OF INCLUSION, BELONGING, AND MISSED CONNECTION IN HIGHER EDUCATION

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The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota

State University's regulations and meets the accepted standards for the degree of

DOCTOR OF PHILOSOPHY

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ABSTRACT

Inclusion research in higher education affords opportunities to measure how, and to what extent, institutions create academic environments that are equitably accessible. While inclusion encompasses many facets, underscored in literature is belonging - the "perceived social support on campus, a feeling or sensation of connectedness, and the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the campus community" (Strayhorn, 2019, p. 4). Although academia has implemented a plethora of inclusivity practices and policies with hopes of generating belonging, highlighted is belonging is experienced inequitably across diverse populations (Duran et al., 2020; Fries-Britt et al., 2011; Strayhorn, 2019).

Presented in a three-article dissertation, the research aims to uncover why belonging is unequitable in higher education in an era of increased inclusion intervention efforts. The first article examines the way in which the pipeline metaphor used within enrollment management is a contemporary icon of setter colonialism for Indigenous college students. By investigating how metaphors require shared schema for interpretation, the pipeline metaphor suggests homogenization of student experiences, propelling intergenerational trauma associated with historical educational assimilation (Pitcher & Shahjahan, 2017). The second article uses exploratory factor analysis to determine if the latent constructs of student engagement in HyFlex courses vary from those in current student engagement literature. This study identifies that social connection is an essential component for students to develop autonomy, lean into vulnerability, and to participate in collegial community within HyFlex courses. Finally, exploratory factor analysis is used in the third article to identify latent constructs of faculty

campus climate. A seven-factor solution was determined and described faculty climate in an ecological, yet hierological, framework.

Comprehensively, the three articles provide critical insights for bridging inclusion and belonging within academia by reorienting frameworks through the lens of connection. Current literature utilizes operational definitions of belonging as unidirectional rendering the institution responsible for delivering inclusion. However, reorienting these frameworks through connection emphasizes reciprocity and relationships necessary for belonging and inclusion in higher education.

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Mvto! Danke! Thank you!

DEDICATION

To anyone who's ever felt like they didn't belong – I see you and I believe in you.

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CHAPTER 1. AN INTRODUCTION TO BELONGING IN HIGHER EDUCATION

Higher education is the most diverse it has ever been across race, ethnicity, gender, and sex and will continue to grow amongst these demographic groups in years to come (Anderson, 2003; de Brey et al., 2019; Snyder, 1993). As diversity increases, it is crucial that institutions create campus climates that are welcoming, inviting, and inclusive. Multiple studies emphasize the necessity to create inclusive campus climates by implementing policies and procedures that not only support, but also provide opportunities for people from traditionally underrepresented backgrounds in academia (Ferdman, 2014).

Although policies and procedures decrease barriers to accessing and navigating academia, frequently underscored in literature is that belonging is not equitably experienced across diverse demographic populations (Duran et al., 2020; Fries-Britt et al., 2011; Strayhorn, 2019). Varying experiences of belonging have been reported across gender, sex, race or ethnicity, ability, sexual orientation, and generation status amongst students, faculty and staff despite increased interventions intended to cultivate belonging in higher education (Duran et al., 2020; Ferdman, 2014; Fries-Britt et al., 2011; Hurtado & Carter, 1997; Jayakumar et al., 2009; Strayhorn, 2019; Tidwell, 2004). In an era of increased interventions, unequitable belonging reported by diverse students, faculty, and staff suggests that inclusion research may require new frameworks that focus on how people, processes, and procedures are connected through relationships and reciprocity. The research presented in this disquisition focuses on belonging as a necessary component of inclusion while offering important insights for studying campus climates in higher education. Consisting of three research articles, this disquisition connects the theoretical principles of belonging to inclusion using critical commentary and survey methods.

Background

Belonging is a fundamental human need and motivation that drives oneself in believing they are socially connected within a group (Baumeister & Leary, 1995; Walton & Cohen, 2007). In research, participants who experience belonging describe feelings of being valued, heard, and treated as an equal member within a group (Baumeister & Leary, 1995; Brown, 2018; Ferdman, 2014). According to Ferdman (2014), inclusion is determined by how people, policies, and procedures encourage members to "participate, contribute, have a voice, and feel that they are connected and belong" within the organization (p.12). For inclusion to be achieved, all members must feel that they belong - an experience where one can feel authentic in their relationships with others without having to comprise their identity to "fit in" with social norms.

Sociologist Émile Durkheim (1997) highlights the relationship between identity, sense of belonging and inclusion through the lens of suicide. In early research, Durkheim suggests that the likelihood of suicide decreases when individuals are socially integrated and connected within a collective community. When a community accepts the identity of the individual, the individual is more likely to feel belonging as a result of feeling included as member of the community, thus reducing their risk of suicide. Durkheim's studies of belonging primarily focused on labor and religious sectors; however, multiple researchers have applied this conceptual framework of belonging into other contexts including higher education (Tinto, 1975).

Belonging has a long historical background in higher education and is frequently used as an antecedent of inclusion in research. When applied to college students, belonging

>refers to student's perceived social support on campus, a feeling or sensation of
>
>connectedness, and the experience of mattering or feeling cared about, accepted,

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respected, valued by, and important to the campus community or others on campus such

as faculty, staff, and peers (Strayhorn, 2019, p. 4).

Strayhorn (2019) expands on this definition noting that although belonging has many traits, the

most significant attribute is relationality. "Under optimal conditions, members feel that the group

is important to them and that they are important to the group" (Strayhorn, 2019, p. 4). The

relationality suggests connection between the individual and group that is free of judgement that

thrives on the ability to be authentic within one's identity.

Commonly reported outcomes of belonging include higher levels of satisfaction,

wellbeing, and retention (Brown, 2018; Fries-Britt et al., 2011; Jayakumar et al., 2009;

Strayhorn, 2019; Tinto, 1997). While belonging is attributed to positive outcomes, most notable

is the variation of belonging reported in research (Duran et al., 2020; Hurtado & Carter, 1997;

Strayhorn, 2019). Current literature highlights unequitable experiences of belonging amongst

students, particularly those from underrepresented backgrounds in higher education (Strayhorn,

2019). Unequitable belonging may be contributed to early research that suggests students have

equal opportunities to "fit in" and to be seen by others (see Tinto, 1993), overlooking cultural

differences that intersects with the academic environment.

According to Hurtado and Carter (1997), students from culturally diverse backgrounds

who experience racial-ethic tension (language used in their study) are less likely to feel

belonging in their campus community. Tachine, Cabrera, and Yellow Bird (2017) echo these

concerns noting that microaggressions and microinvalidations related to cultural heritage

lowered sense of belonging for Native American students. Students from culturally diverse

backgrounds are not the only students to experience lower feelings of belonging within a college

setting. First generation (Soria & Stebleton, 2012), immigrant (Stebleton et al., 2014), LGBTQ

(Strayhorn, 2019) and students with disabilities (Vaccaro et al., 2015) have all reported unequitable levels of belonging due to discrimination on their college campus.

Faculty and staff from traditionally marginalized backgrounds have also reported unequitable experiences of belonging due to discrimination within the campus community. Multiple campus climate studies indicate a negative relationship between belonging and inclusion when discrimination is present (Fries-Britt et al., 2011; Jayakumar et al., 2009; Wood et al., 2015; Writer & Watson, 2019). Women (Maranto & Griffin, 2011), people of color (Fries-Britt et al., 2011), LGBT (Patridge et al., 2014), and people with disabilities (Tidwell, 2004) employed in academia have reported discrimination impacting their ability to feel valued in the campus community.

With increasing research on the correlation between belonging and institutional outcomes such as satisfaction, wellbeing, and retention, it is imperative for institutions to proactively cultivate equitable experiences of belonging. This is particularly true when the diversification of higher education is on the rise, yet research consistently underscores unequitable levels of belonging for traditionally underrepresented populations (Brown, 2018; Fries-Britt et al., 2011; Jayakumar et al., 2009; Strayhorn, 2019; Tinto, 1997). Evident in current literature is that institutional policy and procedure are not enough to create equitable experiences of belonging for students, faculty, and staff. In an era of outcomes-based assessment, higher education must consider how social and physical environments constrain belonging in order to develop interventions mechanisms that not only structurally support inclusion, but also weave inclusion within institutional culture.

Conceptual Framework

Conceptual frameworks outline how concepts within a study are related to a research question (Cohen et al., 2018, p. 69). The research within this disquisition was guided by the following conceptual framework (Figure 1.1) to examine the relationship between belonging and inclusion. After synthesizing the literature, Figure 1.1 was developed to outline constructs and their relationships associated with campus climate research.

Figure 1.1

The Juxtaposition of Campus Climate: A Conceptual Framework
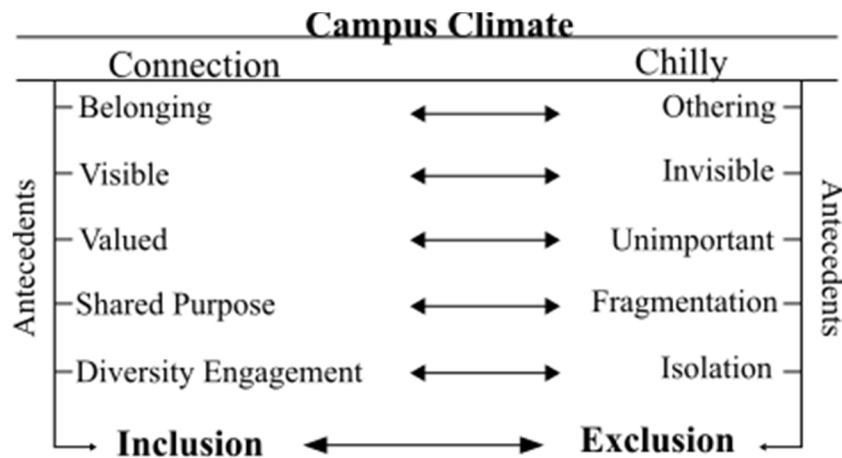
Note: This conceptual framework was created through synthesis of literature capturing the juxtaposition between connection and "chilliness" that describe inclusive or exclusive campus climates (Brown, 2015, 2018; Campbell-Whatley et al., 2015; Duran et al., 2020; Ferdman, 2014; Fries-Britt et al., 2011; Hurtado & Carter, 1997; Jayakumar et al., 2009; Maranto & Griffin, 2011; Patridge et al., 2014; Strayhorn, 2019; Tidwell, 2004; Tierney, 1990; Waterman et al., 2018; Wood et al., 2015; Writer & Watson, 2019; Yost & Gilmore, 2011; Zimmerman et al., 2016).

Figure 1.1 serves as a guide for capturing not only polarization, but also feelings associated with inclusion and exclusion as described by diverse students, staff, and faculty in higher education. Belonging and chilliness have been concepts that have begun to inform campus inclusion as a result of people, practices, and policy (Ferdman, 2014; Strayhorn, 2019). Furthermore, relationships, practices, and policies encompass campus climate and determine

how a person experiences connection or chilliness, perpetuating either inclusion or exclusion. To build inclusive collegiate communities that recognize and support diverse students and employees, it is necessary to critically examine relationships, practices, and policies that differentially impacted experiences of belonging based on positionality.

Organization of the Disquisition

The articles presented in this dissertation aim to investigate three microcosms that uncover how relationships, practices, and policies fosters belonging for diverse students, staff, and faculty within academia. The first of the three articles serves as an example of how metaphors require shared schema to make meaning in language; yet are consistently used in academia and camouflage the experiences of underrepresented students, staff, and faculty (Kovach, 2010). Metaphors are intertwined with "how we perceive, how we think, and what we do" within our daily activities including where we learn and work (Lakoff & Johnson, 1980, p. 4).

Lakoff and Johnson (1980) assert that all human thinking is fundamentally metaphoric; however, for metaphors to lead to shared understanding, they need to associated with shared schema. Metaphors require shared schema when communicating figurative relationships thus necessitating cultural context for interpretation (Landau et al., 2010). For students, staff, and faculty from traditionally marginalized backgrounds, metaphors within the higher education lexicon can propel trauma and cultural assimilation when uncontested. Therefore, metaphors as well as language, must be carefully analyzed to create belonging.

The second article discusses student engagement in blended online learning environments within higher education. In early 2020, the COVID-19 pandemic forever changed the U.S. higher education landscape by transitioning courses taught traditional face-to-face to HyFlex: a

synchronous online learning environment where students can attend class either in-person or via video teleconference (Huang et al., 2020; Leijon & Lundgren, 2019; Wu et al., 2010). With limited research on student engagement in HyFlex environments, there is a theoretical need to examine if conceptual concepts delineate student engagement research conducted in traditional face-to-face settings. As institutions being to plan future instruction, a framework to begin to understand how student engagement is manifested in virtual spaces is warranted (Kuh, 2009).

The third article examines theoretical constructs associated within faculty campus climate. According to Tierney (1990) campus climate is measured by examining the perceived daily experiences of its members including how individuals think, act, and behave within the institution. Although an abundance of literature is available on the topic of campus climate, either institutionally or amongst students, little empirical research is available specific to faculty. Furthermore, research that is available on faculty climate utilizes theoretical constructs that focus on specificity and fail to recognize overarching issues that are embedded within the institution that impede on inclusion more broadly. That is, the multiplicity of variables muddles the ability to adequately discriminate between perceptions and affect that account for how faculty experience inclusion. Lack of empirical evidence related to theoretical principles necessitates research on how inclusion is constructed within faculty campus climate.

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    inclusive climates on campus. *Frontiers in Psychology*, *7*, 1–9.

