EVALUATING NATIVE AMERICAN SERVING NONTRIBAL INSTITUTIONS (NASNTI) ADMISSIONS CRITERIA TO CREATE AN INCLUSIVE NURSING WORKFORCE

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ABSTRACT

EVALUATING NATIVE AMERICAN SERVING NONTRIBAL INSTITUTIONS (NASNTI) ADMISSIONS CRITERIA TO CREATE AN INCLUSIVE NURSING WORKFORCE

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The national nursing shortage is projected to increase as the bulk of the United States population ages out of the workforce and is likely to require more age-related healthcare services. The lack of ethnic, racial, and gender-based diversity in the current workforce exacerbates this shortage, and the need for a diversified workforce acknowledged by governing nursing bodies from as early as 2011 is still largely unmet. This study looks to nursing programs—specifically their application processes—as one factor that contributes to workforce disparities. Guided by several tenets of Tribalcrit Theory (Brayboy, 2005) and the Triarchic Theory of Intelligence (Sternberg, 1985), this mixed methods study investigated how barriers of solely-analytically based admissions criteria at a small Native American-Serving Nontribal Institution (NASNTI) may disproportionally impact students with racial, ethnic, gender, language, and socioeconomic diversity. Statistical analysis of disaggregated admissions data and yarning-style interviews indicated admissions criteria based on primarily analytic intelligence measures have limitations when it comes to identifying diverse student nurses with the capacity for success in the nursing workforce. Thus, this study identified gaps in program diversity, explored possible explanations, and provided actionable, culturally responsive interventions, including inclusion of creative and practical intelligence criteria as part of the admission process. This work is the first step of many needed to radically change the workforce and the quality of care nurses are able to provide. This

dissertation is available in open access at AURA (https://aura.antioch.edu) and OhioLINK ETD Center (https://etd.ohiolink.edu).

Keywords: Indigenous nursing, culturally responsive interventions, nursing education, nursing shortage, workforce disparities, nursing program application process, Tribalcrit, Native American-Serving Nontribal Institution (NASNTI)

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CHAPTER I: INTRODUCTION

When the American Association of Colleges of Nursing (AACN; 2011) called for increased admission of students from underrepresented groups into nursing education programs, the organization offered Native American-Serving Nontribal Serving Institutions (NASNTIs) the opportunity to advance "educational equity, excellence, and economic opportunity for Native Americans" (Department of Education, 2020). This was an important opportunity to identify and amend the resource deficits that contribute to the lack of workforce diversity among all underrepresented groups in the profession. Too often, policies that concern equity frame disparities in terms of students instead of services (Ching et al., 2020). In calling for a more diverse workforce, AACN provided a path in which *servingness* could begin.

Problem Statement

Over a decade after AACN called for diversity in nursing education, the COVID-19 pandemic revealed disparities that made it clear the recommendation was far from fulfilled. Of the over 250,000 students who enrolled in undergraduate nursing programs in the United States, The National League of Nursing's (2020) survey revealed an overall decrease in Black applicants from 11.9 to 11.2%, Indigenous applicants from .9 to .5%, Asian or Pacific Islander applicants from 5.6 to 4.7%, and those who identified as "other/missing/unknown minority groups" from 4.9 to 3.5%. Disparities in gender and socioeconomic status increase and often compound the lack of diversity in the nursing workforce (Smiley et al., 2021). Therefore, addressing this issue should be a priority among NASNTI and other Minority Serving Institutions (MSIs) that serve student populations who are likely to be marginalized for multiple reasons.

Honoring the inherent value of social justice within the field begins at the point of program admission: a process which currently prioritizes cognitive, or analytic intelligence, and relies on metrics that include prior coursework and standardized test scores (Zamanzadeh et al., 2020). In recognizing the disconnect between enrollment-based criteria and federal goals to enhance academic attainment, this dissertation considers how addressing service deficits at Native American-Serving Nontribal Institutions might improve outcomes for all students, with a particular focus on those who identify as Indigenous. Current shortcomings of nursing program admissions processes are considered within the context of a lack of diversity in the workforce in terms of race, ethnicity, and gender.

Relationship to Topic

The researcher chose this topic due to extensive experience in the medical field from a patient perspective. In using this opportunity to observe the workforce, the researcher noticed a lack of diversity among nurses, which led to limitations in the provision of holistic nursing care. This gap is explained by Lovitt's (2005) theoretical perspective on the transition to independent research, which noted practical and creative intelligence were simultaneously higher among marginalized groups, yet discounted in higher education. The researcher chose to center their inquiry on the analytic intelligence-based nursing admissions criteria that likely serve as a barrier to a more representative workforce.

Research Question

This work seeks to address the following inquiries:

1. How do analytic-based nursing program admissions criteria impact acceptance rates for Indigenous and other students with identities that are underrepresented in nursing

at a small Native American-Serving Nontribal Institution in the Rocky Mountain region (NASNTI)?

a. What do current Indigenous or other nonwhite, male, Multiple Language Learners, non-traditional, and/or Pell eligible nursing students identify as facilitators and barriers to the nursing application process?
b. What do Indigenous or other nonwhite, male, Multiple Language Learners, non-traditional, and/or Pell eligible pre-nursing students Indigenous nursing students feel were facilitators and barriers to their nursing program acceptance?

Purpose Statement

The purpose of this study is to understand how nursing program admissions criteria act as a barrier for Indigenous students at a small associate degree nursing program at a NASNTI in the Rocky Mountain Region of the Western United States.

Researcher Assumptions

The study is rooted in the assumption that analytic intelligence-based criteria act as a barrier for those who are not traditionally at the forefront of higher education efforts, and that there is more work to be done by way of nursing program admissions processes that serve the interests of diverse populations.

Limitations, Delimitations

This study, while informative, is limited by the relatively small institution size. Limitations are offset by the large pool of longitudinal data that spans a decade. The institution of study is also the most diverse in its state. The researcher selected this institution due to the nursing program's extensive databank and NASNTI designation, as well as the institutional

commitment to fostering inclusivity in their processes. This collaboration was developed via email request (see Appendix C). Additionally, it is anticipated that these findings will be applicable on a larger scale that includes other NASNTIs and MSIs, as well as the potential to help these institutions be better situated to address the 2011 AACN call for workforce diversity.

Definition of Terms

At this stage in the research, nursing program admission selection process, Native American-Serving Nontribal Institution, servingness, and the yarning method are generally defined as follows.

Nursing Program Admission Selection Process

A competitive, points-based system for selecting students qualified to enter the associate degree nursing program. Points are earned using analytic intelligence-based criteria including:

Pre-Nursing Courses

Pre-nursing courses include Biology 1010: General Biology; English 1010; English 1020; Math 1400: College Algebra (or higher math); Political Science 1000: American and Wyoming Government; Psychology 1000: General Psychology; Anatomy 2015: Human Anatomy; Physiology 2025: Human Physiology; and University Studies 1005: Orientation to college (CWC, 2023a).

Grade Point Average

For the purpose of this study, grade point average (GPA) is defined as the average of grades earned in all non-nursing courses required for the associate degree. The minimum required GPA for admission to the program from which the sample group is derived is 2.5, based on a 4.0 scale (CWC, 2023a).

Total Test of Essential Academic Skills Score

The test of essential academic skills (TEAS) test is a product of Assessment Technologies Incorporated designed specifically as an entrance exam for nursing programs (Wolkowitz & Kelley, 2010). Content areas include mathematics, science, reading, and English and language usage (Assessment Technologies Incorporated [ATI], 2009).

Native American-Serving Nontribal Institution

Native American-Serving Nontribal Institutions (NASNTIs) originated with the 2008 reauthorization of the Higher Education Opportunity Act (HEOA, 1965), which extended funding opportunities to institutions other than Tribal Colleges and Universities (TCUs) with undergraduate enrollment of at least 10% American Indian/Alaska Native (AI/AN) students. This consists of a two-part application process, where the institution must first indicate their eligibility status and then submit project proposals to qualify for funding. The number of funded projects has grown substantially in a relatively short time; in 2017, six of the 27 eligible institutions received funding and the Department of Education (DoE) continued to fund six projects through 2020. In 2021, the DoE funded 19 of the 33 eligible institutions' projects. There were 34 eligible NASNTIs throughout the nation every year from 2021 to 2023 (Center for MSIs, 2021).

The goal for the HEOA Title III NASNTI Program is to improve and expand the capacity of eligible institutions to serve Native Americans and low-income students. It is worth noting that, despite the increase in funded projects, less than half of eligible NASNTIs received funding in 2021 and, during this time, core expenditures per Full-Time Equivalents (FTE) for both eligible and funded NASNTIs were $17,747. This was 10.3% lower than non-NASNTIs and includes expenses for instruction, research, public service, academic support, student services, institutional support, scholarships and fellowships, student net grant aid, and other expenses (The

Minority-Serving Institutions Data Project, 2023). Further, as the smallest group of Minority Serving Institutions with the lowest enrollment qualifier, it is critical to remember the enrollment parameter does little to ensure degree attainment and quality of education. The measures associated with NASNTI eligibility do not indicate an institution's capacity or efforts to serve students.

Servingness

Beyond the enrollment marker of 10% Native American students, no universal definition exists for the transition between enrolling and serving students. To determine whether analytic-based criteria in the admissions process of nursing programs act as a barrier for Native American or Indigenous-identifying students, the actual process of serving must be defined, particularly for schools that bear the NASNTI designation. Addressing this disparity in the context of Hispanic Serving Institutions (HSIs), Dr. Gina Garcia (2020) coined the term, *servingness*, to describe the provision of culturally enhancing, equitable experiences for all students. As Garcia noted, servingness is easier to conceptualize in theory than to demonstrate in practice.

Examples of Servingness

For Garcia (2020), servingness accounts for both organizational culture and student outcomes. At the organizational level, this includes mission and values, diversity plans, community engagement, compositional diversity of faculty, staff, and administration, curriculum and pedagogy, and leadership. Student outcomes can be academic and nonacademic and include persistence and completion rates, GPA, academic self-concept, and civic engagement. While there is no consensus on how to measure these capacities, individual institutions have begun to evaluate how changes in individual areas impact diverse students. For example, Springfield Technical Community College (STCC) focused on improving their culture through professional

development (Griffin-Fennell & Lerner, 2020, as cited in Garcia, 2020). The college funded culturally responsive and inclusive pedagogical training through Escala Educational Services. In noting that student perceptions of belonging were largely influenced by staff, STCC also developed an on-campus professional development program they called *Building Community,* which helped participants develop and apply projects to their service areas. The researchers reported the beginnings of a positive relationship that they intended to continue, particularly when it came to building an organizational culture of student belonging and culturally responsive curricula.

The University of South Texas (UST) took a different approach to measure servingness, with their primary emphasis on student outcomes. Rodriguez and Gonzales reported using Title V grant money to "provide mentorship and cultural belonging to first generation and/or transfer students at UST, with the ultimate goal of increasing graduation and retention rates" (2020, as cited in Garcia, 2020 p. 303). They noted students' sense of cultural belonging could be enhanced through interactions with peers, faculty, and staff through language, experiences, and curricula that reflected shared values. The model defined mentorship as a way to build friendships and a sense of belonging, challenge students, and hold them accountable for their academic performance. Ultimately, the authors attested UST's mentoring program exemplified servingness, because it culturally enhanced and connected mentees to on-campus entities that met their interests and goals. Additionally, the university met their success metric with improvements in both retention rate and number of program participants.

Though Garcia's (2020) work focuses on Hispanic Serving Institutions, her findings in regard to belongingness extend to other cultures that are marginalized in higher education. Navajo scholar Charlie Scott acknowledged, "as a result of the continued legacy of violence and

assimilation, Native/Indigenous students often do not feel as if they belong in higher education spaces, but that should not be the case" (Scott, 2019). Scott noted remedying the negativity many Indigenous students face requires higher education to be more adaptive to the needs of these populations. The author suggests actions that, among others, include creating meaningful relationships with local Indigenous communities whose traditional homelands are occupied by the institution, encouraging students to wear traditional clothing at institutional celebrations, hosting cultural competency training to ensure course material and assessment include Indigenous perspectives, and creating an action plan to ensure all institutional employees have training that improves their ability to support Indigenous students.

While these examples do not mention nursing specifically, the identified employee training and peer mentorships have implications for prerequisite courses to limited entry programs. If these practices were implemented alongside other cultural and outcome-driven shifts, prospective nursing students may feel they belong in higher level courses and are less likely to experience admission barriers that fail to reflect their culture.

Yarning Method

A research methodology that originated in Australian Aboriginal cultures, the yarning method is an Indigenous approach to knowledge sharing that upholds relational context and maintains collectivist traditions (Fast & Kovach, 2019). Researchers who use this method encourage participants to tell their story from the position of their lived experience as the researcher listens for cues that relate to topics in a yarning guide (Bessarb & Ng'andu, 2010).

Chapter Summary

AACN's call for workforce diversification is often undermined by admissions policies that fail to acknowledge cultural differences and result in biases against minority students

(Minority Nurse, 2013). In an interview with *Minority Nurse,* G. Rumay Alexander noted that, while the intent to be inclusive is prevalent among nursing schools, admissions committees operate from outdated guidelines that have the opposite effect (Minority Nurse, 2013). As a scholar-in-residence for the American Nurses Association, Alexander spoke with *Liberal Education* about the value of increasing diversity in nursing programs:

> Talent doesn't have a race, gender, age, sexuality, physical ability, or body size. One of the individuals who is different from others may have the answer to the next healthcare or environmental issue. When those possibilities get denied, our solutions to life get denied. (Schuster, 2021, para. 21)

This study sought to identify the barriers in current nursing program admissions processes, so servingness can be enacted at NASNTIs and other MSIs. Ultimately, it is intended to promote more inclusive program entry processes that will diversify college nursing programs and the workforce, in terms of race, ethnicity, gender, and socioeconomic status.

CHAPTER II: LITERATURE REVIEW

In 2011, The American Association of Colleges of Nursing (AACN) documented the connection between quality patient care and a diverse nursing workforce. The organization called for an increase in underrepresented groups—specifically those from Black, Hispanic, Asian, and Indigenous backgrounds (AACN, 2011)—which was met with considerable efforts from schools throughout the country who sought to diversify their nursing student base (Dapremont, 2013; Minority Nurse, 2013). This provided an opportunity for nursing schools at Minority Serving Institutions (MSIs) to fill workplace vacancies with gifted students. In spite of these efforts, the nursing profession fails to reflect a general population whose majority is expected to be made up of the current racial and ethnic minority by 2045 (Schuster, 2021).

More than 250,000 students enrolled in United States undergraduate nursing programs in 2020 (Schuster, 2021). In spite of this, a lack of representation of minoritized groups persists. The National League of Nursing (2020) biennial survey of 435 member schools between 2010 and 2020 revealed a decrease in Black applicants from 11.9 to 11.2%. The same study found decreases in Indigenous applicants from 0.9 to 0.5%, Asian or Pacific Islander applicants from 5.6 to 4.7%, and those who identified as “other/missing/unknown minority groups” from 4.9 to 3.5%. However, a 4% increase in Hispanic applicants did result in a 0.6% overall increase in total minority applicants during the ten-year period (National League of Nursing, 2020). This lack of diversity is exacerbated by gender. The National Council of State Boards of Nursing 2020 survey found men accounted for only 9.4% of Registered Nurses (RNs) in the workforce (Smiley et al., 2021). While this disparity is attributed to gender stereotypes traceable to the early nineteenth century, *The Journal of Nursing Regulation’*s 2017 survey revealed there were significantly higher instances of male RNs among many nonwhite groups. Black and white male

nurses accounted for eight and nine percent of the nursing workforce, respectively, while there were 16% Asian, 14% Indigenous, 15% Pacific Islander, and 16% Latine male nurses (Smiley et al., 2018).

As Fortes et al. (2022) noted, diversity extends beyond ethnicity to include various social, economic, and lifestyle perspectives. In a three-year study, the authors gathered significant data to indicate first generation students, those with financial difficulties, and those with less social or family support had decreased rates of nursing program completion. There are gaps in the literature about the correlation between multiple marginalization and a student's attempt to apply for admission into a nursing program that this study seeks to investigate.

However, there is clear evidence the existing racial/ethnic, gender, and socioeconomic disparities compound an overall nursing shortage. As baby boomers (born between 1946 and 1964) age, Gaudette et al. (2015) estimated the U.S. population aged 65 or older would increase by 75% between 2010 and 2030. In addition to requiring more age-related health services, this demographic also includes a large portion of retiring nurses. The U.S. Department of Health and Human Services (2019) noted 47.5% of RNs were over 50.6-years-old in 2018. While a 2015 study predicted over one million RNs would retire between 2021 and 2030, the study did not factor in the artificial early retirements due to the COVID-19 pandemic (Auerbach et al., 2015). As of February 2021, registered nursing rose to the fifth-most in-demand position in the U.S. workforce (Irvine, 2021), and the University of St. Augustine for Health Sciences (2021) projected 1.2 million new RNs will be needed by 2030 to address the current shortage.

Both the lack of diversity within the profession and the overall shortage of nurses has dire implications on quality of care. As Carayon and Gurses (2008) noted, a lack of nurses results in workforce members who have less time, less ability to pay attention to detail, more stress, and a

greater tendency to take shortcuts. This leads to lapses in treatment continuity, and increases the risk for medication errors, infection spread, and data security risks. They argue a more inclusive nursing field would help improve efficiency; in terms of time, energy, and saved lives. To achieve these means, American Nurses Association Scholar in Residence G. Rumay Alexander recommended recruiting and training a diverse and culturally competent workforce that mirrors the population (Schuster, 2021).

Nursing education is also impacted by the nursing shortage, and U.S. programs turned away 29% of qualified applicants in 2019 due to insufficient faculty, space, and budget (National League of Nursing, 2020). The University of St. Augustine for Health Sciences (2021) called for more inclusive admissions processes to address the shortage and diversify the field. This solution necessitates evaluation of current admission criteria, as well as investigation of characteristics of nursing candidates capable of the growth required for success in the workforce. The lack of diversity in the nursing field suggests problematic practices that likely start at the point of admission into college programs. Particularly at NASNTI and other MSIs, this calls for investigation into services that can support prospective nursing students as they apply into and progress through limited entry programs.

Theoretical Framework

The analytical framework for this study is multifaceted. It looks to Sternberg's (1985) Triarchic Theory of Intelligence as a possible explanation for the measurable gaps in racial, ethnic, gender, and socioeconomic diversity in nursing programs and the workforce. Additionally, because the institution of study has a heightened opportunity to recruit and serve Native American/Indigenous students as a NASNTI, this study also draws on Brayboy's (2005) Tribal Critical Race Theory (TribalCrit). TribalCrit is rooted in Critical Race Theory (CRT),

which shows disparities that result from various forms of oppression (Yosso, 2005). TribalCrit has the same principles as CRT, but focuses on how colonization is a societal epidemic that explains the challenges Indigenous students face within predominantly white institutions. The theory is outlined in Brayboy's (2005) nine tenets, which first recognize the impact of colonization and conclude with the role of culture and storytelling in the learning process for Indigenous groups. For the purpose of this study, tenets five ("the concepts of culture, knowledge, and power take on new meaning when examined through an Indigenous lens"), eight ("stories are not separate from theory; they make up theory and are, therefore, real and legitimate sources of data and ways of being"), and nine ("theory and practice are connected in deep and explicit ways such that scholars must work towards social change") are most relevant (p. 429). These tenets were selected to honor diverse conceptions of knowledge and to guide evaluation of admissions criteria.

Survey of Admissions Criteria

The lack of diversity in the nursing field suggests problematic practices that likely start at the point of program admission. To explore this issue, the predictive qualities of various admissions criteria are analyzed and their definitions of success are considered.

Cognitive Metrics

In their review of 25 nursing program admissions processes, Crawford et al. (2021) evaluated cognitive metrics that included prior academic achievement, pre-program science GPA, and admissions tests. The authors evaluated the effectiveness of these metrics at three points in the program: during first year clinicals and academic assessments, during the second year, and through on-time completion. These cognitive criteria were consistent with those identified by Gartrell et al. (2020), who evaluated early program and assessment success of

nearly 1000 undergraduate students from 2013–2017, and with Zamanzadeh et al.'s (2020) review of 182 articles published between 2006 and 2019. Zamanzadeh et al. (2020) determined the four most common cognitive competencies were reasoning, mathematics, language, and natural science skills. Like Crawford et al. (2020) and Gartrell et al. (2020), the authors measured these abilities through on-site standardized test scores and academic achievement records (Zamanzadeh et al., 2020). Also considered in this overview of cognitive admissions factors is the extensive review Twidwell and Records (2017) provided of admissions exams in 15 nursing schools. Finally, Al-Alawi et al. (2020) surveyed the predictive qualities of combining all three variables in 16 U.S. baccalaureate nursing programs. *Success* was defined through nursing course performance, reduced attrition, and timely program completion.

Prior Academic Achievement

Each of the programs Crawford et al. (2020) studied included prior academic achievement in their admissions decisions. Criteria that fell within this category included scores on academic examinations and assignments administered before students entered the nursing program. In analyzing the predictive quality of this metric, Crawford et al. (2020) reported several programs discovered students with higher pre-program Grade Point Averages (GPAs) were more likely to complete the course and graduate on time. However, the authors also mentioned several studies found little correlation between prior academic performance and in-program success (Crawford et al., 2020). Their findings indicate relying on cognitive factors—including pre-nursing GPA—alone are insufficient to determine successful nursing program completion. This argument is only strengthened when considering the authors defined success as "a student who has achieved the clinical and academic programme outcomes within the allotted time frame," as opposed to success in the profession (p. 2490). Crawford et al.'s

(2020) survey was corroborated by Gartrell et al. (2020), who found preadmission cumulative and science GPAs were predictive of first semester course success and satisfactory test performance. The findings from this study fell short of the authors' aim to streamline admission teams' ability to identify "students who are able to complete a rigorous course of study, graduate on time, and pass the [National Council Licensure Examination] NCLEX-RN" (Gartrell et al., 2020, p. 1).

Pre-Program Science GPA

Six of the programs studied by Crawford et al. (2020) included more focused consideration on scientific work completed prior to nursing program admission. This included scores on academic examinations and assignments in anatomy, physiology, biology, chemistry, or physics. Each of the six programs considered this indicator to be predictive of success. Cheshire (2015, as cited in Crawford, 2020) found pre-program science GPA more predictive than the general category of academic achievement. Notably, the pre-program science GPA in this program was also predictive of second semester and overall program GPA. Gale et al. (2016, as cited in Crawford et al., 2021) and Shulruff et al. (2011, as cited in Crawford et al., 2021) also found students with a higher pre-admission GPA and science GPA were more likely to have a timely progression through the nursing program. Similarly, Strickland and Cheshire (2017, as cited in Crawford et al., 2021) found both cumulative GPA and science GPA correlated with higher grades in the program. By contrast, Tartavoulle et al. (2018, as cited in Crawford et al., 2021), had a significant negative correlation between science GPA and on-time graduation, and VanHofwegen (2019, as cited in Crawford et al., 2021) found no specific correlation with nursing school graduation.

Admissions Tests

Among the common examinations nursing programs issued to every candidate as part of the application process are the Test of Essential Academic Skills (TEAS) and the Health Education Systems Incorporated (HESI)-A2 test (Manieri et al., 2015). In Crawford et al.'s (2021) study, 17 programs found significant correlation between TEAS scores and early nursing school success. This was corroborated by Gartrell et al. (2020). One of the five schools that used the HESI-A2 test also reported a positive correlation between high admissions test scores and semester one outcomes (Crawford et al., 2021). Each of these findings suggest current admissions processes are predictive of a students' ability to complete the first year of nursing programs.

However, Crawford et al. (2021) reported findings from two programs that indicated TEAS scores were poor predictors for program attrition. While several of the HESI-A2 schools found a moderate correlation between admissions test scores and final GPA, there was no significant correlation reported between these scores and clinical practice performance. This suggests the metric might not be illustrative of a student's capability to complete work required in year two and in the professional nursing field.

Admissions tests were further evaluated by Twidwell and Records (2017) who noted limited clinical placements and faculty led to rejection of qualified applicants. The authors called for admission of the strongest candidates to reduce attrition, increase licensure pass rates, and accelerate well-prepared nurses' entry into practice. Their review included articles published from 2005–2016 that focused on specific entrance exams, including the HESI-A2 and TEAS. Of the 15 studies included in their review, 13 determined standardized entrance exams were predictive of program completion or NCLEX-RN licensure. Like Crawford et al. (2021), the

authors found predictive accuracy differed among test types. However, Twidwell and Records' (2017) findings are arguably more broadly applicable, because Crawford et al. (2021) excluded programs that focused on successful licensure.

Combined Cognitive Factors

Multiple studies determined isolating a single criterion was a poor predictor of success (Al-Alawi et al., 2020; Crawford et al., 2021). Al-Alawi et al. (2020) noted early program success among students with a combination of higher overall academic achievement, science GPA, and admissions scores during the application process. Hinderer et al. (2014, as cited in Crawford et al., 2021) combined HESI-A2 scores and pre-science GPA, which predicted timely progression with 84% accuracy. Cunningham et al. (2014, as cited in Crawford et al., 2021) developed a points-based system for admissions that combined program-entry GPA, science GPA, TEAS score, and number of completed prerequisite courses. This study reported a statistically significant relationship between points accrued in the admissions process and nursing program examination outcomes. As with the studies of isolated cognitive factors, these findings were limited to early program successes.

Evaluation

The literature suggests prior academic achievement, pre-program science GPA, and admissions tests are predictive of early nursing program achievement. However, non-cognitive factors may be predictive of the longer-term workforce success needed to overcome shortages and to diversify the field. To this end, Jones-Schenk and Harper (2014) argued prior academic achievement is necessary, but insufficient for professional nursing practice. Thus, non-cognitive factors and traits may play a key role in identifying nursing workforce assets.

Identifying the Six Creative Resources in Nursing

Lovitts (2005) noted the key for transitioning from dependent, analytic-based scholarship to independent learning is creativity. The author identified six resources of creativity, which include type of intelligence, knowledge, thinking styles, personality, motivation, and environmental context. Because nursing is a profession of lifelong learning that calls for intellectual and practical independence, each of Lovitts' (2005) resources can be analyzed within the context of professional nursing practice (Qalehsari et al., 2017).

Types of Intelligence

According to Sternberg's (1985) theory of triarchic intelligence, learners draw from a combination of analytical, practical, and creative intelligence, and their success relies on the ability to exercise the right type of intelligence at the right time. *Analytical intelligence* refers to the ability to recognize and solve problems, to judge idea quality, and to allocate resources accordingly. This is the intelligence type measured by American standardized tests, which prioritize learning the skills necessary to perform well in coursework.

However, equally integral to healthcare industry jobs are *practical intelligence*: the ability to use ideas and their analyses in effective ways, and *creative intelligence*: the ability to formulate ideas (Lovitts, 2005). Privileging of analytical intelligence has dire implications, when considering "undergraduates who tested high on creative and practical intelligence were much more diverse ethnically and racially, and with respect to socioeconomic class" (Lovitts, 2005, p. 144). Though the use of American standardized testing is widespread, increasing the inclusivity of education practices could lead to a more wholly intelligent workforce.

The nursing profession requires more skill than can be demonstrated through analytical intelligence. In Fonseca and de Castilho Sá (2020) observation of oncology ward nurses, the

researchers noted speaking and listening skills, as well as providing comfort were key to professional success. The authors observed these manifestations of practical intelligence "cannot be captured by numbers, indicators, and methods of performance evaluation," which led them to conclude it is necessary to validate worker experience (Fonseca & de Castilho Sá, 2020, p. 159). The authors findings on the limitations of traditional evaluation metrics can be applied to admissions processes. Beyond the specialty of oncology, the value of practical intelligence is unquestionable among nurses. Therefore, expanding applicant pools to include those with the ability to develop these skills is integral to enhancing healthcare quality.

A similar value can be ascertained in matters of creative intelligence. Ma et al. (2018) noted tackling the unique elements of unexpected situations and providing holistic patient care calls for creativity. Nurses provide 80% of care and serve as the frontline in most medical systems (Ma et al., 2018). Adapting to emerging challenges requires creativity, and ultimately leads to improvement in quality of care and organizational performance. Therefore, it stands to reason that recruiting nursing students who demonstrate the capacity to develop multiple types of intelligence would diversify the nursing field and produce more effective professionals.

Knowledge

Lovitts (2005) emphasized the importance of pairing formal learning with the inferred, systemic, and cultural knowledge that comes from practical intelligence. This informal knowledge can be acquired through spending time in one's discipline and interacting with peers and advisors (Lovitts, 2005). As defined by Tohmola et al. (2021), *Nursing competence* is the combined ability to apply skills, knowledge, and judgment in ways that meet nursing needs and facilitate participation in specific nursing specialties. Kim (2021) said the ability to establish competence requires integration of formal education and the informal knowledge often learned in

the clinical field. The author further noted informal learning encompasses self-direction, understanding institutional context, and building relationships with in-group members. Measurable components of one's capacity for informal learning in admissions criteria include self-direction and team working abilities. For nursing students and novice nurses, this is especially critical, because informal learning drives initial organizational involvement and task performance (Park & Kim, 2014).

Thinking Styles

Student performance during dependent and independent learning stages is largely contingent on *thinking style,* or the way one directs their intelligence. Because people employ their abilities in different ways, each person's proficiencies vary based on situation and environment. Students with analytical skills suited for dependent learning are more likely to complete early program work. However, these students may struggle to advance to the more independent work required at the end of their program (Lovitts, 2005). As it relates to nursing school, Crawford et al. (2021) noted this discrepancy was particularly apparent in clinical settings. Students who struggle with the academic requirements of the first year of their program may ultimately outperform their peers who demonstrate traditional intelligence. Therefore, thinking style should be considered in the selection of nursing school candidates (Crawford et al., 2021).

Motivation

Lovitts (2005) identified *motivation*—or the nature and strength of one's desire to engage in an activity—as integral to creativity. In their observation of practicing nurses, Ma et al. (2018) noted both internal and external motivational factors drive innovation in patient care. The authors found nursing professionals maximized their efforts through a desire to provide the best care,

break old frameworks, and excel as employees. Other motivational factors Ma et al. (2018) observed included a love of nursing, professional satisfaction with one's employment, and psychological empowerment. Each of these measures exemplify *intrinsic motivators*, or those that come from the task itself (Lovitts, 2005). Ma et al. (2018) also noted extrinsic motivational factors, such as staffing shortages, prompted creative solutions. The authors found little evidence to support the overall effect of extrinsic motivators on nurses and nursing students. This is corroborated by Lovitts (2005), who determined extrinsic motivators often undermine intrinsic motivation by shifting one's focus to a superficial reward. Therefore, it appears intrinsic motivational factors have potential significance during the admissions processes.

Environment

Environmental factors also affect creativity, because they influence motivational state, formal and informal knowledge, and thinking styles. Social variables inherent in institutional contexts represent one of the most promising avenues for influencing creative behavior. Therefore, nursing programs can maximize students' capacity for creativity by developing space for interaction with peers, faculty members, advisors, and clinical directors (Ma et al., 2018). Constructing this environment during recruitment may attract diverse candidates and help establish shared norms and values, thus increasing confidence as they apply to the program (Amabile, 1996, as cited in Lovitts, 2005). This strategy was demonstrated by Kilburn et al. (2019), who developed information sessions and workshops to increase program inclusivity. These efforts resulted in an increase in applicants of color from 6% to 20% between 2015 and 2018 (Kilburn et al., 2019).

Personality Traits

Personality traits are strong determinants of quality nurses. Willis (2020) noted the discipline calls for caring, compassionate, and intelligent individuals. Candidates capable of developing these qualities are likely to demonstrate the traits Lovitts (2005) identified among creative people: self-discipline, perseverance, open-mindedness, autonomy, willingness to take risk, and the ability to strive for excellence in task-oriented and self-initiated ways. Further, when considering the nursing profession, Sellman (2011) theorized open mindedness was of particular importance, because it requires intellectual creativity.

Measuring Creative Resources in Nursing Admissions Processes

An observer is likely to find all six of Lovitts' (2005) resources of creativity among nurses in the independent stage of learning. Though these traits are difficult to measure using cognitive assessment, non-cognitive screenings may help determine which applicants have the capacity to gain the creative skills critical for workforce success. The following section identifies the predictive qualities of non-cognitive factors during nursing program admissions processes.

Non-Cognitive Metrics

Crawford et al. (2021) subdivided non-cognitive screenings into emotional intelligence (EI), personal statements, and previous healthcare experience. This is consistent with Zamanzedah's (2020) overview, which used multiple interview types, personal statements, and letters of recommendation to measure communication, teamwork skills, dynamism, morality, psychological strength, and warmth. Rosenberg's (2019) evaluation is included in this literature review, specifically to assess the potential impact of interviews. Also considered is Willis' (2020) correlation between EI and first semester success in a nursing program where 56 of 198 qualified applicants were admitted based on a point system that combined TEAS score, general

and pre-program science GPA, and the number of science courses taken successfully. An overview of these common non-cognitive screenings and their effectiveness at predicting success in nursing programs is provided as follows.

Face-to-Face Interviews

Some nursing programs include more subjective components to assess candidate suitability. Crawford et al. (2021) studied four programs who used face-to-face interviews in admissions processes reported little correlation between final GPA and interview score. However, Rosenberg (2019) contended there was much evidence to support inclusion of interviews in admissions processes. The researcher used 30-minute interviews to confirm candidate maturity level, understanding of program rigor, perseverance, and respect for others (Rosenberg, 2019). Though the data from Rosenberg's (2019) study focused on a graduate-level program, the findings have potential applicability at all levels of nursing education. The study illustrated how interview customizability lends flexibility to evaluators. Therefore, interviewers can adjust questions to help gauge applicants' creative capacities. This will likely reveal talents and strengths that aren't reflected through traditional metrics.

Rhodes and Nyawata (2011) successfully included service users and care givers on interview boards at the University of Huddersfield. The authors used semi-structured group interviews to evaluate interpersonal and communication skills and knowledge of the nursing process among candidates. Though the Rhodes and Nyawata (2011) study did not investigate the effectiveness of panel diversity on student outcomes, it confirmed candidates, service users, and academic board members supported bridging the gap between academics and community members in admissions processes. The authors contended this practice was more reflective of the consumer-focused health industry.

There are gaps in the literature about whether the nursing program included culturally competent and unconscious bias training before including interviews in the application process. It is reasonable to assume these trainings would impact the diversity efforts of the program, though it warrants further study.

Multiple Mini Interviews

Multiple mini interviews (MMIs) are conducted as participants rotate around stations and answer scenario or situational judgment-based questions. Of the four programs Crawford et al. (2021) studied that used MMIs, none found correlation between interview scores and early nursing program success. However, when the authors followed participants into the final year of their program, Crawford et al. (2021) found a statistically significant positive correlation between MMI scores and clinical outcomes. This implies MMIs may act as predictors of success beyond nursing school completion.

Thompson and Sonke (2021) expanded on Crawford et al.'s (2021) study by investigating admission review strategies at the California Baptist University College of Nursing. They noted the overarching goal of nursing schools is to populate the workforce with diverse professionals who can improve patient outcomes. Researchers added MMIs to measure non-cognitive abilities including professionalism, leadership, adaptability, teamwork, critical thinking, writing ability, healthcare experience, and community enrichment. This addition resulted in an increase from 23.75 to 40.21% Hispanic acceptances, 1.25 to 6.19% Black acceptances, and 6.25 to 20.62% Asian acceptances in a four-year period. Admissions were more reflective of the community demographic, which were 50% Hispanic, 7.3% Black, and 7.2% Asian. Also notable is the decrease in white acceptance rates from 66 to 26%, which was closer to the overall population of 34.1%. Missing from this study is consideration of success, either in terms of program

completion or nursing licensure. Understandably, the study was conducted too recently to evaluate these outcomes. The authors noted a corresponding gap in the literature in regard to MMI effectiveness (Thompson & Sonke, 2021). Further, the lack of data on Indigenous applicants showcases the need for research in this area.

Emotional Intelligence

Ensuring future nurses have emotional intelligence (EI) is critical in the context of addressing the overall nursing shortage. Majeed and Jamshed (2020) employed a survey of 313 nurses to determine if losses in skilled nursing professionals resulted from emotional exhaustion. The study confirmed a strong correlation between the EI of healthcare team leaders and the intention for turnover for the rest of the team. Further, the authors found team culture is critical due to ever-growing demands in healthcare (Mikkonen et al., 2016, as cited in Majeed & Jamshed, 2020). The authors attested team culture is the lynchpin in healthcare. The presence of EI among leaders fosters development of a team culture, helps staff align, and increases staff engagement and retention. Meires (2018) also argued EI can be used to manage emotional outbursts, increase situational awareness, and build a healthy and harmonious working environment. Therefore, this study provided insight for nursing programs who are seeking to identify prospective nurses and nurse leaders who are prepared to enter the workforce and have the capacity to manage its critical aspects.

A 2019 study by Xu and colleagues revealed a statistically significant relationship between Emotional Intelligence (EI) and creativity, particularly among non-Western student groups (Xu et al., 2019). Crawford et al. (2021) defined EI as the ability to manage self and others' emotions. While none of the 25 nursing programs the authors analyzed used these tests in their selection methods, Crawford et al. (2021) chose to include the metric in their study due to

the growing body of evidence to support the predictive value of EI on nursing program completion. Four of the reported studies found a positive correlation between EI scores and GPA. In particular, one of these studies noted it was a powerful predictor of clinical performance (Crawford et al., 2021).

Willis (2020) also attempted to establish a relationship between EI and nursing student success during the first semester. Though the author found little correlation between self-reported EI scores and NSS, she maintained "more research is needed to investigate the relationship between nursing and EI, as it undeniably contributes to nursing effectiveness, extending to patient outcomes" (Willis, 2020, p. 1). The importance of EI among students in this discipline was corroborated by Štiglic et al. (2018) who determined prospective nurses had higher EI scores than students in other programs of study. However, Štiglic et al. (2018) found EI scores were not significantly greater in nursing students with prior caregiving experience. Similar findings reported by Snowden et al. (2015) revealed nursing students had higher EI scores in general, though previous caregiving experience had no significant impact. This suggests the predictive qualities of EI and prior healthcare experience should be considered independently.

Measuring Emotional Intelligence: Screening Tools. Over 30 different measures of EI have been developed (O'Connor et al., 2019). O'Connor et al. compared ability, trait, and mixed EI, where ability EI uses Mayer and Salovey's (Mayer et al., 2008, as cited in O'Connor et al., 2019) models and objectively scores participants as they solve emotion-related problems. The authors report ability-based measures are valid, but weak predictors of a range of outcomes that include job performance and satisfaction. However, the authors suggested using these tests in instances where a practitioner is interested in emotional abilities. The literature review cited

numerous studies that indicated those with high ability EI scores tend to be competent decision makers and problem solvers (Mayer et al., 2008, as cited in O'Connor et al., 2019).

Trait EI is scored using self-reported evaluations and is thought to provide a good prediction of actual behaviors. Miao et al (2017, as cited in O'Connor, 2019) linked this metric to job performance, and O'Connor (2019) suggested it is best used to measure behavioral tendencies and emotional self-efficacy. Trait EI has shown to be an accurate predictor of effective coping styles in response to stress (Mayer et al., 2008, as cited in O'Connor et al., 2019).

Mixed EI questionnaires measure a combination of traits, social skills, and competencies. The evaluations combine self-reported information and information contributed from supervisor and colleague evaluations. Research on mixed EI measures indicate these scores are valid predictors of multiple emotion-related outcomes including job satisfaction, organizational commitment, and job performance. O'Connor (2019) recommended using mixed EI tests to assess a broader set of emotion-related competencies. This is consistent with the findings of Duguė et al. (2020) who evaluated a variety of tools to measure EI and ultimately determined ability and trait models are complementary. The demands of nursing practice—which is focused on technical and compassionate care—require significant emotional commitment. The authors reported nursing students in the study group appeared "poorly prepared for emotional labor" (p. 53) and found that higher EI scores correlated with improved emotion and stress management.

Trait, ability, and mixed EI can be assessed using a variety of scales, which include Mayer-Salovey-Caruso (MSCEIT), Self-report Emotional Intelligence Test (SREIT), Trait Emotional Intelligence Questionnaire (TEIQue), Bar-On Emotional Quotient Inventory (EQ-i),

The Situational Test of Emotional Management (STEM), The Situational Test of Emotional Understanding (SETU), and Emotional and Social Competence Inventory (ESCI). Gardner and Dunkin (2018) evaluated EI using MSCEIT, which specifically measures perceiving, managing, facilitating thought, and understanding emotions as a form of EI ability. While MSCEIT scores correlate with high academic achievement, this particular study found little support for use of the assessment in predicting nursing program success (Gardner & Dunkin, 2018). However, Sparkman et al. (2012) noted significantly higher success using the mixed EI Bar-On test. This test identified social responsibility and impulse control as the highest EI subscale predictors for nursing program graduation. These findings were supported by Polynyj (2018) and Duguė et al. (2020), who believed EI tests are essential to the application process. However, these authors argued a variety of methods should be used to determine candidate suitability.

Polnyj (2018) noted nursing students need to deliver emotionally intelligent care. Relying on solely academic benchmarks for admissions places increased value on intellect and disregards critical qualities, including compassion, care, empathy, and communication. The author cited a study by Lyon et al. (2013, as cited in Polnyj, 2018), that included EI in nursing admission processes. However, in investigating tools that included the MSCEIT, Bar-On, and Schutte Self-Report Emotional Intelligence Test, Lyon et al. (2013, as cited in Polnyj, 2018) identified significant challenges, including whether EI is an innate trait or one that can be developed. In either case, the authors argued, the right metric could predict capacity for EI, when used appropriately.

Previous Healthcare Experience

Previous healthcare experience—which Crawford et al. (2021) defined as pre-nursing program work or volunteer experience in healthcare environments—could indicate practical and

creative intelligence (Lovitts, 2005). The importance of this consideration is critical to recruiting a diverse applicant pool. Students who draw from lived experiences can identify more problems and suggest multi-faceted solutions (Schuster, 2021). To this end, previous healthcare experience may be indicative of one's capacity to develop informal knowledge in professional environments. Of the two programs Crawford et al. (2021) evaluated that considered healthcare experience during the admission process, only one found a positive correlation with first year completion.

Personal Statements, Resumes, and References

Supplemental application materials may reveal multiple creative resources, including type of intelligence, informal knowledge, motivation, and personality traits. Of the three programs Crawford et al. (2021) reported that used personal statements, resumes, and references, one found a positive correlation between personal statement scores and early academic success. The other two programs found little correlation between personal statements, resumes, and success, but a significant correlation between high reference scores and program completion.

Studies that correlate these supplemental application materials, as well as previous healthcare experience with workforce success are largely absent from the literature. Therefore, further study is needed to determine if these factors can enhance the diversity of nursing school populations.

Creativity

Ma et al. (2018) reviewed 15 quantitative and seven qualitative studies and found little research about the correlation between nursing student creativity and program success. Thus, the authors concluded a discipline-specific creativity assessment tool is required to evaluate interventions and their effects on admissions processes. Of the assessments Ma et al. (2018)

reviewed, only the Creativity in the Application of the Nursing Process Tool (CNPT) had disciplinary relevance. This test consisted of a series of open-ended questions to measure fluency, flexibility, and uniqueness. When implemented by Ku (2002) CNPT results revealed 30 students exhibited improved fluency and flexibility as they progressed through the nursing program. Therefore, the author argued these findings indicated students can acquire creative characteristics in clinical situations. With this in mind, it is crucial to consider successful prospective nursing students as those with the capacity to develop creativity, and not limit applicant pools to those with current proficiency in these areas.

If nursing programs consider Lovitts' (2005) six resources of creativity when making admissions decisions, creative assessment tools should be explored to invite consideration of learning type, knowledge, motivation, personality traits, thinking style, and environment. Some of this work is recognizable within holistic admissions frameworks.

Holistic Metrics

Creative assessment tools should be explored to invite consideration of learning type, knowledge, motivation, personality traits, thinking style, and environment. Some of this work is recognizable through holistic admissions frameworks, which consider applicant experiences and attributes alongside cognitive metrics (EAMs). According to Glazer et al. (2014), this process allows evaluators to consider how each individual might contribute value to their nursing cohort and the broader profession. Though Mahon and colleagues (2013) noted narrow focus on cognitive variables appeared more straightforward and efficient, they argued EAM-based measurements were more indicative of professional success. To this end, holistic admissions frameworks consider cognitive and non-cognitive variables of the applicants and are more likely to be equitable than analytic-based metrics alone (Agatep, 2018). As Liu et al. (2018) noted, this

requires immediate consideration of which applicants will be a good fit for a nursing program, as well as larger considerations for who will be successful in practice. The authors noted ideal applicants should meet both factors, and—because the former tends to be better supported by simple metrics and the latter by non-cognitive variables—the combination of both criteria should broaden the concept of success.

Rosenberg's (2019) study also considered how holistic admissions processes use EAMs to diversify the nursing workforce. The author argued healthcare provider diversity is associated with increased care access for minorities, improved patient outcomes, and academic success. They developed a holistic admissions framework rubric to simultaneously evaluate non-cognitive variables across candidates. This rubric assigned points based on whether the applicant exceeded, met, or fell below standards on 17 factors. Experiences, attributes, and metrics each contributed to approximately one third of the applicant's overall score. Of these factors, non-cognitive elements included experience working with underserved populations, veteran status, leadership roles, perseverance, written communication, co-curricular involvement, languages spoken, and professional attributes (Rosenberg, 2019). Prior to the period of study, Rosenberg (2019) noted the program used a holistic admissions process that included an interview, essay, resume, and recommendations. However, after the rubric was added in 2018 to codify institutional thinking, make reviewer input more consistent, and invite consideration for non-cognitive factors, the average percentage of accepted minoritized students increased from 25% to 32%. Though none of the cohort who were admitted using the rubric had graduated upon publication of the study, Rosenberg (2019) reported the 2015–2018 program's NCLEX pass rate with the initial process averaged 97%. The author also mentioned attrition rate remained steady before and after rubric implementation.

Also, worth noting in Rosenberg's (2019) study is the 2018 program-wide decision to waive the requirement of Graduate Record Examination (GRE) scores for students who had a cumulative GPA of 3.0. The author noted a corresponding increase in qualified and diverse applicants following this measure. At the undergraduate level, this has potential implications for reconsidering the relationship between analytic metrics such as pre-program general and science GPA, as well as admissions test scores.

Although holistic admissions processes can broaden applicant pools, Noone and Najjar (2021) argued that a failure to address unconscious bias (UB) derails efforts at program diversification. The author noted even objective admission practices introduce subjectivities that can impact fairness. For example, an applicant's prior educational experience is subjected to positive or negative connotations from a reviewer who may have beliefs about school qualities or make assumptions based on grade trends.

Furthermore, non-cognitive assessment may lead to reviewers unintentionally selecting applicants based on life experiences or physical characteristics. These findings have been replicated in the medical field. Using the Implicit Association test on 100 applicants and admissions committee members, Capers et al. (2018) determined both students and faculty demonstrated significant white bias. This was most apparent among male faculty members.

In a sample of 1,127 college healthcare programs, Kehal et al. (2018) determined half of the schools did not include race-based considerations in admissions processes. This seemingly neutral approach is ineffective, because an applicant's name, memberships, experiences, and personal statements are likely to identify—and further marginalize—students of color. In addition, many of the institutions that did not consider race experienced a decline in the enrollment and graduation rates of diverse students (Kehal et al., 2018). While race-based

admissions criteria may increase unconscious bias, perpetuate stereotypes, and influence application reviewers, Noone and Najjar (2021) favored admissions processes that reduce risk of automatic judgment. Interventions the author suggested included hiring a diverse review committee, providing UB training for reviewers, writing a mission statement to guide the admissions process, creating guidelines for using race-based categories, and allowing ample time in the review process to reduce time pressures. Noone and Najjar (2021) also suggested restricting reviewer access to cognitive data, including transcripts and grades.

Recap and Further Implications

Though numerous studies suggest cognitive factors are predictive of success early in nursing programs, these metrics privilege specific ways of learning and result in narrowed opportunities for program entry. Furthermore, programs typically use admissions factors to measure success based on early program work or nursing school completion, as opposed to professional achievement. Some literature suggests non-cognitive factors can improve the inclusivity of admissions processes by identifying those with the capacity to develop the creativity required in the nursing workforce. However, because this inquiry is still largely unexplored, further studies are needed to assess the ability of non-cognitive metrics to diversify nursing program admission and ultimately, the profession.

CHAPTER III: METHOD

Research Paradigm

This research is classified as non-Indigenous research performed in an Indigenous context. It sought to identify gaps in racial/ethnic, age, language, gender, and socioeconomic representation exacerbated by analytic-based nursing admissions criteria. Due to the NASNTI status of the institution of study, the research includes special focus on students who identify as Indigenous. The dominant discipline for this research is nursing education, and this study considers the interpretivist and transformative paradigms, which are applied as follows.

Interpretivist Paradigm

Interpretivism views reality as complex, multifactorial, and reliant on context. Research under this paradigm respects the subjective meaning of social action (Monti & Tingen, 1999). In the nursing discipline, this results in prioritizing lived experiences to support holistic practices in the field (Carper, 2012; Monti & Tingen, 1999; Weaver & Olson, 2006). Applying this ideology will allow the researcher to foster and value the intersubjectivity between self and participants to study nursing program application barriers through the eyes of those who actually experience them (Dzurec, 1989; Horsfall 1995).

Transformative Paradigm

The transformative paradigm maintains the purpose of education is to create change agents who will improve societal structures (Mertens, 2009). The paradigm often opposes the interpretivist paradigm due to the failure of interpretivism to represent marginalized groups. Therefore, transformative research specifically focuses on using qualitative and quantitative techniques to interrogate disparities, support social justice, and ultimately ensure transformative change (Crossetti et al., 2016).

Combining Paradigms

The intention for this study was to use the transformative paradigm to broaden the interpretivist paradigm to identify sources of inequity. The result is a mixed methods evaluation of institutional data and administrative and student interviews that sought to increase the inclusivity of the nursing admissions process at a Native American Nontribal Serving Institution, initially, and at other Minority Serving Institutions on a broader scale.

Methodology

This study includes both qualitative and quantitative components as a way to provide comprehensive analysis of the problem and honor the selected tenets of Brayboy's (2005) Tribalcrit theory. According to Fast and Kovach (2019), Indigenous methodologies are not reliant on a specific paradigmatic approach. Instead, they consider the relationship between method and paradigm. Therefore, the relationship between paradigms must be interrogated to determine if the research is congruent with an Indigenous worldview. Indigenous methodologies, or "research by and for Indigenous Peoples, using techniques and methods drawn from the tradition and knowledges of those people" (Evans et al., 2009), calls for recognition of the impact of colonialism, resurgence of Indigenous ways of knowing, and acting in opposition to the power dynamics in traditional research. It is possible to be consistent with Indigenous methodology using the interpretivist paradigm, provided the method supports generation of a narrative that comes from the perspective of those who experience barriers to admission. Further, the ability to interrogate disparities and ensure change through the adherence to the transformative paradigm is intended to allow work alongside Indigenous research participants to suggest improvements to the admissions processes for the community.

Rationale for Choice of Methodology

Mixed method designs integrate elements of multiple research paradigms, because they interweave qualitative and quantitative data to meaningfully explain an inquiry. Because quantitative research tends to provide a broad picture of statistically manipulatable numeric data, it can help the researcher determine *what* happened. Qualitative research, by contrast, allows the researcher to explore and explain the nuances and experiences of fewer participants, and helps determine causation. Ideally, combining both methods offers the best of both dimensions. This allows researchers to explore questions with sufficient depth, while offering methodological flexibility to generalize and apply findings to a larger population.

Further, the intersection of mixed methods and social justice has implications for the role of the researcher and integration of paradigmatic perspectives. Because it recognizes how social, political, cultural, economic, and racial/ethnic factors influence which realities are privileged in research contexts, the transformative paradigm provides a framework for addressing inequality and injustice with culturally competent, mixed methods strategies. These methodological inferences, which are based on the paradigm's underlying assumptions, highlight what can be gained from combining qualitative and quantitative methods (Baker et al., 2019). There is much to be learned from the qualitative dimension, as it gathers community perspective, explores causation, helps ensure the research is serving the best interests of its participants, and serves as a mechanism for addressing research complexities in culturally mindful ways (Mertens, 2009).

Recruiting Participants

Prospective, current, and past students who identify as Native American/Indigenous, from nonwhite groups, males, and/or are Pell eligible were recruited via email for interviews based on their self-defined identity characteristics. The goal sample size for this group was 10 or

more participants. While the primary focus group was Indigenous identifying students, the institution of study is a small college with a low number of Native/Indigenous students pursuing nursing degrees. Participants included traditional and non-traditional students at least 18 years of age with at least one identity factor of an underrepresented group. This resulted in a diverse group when it came to socioeconomic status, age, Multiple Language learner status, and gender identity.

Interviews used an Indigenous knowledge framework, which acted in opposition to the asymmetrical interviewer-interviewee relationship within Westernized knowledge constructs. Interviews were semi-structured, conversational gatherings of knowledge through story. This included emphasis on how the research occurred with the community and not on it. Interviews were conducted using an approximation of Australian Aboriginal yarning, which provides "a cultural safety that enables sensitive issues to emerge as it fosters agency among participants" (Kennedy et al., 2022, p. 3). The researcher encouraged participants to tell their story from the position of their lived experience. The yarning technique does not rely on a predetermined set of questions, but instead follows a topic guide where the researcher listens for cues related to the topic (see Appendix E). This method serves as a way to honor a conversational transmission of knowledge that upholds relational context, and maintains collectivist traditions (Fast & Kovach, 2019).

Collecting Data

The quantitative data for this study came from existing academic records, including application information disaggregated by race/ethnicity, socioeconomic status, Multiple Language Learner status, age, and gender from 2013–2023. This was supplemented by data from the most recent race and ethnicity results of the Community College Survey of Student

Engagement (CCSSE), which measured student perception and experiences of racism. Qualitative data was collected from conversational style interviews, which followed an approximation of the research yarning method (Towney, 2005). Interviews were semi-structured conversations with a clearly defined beginning and end. The conversations revolved around the nursing application process, which the researcher communicated at the start of each session. Sessions were typically cross-cultural, which Towney (2005) noted, required devoted attention to cultural respect, as Indigenous and non-Indigenous forms of communication were likely to prevail at different times. Responses were transcribed from recordings and the recordings were permanently deleted after transcription. Interview participants were not identified in the transcripts, which were stored alongside other data on a password-protected computer in a secure file.

Quantitative data was delivered to the researcher in the form of a de-identified code book from the institution's nursing director. This information came from data banks, institutional records, and CCSSE results. Each piece of data was sorted by type (quantitative admissions, quantitative CCSSE, quantitative demographic data, qualitative interview transcripts [student], and qualitative interview annotations [administration]). These findings were studied individually and compiled for narrative analysis.

Analyzing Data

Quantitative data was analyzed for correlation between grade point average (GPA), Test of Essential Academic Skills (TEAS) score, applicant race/ethnicity, age, Multiple Language Learner (MLL) status, gender, and socioeconomic status (as indicated by Pell eligibility). This used a logistic regression analysis, where a moderator determined the extent to which each

sociodemographic factor impacted admission rate. Significant findings were isolated and compared alongside qualitative findings for further insight.

As Leeson et al. (2016) noted, yarning matches Indigenous ontology, epistemology, and axiology, and is likely to facilitate candid, extensive conversations and stories about a topic that go beyond the capabilities of quantitative data. This technique is thought to supersede the division between researchers and communities and simultaneously allows researchers to position themselves as learners while giving the participant control over the information they share. Because the data gathering process is so rich, Leeson et al. (2016) advised to keep the session to a 30–45-minute timeframe. Transcript files were downloaded from Zoom, compared against the audio recordings, and corrected accordingly. The transcripts were annotated and evaluated using a combination of narrative and thematic content analysis. Narrative data analysis highlighted critical points that were accentuated by other areas of the research process, while thematic content analysis determined overarching impressions of the data and allowed identification of common themes.

After the initial interviews and quantitative analyses were compiled into a single narrative and grouped by theme, the nursing director was contacted via email to provide insight into the findings and gave logistical feedback on suggested interventions.

Ethical Protections

Though the participants did not qualify as a vulnerable population, they maintained their right to privacy and confidentiality as they participated in this research. In addition to a statement of purpose, each interview included an explanation of why the research was being conducted, the type of questions that would be asked, a statement of privacy and assured anonymity, and the minimal risk nature of the study. Interviewees did not receive compensation for their voluntary

participation in this research and they could remove themselves from the study at any time, for any reason without penalty. Prior to the interview, they filled out a consent form outlining the study and its associated risks (see Appendix F).

The quantitative data was de-identified before it reached the researcher and all interviews were de-identified in the transcription process. Records are maintained on a password-protected computer and any remaining raw data was deleted upon completion of the researcher's defense.

Role of the Researcher

Perhaps the biggest challenge with this work is ensuring the researcher is representing the concerns of a minoritized population with whom they do not personally identify. The researcher is a white doctoral student who is attempting to evaluate the nursing admissions process to address the barriers perceived by Indigenous and members of other groups who are underrepresented in the nursing workforce on the basis of race, ethnicity, age, MLL status, gender, and socioeconomic status. One of the many reasons the researcher incorporated qualitative components was to ensure representative voices were captured in the study.

The researcher conducted significant investigation of Indigenous methodologies to ensure all efforts were conducted with the needs of the community in mind. As noted in the paradigmatic selection for this research, there is a focus on centering the perspective of the population who is experiencing the phenomenon being studied.

The yarning interview format the researcher chose to approximate allows free expression of ideas. As an Indigenous-inspired research methodology, yarning is practiced by non-Indigenous research scholars and healthcare clinicians as an effective approach to knowledge sharing (Byrne et al., 2021). In deliberation over the extent to which non-Indigenous researchers and clinicians rightfully use and adapt the yarning technique, Byrne et al. (2021) attest

non-Indigenous members can and do use this technique. The authors suggest that the practice of yarning encompasses the ethics of Indigenous methodologies—including positions around fairness, equality of access, and self-determination—as a first principle, with the understanding that non-Indigenous people cannot fully understand Indigenous experiences. With this in mind, the researcher proceeded with this method of information gathering as an approximation of the exchanges honored in Indigenous cultures. The researcher situated this study within Indigenous methodologies, chose a theoretical framework that acknowledges and seeks to address the impact of colonialism on higher education, and upheld the appropriate tenets of that framework as they performed non-Indigenous research in an Indigenous context.

It is worth noting the student interview participants identified as members of marginalized populations, while college administration, including the nursing director, is white. To offset unconscious bias imposed by power dynamics, interviews were conducted at different stages in the research process and student interview findings were analyzed before the nursing director provided additional insight.

Chapter Summary

This study paired the transformative and interpretivist paradigms with Indigenous methodology to investigate the barriers to a limited entry nursing program at a Native American Nontribal Serving Institution (NASNTI). The mixed methods approach combined institutional data with student interviews to develop a narrative that honored the relational values of oral storytelling. Initial findings between qualitative and quantitative data were presented to the nursing director for final insights and logistical troubleshooting around intervention. This approach promoted student-driven change-making to benefit the population of study.

CHAPTER IV: RESULTS

Data Management and Rationale

Data for this study was maintained in two Excel sheet codebooks on a password-protected computer with an encrypted hard drive and two-factor authentication. The first sheet contained 2013–2023 nursing applicants' sociodemographic information, TEAS score, GPA, and admissions status. The second sheet contained codified quotes from interview transcripts that were categorized by theme. A final interview with the nursing director allowed for a review of the findings to ensure development of appropriate and feasible recommendations. This information was captured via annotations on a Google document that contained the initial analyses. Annotations were integrated and cited, where appropriate.

This mixed methods study intended to holistically evaluate the lack of diversity within an associate degree nursing program. Quantitative data established broad patterns in a reputable program with reliable data stewardship practices. Logistic regression analysis allowed the researcher to isolate analytic variables to determine if more significant admission barriers were prevalent among groups with racial/ethnic, socioeconomic, language, gender, or age. Further, qualitative interviews illuminated nuances of the lived experiences of the groups this research intends to serve. This is particularly critical in studies with an end goal to improve access for underrepresented groups whose experience can't be captured in solely quantitative findings. Thematic analysis allowed the researcher to make connections between interviewees in all stages of the nursing program.

Quantitative Data

The nursing director provided a codebook containing quantitative data according to the researcher's specifications. The researcher used IBM SPSS Statistics v. 20 to summarize

admissions data and determine how sociodemographic factors, including age, gender, race/ethnicity, Multiple Language Learner (MLL) status, and Pell eligibility (socioeconomic status) are related to grade point average (GPA), test of essential academic skills (TEAS) score, whether or not individuals met admission criteria, and whether or not individuals were admitted into the program. Admission criteria in this case is a 2.5 GPA that includes all prerequisite courses and a TEAS score of 58.7.

It should be noted the interviews revealed Pell eligibility was not a sufficient indicator of student financial need. A number of applicants are ineligible for Pell and other financial aid due to citizenship status and prior schooling that exhausted funding options. However, such factors are not captured reliably by a student information system, and further validates the need for a mixed methods study.

Summary

The data included all 628 nursing applicants from 2013–2023. Summary statistics for the data set included frequency distributions for gender, race/ethnicity, MLL status, Pell eligibility, and admission status, as well as mean, median, standard deviation (minimum and maximum) for age, GPA, and TEAS.

Table 1 provides counts and percentages for the categorical variables in the data set.

Table 1

Frequency Distribution of Categorical Admissions Variables

Variable	Category	Frequency	Percent
Gender	Male	97	15.4
	Female	531	84.6
Ethnicity	Asian	11	1.8
	Black	8	1.3
	Latine	66	10.5
	white	517	82.3
	Indigenous	25	4.0
	Other	1	0.2
ELL	No	562	89.5
	Yes	66	10.5
Pell Eligible	Pell eligible	464	73.9
	Pell ineligible	164	26.1
Campus	Riverton	439	69.9
	Jackson	189	30.1
Admission	Yes	440	70.1
	No	122	19.4
	Ineligible	66	10.5

Table 1 shows the majority of the applicants were female (84.6%). The most common race/ethnicity was white (82.3%), followed by Latine (10.5%) and Indigenous (4%). The total portion of the data made up by Asian, Black, and other applicants was just over 3%. These were combined into one "Other" category for analysis. A small portion (10.5%) of applicants were Multiple Language Learners; 73.9% of the applicants were Pell eligible. 70.1% of the applicants received offers for admission; 10.5% did not meet the qualifications to be offered admission.

Table 2 provides summary statistics for the numeric variables in the data set.

Table 2

Summary Statistics of Numeric Admissions Variables

Variable	Mean	Median	Std. Deviation	Minimum	Maximum
Age	31.91	30	9.51	18	67
GPA	3.32	3.33	0.43	2.13	4
TEAS	73.80	74	10.33	34.38	97.3

From Table 2, the average age of the respondents is 31.91, although ages range from 18 to 67. The average GPA is 3.32, with values ranging from 2.13 to 4. The average TEAS score was 73.8, and ranged from 37.38 to 97.3.

Analyses

Data analyses included two general linear models that predicted GPA and TEAS correlations with race/ethnicity, gender, age, ethnicity, MLL status and Pell eligibility. Next, a logistic regression model predicted the probability that an applicant would be ineligible for admission. GPA and TEAS were not used in this analysis to allow the researcher to identify demographic trends in who applies for admission without meeting minimum requirements. Finally, for applicants who met the admissions criteria, the researcher looked at the probability of admission using two models:

- A logistic regression model using gender, age, ethnicity, ELL, and Pell eligibility without GPA and TEAS to determine if applicants with certain sociodemographic identities were more likely to receive an offer of admission. This could be attributed to some individuals applying with higher qualifications.
- A logistic regression model using GPA and TEAS to determine if there were relationships between sociodemographic variables and admission after accounting for student achievement.

Findings

Grade Point Average

The relationship between grade point average (GPA) and the demographic variables was determined through a general linear model. The assumptions of this model are that (a) the residuals are normally distributed, and (b) the variability of the residuals is homogeneous for all predicted values. These were checked visually using histograms, normal quantile-quantile (QQ) plots, and scatter plots, and found to hold, meaning the model was appropriate.

The overall tests of the model are given in Table 3.

Table 3

Overall Results of General Linear Model for GPA

Variable	F	df1	df2	p
Gender	0.03	1	620	0.868
Ethnicity	0.77	3	620	0.513
ELL	2.13	1	620	0.145
Pell Eligible	2.74	1	620	0.098
Age	2.60	1	620	0.107

Note. $R^2 = 0.023$

The results in Table 3 include F statistics, two degrees of freedom (df) for the F statistic, and a p value. The F statistic is a standardized version of the amount of variability in GPA that can be explained by each variable, and is not interpreted directly. The numerator degrees of freedom are related to the number of categories that are part of a categorical variable, while the denominator is related to the number of observations adjusted for the number of variables in the model. The p value is determined for each variable based on the F statistic and two degrees of freedom.

None of the resulting p values provided significant evidence that gender, ethnicity, MLL status, Pell eligibility, or age were related to GPA among these applicants at the $p = .05$ level. Further, because the overall R^2 for the model is 0.023, only 2.3% of variation in GPA is related to the variables in the model.

Table 4 includes the regression coefficients from the general linear model.

Table 4

Regression Coefficients for General Linear Model for GPA

Parameter	B	Std. Error	95% Confidence Interval		t	df	p
Female (v male)	0.008	0.048	-0.086	0.102	0.17	620	0.868
Other (v white)	0.093	0.127	-0.157	0.342	0.73	620	0.465
Latine (v white)	-0.036	0.082	-0.197	0.125	-0.44	620	0.658
Indigenous (v white)	-0.087	0.088	-0.260	0.085	-1.00	620	0.320
ELL (v non-ELL)	-0.140	0.096	-0.328	0.048	-1.46	620	0.145
Pell Eligible (v not)	-0.073	0.044	-0.160	0.014	-1.66	620	0.098
Age	0.003	0.002	-0.001	0.007	1.61	620	0.107

The regression coefficients are in column B. When it comes to numeric variables like age, these findings indicate GPA increases by 0.003 points, on average, for each additional year of age across applicants. The confidence interval indicates 95% confidence the true effect of an applicant's age is between a decrease of 0.001 GPA points per year to an increase of 0.007 points per year.

One categorical variable was selected as the reference level for comparison of these variable types. For example, gender appears in Table 4 in the parameter column as female (v male), so male becomes the reference variable against which female applicants were measured. The resulting coefficient indicates GPAs tended to be an average 0.008 points higher for females, with a 95% confidence interval of [-0.086, 0.102].

White served as the reference category for each race/ethnicity variable. GPAs for Latine and Indigenous applicants in this data set, on average, were 0.036 and 0.087 points lower than those of white applicants; GPAs for those in the Other category, on average, were 0.093 points

higher than those of white applicants. However, none of these differences were statistically significant.

TEAS Score

The relationship between TEAS scores and the demographic variables was also determined through a general linear model. The assumptions of normality and heterogeneity were again checked visually using histograms, normal QQ plots, and scatter plots, and found to hold, thus indicating the model was appropriate.

The overall tests of the model are given in Table 5.

Table 5

Overall Results of General Linear Model for TEAS Scores

Variable	F	df1	df2	p
Gender	17.26	1	620	< 0.001
Ethnicity	4.17	3	620	0.006
ELL	0.65	1	620	0.420
Pell Eligible	12.66	1	620	< 0.001
Age	3.29	1	620	0.070

Note. $R^2 = 0.113$

The results in Table 5 can be interpreted similarly to those for Table 3. Statistically significant variables include gender ($F(1, 620) < 0.001$), ethnicity ($F(3, 620) = 0.006$), and Pell eligibility ($F(1, 620) < 0.001$). There is no evidence that MLL status or age was significantly related to TEAS score.

The overall R^2 for the model is .113, meaning 11.3% of variation in TEAS is related to the variables in the model. To provide more information, Table 6 includes the regression coefficients from the general linear model.

Table 6

Regression Coefficients for General Linear Model for TEAS

Parameter	B	Std. Error	95% Confidence Interval		t	df	p
Female (v male)	-4.56	1.10	-6.72	-2.41	-4.16	620	< 0.001
Other (v white)	-8.18	2.92	-13.91	-2.45	-2.80	620	0.005
Latine (v white)	-5.00	1.88	-8.69	-1.30	-2.65	620	0.008
Indigenous (v white)	-3.39	2.02	-7.35	0.57	-1.68	620	0.094
ELL (v non-ELL)	-1.77	2.20	-6.09	2.55	-0.81	620	0.420
Pell Eligible (v not)	-3.60	1.01	-5.59	-1.61	-3.56	620	< 0.001
Age	0.08	0.04	-0.01	0.16	1.81	620	0.070

There is statistically significant evidence to indicate that, on average, females have TEAS scores 4.56 points lower than males 95% CI [-6.72, -2.41].

When it comes to race and ethnicity, applicants with an identity grouped as Other, average TEAS scores were 8.18 points lower than those of white individuals 95% CI [-13.91, -2.45]. This difference is statistically significant $t(620) = -2.80$, $p = 0.005$). Applicants who identified as Latine had TEAS scores that were 5 points lower than those of white individuals 95% CI [-8.69, -1.30]. This difference is statistically significant with $t(620) = -2.65$, $p = 0.008$). The difference between individuals who identified as Indigenous, by contrast, was not statistically significantly different than white individuals at the 0.05 level.

For socioeconomic status, those who were Pell eligible had average TEAS scores that were 3.6 points lower than those who were not 95% CI [-5.59, -1.61].

Probability of Admissions Ineligibility

In this analysis, the researcher examined the probability an individual did not meet the admission criteria, despite submitting their application. The relationship between eligibility and sociodemographic factors was determined through a binary logistic regression model. The results are summarized in terms of *odds*, (the probability of being ineligible divided by the probability of being eligible).

The overall tests of the model are given in Table 7.

Table 7

Overall Results of Logistic Regression Model for Admissions Ineligibility

Variable	χ^2	df	p
Gender	0.09	1	0.761
Ethnicity	2.52	3	0.472
ELL	3.91	1	0.048
Pell Eligible	4.59	1	0.032
Age	0.91	1	0.342

From Table 7, logistic regression uses chi-square statistics, where the overall $\chi 2$ statistic is not interpreted directly. The degrees of freedom are based on the number of categories in the dataset. The two statistically significant variables at the 0.05 level are MLL status ($p = 0.048$) and Pell eligibility ($p = 0.032$).

Table 8 shows the *odds ratios,* or the measure of association between an exposure and an outcome, from the logistic regression model for each variable.

Table 8

Odds Ratios for Logistic Regression Model for Admissions Ineligibility

Variable	Odds Ratio	95% Confidence Interval		χ^2	df	p
Female (v male)	0.892	0.427	1.862	0.09	1	0.761
Other (v white)	0.665	0.104	4.261	0.19	1	0.667
Latine (v white)	1.849	0.629	5.437	1.25	1	0.264
Indigenous (v white)	1.284	0.366	4.498	0.15	1	0.696
ELL (v non-ELL)	3.496	1.012	12.081	3.91	1	0.048
Pell Eligible (v not)	2.310	1.074	4.969	4.59	1	0.032
Age	1.014	0.985	1.045	0.91	1	0.342

In this model, the estimated odds ratio for MLL (v non-MLL) is 3.496, indicating MLL applicants were 3.469 times, or 249.6% more likely to be ineligible for admission despite submitting an application. An applicant who was Pell eligible had 2.310 times or 131% higher odds of being ineligible than an individual who was not Pell eligible, thus indicating individuals who were Multiple Language Learners and/or who were Pell eligible were more likely to submit applications for the nursing program despite not meeting the minimum requirements for entry.

Probability of Being Admitted

For the final two models, only individuals who were eligible for admission were considered. This removed 66 individuals from the data set, leaving a sample size of 562.

Not Accounting for GPA and TEAS

The researcher used a binary logistic regression model to determine the probability an individual who met the criteria for admission was granted admission. This model does not account for performance variables of GPA and TEAS, as the goal was to determine whether

certain sociodemographic variables were generally associated with gaining admission to the program.

The overall tests of the model are given in Table 9.

Table 9

Overall Results of Logistic Regression Model for Admissions Status

Variable	χ^2	df	p
Gender	3.72	1	0.054
Ethnicity	6.71	3	0.082
ELL	0.44	1	0.508
Pell Eligible	0.01	1	0.913
Age	1.35	1	0.245

From Table 9, no variables are statistically significant at the 0.05 level, suggesting there is no evidence certain sociodemographic factors are associated with admission.

Table 10 shows the odds ratios from the logistic regression model for each variable.

Table 10

Odds Ratios for Logistic Regression Model for Admissions Status

Variable	Odds Ratio	95% Confidence Interval		χ^2	df	p
Female (v male)	0.522	0.270	1.010	3.72	1	0.054
Other (v white)	0.856	0.212	3.455	0.05	1	0.828
Latine (v white)	0.450	0.185	1.093	3.11	1	0.078
Indigenous (v white)	5.657	0.748	42.776	2.82	1	0.093
ELL (v non-ELL)	0.695	0.236	2.044	0.44	1	0.508
Pell Eligible (v not)	1.030	0.607	1.746	0.01	1	0.913
Age	0.987	0.965	1.009	1.35	1	0.245

Although not quite significant at the 0.05 level, the odds ratio for female v male indicate females had (0.522 – 1) = 47.8% lower odds than males of being admitted 95% CI [0.270,1.010].

Accounting for GPA and TEAS

A final logistic regression model was used to examine the probability an individual who met the criteria for admission was actually granted admission, with consideration of GPA and TEAS score. While these variables are related to the probability of admission, the appearance of other variables of statistical significance indicate that—*performance being equal*—some groups may be more likely to be admitted than others.

The overall tests of the model are given in Table 11.

Table 11

Overall Results of Logistic Regression Model for Admissions Status, GPA, and TEAS Included

Variable	χ^2	df	p
Gender	1.62	1	0.203
Ethnicity	9.32	3	0.025
ELL	0.01	1	0.912
Pell Eligible	1.64	1	0.201
Age	6.17	1	0.013
GPA	27.51	1	< 0.001
TEAS	20.49	1	< 0.001

As expected, GPA and TEAS were highly significant predictors of admission (both $p < 0.001$). Age and ethnicity have statistical significance at $p = .013$ and $p = .025$, respectively. This is explored further in Table 12, which shows the odds ratios from the logistic regression model for each variable.

Table 12

Odds Ratios for Logistic Regression Model for Admissions Status, PGPA, and TEAS Included

Variable	Odds Ratio	95% Confidence Interval		χ^2	df	p
Female (v male)	0.626	0.304	1.288	1.62	1	0.203
Other (v white)	1.079	0.231	5.047	0.01	1	0.923
Hispanic (v white)	0.383	0.140	1.045	3.51	1	0.061
Indigenous (v white)	8.133	1.033	64.017	3.96	1	0.046
ELL (v non-ELL)	0.933	0.272	3.202	0.01	1	0.912
Pell Eligible (v not)	1.460	0.818	2.605	1.64	1	0.201
Age	0.970	0.947	0.994	6.17	1	0.013
GPA	5.719	2.981	10.973	27.51	1	< 0.001
TEAS	1.071	1.039	1.103	20.49	1	< 0.001

Table 12 leads to the following statistically significant conclusions:

For each additional year of age, the odds of admission are multiplied by 0.970. 95% CI [0.947, 0.994], GPA and TEAS scores being equal. This means the odds of admission decrease by 3.0% for each additional year of age.

The odds of admission are multiplied by 5.719 for each additional GPA point 95% CI [2.981, 10.973] and by 1.071 for each additional point on the TEAS test 95% CI [1.039, 1.103].

Ethnicities were compared to each other, using post-hoc pairwise comparisons. These findings are provided in Table 13, including a Bonferroni adjustment for multiple comparisons to the confidence intervals and to the p values.

Table 13

Post-Hoc Pairwise Comparisons of Ethnicity

Comparison	Odds Ratio	95% Confidence Interval		χ^2	df	p
Other v Latine	2.818	0.483	16.412	2.41	1	0.726
Other v Indigenous	0.133	0.004	4.055	2.43	1	0.715
Other v White	1.079	0.135	8.611	0.01	1	1.000
Latine v Indigenous	0.047	0.002	1.002	6.95	1	0.050
Latine v White	0.383	0.099	1.478	3.52	1	0.365
Indigenous v White	8.134	0.506	130.712	3.96	1	0.279

There were no statistically significant differences at the 0.05 level, though Latine versus Indigenous has a p value of exactly 0.05. The odds ratio of 0.047 means that, GPA and TEAS scores being equal, an applicant of Latine ethnicity had 0.047 times the odds of admission as an applicant of Indigenous ethnicity. This is a 95.3% decrease in the odds of admission.

Conclusion

There was no evidence to suggest that race/ethnicity, Pell eligibility, MLL status, gender, or age were significantly related to GPA among applicants. However, the following results had statistical significance or near significance in relation to the following sociodemographic factors:

Race/Ethnicity

On average, individuals of Latine and Other ethnicities had lower TEAS scores than white individuals by 5 and 8.18 points, respectively. This is significant, because the odds of admission are multiplied by 1.071 for each additional point on the TEAS test.

While there was no statistically significant correlation between GPA and race/ethnicity, GPA and TEAS scores are strong predictors of admission ($p = < 0.001$). These findings have implications for overall program diversity. For every additional point on the TEAS test, the odds

of admission are multiplied by 1.071, and, for every additional GPA point, odds of admission are multiplied by 5.719.

Further, in instances where GPA and TEAS scores are equal, an applicant of Latine ethnicity has 0.047 times the odds of admission as an applicant of Indigenous ethnicity. This could be attributed to the five bonus points awarded in the admissions process for applicants who are Certified Nursing Assistants, Medical Assistants, and Certified Emergency Medical Technicians with one year of direct care experience for a minimum of 24 hours per week. According to the nursing director, this was a major factor in admitting Latine, Multiple Language Learners into the nursing program (11).

Pell Eligibility

On average, applicants who were Pell eligible scored 3.6 points lower on the TEAS test than applicants who were not Pell eligible. Statistically, people with lower socioeconomic status achieve poorer academic outcomes than those with financial stability. Living in poverty creates access barriers to resources, including time to study (Bradley, 2022). Almost 74% of this applicant pool qualified for need-based financial aid (Pell grants). Further, applicants among this group face greater odds of being ineligible than those who were not Pell eligible.

These findings are similar to results for TEAS scores among racially and ethnically diverse applicants, as opportunity gaps strongly correlate with racial socioeconomic disparities. In Fremont County, 13.9% of the population lives below the poverty line, as compared to 11.5% nationally (United States Census Bureau, 2024a). Wyoming has a statewide poverty rate of 11.6%, which, when disaggregated by race, is comprised of 37% who identify as Black, 26.9% who identify as Indigenous, 11.5% who identify as Hispanic/Latine, 11.1% who are multi-racial,

and 11.1% of people who identify as white (State Health Facts, 2022). The average scores for Wyoming Assessment Outcomes are provided in Table 14.

Table 14

Disaggregated State Level Assessment Outcomes - Wyoming

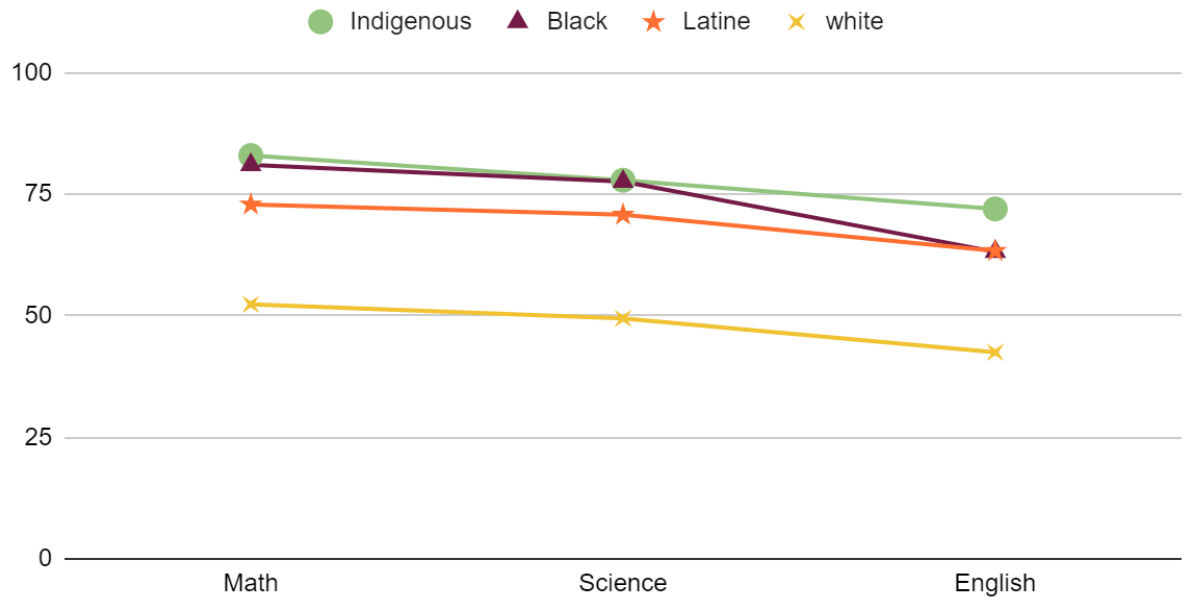
Race/Ethnicity	Subject	Number Tested	Below Basic	Basic	Proficient	Advanced
Indigenous	English	180–189	46.56%	25.4%	19.58%	8.47%
Black	English	50–59	35.09%	28.07%	26.32%	10.53%
Latine	English	900–909	38.00%	25.33%	26.11%	10.56%
white	English	5700–5709	21.23%	21.28%	33.84%	23.65%
Indigenous	Math	180–189	63.83%	19.15%	14.36%	2.66%
Black	Math	50–59	51.72%	29.31%	15.52%	3.45%
Latine	Math	900–909	50.88%	22.01%	20.46%	6.64%
white	Math	5680–5689	28.44%	23.90%	30.55%	17.12%
Indigenous	Science	190–199	44.21%	33.68%	16.84%	5.26%
Black	Science	50–59	31.03%	46.55%	17.24%	5.17%
Latine	Science	900–909	34.95%	35.83%	23.70%	5.51%
white	Science	5700–5709	18.57%	30.88%	33.63%	16.92%

Note. Wyoming Department of Education, 2024.

Table 14 indicates the occurrence of lower academic test scores among members of groups with statistically higher rates of poverty. Figure 1 includes total percentages of below basic and basic scores by subject.

Figure 1

Percentage of Basic/Below Basic Outcome Scores by Subject



Note. Graph created using 2022–2023 data from Wyoming Department of Education Assessment Reports (2024).

Per the graph, Indigenous students who scored basic or below basic for math, science, and English were 82.98%, 77.89%, and 71.96%, respectively, while Black students who scored basic or below basic totaled 81.03%, 77.59%, and 63.16% in the same subjects. These rates were slightly lower among Hispanic/Latine students, who scored basic or below basic in math, science, and English at rates of 72.90%, 70.78%, and 63.33%. White identifying students—whose population has the lowest socioeconomic need—scored basic or below basic between 20 and 30 percentage points less often than their counterparts, including 52.33%, 49.45%, and 42.51% in math, science, and English. This suggests socioeconomic factors may have an influence on academic performance, but the relationship is multifactorial. The white supremacy prevalent within standardized testing cannot be discounted in these correlations, nor can the real-world systems they perpetuate when it comes to wealth distribution.

Multiple Language Learner Status

Applicants of MLL status had greater odds of being ineligible than individuals who were not. Ineligible applicants are those with GPAs and TEAS scores below 2.5 and 58.7, respectively. This may be suggestive of language barriers when it comes to the application process. The nursing director said many of the students who intend to apply but do not meet the required GPA and TEAS scores fail to submit their application. This is not accounted for in the data set, so 66 of 628 applicants were ineligible despite having completed the admissions process. Of this smaller number, the students were more likely to be ELL. However, in the full dataset, there were no statistically significant correlations between GPA and/or TEAS and MLL status.

Age

In instances where GPA and TEAS scores are equal, odds of admission decrease by 3% for each year of age. This may also be attributed to the bonus point system, as it was introduced in 2020 and high schools now offer CNA courses for students.

Gender

On average, females scored 4.56 points lower on the TEAS test than male applicants. There is no evidence race/ethnicity, MLL status, Pell eligibility, or age is significantly related to GPA among applicants. However, when not accounting for student achievement, odds of admission based on gender was close to being statistically significant at the traditional 0.05 level, as the odds ratio for female v male also indicated females have 47.8% lower odds than males of being admitted 95% CI [0.270,1.010]. This provides a smaller level of evidence to suggest a gender-related effect on admission.

Qualitative Data

The vice president for student affairs (VPSA) contacted interview candidates, according to researcher-determined specifications. Eligible candidates were pre or current nursing students or program graduates. Highest preference were Indigenous or other nonwhite participants. Additional eligibility criteria included Multiple Language Learners, males, or those who were lower income, as designated by Pell grant eligibility.

Summary

The VPSA contacted currently enrolled students via email, and the researcher connected with those who expressed interest via email (see Appendix D). Ten of the 11 completed the interview process. Of the participants, 27.3% were pre-nursing students, 45.5% had just completed the first year of the program, and 27.3% were recent program graduates. Just over half of the participants were of color, with the following racial/ethnic breakdown: 18.2% Indigenous, 18.2% Indigenous/multi-racial, 9.1% Latine, 9.1% Black, and 45.5% white. Twenty percent were male and 80% were female. To date, no CWC nursing student applicants identified outside of the gender binary in Ellucian Colleague, the institution's student information software. Nearly three quarters of the respondents were Pell eligible and only one was a Multiple Language Learner.

Additionally, the interviewees revealed 67% were raising children as a single parent while in the program. Forty percent were non-traditional college students who were 25 years or older. Seventy percent mentioned prior healthcare experience, including Certified Nursing Assistant (CNA) or Certified Medical Assistant (CMA), phlebotomy certification, or other work in the healthcare field that they believed to benefit their application process and first term in the program.

Each interview lasted 30–45 minutes and followed the loosely structured yarning format. Several questions were asked of all participants, including “describe your cultural identity,” “what traits do you think make a good nurse?” and “describe the nursing application process.” The interviews were conducted via recorded video conference and transcripts were codified individually. Sociodemographic diversity of each interview participant is provided in Appendix B.

Analysis

Coded quotes were grouped according to broad themes that included institution-wide and program-level strengths and barriers, as well as desirable nursing traits and cultural responsiveness. Themes were subdivided and analyzed in the context of the nursing program application process with the ultimate goal to make the program more inclusive for all applicants. Themes included strengths, barriers and hardships, traits of quality nurses, and cultural competence. These were further divided by institutional, nursing program, and nursing program admissions process, as appropriate.

Institutional-Level Strengths

Interview participants identified institutional strengths that included small class sizes, an abundance of resources, and caring, highly-skilled instructors (participant 1, participant 5). Additionally, one participant felt the school maximized these strengths by providing opportunities for transdisciplinary study. The student returned to CWC for a career change and said the college was helping her use all her talents and interests:

> I’m just getting more ideas of things that I’m capable of in my current career and then figuring out how to blend it with my new career. CWC is such a great place for that, because there are so many opportunities available that aren’t in other places. (8)

The participant mentioned feeling like a number at other, bigger schools:

> With CWC being so small, there's so many opportunities to get kids from other programs and expand their ideas based on their interest. Everyone is willing to try to figure out what best suits you, and how to bring those things together and make other classes available to you with all the resources they have. (8)

Nursing Program-Level Strengths

Participants expressed similar appreciation for the nursing program resources. Specific assets included the range of workforce opportunities and technology the program provided, as well as its ability to foster team building, and to draw from prior knowledge.

Workforce Opportunities and Technology. Interviewees were particularly grateful for the top of the line technology and diverse experiences provided by multiple clinical sites and hospital unit rotations (1, 4, 9). One participant expressed appreciation for the range of care she provided during a CWC-granted preceptorship:

> "I got to experience such a diversity of patients and it was really fun," she said. I got to work with patients in wheelchairs, quadriplegics who have G tubes, which go into your stomach to feed you, or have a trach that lets you breathe through your neck. That was fun because I got to use my skills. (1)

Fostering a Team Atmosphere. Interview participants appreciated how the program fostered team building within their cohort. One interviewee said, "I love my classmates. They are my friends. They are the best people" (3), while another said students really learned to work together by the second half of the program. "By then you're an entire cohort … You're helping each other. We shared any information that we found. We did all of those things with each other" (5). This participant was elected president of the Student Nurse Association (SNA). She

encouraged her whole cohort to join. “It kept us all together doing things, inside and outside of class” she said. The student helped host a networking gala and spaghetti dinner for the program. During this event, representatives from local healthcare organizations purchased tables. Nursing students met them and got ideas for future employment. In her graduating year, this student said one of the attendees gave her a check for $10,000:

> The Director told me she’s always wanted to create a thing where students get help with their scrubs and their supplies, and all the stuff that goes with nursing that won’t affect your scholarship. And it was perfect, because that’s what I wanted too. (5)

The group created an endowment fund for Fall 2024. They agreed it would work, in part because the program director will play a role in identifying the right applicants for the funds. “The director is great with all her students,” the interviewee said. “She looks into every one of us and knows all our stories” (5).

The interviewees also felt the college’s nursing program had a solid reputation:

> All I hear is our student nurses come out top of the line. Everybody is very, very eager to get CWC nursing students. They have the best program in the state, and you can’t get better than that. They are giving us a really difficult program. But they’re giving us such a great start in nursing. (8)

Program Expectations vs. Experience. Nursing graduates or participants who were midway through the program had varying perceptions of how their nursing school experience compared to their expectations. Largely, those with prior medical experience found the first term was easier than they expected. One participant who worked as a medical assistant and a phlebotomist, said “My first semester was really good. If you have any medical background, it’s

just easier." (7). Similarly, another nontraditional, career-change student said her prior experience in the medical field was helpful:

> I've worked in and out of the hospital since I was a kid. I think I had my first job in the hospital when I was 14, and so I've been around healthcare for a really long time. I think it made it a little bit easier to approach, because I'd already been exposed to it. (8)

Another participant had a close friend who had graduated prior to his acceptance, and they said being close with them gave him "about 2 years of preparation for what to expect in the program, so that was really helpful. There haven't been any surprises" (4).

Nursing Program Application Process-Level Strengths

Many of the interviewees described the nursing program admissions process as straightforward and organized. One said, "I'm a list person. They made a list of what to do" (1). The interviewees also felt the nursing faculty started tracking their progress as soon as they declared pre-nursing as a major. One said, "we started talking to them when we gave them our intention of going. So then their eyes started to get on us" (5). A third interviewee felt a similar sense of dedication with the staff in the advising office. "I loved the communication," he said. "I think that is what made me even come here in the first place. It was fast" (3). He also said staff went out of their way to troubleshoot technical barriers. "Where I come from is a village, and even the internet is an issue," he said. "They accommodated those issues" (3).

Institutional-Level Barriers and Hardships

While the participants identified barriers and hardships as they related to the nursing program, several common themes could be extrapolated to CWC and higher education in general. Current support in these areas are highlighted in their respective sections. Additional ways to expand these efforts in the nursing program are included in Chapter V.

Language Barriers. Between 2013 and 2023, 56 Multiple Language Learners applied to the CWC nursing program. Current supports in this area include tutoring and TRIO—Upward Bound, Talent Search, and Student Support Services—the three federally funded programs that help students from underrepresented populations access higher education (CWC, 2024e). However, the nursing director said, "Nursing tutors rarely speak other languages," and "students are required to have some level of proficiency before coming to CWC and completing their prerequisite coursework." However, the nursing program faculty makes special efforts for admitted students. The director said, "once MLL students enter the nursing program, we place them in groups, connect them with their peers, and provide a faculty mentor. Faculty review best practices for teaching MLL students as needed" (11). Only one interviewee was a Multiple Language Learner. Despite being trilingual, the participant felt English proficiency posed barriers in the application and program processes. "English is not my language," he said. "So at the end of the day, language has been an issue. But I feel as if human beings can learn" (3). During the first year of the program, this student said he realized the medical field operates using a universal language. "The concepts are the same," he said. "In terms of nursing, if you talk of a care plan, it's a care plan. It's a global language" (3).

It is critical to emphasize the assets of a multilingual student body and workforce. According to the Director of Admissions, CWC has enrolled 20 international students, including two and four non-athletes during the last two academic years, respectively (Hofer, 2024). The institution just established an international recruiter position, which is expected to increase non-athletes by an estimated 15 students per semester (12). As CWC brings in 20 international students a year, the institution must consider what it means to adopt a global view. A student-centered approach to education requires prioritizing student definitions of their own

success and assessing admissions, outcomes, and effectiveness in that regard. Evidence of this exists in CWC's vision to "empower students," and the diversity, equity, and inclusion statement, which includes providing "services and instruction in ways that acknowledge diversity and history while fostering empathy" (Central 2024c).

Financial Barriers. The variety of financial difficulties interview participants encountered were illustrative of the complexity of this issue. One interviewee who qualified for loans missed an email with critical information and lost funding for a semester:

> I had to work a lot more … every single time I could after clinicals or after class. That was really, really, really challenging. It gave me less time to study. I hope I don't have to do that again. I can't imagine how it is for anyone else, who doesn't qualify for loans or something like that. (7)

Another participant, who didn't qualify for financial aid because she had a bachelor's degree in another field, had to work full time. "I don't really have the luxury to just stop working for the program," she said. "I still have to pay for my house and my son's school, and all those kinds of things. Working full time, being a single mom, and going to school with a full schedule is stressful" (7). A third student couldn't work outside of the college due to immigration regulations. He said, "at the end of the day, what you can make is a very small amount to pay the fees, maybe take care of your family, maybe even take care of yourself. I've experienced some hiccups" (3). This student expressed gratitude for the support of the school and the larger community, including friends who paid for his plane ticket. "If it wasn't for them. I can't even go home," he said (3).

Adjustment Barriers for Nontraditional Students and Parents. Several of the interview participants who were over the traditional college age of 25, returned to college with

additional priorities. One said, “Being an older student is definitely different. Honestly, there’s just not a lot of respect for outside schedules. There are certain things that you have to do” (5). This student noticed the rigidity only grew more prevalent in the nursing program, where she encountered few opportunities to make up missed work:

> If you have children, you have to work because you have to support a lifestyle that’s outside of school–I don’t wanna say they don’t care–but they don’t. They definitely have not gotten to the point where they can incorporate those kinds of things into learning. There’s a lack of sympathy when it comes to that. (5)

Another participant experienced similar difficulties trying to fit everything alongside a demanding school schedule. “I’m 35 now,” she said. “It’s a lot to try to take in while going to school with a kid, and working and trying to find that happy medium balance” (8). Over half of the interviewees were navigating nursing school as parents. Three were single mothers who reported that childcare and related expenses were one of the most difficult aspects of their schooling (6, 8, 9). Of these three, one interviewee felt clinical was the hardest because the hours didn’t coincide with her son’s school and daycare schedule:

> “I don’t have any family support here,” she said. I was really lucky that one of the girls in the nursing program is a girl I grew up with. She actually ended up helping a lot with my son when I had clinical, because we weren’t in the same clinical group. (8)

The participant said childcare was especially difficult due to her son’s health issues. “I have to be really careful about who helps with him,” she said. “That’s probably been the biggest struggle. And then, also just having a tiny human while you’re trying to study” (8). Another interviewee stated “nursing school is grueling, and having to come up with money for supplies and things like that as a single mom can get really hard” (5).

All three single mothers specifically cited their children as their motivation for attending nursing school, both for its living wage income and potential for a steady, home-based schedule. A fourth interviewee had to put her nursing career aspirations on hold for over ten years to support her family. “I was a single mother of three children and not getting any assistance from their dad,” she said. “It was just me. I had to make choices. My choice was to put school away and go to work” (5).

Nursing Program-Level Barriers and Hardships

Interviewees also identified hardships unique to the nursing program, which includes more rigorous classes and clinical schedules.

Expectations vs. Experiences. When asked how the program compared to their expectations, students mentioned the program included more stress than they expected. One participant said “the program is very mentally challenging. It’s really hard to go from being on the honor roll or Dean’s List and then going to failing. I think by the third or fourth semester you get used to failing” (1). Similarly, another participant identified the third and fourth semester as pivotal points in their program journey:

> Entering the program is equally terrifying and exciting. On your first day, they pack a lot on you. You go in, you pick up all your equipment, and they show you, in the computer system, what everything looks like. You just want to cry. It’s so overwhelming. You’re surrounded by a whole group of people that you might have known from some other pre-req classes, but don’t really know them. And then the first month was still kind of feeling each other out, not quite sure what to do. Second semester. You form groups a little bit. Figure out what studying stuff works for you, what doesn’t. But by your third and fourth semester you’re an entire cohort. (5)

An international student who transferred into the nursing program as a second year, said attempting to skip ahead was like “jumping into a sea.” “It didn’t go the way I expected, due to so many things,” he said. “I was dropped from the program. I went home and came back in 2023” (3). When the student returned, he took a Certified Nursing Assistant (CNA) class to help transition to a U.S.-based healthcare program, which he found beneficial. “It has been a journey,” he said, “I started from scratch from the first year. This time around, I’m sure I’m among the best students” (3).

Participants agreed the nursing program was difficult by necessity:

> The instructors at this school push you and expect you to rise to the level that you need to be at. A lot of people want to complain about stuff, but I wouldn’t want somebody who just left McDonald’s to be my nurse. There’s a certain expectation of skills and knowledge that you should have for that. (5)

As a result, addressing this subset of barriers does not require simplifying the program material or reducing instructor expectations, but it does provide opportunities for other forms of support.

Nursing Program Application Process-Level Barriers and Hardships

While most interviewees agreed the application process was streamlined, several candidates encountered complications.

Honoring Prior Experience. One participant felt her prior medical experience and a Medical Assistant certification wasn’t taken into appropriate consideration. “They gave you extra points if you’re a CNA, but not a CMA,” she said. “I think that’s because CMAs are not part of the nursing board in Wyoming … but that kind of frustrated me” (7). Another interviewee mentioned getting accepted into the program, initially, but her acceptance was withdrawn when her math credits didn’t transfer.

> I had to wait another entire year. They said it didn't meet the requirements that CWC needed for them to accept it. It was an upper level math, so I don't know why it wasn't accepted. I was very frustrated, very upset, almost didn't want to come to this college, and was gonna apply at a different one. (5)

The participant ended up staying and completing her degree at CWC, but she was frustrated with the process, which included having to restart the application process the following year. "They made me retake the TEAS test, so they wouldn't just keep the old one. It was a lot of mental frustration … of trying not to give up on it, or perhaps going to a different college," (5) she said.

TEAS Test Complications. Both of the interviewees who were recently admitted into the program considered the TEAS the most difficult part of the process. One said, "You are only allowed to take the test twice in a year. I was unable to score above the minimum score the first time … I was a little bit scared that I wouldn't be able to pass the test. I was a dropout from high school" (6). A second participant identified logistical challenges that included sitting through a 3-hour test with only two 15-minute breaks. "It was terrible for me," she said. The participant felt the test didn't establish her as a competitive nursing candidate. "It didn't measure my skills at all," she said. "A lot of people have test anxiety, and that's not an accurate way of calculating their abilities" (2).

Application and Program Culture Disconnect. One student noticed a disconnect between the application process and the collaborative cohort that it intends to foster:

> They go about this like it's a competition. Points are important, but I think points are not enough. In the hospitals you see very good doctors, but they are not connecting with the patients. At the end of the day, for your smartness to be useful you have to connect with the patient. (3)

This observation has particularly powerful implications for the future of the nursing program. As many of the interviewees attested, their cohorts function as a team once they have adequate time to develop. This practice mimics the nursing profession and veers away from the individualistic sense applicants may receive from the initial process and program marketing.

Limitations of Current Assessment Practices. Participants were largely in agreement that the current admissions process involves a singular form of assessment:

> To get into the program itself, it's all merit based. You're not really writing essays or anything to get in. Either you have a really good GPA and entrance exam or you don't, and everything else is kind of a moot point. I'd say it's not great, just because it's not really looking at anything in the margins. (4)

This sentiment was echoed by another participant:

> The application process is pretty generic. They don't pick you by your story or by what you've gone through to get there, or by your ability to do the job. Some of the best bedside nurses are the ones that have struggled the hardest. (5)

A third participant said they felt the admissions process was based on academic performance and "if you're able to handle the workload of school" (10). He said this changes in the program, where faculty assess your essential nursing skills. "I don't know how they would go about implementing it in the application process," he said, "but I think it would be good to measure and filter out those who might not have some of those traits" (10). Interview participants identified the shortcomings of an application process that is seemingly objective and solely focused on academic performance because it fails to identify cultural strengths that would undoubtedly act as an asset to the nursing workforce.

Further, nursing program admissions page (CWC, 2024e) also lists performance requirements that aren't necessarily measured in their current application process:

> critical thinking ability sufficient to assess, analyze, plan, implement, and evaluate information related to the diagnosis and treatment of patients, problem-solving skills that reflect consistent, thoughtful deliberation, and sound clinical judgment to promote positive outcomes, interpersonal abilities sufficient to interact appropriately with individuals, families, and groups from a variety of social, emotional, cultural, and intellectual backgrounds, communication skills, integrity, motivation, reliability, accountability, flexibility, collaboration, leadership, emotional stability, and motor skills.

Traits of a Quality Nurse

When asked to identify traits that make a good nurse, Indigenous and other nonwhite students identified the following top five traits: (a) empathy/being caring, (b) cultural competence/being unbiased or nonjudgmental, (c) customer service/being welcoming, (d) bedside manner and (e) being collaborative. This differed significantly from white students, whose top five traits were (a) skills proficiency/sticking to your knowledge base, (b) self-care, (c) empathy/being caring, (d) being open minded/being willing to learn, and (e) knowing when to ask for help. These findings support the research from the literature review, which suggests the resources of creativity, including collaboration, the ability to integrate informal knowledge and soft skills, and having intrinsic motivation are more prevalent among racially and ethnically diverse groups (Sternberg, 1999).

Additional Traits and Assessment Methods. Across all identity groups, the interview participants agreed nursing requires a combination of technical and soft skills. However, many agreed that truly effective nursing traits can't necessarily be taught in an academic sense. One

participant said, “nursing has to do with all the things that you can’t just know until you’ve been exposed or you experience it, or you’re told that you’re doing it wrong, or somebody shuts down working with you” (8). Some of these traits that were harder to quantify were described by the research participants as follows.

Communication Across Caregiver/Patient Power Dynamic. In addition to caring for patients, nurses need to communicate critical health information in a way that meets their individual and cultural needs. “You need to know how to interact with all different kinds of people and remain unbiased, regardless of what the situation is,” one participant said. “Cultural background, cultural norms, things that are really hard to learn.” Because this participant was pursuing nursing as a second career, she said she had lived and academic experience to support this development:

> I’ve gone through training on being objective, studying other cultures, learning about other cultures traveling to different countries, so I do understand a lot more of the cultural sensitivity that also needs to be acknowledged in nursing. In my opinion, that’s the most important, because it’s very patient-centered. (8)

Cooperation. One participant pointed out how the structure of many healthcare working environments requires teamwork among employees. She said, “Being able to work well with others is important, because you’re having to take care of other people’s people. And your coworkers are going to make your life easier or harder, depending on how things go” (7).

Passion. Four participants said they wanted to go into nursing because they had a passion for helping people (1, 2, 3, 10). Of these, one identified passion as the primary trait of a good nurse. “You have to have the heart,” he said. “Skills are good. But we have to have the passion for the whole thing to make sense” (3).

Patience. Another participant said the requirement for patience is difficult to develop while in nursing school:

> Being able to slow down and be in the moment and give patient-centered care is almost something that you just have to have going in. I don't know if there's a way to train that. As a student, you almost feel like the pressure is even greater because we have to almost perform for our instructors. (10)

Ultimately the interviewees agreed that there are a number of skills that exist outside of the analytic framework currently used to assess nurses. This provides the opportunity to explore how criteria that measure creative and practical capacities may extend nursing admission opportunities to those with the soft skills needed to excel in the field.

Cultural Responsiveness

Quantitative and qualitative components of this study were used to assess CWC's representation and cultural competency, respectively. The findings below include the college in general, as well as its nursing program.

Institutional-Level Representation. Central Wyoming College serves Fremont, Hot Springs, and Teton Counties. It includes three outreach centers across its service area (CWC, 2024b). The primary campus in Fremont County houses the nursing program, and eight additional spots are available for nursing students at the outreach site in Teton County. Of the total student population 56% of the students in the 2022–2023 academic year identified as female and 44% identified as male. The total headcount during this time was 2,510, with a mean age of 19 and 63.9% of students under age 25. Racially, 60.6% of CWC students identified as white and 19% identified as Indigenous. Other identity groups include 3% who identified as two or more races, and <1% who identified as U.S. nonresident, Asian, Black, and Native Hawaiian or Pacific

Islander. Ethnically, 14% identified as Hispanic/Latine of any race. This is relatively more diverse than the other community colleges in the state, which averaged 73.6% white, 1.9% Indigenous, 1.1% Black, 1.1% U.S. nonresident, and <1% Asian and Native Hawaiian or Pacific Islander. The ethnic breakdown in the same year included 11.8% of students who identified as Hispanic/Latine of any race (CWC, 2024b).

Central Wyoming College is also relatively more diverse than the population of its service area. Outside of higher education, 29.9%, 16.76%, and 7.65% of the population identifies as nonwhite in Fremont, Teton, and Hot Springs Counties, respectively. However, CWC's student population does fall short of Fremont County's Indigenous population of 21.3%. Less than 3% of the population identifies as Indigenous in Teton and Hot Springs counties, where the majority of the nonwhite populations identify as other or multiracial (United States Census Bureau, 2024b). The ethnic breakdown in Fremont, Teton, and Hot Springs counties include Hispanic/Latine identifying populations of 7.3%, 15%, and 4% (Data USA, 2024; United States Census Bureau, 2023).

Despite this diversity, 75.8% of Community College Survey of Student Engagement Survey (CCSSE) respondents indicated they disagreed or strongly disagreed that CWC activities or discussions were designed to include cultures that differed from their own (CCSSE, 2022). This survey was conducted in spring term 2022. Of the 316 respondents, 18.9% were Indigenous, 12.6% were Black, Asian, or other nonwhite, and 68.5% were white. Ethnically, 14.8% identified as Hispanic/ Latine, indicating the sample size was relatively reflective of the diversity of the student population.

Institutional-Level Support Services. Overall, the interviewees felt CWC was inclusive and had a relatively diverse student body. The CCSSE respondents slightly, moderately, or

strongly agreed with the statement “racism exists in my community outside of this college,” at a rate of 68%, as compared to the statement “racism exists at this college,” which had an agreement rate of 39.5% (CCSSE, 2022). Though 52.3% said they rarely or never witnessed racism during the current academic year in the community and 81.4% rarely or never witnessed racism at the college, 30.1% said they were the target of racism in the community at least sometimes, and 8.2% at the college specifically.

Of the nursing student interviewees, one participant said, “I feel very comfortable there. They have adapted to the Native American cultures and embrace it” (6). Other participants who have a history at the institution felt the college has made significant efforts to embrace diversity, equity, and inclusion. One participant who earned her first degree in 2009 said, “compared to when I first graduated from CWC, there’s a world of change in a good way. There wasn’t a Native American club when I first attended” (8). Another participant said campus events were particularly impactful. “They started their own little tribal section of things, which I’m very excited about,” she said. “They started doing beading and they do cookouts every once in a while, with fry bread and all that” (2). The overall sense of belonging the events create are integral to building a campus culture. One interviewee said “There’s community here. A lot of tribal students don’t have ceremonies and cultural practices while attending school at home, so they can still be a part of all those things that they kind of miss out on if they go somewhere else” (8). A third student who had been taking college classes at CWC for almost ten years felt a similar shift in campus culture. “I do feel like it’s a little more inclusive now,” she said. “There is more of a variety of people” (9).

In addition to being more representative, interviewees also felt the college provides resources to support Indigenous community members in particular. One said she felt CWC's new remote location with Zoom classes on the reservation was helpful:

> A lot of our tribal members don't become students because of transportation issues and other cultural reasons. And so it's a little more difficult for tribal members to attend a traditional academic school where those things aren't acknowledged or understood. (8)

This interviewee said the college also provides basic needs support for vehicles and gas money. Both measures improve the accessibility of higher education, which inherently allows it to reach more of CWC's service area. A fourth participant said the sense of belonging extends outside of the school's NASNTI designation. This interviewee got to experience the institution's decision-making procedures while serving on the graduation speaker panel. She said, "It is so cool how they treat diverse students and the opportunities they give them. We have a lot of scholarships that are specifically for Native Americans or international students or people of color or people with disabilities" (1).

Nursing Program-Level Representation. The 2023 CWC nursing cohort was 73.3% female. The median age was 29.8 years. The most common race/ethnicity is white at 73.4%, followed by Indigenous at 16.6%, Asian at 6.7%, and Latine at 3.3%. This is comparable to colleges across the state, where Wyoming nursing programs were made up of 87% white, 6% other, 4.2% multiracial, and 2.8% Asian students in 2023 (Wyoming State Board of Nursing, 2023). The statewide average age was 26.3 years.

In recognizing this disparity, the nursing director said there is still a need for change. "I believe the students who enter the nursing program should, at a minimum, reflect the diversity in the county" (11).

> Students were aware of the lack of diversity in the nursing program as well:
>
> There were only two people of color in our class. The 37 rest of them were white females. It's kind of hard, but that's Wyoming's population. So, I think they treated everyone fairly, but the population isn't here. (1)

Similarly, another male student said, "We seem to have a pretty singular population of gender and race." This participant said he had grown accustomed to being one of the few students who identified as male. "There's only five of us in this entire class," he said, "but I guess it's par for the course. I've been working in a hospital right now, and most of my coworkers are female" (10). While all participants felt CWC was inclusive, several mentioned it was difficult to be diverse when considering their location and community demographics, and that this was particularly difficult when it came to the nursing program and clinical sites (1, 4, 5, 9, 10).

Nursing Program-Level Support Services. While the nursing students recognized a lack of diversity in their program, those who identified as part of underrepresented groups felt it was important to serve members of their local communities as they entered the workforce:

> My community members would trust another Native, especially when it comes to something very personal such as their health…I want to stay around home because I feel like I can be a good asset within the healthcare field here. (6)
>
> This participant was not alone in her desire to stay local. The Student Nursing Association (SNA) president said the majority of her graduating class planned to stay in the community (5).
>
> The program also fostered intercultural awareness for white students:
>
> For me being a white second generation American trying to connect with someone who is from Mexico or Native American, I need to know what their culture is like, and how I act

> and speak is gonna come across them. I need to be taking stock of any biases that I have, whether they're conscious or unconscious, and I need to take stock of those and make those biases known, and how to proceed to treat the patient and get over those biases. (4)

Opportunities for Cultural Competency

The interview and CCSSE components of this study gave rise to several opportunities for increased cultural competency that would be of institutional benefit.

Combatting Eurocentrism. Of the CCSSE respondents, 54.5% reported they never or rarely participated in activities or discussions designed to introduce them to cultural experiences that differed from their own. The international student who participated in this study identified the opportunity for the institution and the nursing program to adopt a broader world view:

> It is always good to have a global perspective. When an instructor goes to class, you have to think in terms of looking at the bigger picture. That's the only way you can engage everybody and put everybody on board. Because if you don't look at it in a broad view, you'll end up having tunnel vision, and maybe sometimes you might even make decisions based on that. (3)

Because this participant intended to use his education to return to his home country and build a hospital, he said having the ability to diversify his skills is integral in non-European healthcare settings:

> I know it's different. For example, here only a midwife can deliver. I want to take students from here back with me, for all of them to experience a different thing. You end up learning just because maybe you are the only person, the only nurse in a certain mountain when there is no other hospital. (3)

While his goal to introduce students to the nursing practices of other cultures through international travel is likely to exceed the resources of a rural community college, his point that all students could benefit from non-Eurocentric healthcare educational experiences is valid.

Honoring Collectivist Cultures. On a similar theme, students who identified as members of collectivist cultures often chose to pursue nursing as a way to perpetuate a shared generational or connected dream. The international student, for example, chose to attend CWC because he was continuing the work of a friend who encountered immigration issues at the embassy. He said, "she didn't succeed so she was like 'I wanted to go there, but I think you are smart. You can go there, and at least maybe even just represent my dream'" (3). Another participant expressed her desire to continue the unfinished work of her birth mother:

> I was placed into foster care at the age of three and a half," she said. "My mom's dream was always to become a nurse, but due to some troubles with drugs and alcohol, she wasn't allowed to, so continuing that has always been a passion. (2)

A final participant decided to go into nursing after providing extensive care for her mother:

> I actually dropped out of high school junior year, because I had to stay home to help take care of her. We didn't have a nurse or anything like that. I got my GED within 7 days. I just kept doing my classes so I could decide what I wanted to do, and I was having to do all my mom's tube feeding and stuff like that. (7)

Involving families and broader communities provides an opportunity to reach more students and support them in their work to meet their own success metrics.

Advancing Diversity Equity and Inclusion Mindsets. Nonwhite and white interviewees expressed their appreciation for the inclusive atmosphere of the college. However, they often attributed the lack of diversity to Wyoming's population. This is not a shortcoming on

behalf of the interviewees, to be sure, but instead is something to consider in terms of how students conceptualize culture, representation, and supporting critical analysis of the circumstances that undergird regions that lack diverse populations. This is supported by the CCSSE responses, where 76.6% reported rarely or never participating in activities or discussions that prompted examination of issues related to race/ethnicity while at CWC (CCSSE, 2022).

Further, when asked if they felt CWC honored their culture, interviewees agreed that they didn't see anything overtly problematic. One bicultural participant said, "I'm not Native. So I feel like we don't have as many heavily religious beliefs. Being Mexican, for me, other than being Catholic, is less traditional" (7). However, culture was a significant part of this interviewee's identity:

> I really like being Mexican, or being something else, because you have a community and something you actually can relate to. You have, you know, a background for each holiday that has a deeper meaning to it, and the food or quinces, and stuff like that. It feels nice being a part of something bigger than me. It's kind of lonely, I think, my mom's side of the family versus my dad's side of the family. (7)

This is an opportunity for the college to embrace the aspects of culture that are so meaningful to students and to increase the sense of belonging in higher education, in general, as well as its most difficult programs where white female demographics are accepted as *par for the course.*

Summary

Quantitative analysis revealed statistically significant correlations between lower TEAS scores and racially/ethnically diverse, Pell eligible, and female nursing applicants. It also determined those who are Multiple Language Learners and/or Pell Eligible have increased odds

of being ineligible for program admission due to GPA and TEAS scores that fall below the required threshold.

Qualitative analyses with participants at all points in the program revealed more nuanced insight into how nursing students experience CWC and nursing school, including institutional strengths, how they perceive the overall commitment to cultural responsiveness, their individual hardships, and the limitations of the current processes used to select nursing candidates. In combination, both analyses helped the researcher identify opportunities to improve the inclusivity of the nursing program, which is delineated in the final chapter.

CHAPTER V: DISCUSSION

Summary Study

The call from governing nursing bodies for workforce diversification is undermined by nursing admissions processes that fail to holistically evaluate prospective nursing candidates (Minority Nurse, 2013). This study intended to identify the barriers to admission in a small rural nursing program at a Native American Serving Nontribal Institution (NASNTI) that relies solely on analytic admissions criteria. Ultimately, it intended to identify opportunities to promote more inclusive program entry processes that diversify college nursing programs and the workforce, in terms of race, ethnicity, gender, and socioeconomic status, particularly for NASNTIs and other Minority Serving Institutions (MSIs) who have a federal responsibility to serve students beyond the point of enrollment.

The analytic factors studied in this research, including grade point average (GPA) and Test of Essential Academic Skills (TEAS) scores have proven to predict early program success. However, these metrics privilege specific ways of learning and can act as barriers to program admission. Preliminary studies suggest non-cognitive factors can alleviate these barriers by measuring creative and practical intelligence, which are both necessary in the nursing workforce and are statistically higher among diverse groups (Lovetts, 2005). This study aspired to identify barriers and suggest appropriate interventions. The researcher paired the transformative and interpretivist paradigms with Indigenous methodology in a mixed methods study that combined ten years of institutional data and ten interviews from current pre-nursing, nursing, and graduated nursing students. Quantitative analysis revealed relationships between sociodemographic factors and admission criteria and status, while qualitative analysis revealed nuanced insight into how nursing students experience CWC and nursing school. Both components were used to develop a

narrative, which was presented to the nursing director for final insights. The result was a list of student-driven recommendations for institutional change that are practical in terms of institutional capacity and serve all entities' goal to benefit the population of study.

Implications

This study indicates the need to expand nursing program application criteria to consider creative and practical intelligence. While the application process was seemingly objective, the narrow scope of qualities it measures limits the ability to select candidates who will succeed beyond the academic requirements of the program. Thus, recommendations include the addition of criteria in the application process to evaluate strengths that may not be identifiable by analytic assessment. Practices from the literature review that hold promise include interviews or multiple mini interviews (MMIs). These involve simple cases that would allow the interviewer to introduce scenario-based judgment questions that could be used to evaluate many of the interviewee-identified traits, including teamwork, healthcare experience, and intercultural competence (Thompson & Sonke, 2021). Single 30-minute interviews would require less capacity, which may be a better fit for a nursing program with smaller staff. However, as noted in the literature review, interviews and MMIs necessitate anti-bias training for applicant reviewers.

Further, the research participants felt prior medical field experience and the dependent learning structure of the first term were relatively easy to navigate. This supports the current application criteria, which is based on analytic factors and is predictive of traditional academic performance. Adding an emotional intelligence (EI) component may help identify students who are particularly well suited to the transition to the more difficult second year of the program and beyond. As Štiglic et al. (2018) noted, pre-nursing students have higher EI scores than students

in other programs. Ultimately, the correlation between EI and nursing competencies, as well as the range of EI assessments and their predictive validity makes this component difficult to include in a nursing application process. However, a mixed EI questionnaire may be an advising technique to steer students toward nursing. The field requires a higher emotional commitment and stress management capacity than may seem apparent. This is consistent with the qualitative findings in the research, where many interviewees noted the program came with a higher level of emotional labor than they expected upon application (1, 3, 5, 8, 10). Further, because the quantitative study revealed few applicants who identify as Indigenous or nonwhite applied to the program, these efforts could bolster recruitment among those who may not have considered the program initially.

Proposed Professional Development

Based on the feedback from nursing students who identify, often in multiple ways, as members of groups marginalized within the nursing workforce, the researcher developed the following recommendations for professional development:

Communicating Programmatic Demands to Pre-Nursing Students

Students with healthcare experience and/or those who have connections with prior nursing students reported feeling less overwhelmed by the rigor of the program. According to the nursing director (11), the program currently awards five bonus points in the application process to Certified Nursing Assistants, Medical Assistants, and Certified Emergency Medical Technicians with one year of direct care experience for a minimum of 24 hours per week. Advertising these opportunities and available scholarships will benefit those who wish to enter the nursing profession. Attributing bonus points to students for experience may alleviate gaps in analytic-based assessment scores and be more successful identifiers of applicants who possess

the passion and capacity to work in the nursing field. However, further research is needed to investigate the impact of bonus points on admissions.

Forming Pre-Nursing Cohorts

Fostering development of study and support groups in pre-requisite courses may encourage students to apply, remove some of the competitive aspects associated with the program, and ease the third and fourth semester transition from dependent to independent learning. Pedagogically, incorporating failure-safe instructional practices, such as teaching growth mindset, combatting impostor syndrome, structuring assignments for revision, and prioritizing progress and practice may destigmatize failure (Eckstein, 2023). It is important to note failure has a varied impact across the student population, and "first-generation and traditionally and contemporarily underrepresented students are especially likely to experience isolating and detrimental concerns about their academic aptitude, which may lead to increased anxiety or disengagement" (Harrison et al., 2006). It is critical to combat these feelings to improve program retention and completion. While in-program pedagogy is outside of the scope of this research, leveraging students' struggles and failures for improved learning in the institutional instructional space could contribute to an overall culture that prepares students for higher level coursework and training required in their education and career pathways.

Providing Specific English Proficiency Support

Particularly when it comes to language acquisition, it is critical to identify a student's goals and provide support that is appropriate to the achievement of those goals. Pre-nursing pathways that include specific recommendations such as terminology and prior experience courses may help streamline prospective students' application and program entry. As the international interviewee attested, taking a nursing assistant course in the summer prior to

program reentry was critical, and helped him adjust to the language barrier by giving him the building blocks needed to recognize that medical language is global (3). Similarly, field-specific support could be provided in the program to ensure additional completion time does not become a barrier. The nursing director expressed concerns about program attrition;

> Often the students who struggle the most, make the best nurses. The challenges are typically any combination of financial, family, or language difficulties. For the same reasons, these students are the least likely to be able to return and repeat courses the next year if they exit the program. We are accountable to the Wyoming State Board of Nursing and the Accreditation Commission for Accreditation in Nursing for on-time completion and NCLEX first-time pass rates. (11)

In an effort to provide timely support, the nursing faculty implemented clinical and exam remediation processes in spring 2024, to help struggling students overcome deficits, while remaining in the program sequence for on-time completion. These efforts work toward achieving the nursing program's Expected Level of Achievement (ELA), where "65% of students who enter first-semester nursing courses will complete the program on time within four semesters." While it is too early to measure effectiveness, the new remediation efforts could improve the program completion rate, which was 70.5% for spring 2023 CWC nursing graduates (CWC, 2024d).

Promoting Nursing and Providing Support for Single Parents

Interview participants identified a number of resources that their classmates in the program can currently rely on for childcare services. Nursing is a high demand job that provides a living wage. As such, it is important to advertise this opportunity and available forms of

support to single parents who may initially be dissuaded by the program's competitive reputation:

> There's a handful of single moms in my class. I know we're not the first class, and we're not gonna be the last … I think there's a way that we could make this easier on classes coming up. I think that's one of the most intimidating things about nursing school is how rigorous it is. If you're a non-traditional student, and you're already working full time just to make ends meet, it feels impossible to try to go back to school to provide a better life for your kids. (8)

In addition to promoting the program and connecting prospective students to community resources, this participant also suggested the college create a daycare program that is attuned to the student class schedules.

Providing Support Specifically for Nursing Students Who Identify as Indigenous

While interview participants acknowledged the support for tribal populations is improving, there is still an opportunity to advance the cultural responsiveness of the program and the nurses it sends into the workforce. As director of the Niganawenimaanaanig Indigenous Nursing Program at Bemidji State University, Minnesota, Megan Christianson explained, nursing programs who serve Indigenous populations "need to be deliberate about finding ways to support students, looking for policies to be more inclusive, and actively look for ways to increase diversity in order to improve patient care and the health of our communities" (E. Moore, 2023).

These efforts have been explored at other institutions through provision of tuition, fees, living expenses, as well as peer and faculty mentoring, professional skills development, job placement support, and a community of other Indigenous nursing students for affinity group bonding. At the University of Arizona, this was accomplished by the program, Indians in

Nursing: Career Advancement and Transition Scholars (INCATS), which was funded by an Indian Health Service (IHS) grant (E. Moore, 2023). Director Timian Godfrey said the program centers on Indigenous health practices:

> We're on the land of Indigenous people; we can incorporate Indigenous health into how we teach advanced clinical practice . . . our goal is to cultivate beauty and harmony in those relationships [interconnectedness between people] and create scholars and nurses who have the highest quality care delivery skills and are also well-rounded people with a strong spirit.

IHS scholarships require a payback of one year of work per funded year in a direct patient care role in a tribal setting. Godfrey said this is a good fit for students who are passionate about finding work in their home communities (E. Moore, 2023).

Development of culturally and professional relevant education is essential among programs who aren't funded by IHS as well. Institutions like Salish Kootenai College in Montana recommended a "Native-oriented curriculum, not just for Native nurses, but for non-Native nurses to know how to deliver culturally congruent care" (E. Moore, 2023). This college's curriculum is designed to prepare generalists, to account for the remote care facilities where many of their students intend to work. Like CWC, Salish Kootenai's nursing program is cohort-based with fall-only admission. Students advance through the program as a cohort, taking small classes with hands-on faculty. The goal of this institution is to help shape students into versatile nurses with culturally congruent care skills (Moore, 2023).

Broadening World View and Providing DEI Training for All Students

Providing inclusive education requires course materials and technologies that do not represent whiteness as the norm. In nursing and other healthcare programs, mannequins are often

white and, when textbooks feature nonwhite cultures, they do so in distinct sections that make the content feel like an othered afterthought. Such practices illustrate the challenge of infusing cultural components into a Eurocentric framework.

Racism goes beyond culturally responsive practices. Whiteness is pervasive because it is invisible. While it is of institutional strength to note 28.5% fewer CCSSE respondents felt racism existed at CWC as opposed to the community, it cannot be ignored that 32% of participants disagree or strongly disagree that racism exists in their community and 60.5% disagreed or strongly disagreed that it existed in the college. Further, over half (53.3) of respondents slightly, moderately, or strongly disagreed they had opportunities to provide feedback to the college regarding instances of racism when they do occur (CCSSE, 2022).

Nursing interviewees often perceived inclusion as the absence of overt racism and attributed the lack of cultural recognition to the relative whiteness of the college and state. It is true Wyoming's state population identified as 88.65% white in 2024 (World Population Review, 2024). This is unsurprising, given State Senator Biteman champions The Equality State Not Equity State Act (2024) in proposed legislation. The failure to consider equitable action as a means to an equal society operates from a history-free context. Thus, racial identity development is critical for students and college employees. This involves historical, self, and relational positioning. Ideally, students should enter the nursing program with an understanding of their historical positionality, including the impacts of colonialism and racism. It is crucial to move beyond an important, but largely hypothetical historical understanding of the way higher education and the workforce, including healthcare, operate.

Further, while discussions of diversity, equity, and inclusion were framed by what interviewees perceived to be a lack of a diverse population, the college's primary service area

includes the most diverse county in the state, with a significant total Indigenous population. In total, CWC enrolls 45% of the state's Indigenous college attendees (CWC, 2024e). Additionally, the outreach center located in Teton County includes a 15% Hispanic/Latine population (United States Census Bureau, 2024c). To divert from Eurocentrism, health courses must include critical theory work, discussions about power imbalances, and integrate anti-racist approaches to education and practice. Critical analyses of current events can facilitate understanding of privileges, biases, and the intersectionality of sociodemographic determinants. This can lead to self-examination, relationship building across identity groups, and the development of multi-dimensional students and prospective nurses. Attributing the disparities between nonwhite identifying students in the greater college and its nursing program to an overall lack of diversity shirks the responsibility of, particularly minority serving institutions, from opening their doors to the good of the community they represent.

Limitations of Current Practice/Future Implications

This study was limited to one small nursing program with low Indigenous enrollment. However, the findings indicated strictly analytical admissions criteria is far from objective and has limited ability to identify those with the soft skill capacities to make successful nurses. This supports the inclusion of additional admissions criteria that considers creative and practical intelligence, as well as implementation of recruitment strategies that include honoring emotional intelligence, creating pre-nursing support cohorts, and fostering a culture of inclusion with campus-wide DEI training.

Future Research

These findings can be extrapolated and applied to other limited entry nursing programs to improve the diversity of admitted cohorts. This is particularly critical at minority serving

institutions (MSIs) who have a federal obligation to enroll students who identify as racially and ethnically diverse, but often struggle to move from enrolling students from these populations to actually serving them. Additional studies into inclusive recruitment strategies will help ensure these programs have a diverse applicant pool to consider.

Social Justice Implications

This work is a matter of social justice as it seeks to identify and remove barriers that disrupt equal distribution of opportunities within higher education that translate to the workforce and society. Systems that privilege certain ways of knowing exclude those who—in the case of nursing—have strengths that would allow them to excel in meeting professional demands for creative and practical intelligence. This particular approach is also social justice minded, because it relied on a critical framework and qualitative analysis to interrogate the shortcomings of a Eurocentric application process. Such findings would not have surfaced from quantitative analysis alone, when the aim of this research is to improve inclusion among underrepresented groups.

The mixed methods approach allowed for additional consideration for recommendations in areas that—like recruitment—are connected to the admissions process, but not captured in admissions data. One of the critical components for social justice work is the ability to put the findings into action to make change. The interview with the nursing director was intentionally conducted and analyzed separately to prevent undue influence of the power differential. This ensured recommendations were feasible, while upholding the integrity of the student-identified barriers, hardships, and opportunities.

Reflection

Improving the inclusivity of admissions processes is one step of many that seeks to address the disparities in the nursing workforce. Nursing is symbiotic. It is a high demand job that provides a living wage for individuals who work in the profession. Further, patients who receive care from people who look like them experience better outcomes (C. Moore et al., 2023).

The outcome of this study included a list of recommendations the CWC nursing program is prepared to implement in their admissions and recruitment processes. The college has a number of support systems in place to serve Indigenous students beyond the point of enrollment. These practices, as well as the additional findings of this study, have broader implications for nursing programs who are seeking to answer the call of governing nursing bodies to diversify the workforce. As noted in this research, institutions with MSI designations have the additional responsibility to serve students who identify as members of populations underrepresented in higher education. Addressing admissions processes to include a broader range of skills and workforce assets is one way to advance equity work in this area.

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APPENDIX A: DEFINITIONS

Minority Serving Institutions (MSIs). emerged in response to a history of inequity and lack of minority people's access to majority institutions. Now an integral part of American higher education, MSIs —specifically, Historically Black Colleges and Universities (HBCUs), Tribal Colleges and Universities (TCUs), Hispanic Serving Institutions (HSIs), and Asian American, Native American and Pacific Islander Serving Institutions (AANAPISIs) — have carved out a unique niche in the nation, serving the needs of low income, underrepresented students of color.

Test of Essential Academic Skills (TEAS). is a product of ATI (2009) designed specifically as an entrance exam for nursing programs (Wolkowitz & Kelley, 2010). Content areas tested include mathematics, science, reading, and English and language usage (ATI, 2009).

Grade Point Average (GPA). For the purpose of this study, GPA is defined as the average of grades earned in all pre-nursing courses required for the associate degree in nursing. The minimum required GPA for admission to the program from which the sample group is derived is 2.75, based on a 4.0 scale (CWC, 2023a).

Prerequisite Nursing Courses at CWC. Pre-nursing courses include BIOL 1010: General Biology; English 1010; English 1020; Math 1000: Problem Solving (or higher math); MOLB 2210: Microbiology; POLS 1000: American and Wyoming Government; PSYC 1000: General Psychology; ZOO 2015: Human Anatomy; ZOO 2025: Human Physiology; and UNST 1005: Orientation to college (CWC, 2023a).

APPENDIX B: INTEVIEWEE SOCIODEMOGRAPHIC INFORMATION

Target demographic for interviewees includes: RE - Race/Ethnicity, SES - Socioeconomic status (Pell eligibility), G - Gender, MLL - Multiple Language Learner), A - Age 25+

Interview participants were codified as follows:

1. SES/A
2. RE/SES
3. RE/G/MLL/A
4. G
5. RE/SES/A
6. SES/A
7. RE/SES
8. RE/A
9. SES/A
10. G/SES
11. Director of Nursing (separate interview and analysis
12. Director of Admissions (email correspondence)

APPENDIX C: INSTITUTIONAL INVITATION TO PARTICIPATE IN RESEARCH

January 10, 2024

Academic Affairs Committee
Central Wyoming College

Dear Committee Members,

My name is Tori Stanek. I am the Associate Dean of Teaching and Learning Foundations and the Director of Library and Learning Commons at Columbia Gorge Community College in The Dalles, Oregon. I am also a doctoral student at Antioch University working to complete my EdD in Multicultural and Anti-Racist Education. The focus of my dissertation is to investigate the admissions process of an Associate Degree Nursing Program, with the intention to identify possible barriers for applicants are socioeconomically, racially, and gender diverse. This area is of particular importance for colleges with Minority Serving Institution designations seeking to serve students from diverse populations. Because CWC is a NASNTI-designated institution with a highly successful nursing program, I feel it offers an excellent platform to study the impact of best practices admissions processes in order to identify opportunities to expand program entry to a more diverse applicant pool. This study represents a first step in diversification of the nursing workforce.

I am writing to request your help in my educational journey. I hope Central Wyoming College is willing to support this study. I intend to analyze CCSSE diversity responses, as well as sociodemographic factors from the 2013-2023 applicant pool for correlations between admissions status, TEAS scores, and GPA. Additionally, I would like to conduct 10-12 interviews with prospective, current, and past students who identify as Native American/Indigenous, from nonwhite groups, males, and/or are Pell eligible for semi-structured interviews about their experiences in the nursing application process.

I am requesting the following:

1. De-identified codebook of 2013-2023 nursing applicant data, including applicants' identified age, race, gender, socioeconomic status, TEAS score, and pre-nursing GPA.
2. Selected CCSSE responses from 2013-2023
3. A list of prospective, current, and past students who identify as Native American/Indigenous, from nonwhite groups, males, and/or are Pell eligible who, you feel, would provide valuable insight into the nursing application process that would supplement this study.

The study is entitled "Evaluating Native American Serving Nontribal Institutions (NASNTI) Admissions Criteria to Create an Inclusive Nursing Workforce." As the Principal Investigator, I will use the data within the guidelines of Antioch University IRB and any protocols your institution may require. I have permission from Antioch University to conduct this study and am CITI certified.

With your support of this study, the information gleaned from this study may allow the CWC and CGCC the nursing programs to become more inclusive, which is the first of many steps to address the lack of diversity that exacerbates healthcare disparities in the nursing field. I will gladly share the study results with you.

I look forward to answering any questions you may have and look forward to collaborating with you for this study. I'm happy to follow any protocols your nursing program and college requires, should you be willing to support the study.

Thank you for your consideration,

Best,

Tori Stanek, MLIS
Student, EdD Antiracist and Multicultural Education
Antioch University
xxxxxxx@xxxxxxx.xxx

APPENDIX D: PARTICIPANT INVITATION TO PARTICPATE IN RESEARCH

Hello,

Thank you so much for your willingness to work with me on my research project about improving the inclusivity of college nursing programs!

My name is Tori Stanek. I am an EdD student at Antioch University, where I am pursuing my doctorate in antiracist pedagogy. The research has Institutional Review Board approval. