview, acknowledging that the directed content analysis technique (by

design) may limit the emergence of new themes by focusing questions and probes on existing theory. Despite this limitation, I felt it was the best qualitative technique in the context of the overall mixed methods design.

Method. A directed approach to content analysis was used as means to ensure the centrality of theory throughout the mixed methods research design. Directed content analysis provides a more structured approach to the analysis of qualitative data than conventional methods (Hickey & Kipping, 1996) by linking previous research and/or theory to initial coding categories. The work of Museus, et al.(2017) that used the CECE model to predict sense of belonging informed the initial coding categories in the current study. Specifically, the survey question items comprising the six CECE engagement indicators used in the quantitative strand (Cultural Familiarity, Cultural Community Service, Cultural Validation, Collectivist Cultural Orientations, Proactive Philosophies, and Holistic Support) formed the basis for the pre-determined codes, and the questions used in the focus group protocol.

The qualitative research question was: “How do college students experience the CECE engagement indicators and sense of belonging after the disruption to the campus environment caused by the COVID-19 pandemic?” The focus group protocol consisted of nine questions with possible probes for each. Six of the questions were directly related to the item stems from the six CECE indicators used in the quantitative analysis. For example, the question related to the Collectivist Cultural Orientations engagement indicator was “Do people at this institution help each other succeed?” and the possible probe was “What if any, common goals do people work towards at this institution?” None of the questions or probes related to the six CECE engagement indicators directly

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asked participants to consider these constructs in light of the pandemic. This allowed participants to organically describe how the circumstances and conditions of the college environment affected their perceptions of these indicators. The other three questions were very broad and provided opportunities for participants to describe other factors related to their sense of belonging. For example, the first question was “What, if anything, makes you feel like you belong at this institution?” and the possible probe was “How did the pandemic affect your sense of belonging?”

A protocol was developed and implemented to increase the trustworthiness of the qualitative strand. There are four generally agreed upon foundational criteria for demonstrating trustworthiness in qualitative research: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985; Krefting, 1991). The current protocol incorporated commonly used techniques found in qualitative research associated with each of these criteria (Hays, et al., 2016). Table 3 describes the techniques used in the current study and how they relate to each of the four foundational trustworthiness criteria as defined by Hays, et al., 2016).

Procedure. The focus groups were conducted via Zoom, recorded, and transcribed using a transcription software program. After reviewing the transcript and cleaning up the data for errors, the data was analyzed in Nvivo 12 using pre-determined codes based on the six CECE engagement indicators. From these original six codes, additional codes were developed to relate each of these six codes to how the CECE engagement indicators were perceived to have been confirmed or expanded by the conditions of the pandemic. Since coding is an iterative process, the full transcripts were reviewed twice and the coding was refined using Nvivo 12. After the second round of

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coding a member checking document and protocol was developed using Synthesized

Member Checking (SMC) techniques (Birt, Scott, Cavers, Campbell, Walter, 2016).

SMC differs from many other types of member checking in that it allows participants to

review both interview data and interpreted data and then asks for confirming or

disconfirming feedback on the initial findings. This feedback can then be used to improve

the interpretation and credibility of the results. In the current study, all 17 participants

were sent a two-page document with a bullet-point list of findings related to each code

along with an exemplar quote of at least three sentences (but often at least five) to

provide a thick description to help the respondent connect the actual interview quote with

the interpretation. Participants were asked if they agreed or disagreed with the findings of

each theme and also allowed for open-ended responses.

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Table 3. *Trustworthiness Protocol*

Trustworthiness Type	Definition	Quantitative Counterpart	Techniques Utilized
Credibility	Data are believable from the perspectives of the participants, hence congruent with their realities.	Internal validity	<ul style="list-style-type: none"> • Triangulation: Analyst triangulation techniques (with an outside expert, Dr. Lynny Chin) and Methods triangulation techniques (triangulation with the quantitative results) Triangulation techniques (Patton, 1999) • Member Checking: Synthesized Member Checking techniques (Birt, et al., 2016) • Saturation: Achieved in 3 focus groups. Using Directed Content Analysis to identify six initial coding categories, between 7-31 references were made to each category after the third interview. According to Guest, et al. (2017), 90% of themes will emerge in 3-6 focus groups.
Transferability	Findings allow for fit within similar contexts.	External validity	<ul style="list-style-type: none"> • The sample adheres to the principles of maximum variation sampling in mixed methods research (Palinkas, et. al., 2015) • The Directed Content Analysis technique (Hsieh and Shannon, 2005) promotes connections to existing theory. The initial coding categories were informed by existing theory and research related to the CECE model (Museus, 2016).

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Dependability (Consistency)	Post hoc, the results are consistent with the data collected but account for the ever-changing context.	Reliability	<ul style="list-style-type: none"> • An audit trail tracked the entire qualitative procedure and was shared with Dr. Lynny Chin for review (Lincoln & Guba, 1985) • The positioning statement (Creswell & Miller, 2000). • Member checking, Synthesized Member Checking techniques (Birt, et al., 2016)
Confirmability	During data collection and analysis, findings are logically confirmed by others.	Objectivity	<ul style="list-style-type: none"> • I utilize peer review, e.g., of interview protocols, transcripts, coding/analysis, and interpretation. Dr. Lynny Chin reviewed a summary of my audit trail, coding procedure, interpretation and member checking procedure.

Phase 2: Mixed Methods

The convergent design integrated the quantitative results with the qualitative results by merging the two datasets. The results were weighted equally with both statistical trends and lived experiences contributing equally to promoting a comprehensive understanding - neither strand was given priority. The findings from both strands were compared and contrasted with attention paid to the challenges inherent in integrating findings from different research methods.

Timing, Weighting, and Mixing. It is important to note that the timing of the data collection at the same institution differed between the two strands of research. The quantitative data was collected in late 2017 and early 2018 while the qualitative data was collected in early 2021. While all participants were undergraduate students at the same institution, none of the individuals who took the survey also participated in the focus groups. This created two levels of participants, those who attended the institution before the COVID-19 pandemic and those who attended the institution during the pandemic. It is not necessarily unorthodox for mixed methods studies to use different groups of participants in separate strands of research (Wittink, et al., 2006; Creswell & Plano Clark, 2018). Using different individuals for each strand can ensure that the two data forms are independent and that more perspectives are included (Creswell & Plano Clark, 2018). In the current study, using different individuals from different points in time allowed for the inclusion of the perspectives of students who had a completely “normal” college experience and those who attended college during the disruptions caused by the COVID-19 pandemic. Using different individuals also ensured that the two strands of data were

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independent, which, in conjunction with a design that addressed the same concepts across both strands, helped with comparing and contrasting the data during the integration stage.

In a convergent mixed methods design, it is recommended that researchers design their studies so that the quantitative and qualitative data address the same concepts as this strategy aids in merging the data sets (Creswell & Plano Clark, 2018). This technique has been called parallel data collection (Creswell & Plano Clark, 2018). As a means of ensuring that the same concepts were addressed across both the quantitative and the qualitative strands, the question items from the CECE engagement indicators were evaluated and the survey item stems were used to develop the questions used in the qualitative protocol. This method ensured that the same concepts were addressed across both strands of data and facilitated the integration of the data, which Axinn and Pearce (2006) call “the comparability of questions” (p. 74).

Another challenge for mixed methods researchers is how to address unequal sample sizes across the qualitative and quantitative strands. According to Creswell & Plano Clark (2018) “One good option is for the two samples to have different sizes, with the size of the qualitative sample being much smaller than the quantitative sample” (p. 188). This is exactly the method used in the current study with a quantitative sample of (n=258) and a qualitative sample of (n=17). In this way, a high-powered statistical analysis can be merged with rigorous in-depth qualitative exploration. However, the disparity in sample sizes can raise the question of how to compare the quantitative and qualitative data in a meaningful way since large quantitative samples aim to make generalizations about a population while qualitative samples seek to develop an in-depth understanding of a few people. According to Creswell & Plano Clark (2018) “if the

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intent of combining the two databases is to compare the different results by topic or to synthesize them into a complementary picture about the phenomenon, then this size differential is not a problem” (p. 188). This mixed-methods design utilizes the comparability of questions across both strands of data to develop a broader understanding of the sense of belonging of college students in the current environment.

In order to effectively compare, contrast, and merge the results across the qualitative and quantitative strands, the procedure followed a few simple integration steps. In a convergent design, interpretation involves not only identifying areas of congruence and discordance but also striving to understand how these points promote additional insights. First, the results from the two strands of research were reviewed, compared, and contrasted. Next, a narrative of these results was created with attention to how the results from the two strands were confirmed, expanded, or were in discordance with each other. By using compatible questions between the two strands, merging the strands of data around the six CECE engagement indicators was relatively straightforward. Confirmation occurred if the findings from both strands of data reinforced the results of the other. Expansion occurred when the findings from the two strands diverged and expanded insights of the engagement indicators by addressing different or complementary aspects of these constructs. Discordance occurred if the statistical and focus group results were inconsistent, contradictory, or disagreed with each other. Finally, a joint display table was created to visualize the integration of the quantitative and qualitative findings. Joint displays are a common method used for visualizing the integration of qualitative and quantitative data (Moseholm et al.2017; Creswell & Plano Clark, 2018). The quantitative and qualitative results were integrated

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into a visual mixed-methods joint display and the results were presented in summary identifying areas of congruence, incongruence, and expansion across each of the six CECE engagement indicators.