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CHAPTER 2. PIPELINES TO PEOPLE: IMPLEMENTING A RELATIONAL APPROACH TO ENROLLMENT MANAGEMENT

Within enrollment management, the word "pipeline" is a metaphor used to describe the structures and procedures of a student's educational journey between two institutions (Pitcher & Shahjahan, 2017). The process of moving through the enrollment pipeline is often facilitated by articulation agreements – documents outlining course requirements as students transfer from a two-year to a four-year college or university (Anderson et al., 2006). In the past, articulation agreements served as a recruitment strategy among many four-year institutions, but have evolved as a result of overall declining student enrollment in the past 10 years. (Hussar et al., 2020). Interest in creating articulation agreements with local tribal colleges and universities has grown amongst American four-year institutions as a "pipeline" to increase student enrollment. However, the "pipeline" metaphor – both in nomenclature and practice – is problematic with respect to enrollment management of Indigenous students.

The pipeline metaphor is deeply embedded throughout the enrollment management lexicon. It extends beyond articulation agreements by describing the functional processes and structures within higher education. As a figurative device, the pipeline metaphor is intended to compare two dissimilar things as alike through mental imagery — the direct trajectory of pipelines and the post-secondary student enrollment process (Lakoff & Johnson, 1980). When applied to enrollment management, the pipeline metaphor ostensibly suggests a linear route that ensures that there are enough students enrolling at the institution to prioritize campus goals and finances. Furthermore, the pipeline "walls" purport to serve as support structures that aids student progress within the linear path of their academic career, protecting them from the various challenges that impede success.

However, overlooked is the necessity of cultural context for accurately interpretation (Lakoff & Johnson, 1980) as metaphors require shared schema when categorizing figurative relationships (Landau et al., 2010). Metaphors are grounded in cultural context as the language used to describe relationships among things is intertwined with "how we perceive, how we think, and what we do" within our daily activities, including employment workspaces (Lakoff & Johnson, 1980, p. 4). The metaphors often used within enrollment management to describe processes and procedures, such as the pipeline, do not always resonate with students and their families. Rather, the pipeline metaphor creates translation confusion regarding academic expectations and responsibilities.

While the pipeline metaphor is intended to communicate the processes and structures that lead toward graduation, the uniformity of the pipeline neglects the inequalities experienced by Indigenous students. Historical events and relationships between tribal nations and the federal government have constructed Indigeneity to have both racial and political denotations that impact how Indigenous students are supported within higher education (Waterman et al., 2018). "Native American," "American Indian/Alaskan Native," or "Native" are all terms used within higher education literature; however, the intentional use of the term "Indigenous" within this essay aligns with leading student affairs organizations (Waterman et al., 2018). While the ramifications of colonization may be similar among Indigenous populations, including that of educational inequality, the context for this essay is bounded within the present-day United States. Further exploration is warranted in the context metaphorical pipelines and enrollment management across Indigenous populations worldwide.

Too frequently the pedagogy used in U.S. higher education is shaped by Euro-western paradigms, and is a chilling reminder of forced assimilation of Indigenous peoples within

education. The symbolism of pipelines within these communities is a contemporary icon of the continued impacts of settler colonialism that perpetuates the erasure of Indigenous issues and people. Without thoughtful consideration of context within the language of pipelines, the experience of Indigenous students in higher education continues to be camouflaged and ignored while the obstacles to educational access and attainment remain uncontested.

Higher Education's Pipeline: Linear Steps or Roadblocks to Success?

Developed in the 1970's by the National Science Foundation, the pipeline metaphor was first introduced in education as a way to describe a "linear set of steps" from college to career during a time of high demand within the science, technology, engineering, and mathematics (STEM) fields (Metcalf, 2014, p. 78). The pipeline outlined a rigid academic structure that developed a linear pathway toward graduation, assuring positions within STEM would be filled in an era of growing national security and global technological competition (Metcalf, 2014). By the 1980's the pipeline metaphor continued to emphasize the linear pathway from college to careers, but shifted to describing demographic retention efforts in diversifying STEM fields with women and people of color (Lucena, 2005). Still used today in STEM (Pitcher & Shahjahan, 2017), the pipeline metaphor implies that measuring admission, retention and graduation is not only quantitative, but can be justified by measuring a universal trajectory with a predictable flow of outputs as a result of rigid support structures throughout the college experience – matriculation to graduation.

The architectural design of the metaphorical pipeline in education promotes standardization rather than diversification. The linear path supported by the pipeline's rigid structure is a barricade that impedes progress for Indigenous students from underserved and inadequately resourced communities. ACT/SAT admission test scores, prerequisite courses not

counted toward degree progress, and complex course sequencing continues to hinder progress for traditionally disenfranchised students including Indigenous. Erich Pitcher and Riyad Shahjahan (2017) describe this phenomenon as "social justice problems in educational processes" (p. 217). The support structures of the pipeline that make up academic policies, processes, and standards are intended to map out universally the linear path to degree attainment; yet, such support structures either prevent or slow progress in the pipeline for Indigenous students (Pitcher & Shahjahan, 2017). Too often, the structure intended to support a linear path within the enrollment management pipeline does not account for the barriers at the beginning of, and throughout, the college student experience. Rather, the college process utilizes a one-size-fits-most approach that propels systems of oppression overlooked by the pipeline metaphor's uniformly constructed trajectory (Johnson et al., 2011; Pitcher & Shahjahan, 2017).

While regarded as a metaphor signifying a structured enrollment process guiding students through a linear structure, the pipeline trope assumes there is a predictable flow within the college experience as a result of the pipeline's structural boundaries (Pitcher & Shahjahan, 2017). The walls of the pipeline are intended to serve as a structure that guides and supports students in their educational journey, but the unvarying bounded walls generate a singular prescribed speed for students as they flow through the pipeline.

In fact, not all students flow at the same rate within the pipeline. As a result, some either extend their time toward degree completion or abandon academia altogether (Metcalf, 2014). In these instances, students are referred to as "leaks" that can be fixed with a quick and simple bandage. Bandages that attempt to fix leaks in the metaphorical pipeline are often made by developing support programs for students and do not address systemic inequities embedded within higher education (Pitcher & Shahjahan, 2017). Too often, such bandages focus on

providing services to students that either redirect them back into the predetermined pipeline flow or seek to prevent future student drop-out. Although these bandages are quick and cost-effective in addressing student attrition and enrollment, they are topical and do not address "systemic change and power relations" generated by the pipeline itself (Metcalf, 2014, p. 78). Furthermore, bandages used on the leaky pipeline serve to ensure that enrollment can be calculated by the institution for optimal functioning, operationally and financially.

Indigenous students are not leaks, and the challenges they experience in academia cannot be repaired by simple bandages. They need culturally relevant resources, support, and structures of their own to reach graduation because of varying levels of academic preparedness, college navigation skills, and experiences within the campus climate (Pitcher & Shahjahan, 2017; Waterman et al., 2018). Without support in these areas, Indigenous students are forced to assimilate to the linear, unidirectional, college trajectory while simultaneously navigating oppressive environments (Pitcher & Shahjahan, 2017). The boundaries of the pipeline's rigid structural walls force assimilation that has a homogenizing effect on the student experience (Metcalf, 2014). It is evident that the pipeline metaphor does not reflect, nor predict, that college student success is achievable for all students. Instead, the pipeline metaphor suggests that student support can be uniformly, equally, and comprehensively delivered to all student identity groups, thereby ignoring calls for diversification within higher education.

Humans as Resources: a Dehumanizing Approach to Enrollment Management

Further embedded in the complexity of the pipeline metaphor is the commodification of students that ultimately dehumanizes the Indigenous student experience by focusing on outputs and utilizing students as resources. Definitions of educational outputs vary in research, but commonly connote product or yield of student growth at the end of the academic pipeline:

graduation (Goodman, 1979). However, enrollment management overly relies on educational outputs that are quantitative in nature as quick, cost effective assessments of student flow within the pipeline's linear path. Collecting student outputs using only quantitative measurements, such as graduation rates, may develop issues of invisibility. When sample sizes are too small, Indigenous are often omitted from statistical analysis, limiting knowledge and understanding of student outputs across identities (Shotton et al., 2013).

Pitcher and Shahjahan (2017) argue that the pipeline metaphor generates hyper-focused conversations "center[ed on] national prominence, progress, and achievement, rather than more humanistic goal(s)" (p. 221). That is, students become statistics of institutional commodification as a result of the pipeline's structure and flow, rather than individuals with goals and dreams. Lost in student quantitative outputs are the stories of *how* students experienced growth as a result of their collegiate experience. Utilizing outputs without qualitative stories not only promotes the pipeline's imagery of uniformity, but it also silences the experience of Indigenous students as a result of being removed from quantitatively focused analyses. To be invisible as a result of measuring the pipeline's flow and outputs is to be dehumanized by enrollment management altogether.

Effectively, the pipeline metaphor within enrollment management reinforces an ethno-university mentality that centers Euro-western problem-solving frameworks as superior in developing solutions to complex dilemmas. Within the ethno-university mentality, students are a commodity as a remedy to an enrollment problem, rather than individuals from communities with their own specific needs for growth and development (Pitcher & Shahjahan, 2017). For many colleges and universities, students are paramount to operational and financial stability and become a necessary resource for institutional survival. Yet the unidirectional problem-solving of

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enrollment management develops an ethno-university mindset that resolves concerns by simply extracting students from their communities.

The ethno-university mentality is further exacerbated in the recruitment and retention process by presuming that the value of higher education is necessarily measured by career income (Kirkness & Barnhardt, 1991). Higher education frequently emphasizes the connection between post-secondary degrees and income to attract students by advertising education as an opportunity to "get ahead" in socioeconomic status. The educational outcomes of career readiness and increased salary are not commonly cited as indicators of academic success by Indigenous students (Waterman et al., 2018). Rather, Indigenous students frequently share that education is a tool "that address[es] their communal need for 'capacity building' to advance themselves as a distinct and self-determining society, not just as individuals" (Kirkness & Barnhardt, 1991, p. 5). A successful education, to Indigenous students, is one that bolsters community infrastructure, not individual status framed by the ethno-university.

Treaties and Self-Determination within Indigenous Communities: Historical Context

For Indigenous students, and their communities, a college education can provide skills and knowledge to propel political, economic, health, spiritual, and cultural self-determination essential to nation-building (Brayboy et al., 2012). While many TCUs provide exceptional educational opportunities, they acknowledge that due to their limited resources, they fall short of providing all of the skills necessary to thoroughly address nation-building agendas. Therefore, articulation agreements provide a pathway to address nation-building agendas within their communities (Brayboy et al., 2012). However, the history of institutional agreements between Indigenous communities and U.S. government agencies is one of abrogated treaties; in the context of pipelines is a current site of ongoing violations. If metaphor is embedded within

cultural context, then today's enrollment pipeline is a reminder of the forced assimilation, trauma, and abrogated treaties experienced by Indigenous people that evokes unpacking settler colonialism.

Settler colonialism "enacts a set of social-material relations" by declaring ownership and political rights by conquest for capital accumulation and infrastructure (Stein, 2020, p. 212). Upon independence from Great Britain after the Revolutionary War, Congress entered into treaty agreements as a means to "draw and enforce boundary lines between American citizens and Indian Nations" (Strommer & Osborne, 2014, p.44). These early treaties served as the foundation of tribal sovereignty and self-determination while authorizing Indigenous communities' self-governance (Canby, 2002).

Tribal sovereignty within its own territory, while recognized, was in practice rendered untenable in *Cherokee Nation vs. State of Georgia*, 30 U.S. (5 pet.) 1, 8 L. Ed. 25 (1831). In an attempt to maintain territorial jurisdiction and self-determination, the Cherokee Nation sought to enjoin the State of Georgia from dividing Cherokee territory amongst multiple counties, rendering Cherokee laws and governance invalid within tribal boundaries (Canby, 2002). While the Cherokee Nation was successful in demonstrating statehood – "a distinct political society separated from others, capable of managing its own affairs and governing itself" – the tribe could not be considered a "foreign nation" (*id.* at 16), and thus was found to lack standing to sue the State of Georgia under Article II of the U.S. Constitution. According to Chief Justice John Marshall, the Cherokee Nation, and all federally recognized Indigenous tribes, were to be "dominated domestic depended nations" whose relation to the U.S. "resembles that of a ward to his guardian" (*id.* at 17).

Cherokee Nation established two principles regarding tribal sovereignty and relationships with the U.S. government that are important for present purposes. First, Indigenous communities have the right to self-governance within territorial boundaries; and second, tribal governance is dependent on the parameters dictated by the federal government. Because dependency was deemed akin to the relationship of ward and guardian, this ruling renders the federal government responsible for protecting Indigenous communities, including rights to religious freedom, economic development, education, and resource adjudication (Barker, 2005).

The responsibility of providing federal protection in aid of the goal of providing the benefits of agriculture and "civilization," including access to water, to Indigenous communities as compensation for treaties and Congressional agreements was upheld in *Winters v. United States* 207 U.S. 564, 28 S.Ct. 207, 52 L.Ed. 340 (1908). In 1888, the Indigenous communities listed in the ratified congressional agreement ceded land for non-Indigenous settlement while retaining nearby land abutting the Milk River – known as the Fort Belknap Reservation. The settlers of the ceded land diverted the Milk River, arguing that the lands were "arid and must be irrigated by artificial means to make them inhabitable and capable of growing crops" 207 U.S. at 569. As a result of water diversion on the Milk River, water access dwindled at Fort Belknap. The United States filed suit on behalf of the Indigenous communities, asserting that implied water rights took precedence over those of settlers per the 1888 agreement. *Id.*

Winters reiterates not only the guardianship; it reinforces the federal government's responsibility for protecting Indigenous communities as announced in *Cherokee*. Furthermore, *Winters* demonstrates that guardianship comprises of safeguarding natural resources, including reliable and sustainable water access, essential to Indigenous governance and self-determination, particularly within the parameters outlined in congressional agreements and treaties. Today,

water rights upheld in cases such as *Winters* are inherently linked to the pipeline controversies that impinge on Indigenous communities' rights and their survival as sovereign nations.

Pipelines and Indigenous Communities: Examining Contemporary Issues

Embedded in the history, diet, and economics of the Indigenous peoples of the Great Lakes, *manoomin* (wild rice in Anishinaabemowin, the Ojibwe language) is essential to the cultural preservation of these communities, and can only be sustained when local environmental ecosystems are protected; however, pipeline existence and construction endangers *manoomin* growth. Pipelines generate potential for environmental disasters, jeopardizing not only the survival of *manoomin,* but also Indigenous peoples themselves, including self-governance and determination.

A gift from the creator, *manoomin* is woven into the survival story of the Indigenous peoples of the Great Lakes region (Raster & Hill, 2017; Regguinti, 1992). Oral histories of these communities tell the story of the Indigenous people moving from the east coast to "a land where food grew abundantly in the water" (Regguinti, 1992, p. 17). Throughout history, *manoomin* was not only used for sustenance, but also for economic stability and cultural survival (Raster & Hill, 2017; Regguinti, 1992). As a result of pipeline construction today, creation stories, traditional harvesting, and the commodity of *manoomin* are endangered.

Plans are currently underway for the replacement of Enbridge's Line 3, a tar sands crude oil line extending from Hardisty, Alberta to Superior, Wisconsin (Hughlet, 2017). Tar sands crude oil is a highly viscous petroleum product, and there is little research on the environmental impacts of its use (Crosby et al., 2013). The 2013 National Oceanic and Atmospheric Administration (NOAA) technical memorandum on the transportation of oil sands highlights that oil spills can have "both immediate ecosystem impacts as well as long term consequences

resulting from continued chronic exposure" (Crosby et al., 2013, p. 63). Although environmental impacts differ depending on oil behavior (i.e. sink or float on water or land), NOAA (2013) notes that oil spills generate the greatest risk for biological forms (like *manoomin*) that are frequently in contact with water surfaces (Bouayad, 2020; Crosby et al., 2013; Raster & Hill, 2017).

As Enbridge's proposal nears fruition, the pipeline will run through, or border, five of the eleven Indigenous reservations in Minnesota: Red Lake Band of Chippewa Indians, White Earth Band of Minnesota Chippewa, Leech Lake Band of Ojibwe, Mille Lacs Band of Ojibwe, and Fond du Lac of Lake Superior Chippewa, while also violating three treaty territories: 1837, 1845, and 1855 (Bouayad, 2020; Raster & Hill 2017). Article 5 of the 1837 Treaty with the Chippewa promises that the federal government grants "the privilege of hunting, fishing, and gathering the wild rice upon the lands, rivers and the lakes included in the territory ceded, is guaranteed to the Indians, during the pleasure of the President of the United States" (Treaty with the Chippewa, 1837). However, "nearly 3,400 acres of wild rice [*manoomin*] would be within 10 miles downstream of Enbridge's proposed route" (Hughlett, 2017, para. 4) impeding on the right of access to *manoomin* as promised in the 1837 Treaty of St. Peters (Bouayad, 2020). Not only are there environmental risks to accessing *manoomin* when the pipeline leaks or breaks, but also there are abrogation of treaties that promise self-governance and determination as outlined in *Cherokee Nation.* Furthermore, *Winters* demonstrates that water access to Indigenous communities extends beyond that of treaty boundaries including reaching effects that impinge on self-determination and governance. With *manoomin's* existence in jeopardy*,* so too is the cultural survival of Ojibwe people in Minnesota – another unfortunate example of colonization terminating the existence of Indigenous peoples.

Enbridge's Line 3 is not the only example of oil pipelines abrogating treaties infringing upon tribal sovereignty and self-determination as a result of endangered natural resources. Examples include Keystone XL pipeline (see 1851 Treaty of Fort Laramie, Lame Bull Treaty of 1855, and 1868 Treaty of Fort Laramie), the Dakota Access Pipeline (see 1851 Treaty of Fort Laramie), and Enbridge Line 5 (see 1836 Treaty of Washington). For the Indigenous communities impacted "it is not a matter of *if* the pipeline[s] breaks but *when*" thus galvanizing action that has been captured by the media in recent years (Estes, 2017, p.115). If metaphor is embedded within cultural context, then colloquial use of pipelines as a metaphor suggests forced assimilation and trauma for Indigenous students, past and present within higher education.

An Indigenous Ontology for Enrollment Management

Language allows individuals to communicate ideas, but requires shared ontological perspectives for translation to be transparent (Lakoff & Johnson, 1980). Although intended to be neutral in describing educational transitions, including the transfer experience resulting from articulation agreements, the pipeline metaphor "brings to bear different meanings and truths that produce unintended consequences" (Pitcher & Shahjahan, 2017, p. 216). For Indigenous students and tribal colleges and universities (TCUs), the pipeline metaphor not only dehumanizes their experiences within education by promoting standardization, but also ignores cultural extermination as a result of physical pipelines being built within, and surrounding, their communities.

To better describe student transitions, including those as a result of vertical articulation agreements with TCUs, it is necessary for higher education to abandon the pipeline metaphor and adopt language that embraces the overarching goal of articulation agreements – building relationships that develop opportunities for students. The following suggestions for enrollment

management are not intended to solve all equity concerns regarding Indigenous students, but are the beginning of actionable steps towards developing inclusive educational environments. While recognizing diversity among Indigenous communities, these suggestions align with Kirkness and Barnhart's (1991) application of the Four R's – respect, relevance, reciprocity, responsibility – within higher education. Not only do these suggestions eliminate the word "pipeline," they hold institutions accountable for building accessible opportunities for Indigenous students *with* the input of their communities.

A People Centered Versus Process Centered Perspective

Eliminating the pipeline metaphor requires deliberate deviation from enrollment management's current mindset, which views students as resources rather than recognizing students as people. A mindset shift centered on people rather than resources emphasizes a parallel process and *relationships* with TCUs – relationships being a fundamental element of Indigenous cultures. An example in praxis may be: "We are developing *relationships* with our local Indigenous communities that intentionally support students joining our academic community." The word "relationship" calls attention to our connections that require reciprocation; an *equal exchange* of resources that are beneficial to all parties involved. Functional, healthy relationships are multidirectional and move away from the linear, one-directional imagery of pipelines used in articulation agreements and enrollment management.

Collaboration that Supports Agency

Beyond developing a people-centered mindset, enrollment management must provide space for agency that can only be established through *collaboration*. *Collaboration* requires shared purpose while supporting each other in the process. In order for Indigenous students to be successful, four-year colleges and universities must serve students outside the current

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institutional structures by collaborating with Indigenous communities. Colleagues may consider the following language, which builds space to develop agency: "Let's *collaborate* with our local Indigenous communities in creating new possibilities for students." As a result of collaboration, Indigenous communities have agency to provide and request culturally grounded services within four-year institutions that are foundational to the academic success of Indigenous students.

Shared Dialogue that Prioritizes Indigenous Voices

As a result of a new mindset and space for agency, shared dialogue can be built from *partnerships* formulated by articulation agreements. The word "partnership" emphasizes mutual agreement requiring all parties involved to reach a consensus through authentic shared dialogue. Enrollment management can implement shared dialogue in this example: "Let's create *partnerships* within our articulation agreements that reduce barriers for students transitioning to our institution." *Partnerships* require that everyone is consulted, heard, and agrees to the parameters that have been determined in the decision-making process. This eliminates the image of students as a resource to be extracted with little consideration for the source itself. Rather, partnerships will define how Indigenous students return to their communities upon graduating from colleges and universities. Such awareness will assist colleges and universities to become partners with Indigenous communities.

Metaphors require shared cultural norms in order to convey context and meaning. Although the pipeline metaphor is no doubt intended neutrally to describe student transitions and educational processes, its use within enrollment management further dehumanizes, traumatizes, and marginalizes Indigenous students. By examining metaphors such as "pipeline," four-year colleges and universities shift from an individualistic, exclusive, and ethno-university mindset to inclusive communities that execute inclusion with cultural competency. Creating articulation

agreements with TCUs that are grounded in respect and reciprocity changes the unidirectional education trajectory to a loop of allyship that prepares Indigenous students for Nation building. TCUs have expertise in cultural pedagogy that has proven effective in developing academic success for Indigenous students. When articulation agreements are grounded in relationships, collaboration, and partnerships between TCUs and four-year institutions, power and privilege crumble and inclusion is fostered.

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CHAPTER 3. STUDENT ENGAGEMENT IN HYFLEX COURSES DURING THE

COVID-19 PANDEMIC[1]

Classroom student engagement, the time and effort a learner devotes to academic activities that are linked to course outcomes as a result of instructional support to participate in such activities, is commonly researched as a predictor of student learning (Kuh, 2009). Early engagement research focused on the traditional face-to-face classroom experience, but has expanded over the past decade within blended e-learning systems (BELS); asynchronous and/or synchronous online courses (Leijon & Lundgren, 2019). While student engagement research continues to expand within BELS, an abundance of studies assume that students have a choice in registering for either face-to-face or BELS courses (Bower et al., 2015; Leijon & Lundgren, 2019). It is not clear these results apply when students are mandated to engage in BELS courses.

In March 2020, many educational institutions adapted courses traditionally taught in face-to-face settings to HyFlex environments to mitigate risk of COVID-19 transmission. HyFlex is a BELS environment where students can attend class synchronously with their peers; in person or via video teleconference (Leijon & Lundgren, 2019). Implementation of HyFlex instruction continued into fall 2020 leaving few classroom enrollment options for students. Lack of enrollment choice in HyFlex courses could impact student engagement as autonomy is positively correlated to engagement (Lee et al., 2015). When enrollment choice is eliminated, students may be less academically engaged in HyFlex and academic achievement may therefore suffer.

Moreover, limited research is available regarding student engagement in HyFlex courses. While a substantial body of research is exits regarding student engagement in BELS, these

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[1] The material in this chapter was co-authored by Tara Nelson, Emily Berg, Dr. Nate Wood, and Dr. Brent Hill. Tara Nelson had primary responsibility for collecting data, analysis, and was the primary developer of the manuscript Emily Berg developed the survey instrument in this study. Dr. Nate Wood served as proofreader and Dr. Brent Hill supervised statistical analysis conducted by Tara Nelson.

studies are wide in scope and attempt to create overarching conclusions about engagement in virtual spaces. Although HyFlex is a type of BELS, research findings may not be adaptable in HyFlex where instructors are simultaneously working with students face-to-face and via video teleconference.

Lack of research on student engagement in HyFlex adds an additional layer of complexity as courses traditionally taught face-to-face quickly transformed to HyFlex during the pandemic that otherwise may have taken years to develop (Adedoyin & Soykan, 2020). Instructors with no experience in HyFlex course design, pedagogy, or technologies were forced to adapt to the situation despite often having no experience, and with limited institutional resources. Rapid transition from face-to-face to HyFlex courses, as well as little empirical research, leaves much unknown regarding student engagement in HyFlex courses.

Theoretical Framework

With limited research on student engagement in HyFlex, BELS research was used to create the theoretical framework of this study. Current research highlights the significance of student engagement towards academic achievement in virtual spaces (Bower et al., 2015; Francescucci & Foster, 2014). When applied to BELS, Kuh's (2009) definition results in three major antecedents of student engagement: class participation, course structure, and learner autonomy (Bower et al., 2015; Francescucci & Foster, 2014).

Class participation amongst students and the instructor is essential to fostering engagement in BELS courses (Bower et al., 2015). Web 2.0 technologies have enhanced opportunities for instructors to encourage student participation including video conferencing, social media, and file sharing, etc. The goal of these tools is to provoke student participation in the course in a manner similar to face-to-face discussion (Bower et al., 2015).

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Class participation is enabled and constrained by course structure. The structure of the course guides the parameters of how and when students will learn course content and is heavily dependent on technological tools. While technologies are essential for students to interact, learn, and deepen content understanding, integration of too many technological tools can generate cognitive overload for students thus stifling student engagement (Bower et al., 2015). For example, watching a live stream of the course lecture while simultaneously submitting questions via an online chat creates a disjointed learning environment; therefore, mindful course structure is essential in creating a class environment conducive to engagement.

Although class participation and course structure are necessary for student engagement, so too is learner autonomy. Learner autonomy is personal ownership and responsibility for one's academic performance and is manifested by activity choice, rationale for activities, and personal connection to course materials in order to increase internal locus of control (Lee et al., 2015). By fostering an internal locus of control, students are more motivated to take initiative in their own learning and engage in coursework (Lee et al., 2015).

Methods

Background

In the spring and summer of 2020, multiple higher education institutions received state CARES Act appropriations towards developing academic environments that would mitigate COVID-19 transmission. A considerable proportion of grant funding allocated towards supporting student learning in the classroom. Multiple institutions attempted to meet the following criteria when considering classroom options including specifications that met CDC guidelines, offered options for vulnerable faculty and students, and flexibility to attend class when, or if, faculty and students either themselves, or their dependents, became ill with COVID-

19. Deliberate consideration for CDC guidelines, flexibility for situations of COVID-19 exposure, and requests from the campus community lead to the widespread adoption of the HyFlex course design.

To begin investigating student engagement in HyFlex courses, a web based cross-sectional survey was developed as the data collection instrument for this study. The survey was administered in fall 2020 at a mid-size, land grant institution located in the U.S. Midwest. All undergraduate students enrolled at the university were invited to participate in the survey via official university email from the institution's Director of Institutional Research. Participants were emailed two reminder invitations via university email from the institution's Director of Institutional Research as well.

Participation in this study was voluntary and responses remain confidential with the research team as per IRB protocol. The invitation and reminder emails were sent in November 2020 to allow for students new to HyFlex course design to reflect on their experiences after two months. Campus Cash, money for purchasing consumable goods on campus through student flexible spending accounts, was used as an incentive for participating in the study. The first 500 participants who completed the survey received a $5 deposit of Campus Cash on their student flexible spending accounts. Consent to deposit $5 Campus Cash in the participant's flexible spending account was collected at the end of the survey in addition to the participant's email address. All participant data, including survey responses and consent to deposit Campus Cash into flexible spending accounts remain confidential and are only accessible to the research team. All data is secured via the university's servers and are password protected.

Positionality Statements

Insights derived from research are a product of the interpretation of the results from the selected methodology; therefore, it is necessary for scholars to articulate how their identities informed the research process and results (Walter & Anderson, 2013). Tara Nelson identifies as a multi-racial (citizen of Muscogee Creek Nation and White), cisgender female, and a continuing-college student. Tara's scholarly interests focus primarily on equity in higher education. Emily Berg is a White, cisgender, female, first-generation college student. Our privileges and diverse perspectives served as a platform for framing the purpose, methods, and analysis in this study.

Analysis

Exploratory factor analysis (EFA) was used to test the theoretical dimensions of student engagement in HyFlex courses such as class participation, course structure, and learner autonomy (Bower et al., 2015; Francescucci & Foster, 2014; McBrien et al., 2009; Wu et al., 2010). The standardization of HyFlex course delivery may impact student engagement noted in previous studies (Adedoyin & Soykan, 2020). Advancements in technological tools, pedological techniques, and student expectations create new considerations when measuring student engagement thus warranting a new survey instrument.

Exploratory factor analysis uses observable data that describes latent variables to test theoretical models in survey instruments (Finch, 2020). Factor analysis is frequently used in determining the validity of surveys as it is designed to identify strength and direction of correlation patterns amongst a number of constructs (Fabrigar & Wegener, 2011). Variables in student engagement surveys are routinely grounded in psychological human behavior. Proxies such as psychological scales are necessary for determining observable measurement of the behavior being tested (Finch, 2020).

To test constructs associated with student engagement, simple statements were constructed for the survey to measure participant's experiences in HyFlex courses. The survey consisted of 39 items; 22 of these items were used to test student engagement. Items used in the analysis were 5-point Likert scales consisting of strongly *agree, agree, neither agree nor disagree, disagree, and strongly disagree* as anchors. To accommodate for any potential distress, participants had the option to discontinue participation at any time during the survey.

Participants

All undergraduate students were invited to participate in this study who were enrolled at the university at the time of survey administration. 12.6% of the undergraduate population completed no less than 20% of the 22-item engagement scale survey; however, 12.2% (n = 1,243) participant observations were used in this study to conduct the exploratory factor analysis. In addition to demographic information, participants were asked to describe their primary attendance modality within their HyFlex courses (see Table 3.1). The Kaiser-Meyer-Olkin (KMO) test was used to determine sampling adequacy resulting in an overall score of 0.939.

Table 3.1

Participant Demographics

	n	%
Academic Standing		
First Year	305	24.5%
Sophomore	272	21.9%
Junior	315	25.3%
Senior or 5th year and beyond	347	28%
Academic standing not disclosed	4	0.3%
Primary Mode of Course Attendance		
In-person	121	9.8%
Virtually	694	55.8%
Mix of in-person and virtually	428	34.4%

Results

Exploratory factor analysis (EFA) was conducted using Stata v.16 to extract factors using the correlation matrix of the common-factor model. 1,243 responses were used from the survey instrument. A three-factor solution was identified from the parallel analysis and a scree plot (Figure 3.1).

Figure 3.1

Scree Plot for Three Factor Solution Measuring Student Engagement in HyFlex Courses
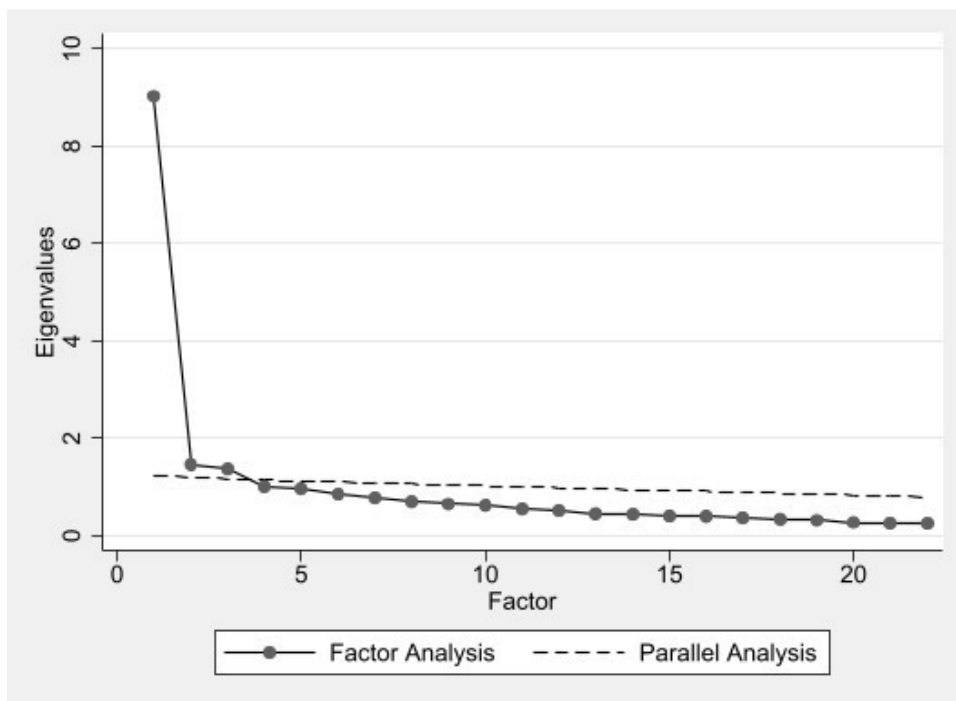
An oblique solution using the direct oblimin rotation was applied and items with a pattern coefficient less than 0.3, or cross loadings with pattern coefficients of 0.3 or greater, were removed from the factor structure individually. Upon completing item elimination to produce a clear factor structure, the EFA was recalculated resulting in 19 items in the final solution. The factor names were modified for clarity in the interpretation: leaner autonomy, vulnerability, and community (Table 3.3).

Table 3.2

Variances Extracted from the Final Correlation Matrix (18 Items)

Factor	Initial			Extraction			Rotated	
	Eigenvalue	Proportion	Cumulative	Eigenvalue	Proportion	Cumulative	Variance	Proportion
1	7.621	0.423	0.423	7.126	0.865	0.865	6.603	0.801
2	1.404	0.078	0.501	0.935	0.113	0.978	4.953	0.601
3	1.169	0.065	0.566	0.651	0.079	1.057	4.675	0.567
4	0.928	0.052	0.618					
5	0.858	0.048	0.666					
6	0.753	0.042	0.707					
7	0.676	0.038	0.745					
8	0.629	0.035	0.780					
9	0.604	0.034	0.814					
10	0.526	0.029	0.843					
11	0.519	0.029	0.872					
12	0.419	0.023	0.895					
13	0.401	0.022	0.917					
14	0.365	0.020	0.937					
15	0.317	0.018	0.955					
16	0.280	0.016	0.971					
17	0.275	0.015	0.986					
18	0.254	0.014	1.000					

Table 3.3

Factor Loadings and Communalities with Oblimin Rotation of Student Engagement

Item	Factor			Communality
	LA	V	C	
I can easily manage the tasks related to my learning in class, such as following the lecture, taking notes, and using technology.	0.830			0.655
I feel in control of my performance in my course(s).	0.810			0.667
I feel confident in my ability to learn the class material.	0.798			0.678
I understand the goals and objectives of my course(s).	0.753			0.519
The material is delivered in a way that is understandable.	0.679			0.597
I am able to assess whether I need to seek help in a course.	0.678			0.474
I can easily navigate the technology used in class.	0.574			0.339
I feel like I am in control of how I attend my course(s) (i.e., in-person vs online).	0.506			0.312
I prepare for class by completing all assignments, including readings, on time.	0.453			0.250
If I ask a question during class, I can be sure the instructor will respond.	0.391			0.326
The technology used in class causes disruptions to my learning. *	0.373			0.183
I feel comfortable responding when the instructor asks questions during class.		0.819		0.650
I feel comfortable asking questions during class to help me understand the material.		0.752		0.618
I feel comfortable participating in group activities in class (group discussion, team learning, etc.).		0.585		0.437
I pursue help outside of class to help me understand the material.		0.325		0.164
The technology used in class allows me to connect with other students.			0.822	0.681
There are ample opportunities to interact with classmates during class.			0.747	0.623
The technology used in class creates community among students.			0.671	0.527

Note. LA = leaner autonomy; V = vulnerability; C = community; * denotes item with reverse coding

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80.1% of the variance was accounted for after an oblimin rotation within the three-factor solution. Factors within the solution were allowed to correlate as an oblique solution (see Table 3.4). Amongst the three factors, all correlations within the matrix were moderate in strength suggesting that there is sufficient evidence that an oblique rotation is appropriate for the analysis (Finch, 2020).

Table 3.4

Factor Correlation Matrix Using Oblimin Rotation

	Factor		
Factor	1	2	3
1	1.00		
2	0.678	1.00	
3	0.613	0.597	1.00

Cronbach's alpha was used to measure the internal construct reliability within the three-factor solution (Table 3.5). Each battery within the solution met acceptable conditions for subscale reliability (see Fabrigar & Wegener, 2011).

Table 3.5

Subscale Reliabilities

Subscale	Number of Items	Cronbach's Alpha
1	11	0.89
2	4	0.763
3	3	0.844

Discussion and Implications

The factor structure in this study resembled the variables identified in previous BELS research (Bower et al., 2015; Francescucci & Foster, 2014); however subtle differences exist (see Table 3.3). The first factor comprises items designed to measure learner autonomy, but incorporated items that had been intended to measure class structure and participation as well.

The four items that moved from class structure and course participation to learning autonomy share a common theme of individualized control for learning. Remaining items intended to measure class structure did load onto a single factor and the same was true of remaining items intended to measure participation. Close examination of these three resulting factors suggest more precise characterizations of the latent constructs they indicate compared to the a priori, theoretical variables.

Eleven items from the survey loaded onto the first factor, which retained the name "learner autonomy". Learner autonomy requires an internal locus of control and the items in this study outline commonly associated behaviors including taking responsibility for one's own learning, managing technology independently in class, determining when to ask for help, and completing class assignments. Three items within the factor battery build upon internal locus of control, but with particular attention to the physical learning environment. The internal locus of control within learning environment includes the ability to manage learning tasks in class, utilizing technology effortlessly, and attendance mode choice (in-person or online). However, respondents may have experienced increased salience for an internal locus of control within their learning environments as their decisions regarding attendance type may have been driven by personal preferences in COVID-19 mitigation efforts (Lee et al., 2015).

Three of the items loading on the second factor relate to speaking or responding to others during class; however, the fourth item on this factor focuses on help seeking behaviors. Furthermore, the items related to in-class behavior all explicitly asked about respondents' 'comfort' speaking or responding to others. The three items that had been designed to measure participation did not load on this factor. Therefore, the latent construct underlying factor two seems to be a precondition for class participation: a willingness to be vulnerable. Vulnerability is

"the emotion experienced during times of uncertainty, risk, and emotional exposure" which occurs when students asking questions, respond to the instructor, or complete group work during class (Brown, 2018, p.109). This finding suggest that class participation extends beyond that of the instructor's intentionally embedding activities that provoke student interaction. Rather, class participation is dependent on the degree to which students feel comfortable in their ability to interact with their peers and/or instructor.

Half of the items designed to measure the a priori variable of course structure loaded on the first factor, as they related to aspects of course design that afforded students control over their learning environment. Of the remaining items intended for that a priori variable, three loaded on the third factor. All three of these items related to interacting, connecting, or feeling a sense of community with other students in the class. Literature on student engagement in BELS highlights the necessity for instructors to leverage technology to create classroom community; however only two items were associated with technology in this battery (Bower et al., 2015; Francesucci & Foster, 2014). Although the third battery was the smallest, the theme of community is strongly represented and was renamed to adjust for conceptual fit.

The latent constructs of student engagement in HyFlex courses are similar to that of BELS; however, nuances exist when compared to the a priori theoretical variables. Most notably is a social dimensions of student engagement not accounted for in Kuh's (2009) definition. Although Kuh's (2009) definition incorporates learner autonomy, class participation, and course design, it does not explicitly account for the interaction amongst students that may be an essential for student engagement in HyFlex courses. Rather, social connection is an essential component for students to develop autonomy, lean into vulnerability, and participate in collegial community within HyFlex. The divergence in the factor structure from Kuh's (2009) student

engagement definition may also be uniquely contributed to the pandemic. Participation in academia requires some learner vulnerability, but potentially even more so for students as they rapidly adjust to HyFlex learning environments.

When developing a new survey instrument, limitations are inherent. First, this study does not investigate comparisons between attendance type within HyFlex (i.e. face-to-face or video teleconference). Additionally, duplicating the conditions of this study may be challenging due to the pandemic; however, it is likely that HyFlex courses could continue to be offered as an option for distance learning presenting implications for further research. Factor refinement and confirmatory research could enable comparative studies on enrollment choice (face-to-face and HyFlex) as well as attendance choice within HyFlex (face-to-face and video teleconference) to test for potential differences in student engagement.

HyFlex learning environments offers flexibility for students to attend class, and when deliberately planned in the course pedagogy, can engage students simultaneously across platforms. When studied under pandemic conditions, subtle nuances exist between HyFlex and BELS student engagement constructs when enrollment choice is unavailable to students. While findings in this study may be unique to COVID-19, the specific constructs of student engagement in HyFlex may be contributed to a dual instruction space.

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CHAPTER 4. MEASURING FACULTY CLIMATE USING EXPLORATORY FACTOR ANALYSIS[2]

Campus climate is measured by examining the perceived daily experiences of its members including how individuals think, act, and behave within the institution (Tierney, 1990). Defined as "the interplay among people, processes, and institutional culture" campus climate uncovers how relationships within the institution afford the ability for individuals to feel valued and supported (Campbell-Whatley et al., 2015, p. 40; Hoy & Miskel, 2008). By measuring campus climate, colleges and universities can uncover how diversity is supported, valued, and embedded throughout the community including person-to-person interactions and campus policy (Ferdman, 2014).

Diversity within college campuses offers an abundance of benefits including increased recruitment, retention, and achievement of students, faculty, and staff. Interest in measuring campus climate has expanded over recent decades as academia has become increasingly diverse such as race, ethnicity, gender, sex, nationality, and ability. As diversification in higher education grows amongst students, faculty, and staff, so too does the necessity of campus climate assessment during an era of "evidence-based" practice that aims to improve institutional quality and educational goals (Hurtado et al., 2008). Climate assessment offers insights regarding the lived experiences of the community in order to build proactive initiatives that improve institutional outcomes (Hurtado et al., 2008; Ryder & Mitchell, 2013).

An abundance of research points to the positive correlation between campus climate and institutional outcomes including: student (i.e. learning, cognitive development), faculty and staff

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[2] The material in this chapter was co-authored by Tara Nelson, Dr. Nate Wood, Dr. Brent Hill, and Dr. Elizabeth Gilblom. Tara Nelson had primary responsibility for developing the survey instrument, collecting data, analysis, and was the primary developer of the manuscript. Dr. Nate Wood and Dr. Elizabeth Gilblom served as proofreaders and Dr. Brent Hill supervised as statistical analysis conducted by Tara Nelson.

(i.e. research, job satisfaction), and financial (Fries-Britt et al. 2011; Hurtado et al., 2008; Ryder & Mitchell, 2013). While a positive climate is beneficial towards overall institutional success, it is even more so for diverse individuals as college campuses were not originally designed for them– socially, physically, or economically. According to Fries-Britt et al. (2011), "the historical vestiges of segregated schools and colleges … continue to affect the climate for racial and ethnic diversity on college campuses" (p.6). The remnants of historical disenfranchisement persist amongst people, processes and institutional culture impacting campus climate today. Although institutions increasingly claim to advance inclusion initiatives, empirical evidence suggests an increasing amount of exclusion for people from diverse backgrounds that have been historically underserved in higher education including women, racial or ethnic minorities, LGBTQ+, and individuals with varying abilities.

For diverse people, the implications of historical exclusion continue to generate hostile working and learning conditions. Multiple studies report that climates that are perceived to be unwelcoming to diverse identity groups (e.g. race, ability, gender, generation status) are less likely to cultivate feelings of belonging within the campus community, and in turn, adversely affect institutional outcomes such as performance, recruitment, retention, and persistence (Duran et al., 2020; Hurtado & Carter, 1997; Strayhorn, 2019; Tidwell, 2004).

An abundance of research focuses primarily on students compared to studies on faculty or staff experiences within the campus community (Hurtado et al., 2008). While students are imperative to institutional functioning, their campus climate experiences are inherently linked to faculty interactions. Academic relationships between students and faculty are positively correlated to student campus climate. Research shows that a compositionally diverse faculty is more likely to utilize the range of pedagogical techniques that help ensure an engaging learning

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environment for all students" (Fries-Britt et al., 2011, p.4). While all students benefit from relationships and instruction with diverse faculty, it is especially true for students from historically underserved backgrounds. For these students, faculty diversity creates recognizable representation within academia while offering opportunities for mentorship related to identity; such determinates are commonly reported as inclusive campus climates (Fries-Britt et al, 2011; Hurtado et al., 2008).

Although the benefits of diverse faculty are abundant in developing an inclusive campus climate for students, multiple faculty climate studies highlight their own unique challenges in academia. Because "student educational outcomes are linked …[to] teaching and learning" it is essential that diverse faculty are supported and retained in order to best serve students (Hurtado et al., 2012, p.48). Multiple studies show that faculty who report feeling supported at their institution are more likely to describe the campus as an inclusive environment and are more likely to be retained in their academic positions (Campbell-Whatley et al., 2015; Ferdman, 2014; Fries-Britt et al., 2011). Furthermore, a supportive work environment is inherently linked to job satisfaction amongst faculty, and is imperative for institutional success as it is directly attributed to individual faculty outcomes (i.e. research productivity, service, and teaching) student learning outcomes (i.e. academic, cognitive, and social), and overall fiscal stability (Victorino et al., 2013).

If academia is to develop inclusive campus climates, then it is essential that faculty climate is not only measured but benchmarked intentionally as the historical organizational structure is responsible for how diverse faculty experience exclusion amongst people, processes, and overall climate. As diversity increases within academia, it is necessary for institutions to create environments that are inclusive in order to attain institutional outcomes and success.

Literature Review

Without a doubt, campus climate research has increased awareness and understanding about the experiences of faculty in academia that have led to institutional change in policy and practice. Yet, campus climate research documents an increasing trend of disconnection and isolation, particularly for faculty from historically underrepresented backgrounds including women, people of color, LGBTQ+, and people with varying abilities (Berg & Seeber, 2016). Multiple campus climate studies in academia highlight the difficulty navigating implicit and explicit institutional norms that impact the psychosociological wellbeing, job satisfaction, retention, and promotion of diverse faculty (Campbell-Whatley et al., 2015; Jayakumar et al., 2009; Tidwell, 2004; Writer & Watson, 2019). Research often describes these elements of marginalization as the all-encompassing "chilly environment" of academia that prevents individuals from feeling welcomed and valued members of the campus community (Campbell-Whatley et al., 2015; Fries-Britt et al., 2011; Jayakumar et al., 2009).

As a result of an increasing number of women enrolling in higher education, studies of the "chilly climate" of academia began to emerge in the 1980's. In their report, *The Classroom Climate: A Chilly One for Women,* Hall and Sandler (1982) identified how subtle and overt sexism impacted self-confidence and academic performance of women within academia. Women in the study reported multiple examples of feeling excluded in academia in ways that that impeded on their professional achievements and/or advancements. Exclusionary experiences included being shut out from informal department activities, devaluation of scholarly accomplishments, segregation within group work, and belittling gender directed comments. Since then, numerous studies have emerged underscoring the "chilly climate" of academia as exclusionary for faculty from historically underrepresented backgrounds including women,

people of color, LGBTQ+, and people with varying abilities (Fries-Britt et al., 2011; Jayakumar et al., 2009; Maranto & Griffin, 2011; Patridge et al., 2014; Tidwell, 2004; Wood et al., 2015; Yost & Gilmore, 2011; Zimmerman et al., 2016).

The "chilliness" of academia described in faculty campus climate research generates weathering: an erosion of inclusion in response to cumulative workplace adversity that gives rise to compounding marginalization (Geronimus et al., 2006). This is even more pervasive for diverse faculty as each independent encounter of "chilliness" intensifies exclusion, pushing them farther into marginalization at an accelerated rate. The weathering effect of academia is often described as higher levels of stress and burnout, greater hostility in the workplace, and less support for teaching and research in academia by women and faculty of color compared to their male and white colleagues (Campbell-Whatley et al., 2015; Fries-Britt et al., 2011, Jayakumar et al., 2009). An example of weathering commonly illustrated in campus climate research is identity taxation (Fries-Britt et al., 2011; Hirshfield & Joseph, 2012).

Identity taxation "occurs when faculty members shoulder any labor – physical, mental, or emotional – due to their membership in a historically marginalized group within their department or university, beyond that which is expected of other faculty in the same setting" (Hirshfiled & Joseph, 2012, p.214). For women and faculty of color, identity taxation results in teaching, research, or service obligations beyond that of their official workload responsibilities as a result of their minority status on campus. Given the typical homogeneity of faculty, examples of identity taxation that produces weathering include over commitment to campus committees as well as providing additional advising to students, both inside and outside of their program (Fries-Britt, 2011; Hirshfield & Joseph, 2012).

These "additional" responsibilities within service often impedes on time, energy, and effort related to teaching and research that can slow progress towards tenure and promotion compared to that of men or white faculty members (Fries-Britt et al., 2011; Hirshfield & Joseph, 2012). With strict timelines, advising and service responsibilities beyond what is acknowledged in formal workload agreements constrains time available for research, an essential component tenure and promotion at colleges and universities (Fries-Britt et al., 2011). Overabundance of competing demands generated by identity taxation leaves diverse faculty stressed, exhausted, and burned out resulting in weathering that generates negative campus climate perceptions.

While identity taxation illustrates the "chilly" weathering as a self-reproducing and compounding entity of exclusion, researchers suggest that inclusion is possible within academia. Ferdman (2014) defines inclusion as "how well organizations and their members fully connect with, engage, and utilize people across all types of differences" (p. 4). Aimed at describing the psychological experiences between an individual and group, inclusion encompasses the relationality between behaviors of colleagues and the organizational environment including norms, processes, and practices. "It is in this sense that inclusion is a *practice* – an interacting set of structures, values, norms, group and organizational climates, and individual and collective behaviors, all connected with inclusion experiences in a mutually reinforcing and dynamic system" (p.16). Therefore, inclusion is a practice that is dependent on connections where diversity is embraced and leveraged across people, processes and procedures within the campus community (Campbell-Whatley et al., 2015).

Tierney (1990) and Campbell-Whatley et al. (2015) provide operational definitions of campus climate suggesting that inclusion is measured by examining an interconnected web of interactions within the institution. More specifically, Campbell-Whatley et al. (2015) emphasize

the *interplay* of institutional facets, which aligns with Ferdman's (2014) emphasis of inclusion as a practice and highlights a need to measure interactions amongst people, processes, and institutional culture (p. 40). Thus, in order for campus climate to uncover how individuals think, act, and behave inclusively (Tierney, 1990), it is necessary to examine ways in which individuals perceive the "interplay amongst people, processes, and institutional culture" (Campbell-Whatley et al., 2015, p.40).

To measuring an inclusive campus climate requires examining how individuals across varying identities feel connected amongst sub-groups and the overall organization (Ferdman, 2014). Campus climate has been examined through both quantitative and qualitative methodologies and aim to capture the interplay amongst people, processes, and institutional culture that fosters inclusion (Fries-Britt et al., 2011; Jayakumar et al., 2009; Maranto & Griffin, 2011; Patridge et al., 2014; Tidwell, 2004; Wood et al., 2015; Yost & Gilmore, 2011; Zimmerman et al., 2016). If climate research uncovers how people think, act, and behave within the organization, then it can also identify to what extent people's thinking, actions, and behaviors marginalizes others as a result of identity difference. Examining campus climate provides opportunities to examine the degrees of inclusion as a result of personal identity in hopes of building work environments that supports diversity in academia.

Problem

Campus climate research is essential for not only building inclusive work environments for faculty but supporting institutional outcomes. In general, variables that measure campus climate focus on a spectrum of behaviors related to inclusion or the "chilly climate" of academia. However, literature regarding campus climate has proliferated such variables. Examples include examination of nondiscriminatory policies, academic tenure or promotion processes, respect,

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discriminatory behaviors (Garvey & Rankin, 2018), trust, comradery, transparency (Fennell, 2017), individual behavior, structural representation, structural legacy of inclusion or exclusion (Jayakumar et al., 2009), autonomy, mentorship, service work, teaching experiences, research support (Fries-Britt et al., 2011), diversity exposure, diversity interest, diversity, engagement, and conflict resolution (Campbell-Whatley et al., 2015). The scope of reported variables related to campus climate is extensive lacks cohesion across studies rendering conceptual interpretation challenging.

Furthermore, the lack of conceptual cohesion is further exacerbated by differences in research orientation. According to William Tierney (1990), climate research can be delineated into three orientation categories: objective, perceived, and psychological. Each category provides distinct dimensions that require focused research questions uncovering how individuals think, act, and behave within the organization. Objective climate studies generally document behaviors of individuals through third party observation. Although such studies provide helpful information regarding behavioral patterns, they fail to collect attitudes and motivational perceptions and require ongoing observational monitoring that may be impractical. More widely used in higher education are perceived and psychological climate studies. Perceived climate studies compare "actual and ideal views reflecting the differences between perceived reality and expectations" (Tierney, 1990, p. 13); whereas psychological studies "focus on how participants feel about their organization and their work" (Tierney, 1990, p. 13). The confusion amongst orientation categories within climate studies muddles variables in a way that do not adequately discriminate between behaviors, perceptions, and affect in campus climate research.

In addition to the lack of attention to research orientation, the abundance of climate research leads to this epistemological question – should the variables used in campus climate

studies be wholistic or focused in nature? As highlighted earlier, campus climate is a complex phenomenon and variables can only be determined by specific research questions with clear purpose; however, too often campus climate studies focus on specificity and fail to recognize overarching issues that are embedded within the institution that impede on inclusion more broadly. That is, the multiplicity of variables muddles the ability to adequately discriminate between perceptions and affect that account for how faculty experience inclusion. Universally themed variables grounded in psychological climate would not only capture feelings of marginalization that impedes inclusion, but also provide opportunities to identify how diverse faculty are affected by "chilly climates" in academia.

Using exploratory factor analysis to test theoretical principles associated with campus climate, this study was guided by the following research question: What variables best describe campus climate with respect to inclusion?

Framework

The framework in this study was developed using the antecedents of inclusion or exclusion described in campus climate research. As previously discussed, multiple studies illustrate the "chilly climate" of academia as exclusive. In contrast, inclusion can be defined as "how well organizations and their members fully connect with, engage, and utilize people across all types of differences" (Ferdman, 2014, p. 4). Thus, inclusion is characterized by connection as it underscores the relationality generated by the "interplay amongst people, processes, and institutional culture" in the literature (Campbell-Whatley et al., 2015; Hoy & Miskel, 2008). Similarly, "connection is the energy that is created between people when they feel seen, heard, and valued; when they can give and receive without judgement" (Brown, 2015, p.145). In short, to feel connection, one must be comfortable to freely present oneself honestly and authentically

without fear of scrutiny within their relationships amongst people, processes and instructional culture.

The psychological underpinnings of connection (Brown, 2015) correlates to the purpose of psychological campus climate studies outlined by Tierney as it focuses on psychological relationality within an organizational system (1990). In Brown's (2015) definition of connection, the word *between* implies interaction necessary to capture how individuals perceive the thoughts, actions, and behaviors of their colleagues across campus. The following are common antecedents identified in the literature that describe connection as representations of inclusion: sense of belonging, common purpose, feeling valued, visibility, and diversity engagement (Brown, 2015; Brown, 2018; Campbell-Whatley et al., 2015; Fries-Britt et al., 2011; Jayakumar et al., 2009; Maranto & Griffin, 2011; Patridge et al., 2014; Tidwell, 2004; Wood et al., 2015; Yost & Gilmore, 2011; Zimmerman et al., 2016).

Counter to connection is the "chilliness" of academia often described by faculty from historically underrepresented backgrounds (Fries-Britt et al., 2011; Jayakumar et al., 2009; Maranto & Griffin, 2011; Patridge et al., 2014; Tidwell, 2004; Wood et al., 2015; Yost & Gilmore, 2011; Zimmerman et al., 2016). Antecedents of a "chilly climate" described in faculty campus climate research include isolation, invisibility, unimportant, fragmentation, and othering (Fries-Britt et al., 2011; Jayakumar et al., 2009; Wood et al., 2015; Writer & Watson, 2019). Furthermore, chilly climate lead to exclusion rendering faculty members as insignificant (Fries-Britt et al., 2011; Strayhorn, 2019). If inclusion is a byproduct of connection compromising of belonging, visibility, value, shared purpose, and diversity engagement then counter are feelings identified in chilly climates that festers exclusion (Brown, 2018; Fries-Britt et al., 2011; Jayakumar et al., 2009; Tidwell, 2004; Wood et al., 2015; Writer & Watson, 2019).

Based on the foregoing conceptualization, Figure 1.1 summarizes a framework for representing the theoretical dimensions of connection and "chilly climates" that hinders or supports inclusion within academia. The model represents individual perceptions on the dimensions of connection and "chilliness" described by Brown (2015; 2018) and campus climate literature (see Campbell-Whatley et al., 2015; Ferdman, 2014; Fries-Britt et al., 2011; Jayakumar et al., 2009; Maranto & Griffin, 2011; Patridge et al., 2014; Tidwell, 2004; Tierney, 1990; Wood et al., 2015; Writer & Watson, 2019; Yost & Gilmore, 2011; Zimmerman et al., 2016).

Methods

Background

The purpose of this study is to begin variable reduction in campus climate research that describes the psychological constructs of an inclusive campus climate for faculty. This project is part of a longitudinal assessment of campus climate at a midsize, land-grant research university located in the Midwest. On a biannual basis, separate surveys are developed and administered to faculty, staff, and students to measure experiences related to inclusion that inform the mission, vision, and strategic plan of the institution.

While the university has conducted multiple campus climate studies for over thirty years, little longitudinal data is available to determine long-term progress of inclusion efforts. Changing leadership, strategic visioning, and enhanced efforts in building institutional research have impacted campus climate assessment throughout the years. This study is the launch of a dynamic assessment cycle grounded in theory that offers opportunities to measure validity and reliability towards collecting longitudinal information regarding faculty climate in academia. Furthermore, this study offers current assessment data in determining inclusion at the time of survey administration.

Instrument

A web-based, cross sectional survey was developed as the data collection instrument to begin investigating inclusive campus climate variables. Cross-sectional surveys afford the ability to study faculty perceptions within a particular time frame making it an ideal instrument for measuring climate (Creswell, 2009; Tierney, 1990). The survey instrument consisted of 51 items, each utilizing an eight-point Likert scale with prefer not to answer and not applicable (N/A) as potential options. Likert scales, provide a range of responses to a given question or statement while offering "freedom to fuse measurement with opinions, quantity, and quality within the analysis" (Groves, 2009; Cohen, Manion, & Morris, 2018, p.480). The Likert scale options for each item were *strongly disagree, disagree, somewhat disagree, somewhat agree, agree, and strongly agree* followed by *prefer not to answer* and *not applicable* (n/a). Recognizing that some questions in the survey may develop feelings of distress as a result of prior workplace trauma, participants had the option to skip questions or discontinue participation throughout the instrument.

Sample

To assess campus climate for faculty accurately, it is important that the results are generalizable based on the role within the institution (Groves, 2009). Faculty position types are wide in scope at the university; therefore, were identified as either full time or part time employees with classroom or laboratory instruction responsibilities. Position types that met these criteria included faculty, professor of practice, or lecturer positions on campus.

Procedure

Participant safety drove methodological decisions within the development, administration, and analysis of the survey. Upon review and approval from the university's

Institutional Research Board, the survey was administered using Qualtrics, an online survey development program with a license owned by the university. Data collected in Qualtrics was password protected using the university's firewall and server accessible only to the research team (Groves, 2009).

Participation in the study solicited to all employees in a teaching position via official university LISTSERV from the university's Director of Institutional Research (IR) with the link to the survey embedded in the email. The teaching position LISTSERV is managed by the university's Human Resources office and encompasses all teaching positions defined in the sample section. The survey was available to participants for three weeks; follow up emails were sent on a weekly basis following the same procedure as the initial invitation.

To ensure confidentiality of respondents and reduce potential research bias, the Director of IR and IR research team were selected as the "sponsor" of the study including administration, analysis, and dissemination of the findings. Using the IR office team as the survey sponsor afforded faculty the opportunity to share climate experiences without fear of reprimand; a concern often reported in climate research as a result of higher education's hierarchical structure within position type and role on campus. Furthermore, anonymized responses were collected in the survey – a software feature available in Qualtrics that does not record respondent's IP addresses, location data, and contact information. Anonymized responses added an additional layer of confidentiality related to participant responses.

Sample Description and Factor Analysis

Thirty percent (n = 207) of eligible faculty at the institution completed no less than 20% of the survey. To measure the validity of the campus climate items developed in the survey, exploratory factor analysis was used to measure the latent constructs of the institutional

phenomena (Fabrigar & Wegener, 2011). Factor analysis is not only "designed to determine the number of distinct constructs needed to account for the patterns of correlations among a set of measures" but also provides information to determine common factors and the nature of such factors through examination of strength and direction (Fabrigar & Wegener, 2011, p. 4).

Exploratory factor analysis (EFA) was used to test the theoretical dimensions of inclusion in Figure 1.1. It was assumed that an absence of the latent variables that describe connection would capture "chilliness" represented in Figure 1.1. Exploratory factor analysis tests theoretical models by using observed data to determine how latent variables are constructed (Finch, 2020). Survey items were constructed to serve as a priori constructs to determine manifested outcomes of the latent variables within this study (Finch, 2020).

118 observations were used in the exploratory factor analysis: 16% of the university's faculty population. A description of participant demographics used in the exploratory factor analysis can be found in Table 4.1.

Table 4.1

Participant Demographics

	n	*%*
Gender	114	
Female	55	48.25
Male	54	47.37
Transgender/Self Describe	5	4.38
Tenure	118	
Tenure	84	71.19
Tenure track	13	11.02
Non-tenure track	21	17.79
Rank	118	
Assist Professor	15	12.71
Associate Professor	47	39.83
Full Professor	40	33.90
Asst/Assoc/Full Professor of Practice	7	5.93
Lecturer/Senior Lecturer/Instructor	8	6.78
Other	1	0.85
Race/Ethnicity	115	
Asian	2	1.74
White	95	82.61
Hispanic	1	0.87
Another	1	0.87
PNA	11	9.57
Two or more	5	4.35

Results

Factors were extracted from the correlation matrix using the common-factor model to explore the latent constructs and their structure (Fabrigar & Wegener, 2011). Stata v. 16 was used for the factor analysis. 118 observations were used to test the five a-priori constructs of connection: sense of belonging, common purpose, valued, visibility, and diversity engagement. Using the study's conceptual framework on connection, five factors were initially extracted but did not produce clear factor structure.

KMO was used to measure the sample (0.906) and measured well above the suggested 0.60 for EFA studies (Watson, 2017). Parallel analysis (7 factors), the minimum average partial

(MAP) test (11 factors), and a scree plot (7 factors) were used to determine potential factor

structures of the campus climate items. Interpretability of the factor solutions lead to the

determination of a seven-factor solution. The 51 items within the seven-factor solution were

rotated to an oblique solution using direct oblimin rotation.

Items within the seven-factor model were independently removed based on conceptual fit

within factors, cross loadings with pattern coefficients of 0.3 or greater, or salient loading on a

factor with a pattern coefficient of 0.3 or less. Each item was eliminated individually, and the

EFA solution was recalculated resulting in 44 items in the final solution (Table 4.2).

Table 4.2

Variances Extracted from the Final Correlation Matrix (44 Items)

Factor	Initial			Extracted			Rotate	
	Eigenvalue	Proportion	Cumulative	Eigenvalue	Proportion	Cumulative	Variance	Proportion
1	9.999	0.455	0.455	19.858	0.531	0.531	15.932	0.426
2	4.297	0.098	0.552	4.145	0.111	0.642	11.152	0.298
3	2.585	0.059	0.611	2.440	0.065	0.707	10.124	0.271
4	2.574	0.059	0.669	2.413	0.065	0.772	9.805	0.262
5	1.850	0.042	0.712	1.699	0.045	0.817	8.243	0.220
6	1.633	0.037	0.749	1.486	0.040	0.857	4.582	0.123
7	1.561	0.036	0.784	1.415	0.038	0.895	2.565	0.069
8	0.980	0.022	0.806					
9	0.823	0.019	0.825					
10	0.690	0.016	0.841					
11	0.615	0.014	0.855					
12	0.556	0.013	0.867					
13	0.526	0.012	0.879					
14	0.450	0.010	0.890					
15	0.420	0.010	0.899					
16	0.366	0.008	0.907					
17	0.334	0.008	0.915					
18	0.333	0.008	0.923					
19	0.298	0.007	0.929					
20	0.285	0.007	0.936					
21	0.254	0.006	0.942					
22	0.228	0.005	0.947					
23	0.224	0.005	0.952					
24	0.210	0.005	0.957					
25	0.203	0.005	0.961					
26	0.183	0.004	0.965					
27	0.163	0.004	0.969					
28	0.145	0.003	0.972					
29	0.139	0.003	0.976					
30	0.124	0.003	0.978					
31	0.116	0.003	0.981					
32	0.110	0.003	0.984					
33	0.101	0.002	0.986					
34	0.096	0.002	0.988					
35	0.088	0.002	0.990					
36	0.074	0.002	0.992					
37	0.069	0.002	0.993					
38	0.066	0.002	0.995					
39	0.058	0.001	0.996					
40	0.052	0.001	0.997					
41	0.039	0.001	0.998					
42	0.035	0.001	0.999					
43	0.028	0.001	1.000					
44	0.021	0.001	1.000					

Final examination of the seven-factor model (Table 4.3) suggested a majority of the items loaded on the first factor (14 items). The smallest factor consisted of a duplet (2 items) on factor seven within the final solution. Strong to moderate factor loadings were measured amongst all

items ranging between 0.929 and 0.354. Item communalities ranged between 0.913 and 0.441

suggesting high to moderate proportions of variance accounted for by the factors (Finch, 2020).

Table 4.3

Factor Loadings for Exploratory Factor Analysis with Oblimin Rotation

Item	A Priori Construct	Factor							Communality
		1	2	3	4	5	6	7	
1	SP						0.856		0.787
2	SP						0.929		0.910
3	SP						0.862		0.763
4	B		0.667						0.844
5*	B	0.721							0.747
6	B		0.699						0.729
7	VI		0.880						0.769
8	VI		0.759						0.780
9	B		0.455						0.441
10	VI		0.652						0.675
11	VI		0.777						0.584
12	VA	0.689							0.786
13	VA	0.587							0.719
14	VA		0.354						0.527
15	B	0.852							0.788
16	B	0.732							0.823
17	SP	0.508							0.663
18	B	0.587							0.737
19	B	0.800							0.738
20	B		0.547						0.658
21	B	0.752							0.792
22	B	0.769							0.800
23	VA			0.838					0.898
24	VA			0.863					0.897
25	B			0.686					0.672
26	VA			0.758					0.763
27	VA			0.808					0.773
28	B					0.601			0.695
29	B					0.783			0.791
30	DE					0.858			0.706
31	DE					0.853			0.812
32	DE					0.752			0.745
33	DE	0.647							0.806
34	DE	0.501							0.827
35	DE	0.618							0.783
36	DE	0.639							0.780
37	DE				0.788				0.680
38	DE				0.765				0.815
39	DE				0.799				0.764
40	DE				0.836				0.873
41	DE				0.834				0.847
42	DE				0.808				0.811
43	DE							0.886	0.830
44	DE							0.884	0.828

Note. SP= Shared Purpose; B = Belonging; VI = Visible; VA= Valued; DE = Diversity
Engagement. * denotes item with reverse coding

As a seven-factor model, 42.5% of the variance was accounted for after an oblimin rotation. Factors were allowed to correlate as an oblique solution (Table 4.4). Correlations were strongest between factor 1 and 2 (0.535) and weakest between factors 5 and 6 (0.021) suggesting varying levels or relationships amongst the factors within the model's conceptual framework.

Table 4.4

Factor Correlation Matrix Using Oblimin Rotation

Factor	Factor						
	1	2	3	4	5	6	7
1	1.00						
2	0.535	1.00					
3	0.479	0.376	1.00				
4	0.431	0.302	0.247	1.00			
5	0.351	0.233	0.349	0.435	1.00		
6	0.288	0.165	0.252	0.083	0.021	1.00	
7	0.160	0.097	0.119	-0.041	-0.072	0.182	1.00

The preliminary conceptual framework was developed using five dimensions that describe connection within a campus climate that counters "chilliness." The five dimensions identified were belonging, visibility, value, shared purpose, and diversity engagement. Although the dimensions measured are essential to campus climate; personal positionality within campus sub-cultures, such as campus units or divisions within the overall campus ecosystem separated constructs into a seven-factor solution. As a result of additional factors that emerged from the analysis, factors were renamed in congruence with recommendations from Kahn (2006). Renaming of factors ensured that each factor represented the common theme present throughout each battery while accounting for organizational behavior theory (Kahn, 2006).

Table 4.5

Item Subsets for Factor Loadings with Oblimin Rotation

Item	Item Stem	Loading
	Factor 1: Department/Unit Behaviors	
15	My department chair/head/director is transparent in communicating decisions.	0.852
19	I feel comfortable sharing my thoughts, ideas, or opinions with my department/division chair.	0.800
22	I believe that decisions regarding resources are communicated openly within my department/unit.	0.769
21	I believe that decisions regarding resources are solved openly within my department/unit.	0.752
16	Expectations are clear in meetings with my department chair/head/director.	0.732
5	I am treated with respect by my department chair/head/director.	0.721
12	My department chair/head/director encourages me to grow within my position.	0.689
33	My department/unit takes action to enhance the climate for faculty.	0.647
36	My department/unit has developed policies and procedures that support faculty members.	0.639
35	My department/unit makes efforts to promote faculty into leadership positions.	0.618
18	I feel like a full and equal participant in problem solving and decision making.	0.587
13	My department chair/head/director acknowledges my work accomplishments in formal settings.	0.587
17	Decisions within my unit/department support the mission of the university.	0.508
34	My department/unit actively supports faculty.	0.501
	Factor 2: Relationships within Department/Unit	
7	I can depend on my colleagues within my department to do their share of the work.	0.880
11	The work is divided equitably within my department.	0.777
8	I can depend on my colleagues within my department when I ask for help.	0.759
6	I am treated with respect by faculty.	0.699
4	I am treated with respect by colleagues in my unit.	0.667
10	I consider my colleagues as part of a team.	0.652
20	I feel comfortable sharing my thoughts, ideas, or opinions amongst my colleagues within my unit/department.	0.547
9	I feel excluded from the informal networks in my department/unit.	0.455
14	Colleagues within my unit/department celebrate the work accomplishments of our unit in formal settings.	0.354
	Factor 3: Campus Leadership	
24	My dean celebrates work accomplishments of staff in formal settings.	0.863
23	My dean celebrates work accomplishments of faculty in formal settings.	0.838
27	Campus administrators celebrate work accomplishments of staff in formal settings.	0.808
26	Campus administrators celebrate work accomplishments of faculty in formal settings.	0.758
25	I trust my dean's ability to make decisions that support NDSU's mission.	0.686

Table 4.5 *Item Subsets for Factor Loadings with Oblimin Rotation* (continued)

Item	Item Stem	Loading
	Factor 4: Department Diversity Engagement	
40	My department/unit actively supports diverse faculty.	0.836
41	My department/unit makes effort to promote diverse faculty into leadership positions.	0.834
42	My department/unit has developed policies and procedures that support diverse faculty members.	0.808
39	My department/unit actively recruits diverse faculty.	0.799
37	Diversity within my department/unit is abundant.	0.788
38	My department/unit has taken action to enhance the climate for diverse faculty.	0.765
	Factor 5: Campus Community	
30	Diversity is important to the campus community.	0.858
31	The campus is sensitive to issues of accessibility, equity, and inclusion.	0.853
29	The campus is built upon an inclusive environment.	0.783
32	The campus makes efforts to increase diversity within faculty.	0.752
28	The campus is welcoming.	0.601
	Factor 6: Personal Accountability Towards Shared Purpose	
2	I believe that my work supports the mission of my department.	0.929
3	I believe that my work is congruent with the mission of my department.	0.862
1	I believe that my work supports the mission of NDSU.	0.856
	Factor 7: Personal Diversity Engagement	
43	I find value in bringing multicultural curriculum and programming into academia.	0.886
44	When possible, I work to include multicultural perspectives in my curriculum or programming.	0.884

Reliability

Cronbach's alpha, $\alpha \geq 0.7$, was used to measure internal construct reliability within the seven factors (Table 4.6) (Fabrigar & Wegener, 2011). All seven factor subscales reported $\alpha \geq 0.866$, suggesting that the variance within each factor was "largely accounted for by the true variance in the latent construct being measured" (Finch, 2020, p.32). That is, each factor component reflects high internal consistency related to the psychological phenomena of the overall factor and the construct components of each individual factor that makes up the overall factor (Cortina, 1993). Item scales were inspected individually and no additional items were eliminated from the overall seven factor solution.

Table 4.6

Subscale Reliabilities

Subscale	Cronbach's Alpha	Number of Items
1	0.971	14
2	0.919	9
3	0.918	5
4	0.954	6
5	0.91	5
6	0.867	3
7	0.912	2

Discussion

The conceptual framework created for this study was intended to capture the antecedents of connection as an illustration of inclusion within a campus climate. The a priori constructs developed from relevant literature emphasize how behaviors, individually or collectively, create inclusive work environments (Brown, 2015; Brown, 2018; Campbell-Whatley et al., 2015; Ferdman, 2014; Fries-Britt et al., 2011; Jayakumar et al., 2009; Maranto & Griffin, 2011; Patridge et al., 2014; Tidwell, 2004; Tierney, 1990; Wood et al., 2015; Writer & Watson, 2019; Yost & Gilmore, 2011; Zimmerman et al., 2016). Although the a priori constructs of this study are well supported by literature, the factor structure resulted in a seven-factor solution suggesting that faculty perceive inclusion as fragmented in the campus climate.

The seven-factor solution generated commonalities with regards to either a campus entity (i.e. department/unit, campus leadership) or personal behaviors (i.e. I believe). The first three factors clearly delineated amongst varying levels of leadership within the academy such as department chair (also known as head or director), colleagues, and campus administrators including the dean of the prospective college. Similarly, factors four and five in this study created a hierarchy of how campus entities implement diversity whereas factors six and seven

focused on how individuals support the mission of the institution while implementing diversity into curriculum.

As the batteries within the factor solution were formed by campus entities, it is worth considering how inclusion or the chilly climate of academia are generated from an ecological perspective. Bronfenbrenner's ecological model suggests that a changing environment, and the relationships within that environment, formal and informal, as well as larger social contexts, impacts human behavior (Bronfenbrenner & Morris, 1998). According to Bronfenbrenner & Morris (1998), the educational environment consists of nested structures, each contained within successive levels. The differentiation between leadership roles within the first three factors of this study suggests that individuals are connected within a hierarchy.

The proximity of the individual to campus leadership within the hierarchy may correlate to perceptions of the campus climate. Implementing Bronfenbrenner and Morris (1998) to campus climate would account for the daily activities and interactions that faculty engage with contributing to inclusion or the chilly climate of academia. For faculty, interactions with their department chair or colleagues within their department are more likely to occur than interactions with their college dean or other campus administrator. The individual proximity to perceived hierarchical relationships may have contributed to items loading on the first three factors with regards to campus entities.

Furthermore, personal characteristics and the environment change over time and can impact how inclusion is embedded within academia (Bronfenbrenner & Morris, 1998). Research over time has informed both praxis and policy towards developing inclusive spaces for faculty which may have contributed to the delineation between factors four, five, six, and seven within the factor structure. For example, increased implicit bias and Title IX trainings for faculty over

the years may have reified inclusion. As faculty implement inclusive practices into the classroom, the commitment to inclusion may increase leading towards additional independent professional development in this area. When independent learning of inclusion outnumbers that of the institution, faculty may delineate between personal versus campus wide commitment of inclusion.

Limitations and Recommendations

When developing a new survey instrument, several limitations are inherent as with this study. First, this study required self-reporting thus generating the possibility of participant bias, piratically when describing experiences of inclusion or chilliness within academia (Groves et al., 2009). It is plausible that faculty in this study either over or under reported experiences of inclusion or chilliness in the work environment.

Additionally, the factor solution resulted in seven factors ranging in size from 14 items (factor 1) to 2 items (factor 7). Although the reliability tests of each factor produced adequate results, a two-item factor cannot measure the degree to which faculty value diversity nor how faculty implement in the classroom. Further refinement of factor seven is necessary to capture the depth and breadth of personal accountability towards supporting diversity in the classroom. Furthermore, the first factor resulted in a 14-item solution. Watson (2017) suggests that 4 to 10 items per a factor is most desirable; therefore, refinement on factor one is necessary to clearly define department behaviors of inclusive work environments.

Finally, replication of this study is necessary to determine generalizability of the findings. Conducting confirmatory factor analysis (CFA) using the factor structures from this study would add valuable evidence in testing the theory of inclusion or chilliness within academia (Kahn, 2006). CFA would test for the interrelatedness and distinctiveness of the factor constructs

generated from the theory used in this study (Kahn, 2006). Additionally, CFA may be fruitful in determining if a specific level within the campus ecosystem has a significant impact on campus climate as such tests can compare alternative models of inclusion statistically (Kahn, 2006).

Conclusion

This study was designed to begin variable reduction in campus climate research that describes the psychological constructs of an inclusive campus climate. Five a priori constructs were developed from relevant literature (see Figure 1.1) as antecedents of connection that illustrate an inclusive campus climate. The five a priori constructs in determining inclusion for faculty used in this study were belonging, visibility, value, shared purpose, and diversity engagement. Behaviors that foster feelings of connection are often used to describe inclusive work environments within academia and promote a positive campus climate (Brown, 2018; Ferdman, 2014; Fries-Britt et al., 2011).

Although the factor structure within this study did not match initial theory, a seven-factor solution emerged suggesting that campus climate and by association, inclusion, can be studied from a social-ecological perspective within the intuition (Bronfenbrenner & Morris, 1998). Blending Bronfenbrenner and Morris' (1998) ecological theory into faculty campus climate studies recognizes that inclusion occurs from a systematic as well as individualistic approach – connections throughout the campus ecosystem (Ferdman, 2014). Implementing social-ecological theory into faculty campus climate studies would offer further examination of potential employment hierarchies that impede inclusion. If an inclusive campus climate requires connection, then investigating how connection weaves within sublevels of the organization, people and processes, affords the ability to identify any breaks that develop chilly climates.

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CHAPTER 5. CONNECTION AS THE SYNERGY BETWEEN BELONGING AND INCLUSION

Presented in a three-article format, the aim of this disquisition is to uncover implications and recommendations for increasing belonging for students, faculty, and staff from underrepresented backgrounds in higher education. Strayhorn (2019) defines belonging in higher education as the "perceived social support on campus, a feeling or sensation of connectedness, and the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the campus community or others on campus such as faculty, staff, and peers" (p.4). Increased belonging generates an academic environment where individuals feel that their identity is celebrated as a valuable contribution to the campus community.

Within the past fifty years, shifting demographics across race, gender, sex, generation status, and ability has further exposed oppression and social inequalities embedded in higher education (Strayhorn, 2019). Current literature underscores environmental and social factors that impact belonging across identities and that belonging is not equitably experienced between different demographic groups (Duran et al., 2020; Fries-Britt et al., 2011; Strayhorn, 2019). Varying experiences of belonging have been reported amongst gender, sex, race or ethnicity, ability, sexual orientation, and generation status amongst students, faculty and staff despite increased interventions to cultivate belonging in higher education (Duran et al., 2020; Ferdman, 2014; Fries-Britt et al., 2011; Hurtado & Carter, 1997; Jayakumar et al., 2009; Strayhorn, 2019; Tidwell, 2004). "Specifically, this research underscores how colleges fail to create environments that honor some students' cultural backgrounds which impacts their belonging in the process" (Duran et al. 2020, p. 134).

With increasing evidence that institutional outcomes such as academic performance, retention, and fiscal sustainability are correlated to belonging, then it is essential that higher education begin intervention strategies that not only dismantles power and privilege, but also create environments where people from traditionally underrepresented backgrounds feel as equal and valued members of the collegiate community. With increasing diversification in higher education today, strategies for increasing belonging are even more imperative to meeting institutional outcomes and goals (Anderson, 2003; de Brey et al., 2019).

Campus Climate: Shifting Towards Relationality and General Findings

The research in this disquisition was guided by the conceptual framework represented in Figure 1.1. The conceptual framework was created to outline constructs and their relationships associated with inclusion in campus climate research (see Figure 1.1). Ferdman (2014) defines inclusion as "how well organizations and their members fully connect with, engage, and utilize people across all types of differences" (p. 4). Multiple studies (see Figure 1.1) illustrate belonging as an antecedent of inclusion but overlook ways in which individuals adapt their identity to engage as a member of the community. Ferdman (2014) addresses this concern stating that:

> Focusing solely on individual's motivation to belong does not fully address how group or social identities play a part in the dynamics of inclusion (and exclusion). I may, for example, be part of a work group in which I feel valued, heard, and treated as an equal, full, and important member, but to achieve this, perhaps I had to change important aspects of how I communicate to become more like members of the group, or perhaps I decided to change my name so that it would be easier for my fellow group members to

pronounce, or perhaps I am reluctant to reveal aspects of myself that are quite important

to me but that I believe may be misunderstood or not valued by my colleagues (p. 14).

Altering one's identity in order to belong to a community is "fitting-in" rather than inclusion

(Brown, 2015).

Modifying one's thinking, acting, and behavior to "fit in" to higher education suggests

cultural assimilation, rendering belonging unachievable. If an individual has given up or hides

pieces of their identity in order to resemble the standards set forth by the culture of higher

education, they fail to present themselves authentically to the community (Mio et al., 2020).

Authenticity is essential to developing true belonging and inclusion in higher education; yet too

frequently people sacrifice or mask aspects of their identity by conforming to institutional

standards in order to be successful. The relationships amongst people in these situations creates

fear of judgement that prevents individuals from leveraging their experiences in identity as an

asset to the community. This is particularly true for individuals from diverse backgrounds where

colleges were never originally designed for them in mind (Duran et al., 2020; Strayhorn, 2019).

Furthermore, current research aims to measure belonging as an individual experience,

potentially contributing to unequitable experiences amongst social identities (Duran et al., 2020;

Hurtado & Carter, 1997, Strayhorn, 2019). The operational definition often cited in literature

lends to psychological frameworks that focus on perceptions between the individual and

community in a unilateral manner. Psychological frameworks can be interpreted as rendering the

community responsible for individuals' belonging. Examples of survey questions that aim to

measure perceptions of belonging unilaterally include: the campus is welcoming, I feel excluded

from informal networks in my department, I am treated with respect by faculty, I feel like a real

member of the campus community (Strayhorn 2019, p.82), I am accepted by my campus community (Duran et al., 2020).

While extant frameworks offer important insights as which identity groups may experience unequitable experiences of belonging, they frequently overlook the relational ontology implied within operational definitions. Most notably in Strayhorn's (2019) definition of belonging as well as in Ferdman's (2014) definition of inclusion is the word connection that implies not only relationality but also reciprocity between people. According to Brown (2015), "connection is the energy that is created between people when they feel seen, heard, and valued; when they can give and receive without judgement" (p.145). Brown's (2015) operational definition suggests that connection requires relationality as it "created between people" and reciprocity, the ability "give and receive without judgement" (p.145).

Reorienting the operational definition of belonging frames connection as relational and reciprocal where the individual *and* community are equally responsible for developing inclusion. Strayhorn (2019) highlights the necessity of a relational framework of belonging as "under optimal conditions, members feel that the group is important to them and that they are important to the group" (p.4). Reframing the relationship between belonging and inclusion emphasizes that connection requires a sense of belonging for one to believe they are a valued, visible, and included member of the campus community "*because of* and not in spite of their differences" (Ferdman, 2014, p. 5).

While the three articles that comprise this dissertation address substantially different issues in higher education, each offers critical insights that has not been sufficiently addressed in previous literature – connection is the synergy between belonging and inclusion. The articles aim to examine the relationships between belonging, inclusion, and connection using critical

commentary and survey methodology. The methods used highlight three perspectives that challenge dominate narratives regarding the relationship between belonging and inclusion commonly cited in higher education literature. Furthermore, each article offers important insights for developing inclusive campus climates that embraces and leverages diversification in higher education in an era of institutional quality control and assessment.

Pipelines to People: Implementing a Relational Approach to Enrollment Management

The first of the three articles presented in this disquisition investigates how metaphors camouflages the experiences of diverse students, faculty, and staff thereby perpetuating trauma and forced assimilation in higher education. This article provides critical insights to how metaphors necessitate shared cultural context for accurate interpretation across diverse people by critically examining the pipeline metaphor frequently used in enrollment management (Lakeoff & Johnson, 1980). Shared cultural context between higher education as an institution and Indigenous communities ensures that language used to describe student experiences are inclusive rather than moralizing as demonstrated in enrollment management pipeline metaphor.

Purported to be neutral in describing educational transitions, including the transfer experience resulting from articulation agreements, the pipeline metaphor "brings to bear different meanings and truths that produce unintended consequences" (Pitcher & Shahjahan, 2017, p. 216). For Indigenous students and tribal colleges and universities (TCUs), the pipeline metaphor not only dehumanizes their experiences within education by promoting standardization, but also ignores cultural extermination as a result of physical pipelines being built within, and surrounding, their communities. This metaphorical example emphasizes how language sets expectations of assimilation that hinders inclusion for Indigenous students within higher education, particularly when the symbolism of pipelines within these communities is a

contemporary icon of settler colonialism that perpetuates the erasure of Indigenous issues and people.

To create language of inclusivity grounded in belonging, it is necessary for higher education to implement connection as the means to critically examine the metaphors embedded within the higher education lexicon. As highlighted, the pipeline metaphor prescribes a standardized college trajectory in order to predict institutional outcomes and measures. Indigenous students are expected to adapt to the parameters of the pipeline's bounded walls in order to "fit" with the predetermined pipeline flow at the expense of their identity suggesting assimilation, and in turn, squandering all attempts to supporting diversity institutionally. Letting go of identity to meet the expectations of higher education inhibits Indigenous students from creating authentic connection necessary for belonging and inclusion.

Student Engagement in HyFlex Courses During the COVID-19 Pandemic

Article two in this disquisition examines student engagement in the classroom when choice in enrollment between traditional face-to-face learning and blended e-learning systems (BELS) such as HyFlex is no longer an option for students. HyFlex is a type of BELS environment where students can attend class synchronously with their peers; in person or via video teleconference (Leijon & Lundgren, 2019). Designed with attendance type flexibility, HyFlex was adopted as means for limiting in-person contact during the COVID-19 pandemic; yet little research on student engagement in HyFlex was available prior to the pandemic thus warranting investigation of a new survey instrument.

Exploratory factor analysis was used to test the latent constructs associated with student engagement resulting in subtle nuances when compared to the a priori theoretical variables. Most notably are the social dimensions of student engagement not accounted for in prior student

engagement literature (see chapter three). The factor structure in this study suggests that student interaction may be essential for students to develop autonomy, lean into vulnerability, and participate in collegial community that generates student engagement within HyFlex courses.

For student interaction to cultivate engagement in HyFlex courses, connection is essential as students must actively participate to learn course material. Class participation requires some levels of autonomy and vulnerability as students must feel comfortable asking questions or providing feedback amongst their peers. These social interactions are a manifestation of connection as students needed to not only let go of their fear of judgement from peers or the instructor when asking questions, but also that students felt their peers or instructor appreciated their contributions to the collegial community in class.

The connection necessary to embrace autonomy and vulnerability may have been even more prevalent during the COVID-19 pandemic as students were required to quickly adapt to an unfamiliar learning environment. Regardless of the impact of the COVID-19 pandemic on the results of this study, connection underscores reciprocity and relationality in order to participate in class that is free from peer judgement leveraged by autonomy and vulnerability.

Measuring Faculty Campus Climate Using Exploratory Factor Analysis

The third article presented in this disquisition offers important insights in uncovering latent constructs associated with campus climate amongst faculty. Defined as "the interplay among people, processes, and institutional culture" campus climate uncovers how relationships within the institution afford the ability for individuals to feel valued and supported (Campbell-Whatley et al., 2015; Hoy & Miskel, 2008). Campus climate is generally measured using psychological frameworks to examine the perceived daily experiences of its members including how individuals think, act, and behave within the institution (Tierney, 1990).

Campus climate research is essential for not only building inclusive work environments for faculty but also supporting institutional outcomes. In general, variables that measure campus climate focus on a spectrum of behaviors that describe inclusion or the "chilly climate" of academia. However, literature regarding campus climate has proliferated the research variables and lack cohesion across studies rendering conceptual interpretation challenging.

The factor structure in this study suggests a lack of connection thereby impeding inclusion within the campus climate. While the factor structure suggests an ecological perspective when examining campus entity (i.e., department/unit, campus leadership), a hierarchy was developed where formal and informal relationships impacting perceptions of connection. Depending on the level of modification of their identity to "fit in" to their department/unit, faculty may be less likely to feel connected and view campus as a hierarchy of command rather than a collegial community that values their unique contributions because of their identity.

Conclusion and Recommendations

The research presented underscores the role of connection within belonging that leads to inclusion within a campus community. Too frequently connection is overlooked as the lynchpin of belonging in research, but as discussed in this disquisition, it is a vital element to accurately measuring and fostering inclusion. Connection is the synergy bonding belonging to inclusion and can only occur when people can be authentic to their identity without judgement amongst their peers in academia. To relinquish judgement while fostering connection, relationships between people and amongst the campus community must be grounded in reciprocity. That is, everyone is responsible for engaging in belonging and inclusion efforts just as much as the community is collectively responsible for providing such environments.

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Variations reported in belonging amongst multicultural students, faculty, and staff and are inherently linked to the lack of connection they experience in academia. Diverse individuals frequently cite letting go of, adapting to, changing, or hiding aspects of their identity in order to feel like they belong within the dominate culture. These examples of "fitting in" are not examples of belonging that leads to inclusion, but rather illustrates perpetual assimilation within academia as these environments were never built for them to begin with (Duran et al., 2020; Strayhorn, 2019).

Furthermore, the tools used that are intended to assess belonging often exacerbate exclusion within the academy. Current instruments measure belonging unilaterally, emphasizing the community as the executor of belonging and do not call attention to if individuals engage in belonging efforts reciprocally. Failure to measure the reciprocity of belonging renders connection unattainable as individuals may not identify themselves as responsible for contributing to a collective community that impacts inclusion.

Praxis and theoretical principles must shift in higher education to capture connection as the synergy of belonging and inclusion. To truly create belonging campus communities, the ways in which we discuss, and measure inclusivity must change. Current literature utilizes operational definitions and psychological research frameworks that propel belonging as unidirectional portraying the community as solely responsible for belonging versus the induvial as a member of the community with *equitable responsibility* for developing belonging in the collegial community.

Questions that aim to measure perceptions of belonging individually and unilaterally include: the campus is welcoming, I feel excluded from informal networks in my department, I am treated with respect by faculty, I feel like a real member of the campus community

(Strayhorn 2019, p.82), I am accepted by my campus community (Duran et al., 202, p.139), I feel a sense of belonging to the campus community (Hurtado & Carter, 1997, p. 342). To move away from unilateral measures of belonging the leverages connection, belonging research must begin to ask questions grounded in reciprocity.

In addition to asking individualistic questions, research must begin to ask questions that investigates to what extent a person engages in belonging efforts as well. Examples include I invite all of my colleagues to informal department events, I try to meet with new colleagues in the department to learn about their research within a month of their arrival, I participate in elective diversity training on campus, I nominate my colleagues for awards, I meet with colleagues one-on-one to discuss conflicts in a timely manner. A bilateral approach warrants connection as a relational element by placing the responsibility of belonging not only on the community but also on the individual who is a member of that community.

The current tools, theories, and strategies of belonging are grounded in individualism that centers assimilation as inclusion thus severing connection necessary for belonging. Feminist poet Audre Lorde (1984) best illustrates the challenges of measuring belonging using individualistic tools and frameworks that exacerbate exclusion; "for the master's tools will never dismantle the master's house. They may allow us to temporarily to beat him at his own game, but they will never enable us to bring about genuine change." (p.104). Higher education must move away from individual approaches of belonging as they will not develop true inclusion in research and praxis. Rather, relational tools of connection are necessary to reorient belonging as a collective responsibility in order to foster inclusion within academia.

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APPENDIX A. IRB APPROVAL LETTER (CHAPTER 3)

NDSU NORTH DAKOTA STATE UNIVERSITY

11/02/2020

Dr. Emily A Berg
Institutional Research & Analy

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #IRB0003297, "NDSU Undergraduate Student Hyflex Survey Fall 2020"

NDSU Co-investigator(s) and research team:

- Emily A Berg

- Tara Ashton Nelson

Approval Date: 11/02/2020
Expiration Date: 11/01/2023
Study site(s): Research will be conducted at North Dakota State University, Fargo, ND.
Funding Agency:
The above referenced human subjects research project has been determined exempt (category 2) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*).

Please also note the following:

- The study must be conducted as described in the approved protocol.

- Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.

- Promptly report adverse events, unanticipated problems involving risks to subjects or others, or protocol deviations related to this project.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.

NDSU has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

APPENDIX B. IRB APPROVAL LETTER (CHAPTER 4)

NDSU NORTH DAKOTA STATE UNIVERSITY

September 26, 2019

Ms. Emily Berg
Department of Research and Institutional Analysis

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #XX20068, "Faculty and Staff Campus Climate Survey"

Co-investigator(s) and research team: Tara Nelson, Sidney Fisk, Canan Bilen-Green
Date of Exempt Determination: 9/26/2019 Expiration Date: 9/25/2022
Study site(s): NDSU
Sponsor: n/a

The above referenced human subjects research project has been determined exempt (category #2(ii)) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the revised protocol submission (received 9/24/2019).

Please also note the following:
• If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
• The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
• Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
• Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.
Sincerely,

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult https://www.ndsu.edu/research/for_researchers/research_integrity_and_compliance/institutional_review_board_irb/. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

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