For the purposes of helping to visualize the trends in the qualitative data and comparing them to the quantitative results, the qualitative references were quantified by adding all references related to each of the CECE indicators. In the current study, a reference refers to a passage within the focus group related to one of the CECE indicators – no references were attributed to more than one indicator. As explained by Creamer (2018), quantitizing is the process of assigning numerical values to textual data for purposes of further analysis. Quantifying qualitative data is considered a staple of mixed methods research (Sandelowski, Voils, & Knafl, 2009). Quantifying is “generally accomplished by attaching codes to passages and, subsequently, attaching numerical values to the codes either through a deductive process (i.e., hypothesis generated from the literature) or inductively through an emergent approach” (Creamer, 2018, p. 119). The purpose of quantitizing is to aggregate or compare data in order to discern patterns of regularities and irregularities (Creamer, 2018). According to Bazely, (2009), the procedures to transform qualitative data into numbers or scores can be done with the purpose of facilitating comparison, showing relationships, and/or exploring, predicting, or explaining. I have chosen to quantitize the qualitative results to help in facilitating the comparison of the CECE indicators and showing the relationship between the CECE indicators while also helping to explore and explain how the lived experiences of students during the pandemic environment were reflected in their responses.

Limitations

While the current study helps expand the understanding of college student sense of belonging, there were two main limitations to the current study. The first limitation was the quantitative sample. All students were invited to take the CECE survey and students were self-selected into participating in the study, making it a convenience sample. Perhaps more importantly, the sample size was relatively small and the total number of some racial groups was very small (e.g. only 11 Latino/a/x students took the survey). Ideally, in sense of belonging research where the effect of student inputs such as race are of great importance, interaction terms would be calculated to better understand the interaction between student inputs such as race, gender, religion, etc. on sense of belonging. However, the sample size of the current study was not large enough to allow for the creation of interaction terms. Generalizability is another main limitation of this study. The institution where the data was collected was a small, liberal arts college in the South founded by the Mennonite Church USA. The Mennonites are a branch of Anabaptists and therefore quite distinct from other Christian denominations. These unique institutional characteristics mean that generalizations to other institutions should be made with caution.

Conclusion

The next chapter of this dissertation describes the results of the study. The results were obtained according to the methodology outlined in this chapter. The goal of mixing the qualitative and quantitative results is to gain a fuller understanding of the effects of the COVID-19 pandemic on college student sense of belonging.

CHAPTER FOUR: RESULTS

This chapter describes the results of the quantitative analysis, followed by the results of the qualitative analysis, and concludes with the integration of the results according to the convergent nature of the mixed methods research design. The results of the quantitative strand of the research (in order of presentation) consist of an analysis of the validity (using factor analysis) and reliability (using coefficient alpha) of the CECE engagement indicators, a correlation of the CECE engagement indicators with the measure of sense of belonging, a hierarchical multiple regression model (with appropriate testing of assumptions), and several one-way ANOVAs which expanded upon some of the more intriguing results from the regression model. The results of the qualitative strand of the research, which was conducted simultaneously with the quantitative strand, consisted of (in order of presentation), a descriptive analysis of the number of references referencing each code, and a list of the findings related to each code with an exemplar quote. The quantitative and qualitative results were integrated into a visual mixed-methods joint display and the results are presented in narrative identifying areas of congruence, incongruence, and expansion.

Quantitative Results

The descriptive statistics of the quantitative sample were presented in Table 1 in the previous chapter. The demographic characteristics of the sample were generally reflective of the overall student body. The reliability of the instrument and the relationship between the CECE constructs and sense of belonging were evaluated before

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a hierarchical multiple regression was conducted with sense of belonging as the outcome variable.

Factor Analysis and Reliability

Similar to the analysis conducted by Museus et al. (2017), the six CECE indicators were correlated with the sense of belonging outcome variable to evaluate their relationships (Table 4). All of the CECE indicators were correlated with each other and with sense of belonging at the $p < 0.01$ level. Notably, the three Cultural Responsiveness indicators (i.e. collectivist cultural orientations, proactive philosophies, and holistic support) demonstrated stronger relationships to a sense of belonging than the three Cultural Relevance indicators.

As discussed previously, the CECE instrument has demonstrated sound psychometric properties (Museus, et al., 2016). However, it is a good practice to evaluate the validity and reliability of an instrument on the sample used in the analysis. Therefore, an exploratory factor analysis was conducted on the six CECE indicators using principal axis factoring with an Oblimin rotation (an oblique rotation is appropriate considering that the CECE engagement indicators are moderately correlated) The results indicated that six factors were extracted. The reliability of the CECE instrument on the sample was evaluated by coefficient alpha. Table 4 provides coefficient alpha scores for each of the six CECE engagement indicators and lists all the items associated with each of these constructs. All alpha values were above 0.70, indicating the high internal consistency of the scales. Oddly, the coefficients were all clustered around 0.80 and therefore double-

checked for accuracy. There was some limited evidence of cross-loading of items between factors as illustrated in Table 5.

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Table 4. *Correlations*

	Cultural Familiarity	Cultural Community Service	Cultural Validation	Collectivist Cultural Orientations	Proactive Philosophies	Holistic Support	Sense of Belonging
Cultural Familiarity	1	.490**	.607**	.363**	.328**	.348**	.445**
Cultural Community Service	.490**	1	.655**	.332**	.314**	.294**	.360**
Cultural Validation	.607**	.655**	1	.486**	.409**	.342**	.487**
Collectivist Cultural Orientations	.363**	.332**	.486**	1	.512**	.529**	.573**
Proactive Philosophies	.328**	.314**	.409**	.512**	1	.604**	.534**
Holistic Support	.348**	.294**	.342**	.529**	.604**	1	.535**
Sense of Belonging	.445**	.360**	.487**	.573**	.534**	.535**	1

** . Correlation is significant at the 0.01 level (2-tailed).

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Table 5. *Exploratory Factor Analysis*

Question Item	Factor Loadings*					
	1	2	3	4	5	6
People at this institution often send me important information about new learning opportunities						.51
People at this institution often send me important information about supports that are available						.84
People at this institution check in with me regularly to see if I need support						.37
If I need support, I know a person at this institution who I trust to give me that support		.87				
If I have a problem, I know a person at this institution who I trust to help me solve that problem		.85				
If I need information, I know a person at this institution who I trust to give me the information that I need		.77				
In general, people at this institution help each other succeed	.83					
In general, people at this institution support each other	.78					
In general, people at this institution work together toward common goals	.72					
It is easy to find people at this institution with similar backgrounds as me				.70		
I frequently interact with people from similar backgrounds as me at this institution				.75		
It is easy to find people at this institution who understand me	.33			.57		
It is easy to find people at this institution who understand my struggles	.30			.55		
People at this institution are generally willing to take time to understand my experiences	.51					
At this institution, there are sufficient opportunities for me to connect with people from my cultural communities				.30	-.45	
In general, people at this institution value knowledge from my cultural communities					-.79	
In general, my cultural communities are valued at this institution					-.73	
In general, people at this institution value the experiences of people in my cultural communities					-.75	
At this institution, there are enough opportunities (e.g., research, community service projects, etc.) to help improve the lives of people in my cultural communities			.77			
At this institution, there are enough opportunities (e.g., research, community service projects, etc.) to give back to my cultural communities			.93			
At this institution, there are enough opportunities (e.g., research, community service projects, etc.) to positively impact my cultural communities			.85			

Notes: *Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. *values below 0.3 were suppressed for clarity.*

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Table 6. *Reliability*

Construct Domain	Construct and Item Text	α
Cultural Relevance	Cultural Familiarity	
	It is easy to find people on campus with similar backgrounds as me	.80
	I interact with people from similar backgrounds as me frequently on campus	
	There is sufficient space for me to connect with people from my community	
	Cultural Community Service	.80
	There are enough opportunities to help improve the lives of people in my cultural community	
	There are enough opportunities to give back to my cultural community	
	There are NOT enough opportunities to positively impact my cultural community*	
	There are enough opportunities to make a positive difference in my cultural community	
	There are NOT enough opportunities to help solve problems in my cultural community*	
Cultural Responsiveness	Cultural Validation	.77
	People on campus value the cultural knowledge that I possess	
	My culture is valued on campus	
	People on campus do NOT value my cultural community	
	People on campus value the experiences of people in my cultural community	
	People on campus do NOT value the knowledge possessed by people in my cultural community*	.80
	Collectivist Orientations	
	People on this campus help each other succeed	
	People on this campus do NOT support each other	
	People on this campus work together toward common goals	
	Proactive Philosophies	.80
	People on this campus often send me important information about new learning opportunities	
	People on this campus often send me important information about support that is available on campus	
	People on campus do NOT often push me to seek out new learning opportunities*	
	People on campus often push me to take advantage of new learning opportunities	
	I feel like I have to hunt down new learning opportunities on my own*	.81
	Holistic Support	
	If I need support, I know a person on campus who I can trust to give me that support	
	If I have a problem, I know a person on campus who I can trust to help me solve that problem	
	If I need information, I know a person on campus who I can trust to give me the information I need	
	If I have a question, there is NOT a person who I can trust to answer it*	
	There is someone on campus I can trust to help me, no matter what kind of support I need	

Hierarchical multiple Regression Model

Next, a hierarchical multiple regression (Table 6) was used to evaluate the predictive power of the variable blocks explained in the previous chapter on sense of belonging. The first regression model consisting of the demographic variables (race, gender, religion, the second generation in college or beyond, and socioeconomic status) revealed that black students were less likely to ($b = -.14$) to feel that they belong when compared to white students (the reference group). In addition, Mennonite students were more likely ($b = .19$) to feel that they belonged compared to non-Mennonite students. In model one, the R^2 value was .08, meaning that model one explained approximately 8 percent of the variance in the sense of belonging score. When the second block of variables (high school GPA and completed credits) were added, very little change in the r-squared or beta coefficients was observed. When controlling for these additional two variables, the standardized beta coefficients from the statistically significant results in the first block of the regression model remained essentially unchanged. In model two, the R^2 value was .08, reflecting an R^2 change of approximately .00. This means that adding high school GPA and completed credits did not appreciably increase the predictive power of the regression model. In the third block, the Cultural Relevance variables (Cultural Familiarity, Cultural Community Service, and Cultural Validation) were added to the regression model. Cultural Familiarity ($b = .22$) and Cultural Validation ($b = .27$) were statistically significant. After adding the Cultural Relevance variables to the model, the Mennonite and black variables were no longer statistically significant. In model three, the R^2 value was .31, reflecting an R^2 change of approximately .23. In block four of the regression model, the Cultural Responsiveness (Collectivist Cultural Orientations,

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Proactive Philosophies, and Holistic Support) variables were added to the regression model. Collectivist Cultural Orientations ($b=.26$), Proactive Philosophies ($b=.20$), and Holistic Support ($b=.19$) were all statistically significant. After adding the Cultural Responsiveness variables, none of the other variables were statistically significant. In model four, the R^2 value was .51, reflecting an R^2 change of approximately .20. The hierarchical approach permitted the examination of the unique contribution of the CECE indicators in explaining the variance in the sense of belonging outcome variable.

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Table 7. *Predicting Student Sense of Belonging: Hierarchical Multiple Regression Results*

Variables	Model			
	1	2	3	4
Race (Reference = White)				
Asian	.005	.003	.056	.018
Black	.136*	.135*	.057	.018
Latino/a/x	.038	.034	.013	.012
Multiracial	.081	.076	.010	.060
Female (Reference = Female)	.047	.050	.005	.041
Mennonite (Reference = Mennonite)	.190**	.193**	.114	.073
2nd Generation in College or Beyond	.015	.003	.003	.015
Socioeconomic Status (Reference = Middle Class)				
Working class	.009	.012	.001	.015
Upper class	.063	.067	.001	.023
High School GPA		.015	.008	.052
Completed Credits		.058	.043	.038
Cultural Familiarity			.218**	.122
Cultural Community Service			.103	.041
Cultural Validation			.269***	.107
Collectivist Cultural Orientations				.259***
Proactive Philosophies				.202**
Holistic Support				.191**
R ²	0.08	0.08	0.31	0.51
Adjusted R ²	0.04	0.04	0.27	0.48
R ² Change	0.08**	0.00	0.23***	0.20***

Notes: * $p < .05$. ** $p < .01$ *** $p < .001$. Standardized beta coefficients are shown.

Qualitative Results

The qualitative results were coded according to six CECE engagement indicators as prescribed by the Directed Coding Analysis technique. The number of references made by participants to each of the six codes was counted. Then, the number of references from each code was summed and divided to calculate the percentage of references made to each code as a percentage of the overall total. Then, the number of references to each code addressing how the COVID-19 pandemic changed the circumstances related to each of the engagement indicators were counted, summed, and divided in the same manner. This method provided a way of evaluating the relative importance of each of the engagement indicators to sense of belonging overall and in light of the changing conditions caused by the COVID-19 pandemic. A summary of the qualitative findings related to each of the codes is provided in Table 8. Table 9 provides a summary of the demographic characteristics of the quoted focus group participants.

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Table 8. *Summary of Qualitative Findings*

CECE Domains and Indicators		Qualitative Findings	
	Number of total references (percent)	Number of references as conditions changed by the pandemic	Findings with exemplar quotes indicating how the pandemic changed (or did not change) the conditions of the CECE indicators.
Cultural Responsiveness	28 (29%)	9 (37%)	
Cultural Familiarity	11 (11%)	8 (33%)	<p>Findings:</p> <ul style="list-style-type: none"> It seems that the pandemic made it more difficult for students to connect with people from similar backgrounds. It seems that the pandemic affected the extent to which made new connections. The lack of opportunities to make new connections caused students to rely more heavily on established connections. <p>Exemplar quote: “I have those two friends that I graduated with from high school. So we always like meet in the library. And our library is just our place like we come to the library, we do homework. But for next year, I'm like hoping to do more clubs so I can interact with different people and learn more about different things.”</p>
Cultural Community Service	7 (7%)	1 (4%)	<p>Findings:</p> <ul style="list-style-type: none"> It seems that the pandemic limited opportunities for students to give back and transform their cultural communities. <p>Exemplar quote: “So I was going to say, well, [the International Student Organization] had this [International Food Festival], where like, at the beginning, you would go and taste all this different food, but like, with COVID, we can't have that because, you know, we can't be in large groups.”</p>
Cultural Validation	10 (10%)	0 (0%)	<p>Findings:</p> <ul style="list-style-type: none"> It seems that, overall, the pandemic did not appreciably alter the extent to which students felt valued by [my institution]. <p>Exemplar quote: “[Sometimes] I feel like is a bit more challenging to feel, feel heard or guided in. But for the most part, I would say definitely like I feel I feel like I'm valued and my experiences are valued too.”</p>

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Cultural Relevance	68 (71%)	15 (63%)	
Collectivist Cultural Orientations	14 (15%)	7 (29%)	Findings: <ul style="list-style-type: none"> Overall, students at [this institution] felt that the campus culture during the pandemic promoted common goals. The pandemic promoted feelings of solidarity. Students felt that they shared the common goal of working together to continue the residential living and learning experience. Students felt they shared the common goal of keeping the EMU community safe. <p>Exemplar quote: “I’m so proud of how [our institution] handled everything, there will be your, like, little straggler group of kids that’s not wearing a mask and is like, oh, let’s, you know, break all the rules. But everyone has this common goal of we want to live here. We like it here.”</p>
Proactive Philosophies	23 (24%)	4 (17%)	Findings: <ul style="list-style-type: none"> Faculty and staff at EMU proactively ensured students had access to information, opportunities, and support during the pandemic. Proactive messaging from faculty and staff offering support, opportunities, and information increased feelings of belonging. Feeling well informed about opportunities and services made students feel supported. <p>Exemplar quote: “Over the past year, with a pandemic and just sort of like for me personally, I was in quarantine a few different times. And so I think during those times, for me, I felt very supported and felt like I had resources. I like definitely had people like people checking in and like calling me from like, like health services and like mental health professionals. And I think that like having that like immediately like established in the beginning them having that in place for me, that was really nice for me to not have to. Like I know that if I didn’t have that I would be able to reach out and find anyways but they like have that in place immediately from the start. So that was a really, really big deal for me.”</p>
Holistic Support	31 (32%)	4 (17%)	Findings: <ul style="list-style-type: none"> Overall, students felt that they had access to one or more people on campus who they were confident would provide the information or support they needed. Virtual forms of communication made access to information or support faster. Overall, people on campus providing information and support were empathetic and understanding. <p>Exemplar quote: “It’s way easier. Like now I can actually like text the advisors and check on something, not just like, it’s not hard to know if I have a question. I would just [message my advisor] what do you think about this class? Should I take it or not? He would give advice. Well, that’s great. That’s great.”</p>

Table 9. *Quoted Participant Pseudonyms and Demographics*

Participant Pseudonym	Gender	Race	Affiliation
Eric	Male	Black	Not Mennonite
Becca	Female	Multiracial	Mennonite
Anne	Female	Asian	Mennonite
Katie	Female	White	Mennonite
Gary	Male	White	Not Mennonite
Quinn	Female	White	Not Mennonite
Nikki	Female	White	Mennonite
Oliver	Male	White	Mennonite
Lyle	Male	White	Mennonite
Felicia	Female	White	Not Mennonite
Horace	Male	Black	Not Mennonite

Cultural Familiarity. The cultural familiarity engagement indicator was included in the focus group protocol using the following question; “Is there a good space to connect with people of similar backgrounds at this institution?” and probe, “Is it easy to connect with people of similar backgrounds here?” These questions led to a discussion of the Cultural Familiarity engagement indicator and any references to how the conditions of the COVID-19 pandemic affected the construct arise organically from the participants. A quote that typifies the responses to this question comes from Eric, a black male student:

Um, yeah, I think, um, yeah, me, there's the ISO - international student organization. It's kinda like a club where, you know, international students get together and we usually have food, from different cultures and all that. So, and like we tell stories to each other, which is really nice. And there's definitely a feeling of belonging there. Yeah, and then there's also like, BSA. That's the Black

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Student Alliance, which also is because [this] is a predominantly white campus.

Yeah, there are also those spaces where people can bond.

A quote that is reflective of how the COVID-19 pandemic has changed the conditions for connecting with people of similar backgrounds comes from Becca, a multiracial female:

Um, I feel like the social distancing and like the mask-wearing kind of made it hard to like, create more connections and friends, because we can't be close to each other because of the cause of COVID. And then we were limited to like, certain doing certain things, which kind of like, I guess, made it harder for me to make more friends, because I make friends on sports teams, because I'm always around, those people don't really have a choice. But I don't really have many friends, like in my classes, especially since they're on zoom. We've got a big breakout rooms and no one talks because it's just awkward. So I don't really get to know people.

The Cultural Familiarity construct was referenced relatively often both in normal contexts and in the context of the COVID-19 pandemic. In fact, within the Cultural Relevance domain, the Cultural Familiarity engagement indicator was the most frequently referenced construct and was the most referenced construct overall in relation to the changed conditions brought on by the COVID-19 pandemic. The experiences described by the participants related to cultural familiarity seem to indicate that there are opportunities for students to connect with people from similar backgrounds but the COVID-19 pandemic drastically changed and limited the avenues for connection.

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Participants described difficulties making genuine connections outside of certain bubbles such as a sports team or hallmates. The many student organizations catering to people of similar backgrounds, experiences, and interests had to curtail the usual in-person events and instead shift towards online formats which participants felt were awkward and stunted opportunities to make new connections. The lack of quality opportunities to make new connections caused students to rely more heavily on established connections. Often, these established connections were friends from high school, members of the same sports team, or hallmates. The results indicate that online class and event formats are not conducive to connecting with people of similar backgrounds.

Cultural Community Service. The meaning of “Cultural Community” in the context of the study was orally presented to the focus group participants before the related questions were asked. Specifically, Cultural Community was introduced as a way to “describe other people you most identify with, but these identities can and do coverage and interact. For example, you may be a first-generation college student and want to help other first-generation students succeed.” The Cultural Community Service engagement indicator was included in the focus group protocol using the following question: “are there enough opportunities at this institution to help improve the experiences of other people that you consider to be in your “cultural community”? and probe “What, if any, opportunities does this institution provide to give back to your cultural community?”. These questions led to a discussion of the Cultural Community Service engagement indicator and any references to how the conditions of the COVID-19 pandemic affected the construct arise organically from the participants. A quote that typifies the responses to this question comes from Katie, a white female student:

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Um, yeah, like, I grew up Mennonite. And boy, I feel like this college was kind of made for people of my culture. So yeah, it's, um, it was definitely like, at least originally kind of made to help people like me improve, I guess if that's kind of answering your question.

A quote that is reflective of how the COVID-19 pandemic has changed the conditions for Cultural Community Service comes from Anne, an Asian female:

So I was going to say, well, they [the International Student Organization] had this big food thing, where like, at the beginning, you would go and taste all this different food, but like, with COVID, we can't have that because, you know, we can't be in large groups.

The Cultural Community Service construct was the least referenced engagement indicator overall, with only eight total references. In relation to the other engagement indicators, Cultural Community Service was of relatively lower importance. In general, the focus group conversations on this topic were brief and students did not go back and reference this construct later.

Most students thought there were sufficient opportunities for giving back to and improving their cultural communities, although some students didn't know of or were not actively looking for these kinds of opportunities. The participants mentioned special interest, cultural, and religious clubs as providing opportunities for cultural community service.

Cultural Validation. The cultural validation engagement indicator was included in the focus group protocol using the following question; Do people at this institution

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value the experiences of people in your cultural community? and probe, Do people at this institution value the experiences of people in your cultural community? These questions led to a discussion of the Cultural Validation engagement indicator and any references to how the conditions of the COVID-19 pandemic affected the construct arise organically from the participants. A quote that typifies the responses to the initial question comes from Gary, a white male student:

I'm not religious. I'm actually agnostic. So I was also nervous going to you, at the same time, because they are a Christian University. But let's like talk me in class, like I'm pretty vocal when it comes to talking about a religion in class, especially when it's a topic of discussion. Everyone's been super open. Even when I've been very adamant about being agnostic, and like, given reasons why I am everyone's been like, very open to that. And it's been really cool.

There were no references to how the conditions caused by the COVID-19 pandemic affected the construct of cultural validation. It seems that feeling that the institutional community validation of cultural communities stayed the same despite the pandemic. While most participants felt that the institution valued their cultural communities, several students identified as belonging to multiple cultural communities and thought that some parts of their identity were valued while others were. Eric, a black male, summed up how the intersection of multiple identities led to complex feelings toward cultural validation:

I think different parts of my identity feel welcome. And feel like I belong at different times. And sometimes, yeah, I feel represented, sometimes they don't.

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Yeah, but generally speaking, as an international student, I think that I would consider EMU home in the US.

Collectivist Cultural Orientations. The Collectivist Cultural Orientations engagement indicator was included in the focus group protocol using the following question: Do people at this institution help each other succeed? and probe, What if any, common goals do people work towards at this institution? These questions led to a discussion of the Collectivist Cultural Orientations engagement indicator and any references to how the conditions of the COVID-19 pandemic affected the construct arise organically from the participants. Eric, a black male described his experience relating to how faculty and staff at the institution facilitated student success:

I would say a lot of the things they emphasize is like together and yeah, part of what they kind of always say is lead together. And it's usually focused around enabling students to lead together with, with their peers and with their co profs and with, you know, faculty and staff. Yeah, I think they and I also think they do that pretty well with reaching out to students with different clubs, and then also like, enabling students to be in all of these like leadership position.

Becca, a multiracial female, described how students helped each other succeed:

Like, you can literally go up to stranger and ask for like help. And they will give you the best help that they could especially like in classes, because in my bio classes, I usually do not know what's going on, especially in labs. So I'm always asking people like, what do we do here? Or when is it due? And when are the questions and they'll they're always friendly and helped me out.

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Across the three focus groups, there was a high degree of agreement that people at the institution appeared eager to help each other. In addition, the conditions of the pandemic seemed to encourage most members of the campus community to work towards the common goal of keeping each safe. Quinn, a white female summed up these feelings:

Yeah, there's definitely [a goal]. It's not totally universal. But I think in general, I think the common goal is, I think we're mostly on the same page and want to want to make it is safe for everyone here.

Collectivist Cultural Orientations was a frequently referenced engagement indicator and the frequency of references increased in light of the conditions of the COVID-19 pandemic. This increase was driven by two factors: 1) Many participants who discussed how staff and professors provided support and flexibility to students impacted by the COVID-19 pandemic; and 2) the desire to keep each other safe and to keep case counts low so that students could continue to participate in a residential college experience.

Holistic Support. The Holistic Support engagement indicator was included in the focus group protocol using the following question: “If you are faced with a challenge, are there people on campus that you trust to help you?” and probe, “If you need information, can you find it when you need it?” These questions led to a discussion of the Collectivist Cultural Orientations engagement indicator and any references to how the conditions of the COVID-19 pandemic affected the construct arise organically from the participants. Anne, an Asian female, described multiple trusted sources of support:

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Yeah, for my situation, I've had a lot of my professors know, they're always there to help me, I'm mainly referring to like my music professors, because, you know, they're going to walk with me, like, through all my classes and everything, and just, you know, my journey as a young musician, I have been able to talk to them about not only maybe I feel like, I'm not progressing, but also, you know, just my life problems. [Name of professor] he was my transitions teacher in the first semester. And so when I was really going through it, then you know, he was also there for me to open up. And I have formed a really great friend group who, you know, I can just talk to them about anything, and, you know, they'll be there to support me as best they can.

Across the three focus groups, many participants named at least one person on campus that they trusted to help them overcome a challenge. Some, like Anne, mentioned several people that they had turned to for support. The eagerness of participants to name people who helped them contributed to Holistic Support becoming the most frequently referenced engagement indicator. Interestingly, responses to the probe question were quite varied and the participants seemed eager to respond to this probe as well. The variations followed two main themes. First, several students voiced frustration with being shuffled around to different people when looking for information. Some also expressed dissatisfaction with the accuracy and quality of the information provided. Katie, a white female, described the theme of feeling like her quests for information were frustrating and fruitless:

I've also experienced, like, questions being bounced around to different people trying to find an answer, and then never really hearing anything back

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Nikki, a white female described her difficulty with finding relevant information:

I can get really fired up about this. Um, this is one of my biggest frustrations with this institution - I love the school and I don't regret going here. But gathering information is sometimes too difficult.

However, some students indicated that the responsiveness and accessibility of faculty and staff improved during the pandemic. Oliver, a white male, described this:

Because there's weird hours COVID they're all really pretty responsive when you email them. So in that, in that sense, even if you can't find answers immediately, if you email a specific department, it's usually pretty fast and responsive to get an answer back. That's great.

Students noted that the pandemic resulted in new and often more responsive methods of communication. Quick responses made students feel heard and valued.

Proactive Philosophies. The Proactive Philosophies engagement indicator was included in the focus group protocol using the following question: “Do people at this institution often inform you about new learning opportunities?” and probe, “What, if any, support services have people on campus encouraged you to use? These questions led to a discussion of the Proactive Philosophies engagement indicator and any references to how the conditions of the COVID-19 pandemic affected the construct arise organically from the participants. Proactive Philosophies was the second most commonly referenced construct. Participants described varied sources of information and support including outreach from student clubs, professors, administrators, counselors, coaches, and advisors. Gary, a white male, described feeling a natural flow of information and support:

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There's always been like this flow of this connection to people and to opportunities that my teachers have let me know about.

However, some students, including Lyle, a white male, described having to seek out information and support on their own:

I think it might depend on the program you're in because I have the exact opposite answer, where I feel like all the independent internship stuff, and independent research opportunities beyond what's just required for major or if new minors and things are added. I've 100% of the time just had to seek it out myself and ask professors about it.

These differing perceptions extended to the experiences of participants during the pandemic as well. Felicia, a white female, described the outreach and support she received while quarantining:

I was just thinking like, over the past year, with a pandemic and just sort of like for me personally, I was in quarantine a few different times. And so I think during those times, for me, I felt very supported and felt like I had resources. I like definitely had people like people checking in and like calling me from like, like health services and like mental health professionals. And I think that like having that like immediately like established in the beginning them having that in place for me, that was really nice for me to not have to figure out for myself.

Eric, a black male described his experience of feeling a bit ignored and forgotten as an international student with nowhere else to go when the pandemic hit:

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I was also told that we would also be taken care of for this summer with jobs and housing and all that. But then when the pandemic hit, there were a lot of there are a lot of things that came up there, we as an international student couldn't do. And also campus wasn't like, we like couldn't stay on campus as well. So I have to, like end up bouncing between people and some, like relatives around the US and stuff. And so during that time, I was like, do I not belong at [this institution]?

Overall, the participants shared experiences outlining differing levels of perceived engagement and support offered by the institution. The statements by Eric and Lyle highlight how different identities and experiences (such as being an international student or being in a major with fewer resources), led to different perceptions of Proactive Philosophies.

Member Check Results. All 17 participants were invited to participate in a member check. Of the five respondents, three were male and two were female, three were white and two were black, three were non-Mennonite and two were Mennonite. The responses from the member check provided both confirming and disconfirming data. Four out of the five-member check respondents agreed with all of the qualitative findings and provided comments that supported the findings. One of the respondents, Horace, a black male, disagreed with the findings related to collectivist cultural orientations. Specifically, he said “I feel like students did not necessarily feel like they shared a common goal. In fact, it felt more individualistic because of isolation, even with opportunities of engagement with other people.” Horace’s response suggested that some

participants may not have felt comfortable speaking in opposition to the general consensus of the focus group members during the focus group discussion. The reasons for Horace's reluctance to speak out in the focus group but to share his thoughts during the member check process could have been related to his racial minority status. This possibility is explored in more detail in the mixed methods integration section of this chapter.

Mixed Methods Integration

The quantitative and qualitative results described in chapter four were compared, contrasted, and integrated. A joint display was used to visualize the integration of results (Figure 5). The integration of the quantitative and qualitative can lead to three possible outcomes; confirmation, expansion, and discordance. Confirmation refers to findings from both strands of data that reinforce the results of the other. Expansion refers to findings from the two strands that diverge and expand insights by addressing different or complementary aspects of these constructs. Discordance refers to quantitative and qualitative results that are inconsistent, contradictory, or disagreeing with each other.

The integration of the results suggested the primary importance of the three engagement indicators (Collectivist Cultural Orientations, Holistic Support, and Proactive Philosophies) within the Cultural Responsiveness domain. The quantitative results showed that the three Cultural Responsiveness engagement indicators were all statistically significant at an alpha level of $p < .01$ or $p < .001$ and with beta coefficients between .19 and .25 in the final regression model. The qualitative results showed that the

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Cultural Responsiveness engagement indicators encompassed 71 percent of the total focus group references. Each of the three Cultural Responsiveness engagement indicators received more references in total than any of the Cultural Relevance engagement indicators. Furthermore, none of the Cultural Relevance engagement indicators were statistically significant in the final regression model. Taken together, these results suggest the primary importance of Collectivist Cultural Orientations, Holistic Support, and Proactive Philosophies in predicting and describing sense of belonging. However, in the context of the COVID-19 pandemic, the percentage of references and descriptions of the six engagement indicators shifted somewhat. In addition, the qualitative strand helped illuminate how interacting and intersecting identities and student experiences changed perceptions towards the engagement indicators in ways that expanded understanding of the phenomenon.

Cultural Relevance Domain

The three CECE engagement indicators within the Cultural Relevance domain are Cultural Familiarity, Cultural Community Service, and Cultural Validation. The three constructs within this domain were entered into the third regression model – before the three Cultural Responsiveness engagement indicators were included in the fourth and final model. Therefore, the predictive effects of this domain on sense of belonging can be evaluated separately from the Cultural Responsiveness domain. When the three engagement indicators in the Cultural Relevance domain were added to the regression model, the adjusted r-squared value increased from .04 to .27, which indicates that the inclusion of this domain significantly increased the predictiveness of the model.

Interestingly, after adding the effects of the Cultural Relevance domain into the model,

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the religious and racial identities of students (Mennonite and Black were statistically significant in model two), and these variables related to student identity were no longer statistically significant over and above the Cultural Relevance variables. This suggests that when controlling for the effects of the Cultural Relevance domain, which focuses on the extent to which campus environments are culturally relevant to diverse student populations, perceiving that the campus environment is relevant to cultural identities reduces the predictiveness of the underlying identities themselves on feelings of belonging. Simply put, the cultural relevance of the institution mattered even though the engagement indicators within that domain were not statistically significant when the Cultural Responsiveness engagements indicators were added to the final regression model. The qualitative results supported the importance of the Cultural Relevance domain as approximately 31 percent of total qualitative references were made to engagement indicators within this domain. The share of references to this domain actually increased in the context of the pandemic, almost entirely because of a large increase in the number of references to Cultural Familiarity.

In model three, Cultural Familiarity was statistically significant ($\beta=.218, p = .003$) and had the second-highest standardized beta coefficient and the highest number of total qualitative references (19) of any of the Cultural Relevance engagement indicators. The importance of Cultural Familiarity seemed to increase because of the changing conditions caused by the COVID-19 pandemic. While the total percentage of references to Cultural Familiarity was equal to only 11 percent, in the context of the pandemic, the percentage of references to this engagement indicator increased to 33 percent. The qualitative results suggested the conditions caused by the pandemic made it very difficult for students to

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connect with people of similar backgrounds, limited the extent to which students were able to establish new connections, and caused students to rely more heavily on established connections. As Darcy, a black female student explained:

I have those two friends that I graduated with from high school. So we always like meet in the library. And our library is just our place like we come to the library, we do homework. But for next year, I'm like hoping to do more clubs so I can interact with different people and learn more about different things.

Integrating the quantitative and qualitative results resulted in an expansion of the understanding of Cultural Familiarity. The results suggest that Cultural Familiarity is an important predictor of sense of belonging. Due to the effects of the pandemic, connecting with people of similar backgrounds became much more difficult. The limited ability to connect to others led to relative isolation from others with similar backgrounds, which inhibited opportunities to foster belonging.

The Cultural Community Service engagement indicator was not a statistically significant predictor of sense of belonging in the third regression model. In the qualitative strand, Cultural Community Service was referenced seven times and represented seven percent of total references and only four percent (one reference) of total references in relation to the changing conditions caused by the pandemic. These results suggest that, overall, opportunities for Cultural Community Service were not a particularly important engagement indicator. However, the qualitative results suggested that perhaps students from some cultural backgrounds may find these opportunities more meaningful. For example, Eric, a black male international student had this to say:

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So I was going to say, well, [the International Student Organization] had this [International Food Festival], where like, at the beginning, you would go and taste all this different food, but like, with COVID, we can't have that because, you know, we can't be in large groups.

The integration of the quantitative and qualitative results suggests that the results from these strands were congruent. Cultural Community Service was not a statistically significant predictor of sense of belonging in the regression model and was not referenced often in the qualitative analysis either – especially in the context of the pandemic.

The Cultural Validation engagement indicator was statistically significant ($\beta=.269, p = .001$) and had the highest standardized beta coefficient of any of the Cultural Relevance engagement indicators in model three. Cultural Validation was referenced 10 times in the qualitative strand, which represented 10 percent of all references. However, none of the qualitative references were in relation to the changing conditions caused by the pandemic. It seems that cultural validation is an important contributor to sense of belonging and that student perceptions of cultural validation were not changed by the changing campus conditions caused by the pandemic. This makes sense as this engagement indicator focuses more on feelings of validation and acceptance of cultural background and less on opportunities for engagement and support when compared to the other engagement indicators. An interesting finding from the qualitative strand is that students with multiple and intersecting identities may experience cultural validation differently. They may perceive that some parts of their identity belong while others do not at different points in time. Eric, a black male international student explained this:

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I think different parts of my identity feel welcome. And feel like I belong at different times. And sometimes, yeah, I feel represented, sometimes they don't.

The integration of the quantitative and qualitative strands resulted in an expansion of understanding. These insights into the perceptions of Cultural Validation by students with multiple identities resulted in an expansion of the understanding of this construct.

Cultural Responsiveness Domain

The three CECE engagement indicators within the Cultural Relevance domain are Collectivist Cultural Orientations, Holistic Support, and Proactive Philosophies. The three constructs within this domain were entered into the fourth regression model – after the three Cultural Relevance engagement indicators were included in the third model. Therefore, the predictive effects of this domain on sense of belonging can be evaluated separately from the Cultural Responsiveness domain. When the three engagement indicators in the Cultural Responsiveness domain were added to the regression model, the adjusted r-squared value increased from .27 to .48, which indicates that the inclusion of this domain significantly increased the predictiveness of the model. Interestingly, after adding the effects of the Cultural Responsiveness domain into the model, the effects of the Cultural Familiarity and Cultural Validation engagement indicators were no longer statistically significant over and above the effects of Collectivist Cultural Orientations, Proactive Philosophies, and Holistic Support. This suggests that when controlling for the effects of the Cultural Responsiveness domain, which focuses on the extent to which campus environments are culturally responsive, perceiving that the campus environment is culturally relevant no longer statistically

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significantly predicts sense of belonging. This does not mean that student identities or Cultural Relevance are not meaningful, but it does suggest the relatively higher importance of the Cultural Responsiveness domain in predicting sense of belonging. The qualitative data reflect these quantitative results as 71 percent of all focus group references were made to engagement indicators within the Cultural Responsiveness domain. In relation to the changes caused by the pandemic, the number of references dropped slightly to 63 percent of all references.

The Collectivist Cultural Orientation engagement indicator was statistically significant ($\beta=.259, p = <.001$) and had the highest standardized beta coefficient of any of the variables in the final regression model. Collectivist Cultural Orientations was referenced 14 times in total, which represented 15 percent of total references. The importance of Collectivist Cultural Orientations seemed to increase because of the changing conditions caused by the COVID-19 pandemic. While the total percentage of references to Cultural Familiarity was equal to only 15 percent, in the context of the pandemic, the percentage of references to this engagement indicator increased to 29 percent. The qualitative results suggested the conditions caused by the pandemic resulted in feelings of solidarity and with students sharing the common goal of keeping each other safe and keeping cases low enough so that some in-person activities could continue. Nikki, a white female student, described these feelings:

I'm so proud of how [our institution] handled everything, there will be your, like, little straggler group of kids that's not wearing a mask and is like, oh, let's, you know, break all the rules. But everyone has this common goal of we want to live here. We like it here.

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Oliver, a white male, described similar perceptions of sharing the common goal:

I think also that common goal, like it is definitely sort of like a struggle to need to like, yeah, I mean, pretty much anytime that you're building, you're wearing a mask. And sort of tough, there's like two weeks where we had to leave our wear mask every time we left our room. Because there's code was like really bad. But I think it's sort of like that, like, a little bit of a struggle that everyone is going through. But like all aim towards the same goal. It just sort of like increases the sense of community, I think.

Integrating the quantitative and qualitative results resulted in an expansion of the understanding of Collectivist Cultural Orientations. The results suggest that Collectivist Cultural Orientations is an important, and perhaps the most important, a predictor of a sense of belonging, as it was a strong predictor before the pandemic and only seemed to increase in relative importance during the pandemic. Before the pandemic, there was already a sense of common purpose and helping each succeed. Sharing the common goal of keeping the campus community safe and operating increased the feelings of pride and solidarity and promoted sense of belonging. The results suggested that the perception that others on campus would help each other succeed was also strong, including in the context of the pandemic.

However, these feelings were not universal, Horace, a black male, disagreed with the findings related to collectivist cultural orientations during the member check process. Specifically, he said:

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I feel like students did not necessarily feel like they shared a common goal. In fact, it felt more individualistic because of isolation, even with opportunities of engagement with other people.

Horace's response suggested that some participants may not have felt comfortable speaking in opposition to the general consensus of the focus group members during the focus group discussion. The reasons for Horace's reluctance to speak out in the focus group but to share his thoughts during the member check process could have been related to his racial minority status. A one-way ANOVA was conducted to investigate possible differences in Collectivist Cultural Orientation scores by racial status. The results showed that compared to white students, black students were significantly less likely to agree with the Collectivist Cultural Orientations construct $F(5, 253) = 10.916, p = .033$. No differences were observed between white students and Asian, Latino/a/x, or multiracial students. These results suggest that black students at the institution are less likely, on average, to share perceptions of mutual support, solidarity, and common goals than other student groups.

The Proactive Philosophies engagement indicator was statistically significant ($\beta = .202, p = < .002$) and had the second-highest standardized beta coefficient of any of the variables in the final regression model. Proactive Philosophies were referenced 23 times in total, which represented 24 percent of total references. The importance of the Proactive Philosophies seemed to decrease a bit because of the changing conditions caused by the COVID-19 pandemic. In the context of the pandemic, the percentage of references to this engagement indicator decreased to 17 percent. The qualitative results suggest that faculty and staff proactively ensured students had access to information,

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opportunities, and support during the pandemic, feeling well informed about opportunities and services made students feel supported, and proactive messaging from faculty and staff offered support, opportunities, and information increased feelings of belonging. Felicia, a white female student, described the proactive support she received:

Over the past year, with a pandemic and just sort of like for me personally, I was in quarantine a few different times. And so I think during those times, for me, I felt very supported and felt like I had resources. I like definitely had people like people checking in and like calling me from like, like health services and like mental health professionals. And I think that like having that like immediately like established in the beginning them having that in place for me, that was really nice for me to not have to. Like I know that if I didn't have that I would be able to reach out and find anyways but they like have that in place immediately from the start. So that was a really, really big deal for me.

The integration of the quantitative and qualitative strands demonstrated the congruence of the results. Proactive Philosophies was strongly related to sense of belonging both before and during the pandemic. However, the circumstances caused by the pandemic did shift the content of outreach messages, as students mentioned receiving lots of information about mental health support, updates on the campus COVID-19 dashboard, how to keep the community safe, and other health information.

The Holistic Support engagement indicator was also statistically significant ($\beta=.191, p = <.002$) in the fourth regression model. Holistic Support was referenced 31 times in total, which represented 32 percent of total references, the most of any of the

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engagement indicators. The importance of Holistic Support seemed to decrease because of the changing conditions caused by the COVID-19 pandemic. In the context of the pandemic, the percentage of references to this engagement indicator decreased to 17 percent. The findings suggested that most students felt that they had access to one or more people on campus who they were confident would provide the information or support they needed. Virtual forms of communication made access to information and support faster. Also, students felt that people on campus providing information and support were empathetic and understanding. Ida, a white female, explained how she felt supported and how texting her advisor helped her receive the guidance she needed faster:

It's way easier. Like now I can actually like text the advisors and check on something, not just like, it's not hard to know if I have a question. I would just [message my advisor] what do you think about this class? Should I take it or not? He would give advice. Well, that's great. That's great.

The integration of the quantitative and qualitative strands expanded the understanding of the results. Feeling supported and having access to one or more people on campus who they trusted to provide help or information when needed was important before and during the pandemic. However, because the pandemic limited in-person communication, virtual means of advising and support became more common and were sometimes perceived as faster and easier.

Conclusion

This chapter has described the quantitative, qualitative, and integrated mixed methods results. Taken together, the results suggest the importance of the CECE

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Engagement Indicators in explaining sense of belonging. Furthermore, the results suggest that the effects of the pandemic have had a profound and disruptive impact on the CECE Engagement Indicators. The next chapter will discuss the meaning and implications of these results.

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Figure 5. Joint Display of Results			Quantitative Result	Qualitative Results		
			Standardized betas = [block three of the regression model] and block four of regression model	Number of total references	Number of references as conditions changed by the pandemic	
CECE Domain	Cultural Responsiveness		-	28 (29%)	9 (37%)	
Domain inference	Cultural familiarity		[.218**] .122	11 (11%)	8 (33%)	
	Qualitative Findings <i>Findings with exemplar quotes indicating how the pandemic changed (or did not change) the conditions of the CECE indicators.</i>	Results suggest... <ul style="list-style-type: none">- the pandemic made it more difficult for students to connect with people from similar backgrounds.- the pandemic affected the extent to which made new connections.- The lack of opportunities to make new connections caused students to rely more heavily on established connections. Exemplar quote: “I have those two friends that I graduated with from high school. So we always like meet in the library. And our library is just our place like we come to the library, we do homework. But for next year, I’m like hoping to do more clubs so I can interact with different people and learn more about different things.				
	Mixed methods inferences		Expansion. Connecting with people of similar backgrounds became much more difficult during the pandemic. The limited ability to connect to others led to relative isolation, which inhibited opportunities to foster belonging.			
Domain inference	Cultural Community Service		[103] .041	7 (7%)	1 (4%)	
	Qualitative Findings <i>Findings with exemplar quotes indicating how the pandemic changed (or did not change) the conditions of the CECE indicators.</i>	Results suggest... <ul style="list-style-type: none">- the pandemic limited opportunities for students to give back and transform their cultural communities. Exemplar quote: “So I was going to say, well, [the International Student Organization] had this [International Food Festival], where like, at the beginning, you would go and taste all this different food, but like, with COVID, we can’t have that because, you know, we can’t be in large groups.”				
	Mixed methods inferences		Congruence. Cultural Community Service was not a statistically significant predictor of sense of belonging in the regression model and was not referenced often in the qualitative analysis either – especially in the context of the pandemic.			
Domain Inference	Cultural Validation		[.269***] .107	10 (10%)	0 (0%)	
	Qualitative Findings <i>Findings with exemplar quotes indicating how the pandemic changed (or did not change) the conditions of the CECE indicators.</i>	Results suggest: <ul style="list-style-type: none">- overall, the pandemic did not significantly change the extent to which students felt valued by [institution]. Exemplar quote: “I think different parts of my identity feel welcome. And feel like I belong at different times. And sometimes, yeah, I feel represented, sometimes they don’t.”				
	Mixed Methods Inferences		Expansion. Students with multiple and intersecting identities may experience cultural validation differently as they feel that some parts of their identity belong and others do not.			

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Figure 5. Joint Display of Results (cont'd)		Quantitative Result	Qualitative Results	
		Standardized betas (block four of regression model)	Number of total references	Number of references as conditions changed by the pandemic
CECE Domain	Cultural Relevance	-	68 (71%)	15 (63%)
Domain inference	Collectivist Cultural Orientations	.259***	14 (15%)	7 (29%)
	Qualitative Findings <i>Findings with exemplar quotes indicating how the pandemic changed (or did not change) the conditions of the CECE indicators.</i>	Results suggest: <ul style="list-style-type: none"> Overall, students at [institution] felt that the campus culture during the pandemic promoted common goals. The pandemic promoted feelings of solidarity. Students felt that they shared the common goal of working together to continue the residential living and learning experience. Students felt they shared the common goal of keeping the community safe. Exemplar quote: "I'm so proud of how [our institution] handled everything, there will be your, like, little straggler group of kids that's not wearing a mask and is like, oh, let's, you know, break all the rules. But everyone has this common goal of we want to live here. We like it here."		
	Mixed methods inferences	<i>Expansion.</i> Feelings of solidarity and common goals were very important and only increased in relative importance as students were asked to help keep the campus safe and open.		
Domain inference	Proactive Philosophies	.202**	23 (24%)	4 (17%)
	Qualitative Findings <i>Findings with exemplar quotes indicating how the pandemic changed (or did not change) the conditions of the CECE indicators.</i>	Results suggest... <ul style="list-style-type: none"> Faculty and staff proactively ensured students had access to information, opportunities, and support during the pandemic. Proactive messaging from faculty and staff offering support, opportunities, and information increased feelings of belonging. Feeling well informed about opportunities and services made students feel supported. Exemplar quote: "Over the past year, with a pandemic and just sort of like for me personally, I was in quarantine a few different times. And so I think during those times, for me, I felt very supported and felt like I had resources. I like definitely had people like people checking in and like calling me from like, like health services and like mental health professionals. And I think that like having that like immediately like established in the beginning them having that in place for me, that was really nice for me to not have to. Like I know that if I didn't have that I would be able to reach out and find anyways but they like have that in place immediately from the start. So that was a really, really big deal for me."		
	Mixed methods inferences	<i>Congruence.</i> Proactive communication and support promoted sense of belonging before and during the pandemic.		
Domain Inference	Holistic Support	.191**	31 (32%)	4 (17%)
	Qualitative Findings <i>Findings with exemplar quotes indicating how the pandemic changed (or did not change) the conditions of the CECE indicators.</i>	Results suggest: <ul style="list-style-type: none"> Overall, students felt that they had access to one or more people on campus who they were confident would provide the information or support they needed. Virtual forms of communication made access to information or support faster. Overall, people on campus providing information and support were empathetic and understanding. Exemplar quote: "It's way easier. Like now I can actually like text the advisors and check on something, not just like, it's not hard to know if I have a question. I would just [message my advisor] what do you think about this class? Should I take it or not? He would give advice. Well, that's great. That's great."		
	Mixed Methods Inferences	<i>Expansion.</i> Feelings of support remained important. However, because the pandemic limited in-person communication, virtual means of advising and support became more common and were sometimes perceived as faster and easier.		

CHAPTER FIVE: DISCUSSION

The purpose of this mixed methods research study was to investigate if predictors of student sense of belonging changed due to the disruptions caused to the campus environment due to the COVID-19 pandemic. The study utilized a convergent mixed methods design to create a richer and more comprehensive understanding of this phenomenon. This chapter will connect the results to trends and theory in higher education, discuss implications for leaders in higher education and mixed methods researchers, and suggest directions for future research related to college student sense of belonging.

Discussion of Main Findings and Trends

The results of the current study have provided evidence that, in regards to college student sense of belonging, the pandemic has left some aspects unchanged, accelerated some trends, and also likely created new trends. The integration of the quantitative and qualitative results demonstrated the importance of the three engagement indicators within the CECE Cultural Responsiveness domain. In the fourth and final regression model, the only statistically significant variables were Collectivist Cultural Orientations, Proactive Philosophies, and Holistic Support, when controlling for student inputs, individual influences, and the three CECE engagement indicators within the Cultural Relevance domain. The CECE Cultural Responsiveness domain accounted for the vast majority of all qualitative references and only a slightly smaller percentage of all references related to the changing conditions of the pandemic.

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Collectivist Cultural Orientations was the strongest predictor of sense of belonging in the regression model. In Museus et al. 's (2017) similar quantitative research using the CECE model to predict sense of belonging, Collectivist Cultural Orientations was also the strongest predictor of sense of belonging. Interestingly, the standardized beta coefficient for Collectivist Cultural Orientations in the last model of the current study was identical to the beta from Museus et al. 's earlier analysis (down to the second decimal point). These quantitative results help to confirm the importance of the perceptions embodied in this construct (helping each other succeed, mutual support, and shared goals) in predicting sense of belonging. The integration of the quantitative and the qualitative provide a richer picture of why and how this construct is so important. Integrating the qualitative and quantitative results expands the understanding of this construct and suggests that perceptions of solidarity, mutual support, and the sharing of common goals are critical to promoting student sense of belonging. Furthermore, the results suggest that Collectivist Cultural Orientations became more important in the context of the pandemic. The relevance of this finding to leaders in higher education is discussed later in this chapter.

Proactive Philosophies was also a statistically significant and meaningful predictor of sense of belonging in the final regression model. The qualitative results suggested that this construct was consistently important both before and during the pandemic. In Museus et al. 's (2017) study, Proactive Philosophies was a strong predictor of sense of belonging. Earlier quantitative research by Maestas, et al.(2007) found that students who reported that their faculty demonstrated an interest in their development exhibited a stronger sense of belonging. Interestingly, the qualitative results from the

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current study suggested that the relative number of references to Proactive Philosophies actually decreased slightly during the pandemic. While this result was a bit surprising given the flurry of new information and disruptions caused by the pandemic, an evaluation of the focus group data related to this construct suggests that the information and support provided in outreach from people at the institution changed (i.e. focused more on health and safety), but the importance of Proactive Philosophies remained. The integrated mixed methods results from the current study help to confirm the consistent relationship between Proactive Philosophies and college student sense of belonging.

Holistic Support was the third and final statistically significant predictor of sense of belonging in the final regression model. This construct was also a statistically significant and meaningful predictor of sense of belonging in Museus et al. 's (2017) quantitative research. The qualitative results suggested that having one or more trusted campus agents that students can turn to for assistance is important and that these campus "agents" can take different forms including faculty, staff, coaches, counselors, peer counselors, resident assistants, and friends. The results support findings from previous research demonstrating the importance of trusted mentors who are faculty and/or staff (Strayhorn, 2018) and fellow students (Kuh, et al., 2005) on feelings of belonging. Somewhat surprisingly, there was a substantial decrease in the number of references related to holistic support in the context of the pandemic. This could reflect the difficulties that students experienced creating or utilizing support from trusted mentors in a mostly virtual environment. However, some students also mentioned how support became easier in some ways as they felt that the virtual environment normalized the use of more informal and typically faster methods of communication with trusted campus

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agents such as texting and instant messaging. The integrated mixed methods results expanded the understanding of this construct and suggested that feelings of support remained important, but the format and methods of providing support seemed to accelerate a shift to less formal virtual methods, which are likely to remain prevalent in a post-pandemic environment.

Discussion of Other Findings

Cultural Validation remains an important predictor of sense of belonging. Cultural Validation was statistically significant in the third regression model, which is similar to the findings of Museus et al. (2017). Furthermore, it was clear that intersectionality was an important aspect of Cultural Validation, as some students felt that parts of their identity belonged but other parts did not. This finding aligns with one of Strayhorn's (2018) core elements of belonging – that sense of belonging is influenced by one's identities. The disruption caused by the pandemic did not seem to change students' feelings of cultural validation. The integrated results suggested that whether interactions were in-person or virtual, students' feelings that their identities and culture mattered remained unchanged by format. Furthermore, the results suggested that students with multiple and intersecting identities had a more complex relationship to cultural validation.

Another important predictor of sense of belonging in Museus et al.'s (2016) research was Cultural Familiarity. While Cultural Familiarity was not statistically significant in the final regression model in the current study, it was a strong predictor in

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the third regression model and was referenced the most often of any of the engagement indicators in the context of the pandemic. Many of these references were related to the difficulties associated with connecting with people of similar backgrounds in the pandemic environment of online classes, limited social interaction, and virtual events. The integrated results suggest that Cultural Familiarity has a strong relationship to sense of belonging and that opportunities to engage with others from similar backgrounds. As institutions of higher education emerge from the pandemic and campus activities move back to “normal” in-person and more interactive spaces, higher education leaders may want to consider the obstruction of the social connections that would have been made had new students been freer to connect with people of similar backgrounds. It may be important for leaders to promote feelings of belonging by encouraging events and interactions and reviving cultural organizations and programming that may have lain dormant or withered during the pandemic.

Reflections on Theory

The results of this study provide support for existing research and theory while also growing the understanding of college student sense of belonging – especially in relation to the changing conditions caused by the pandemic. This study provided supporting evidence that CECE constructs are strong predictors of college student sense of belonging. In addition, the quantitative results of the current study largely replicated the earlier quantitative results by Museus et al. (2017) using the CECE model to predict college student sense of belonging. The current study expanded on the earlier use of the

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CECE model to predict sense of belonging by using mixed methods and by adjusting the hierarchical regression model used by Museus et al. (2017) by separating the Cultural Relevance and Cultural Responsiveness domains into different regression models. These domains were entered into the hierarchical regression analysis in the order in which they are presented in the CECE model, with Cultural Relevance first followed by Cultural Responsiveness. The regression results demonstrated that the CECE domains accounted for roughly the same amount of variance explained in the final regression model and that the Cultural Responsiveness engagement indicators were statistically significant over and above the effects of the Cultural Relevance engagement indicators – with all three being the only statistically significant variables in the final model. Also, the Cultural Responsiveness engagement indicators within this domain had a higher number of total qualitative references both before and during the pandemic. The results from this study combined with the earlier research by Museus et al. (2017), suggest the continued importance of Collectivist Cultural Orientations, Proactive Philosophies, and Holistic Support in explaining college student of sense of belonging and the efficacy of the CECE model.

It is important to note that Cultural Community Service was not statistically significant in any of the regression models. In previous research, Cultural Community Service was statistically significant and negatively associated with sense of belonging (Museus et al., 2017), or was not found to have a statistically significant relationship to sense of belonging (Museus et al., 2018). The simple bivariate correlations between Cultural Community Service and sense of belonging are consistently positive and statistically significant (Museus et al., 2017; Museus et al., 2018), and a similar result

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was found in the correlational analysis in the current study. The current study also found that Cultural Community Service was not a statistically significant predictor of sense of belonging and was rarely referenced in the focus group data. The results of the current study help to inform the understanding of this engagement indicator. Taken together, the results of this study and the results from Museus et al. (2018) suggest that Cultural Community Service is simply not a reliable predictor of sense of belonging when included with other CECE engagement indicators within the Cultural Relevance domain. Museus et al. (2017) recognized this possibility and provided the following rationale: “it is possible that any positive correlation between cultural community service and sense of belonging is attributable to the ways in which these experiences allow students to connect with people who have similar backgrounds, learn about their own cultural communities, and feel validated. If this explanation is true, the inclusion of other CECE indicators (e.g., cultural familiarity, cultural validation) in the regression equation could account for much of these positive aspects of their service experiences, while the cultural community service regression coefficient might reflect the remaining (more negative) aspects of such experiences” (p. 210). The qualitative results from the current study support this rationale. The focus group data revealed that students were more likely to describe opportunities to connect with people of similar backgrounds and feelings of Cultural Validation within the context of Cultural Familiarity and Cultural Validation than Cultural Community Service – and the majority of references were positive. Furthermore, the quantitative results demonstrated that Cultural Community Service was the only engagement indicator within the Cultural Relevance domain to not have a statistically significant relationship to sense of belonging. Considering these results, when using the

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CECE model to predict sense of belonging, it may be better to remove the Cultural Community Service from the survey and analysis altogether.

The current study also has implications for Strayhorn's (2018) Core Elements of Belonging. Two of Strayhorn's Core Elements of Belonging are: 1) belonging must be satisfied as conditions and circumstances change, and 2) belonging is influenced by one's identities. This study found support for both of these core elements of belonging posited by Strayhorn. The qualitative results helped to illustrate how the pandemic disrupted the campus environment and changed the relationship between students and the CECE engagement indicators. Notably, the institution where the research was conducted admirably adjusted, within the constraints posed by social distancing measures, to the changing conditions and circumstances. Understandably, these adjustments were most apparent within the Cultural Responsiveness engagement indicators. The students noticed the responsiveness of the campus community in providing helpful outreach, support, and mentorship – often quickly through virtual means. Most importantly, the effects of the pandemic seemed to increase feelings of solidarity and common goals as the campus community was tasked with keeping the campus safe and open. In these ways, the campus community seemed to satisfy sense of belonging as the conditions and circumstances were changed by the pandemic, at least as well as these needs were met before the changes caused by the pandemic.

In the current study, black students were less likely to feel a sense of belonging to the institution than students from other racial groups when controlling for all other variables included in the first and second regression models. This finding aligned with Strayhorn's notion that sense of belonging is influenced by one's identities. When the

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CECE engagements indicators were added in regression models three and four, the Black variable was no longer statistically significant. However, during the member check process, the only student to disagree with any of the findings was a black male student who did not think that the findings related to Collectivist Cultural Orientations reflected his lived experience as a black student on campus. The follow-up one-way ANOVA confirmed that a statistically significant difference existed between black students and other racial groups on Collectivist Cultural Orientation score. In addition, the post hoc analysis that evaluated the interaction between the CECE indicators and race found that the interaction between non-white and Proactive Philosophies was statistically significant. The coefficient was negative, indicating that non-white students were less likely to agree that faculty and staff proactively ensured that they had access to information, opportunities, and support than their white peers. These results suggest two things: 1) Often observed differences in sense of belonging between racial groups persist (Johnson et al., 2007; Lee & Davis, 2000; Museus et al., 2018; Rankin & Reason, 2005); and 2) culturally relevant and culturally responsive campus environments may help to somewhat ameliorate these differences. In a study of the effect of the CECE engagement indicators on sense of belonging, Museus et al. (2018) also found that statistically significant differences between racial groups were mediated after adding the CECE engagement indicators to the regression model. The results of the current study provide further support for the view that differences in sense of belonging between racial groups can be somewhat mediated by the cultural relevance and cultural responsiveness of the campus environment.

Implications for Future Research

Future research should build on the qualitative results of this study to develop a better understanding of how and why college sense of belonging has changed due to the effects of the pandemic. The notion that sense of belonging is must be satisfied as conditions and circumstances change is strongly entrenched in previous research and theory (Goodenow, 1993; Strayhorn, 2018). Since the COVID-19 pandemic caused the most serious disruption to the campus environment in history, or at least since world war two, a renewed research focus on sense of belonging is timely. Future research could use the qualitative results of this study, particularly the findings related to Cultural Familiarity and Collectivist Cultural Orientations, as a starting place for evaluating how sense of belonging has changed.

The finding that Collectivist Cultural Orientations was the strongest predictor of sense of belonging in this study follows the research by Museus et al. (2017), which also found that Collectivist Cultural Orientations was the strongest predictor of sense of belonging when controlling for similar factors. This suggests that mission, vision, and Diversity, Equity and Inclusion (DEI) statements, may actually be very meaningful for promoting student sense of belonging when sincere efforts are made to imbue the campus community with common goals and values. More research is needed to evaluate the effect of mission, vision, and DEI statements on college student sense of belonging.

This study has implications for both mixed methods and quantitative criticalist researchers. The use of directed coding analysis in the qualitative strand provides a fitting pathway for quantitative criticalists to connect qualitative research directly to models and

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theories that are typically studied using quantitative methods. As Stage and Wells (2014) explained, one of the three important ends that quantitative criticalists must work towards is to "conduct culturally relevant research by studying institutions and people in context" (p. 3). Conducting culturally relevant research by studying institutions and people in context, particularly in unique circumstances such as the pandemic, is very challenging to accomplish using purely quantitative methods. Quantitative criticalists can incorporate the voices of participants through directed coding analysis into a mixed methods research design, but can still choose designs that provide more weight to the quantitative strand if they prefer. By doing so, quantitative criticalists can address another of the three important ends that Stage and Wells (2014) suggested that quantitative criticalists should work towards, which is to question the models, measures, and analytic practices of quantitative research in order to offer competing models, measures, and analytic practices that better describe the experiences of those who have not been adequately represented" (p. 3). In addition, the current study provided support for the continued importance of the use of interaction terms in quantitative criticalist research, as the results found statistically significant relationships between race and the CECE indicators.

Implications for Practice

Kezar (2018) stated that "the role of change agents and leaders is more about responding to forces that are coming from outside the campus or one's unit" (p. 76). Concepts of evolutionary change – systems theory and openness – provide frameworks for helping campus leaders navigate the disruptive effects of the pandemic on college

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student sense of belonging. Viewed through the concepts of openness and systems theory, the current study shed light on the effect of the extreme permeability between the external and internal (i.e. campus) environments caused by the pandemic and how the interrelationships between organizational experiences and structures were transformed. The integrated results of the current study demonstrated that the Culturally Engaging Campus Environments constructs are strongly related to sense of belonging and that the student perceptions and experiences exemplified by these constructs were altered by the changing conditions caused by the pandemic. These results have implications for how change leaders can astutely navigate organizations through the extreme change to what Birnbaum referred to as the “organizational thermostat” (p. 249).

Before making strategic decisions in the wake of unplanned change, change leaders in higher education should gain an understanding of the evolving context and conditions. Buller (2014) suggested that leaders could use the “20/20” analytical lens as a means of assessing the situation and gathering objective evidence. The current study provides change leaders in higher education with evidence that they can use to make evidence-based decisions as they seek to promote sense of belonging as campus environments emerge from the shadow of the pandemic.

According to Morpew & Hartley (2006), the most common themes found in mission statements were outcomes related to helping students achieve self-actualization (e.g., civic duty/service, student development, and leadership). These are all student and institutional outcomes located at the top of the pyramid in Strayhorn’s (2017) Revised Model of College Success. Change leaders should consider sense of belonging the critical conduit that promotes fulfillment of the institutional mission and student success.

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In Museus et al. 's (2017) research, the Collectivist Cultural Orientations construct was the strongest predictor of sense of belonging. In the current study, Collectivist Cultural Orientations was also the strongest predictor of sense of belonging and had the second-highest number of references in relation to the changing conditions caused by the pandemic. The integrated results demonstrated that Collectivist Cultural Orientations play a central role in promoting sense of belonging and likely become even more important in disruptive environments. The core items of this construct focus on the extent to which students perceive that the campus community shares common goals, is willing to help each other succeed, and is more collectivist and less individualistic.

Promoting common goals and creating a supportive environment that fosters the success of all students, is an objective of campus leadership that can promote sense of belonging and institutional missions. Often, college mission, vision, and/or Diversity, Engagement, and Inclusion (DEI) statements enshrine the values embedded in the Collectivist Cultural Orientations construct. Colleges should make efforts to promote these values and act by these values, as they have a significant and meaningful relationship to sense of belonging.

Other integrated results from the current study that have implications for campus leaders relate to Cultural Familiarity, Proactive Philosophies, and Holistic Support. As institutions emerge from the pandemic environment, leaders can promote sense of belonging by facilitating opportunities that increase Culturally Familiarity by helping students connect, in person, with others of similar backgrounds, experiences, and interests. The integrated results from Proactive Philosophies and Holistic Support suggest that student access to trusted campus agents, timely information, and support, promotes

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sense of belonging. The results also recorded the shift towards virtual means of communication, which some students felt was faster and more direct than traditional forms of interaction. Campus leaders should continue to monitor the efficacy of hybrid methods of communication and advising.

Conclusion

As higher education emerges from the pandemic, change leaders within higher education must prepare for the next crisis – the impending demographic cliff. Within the coming decade, the number of college-ready students in the US is projected to decline and the racial composition of new college students will become more diverse (McGee, 2015). Sense of belonging is a predictor of student retention (Hausmann et al., 2007) and retention will take on heightened importance in the coming era of declining enrollment. The current study has contributed to the literature on college student sense of belonging and, through employing the Culturally Engaging Campus Engagement model in a mixed-methods design, provided a starting place for change leaders and researchers to understand the increasingly diverse college population in an environment irrevocably changed in the wake of the pandemic.

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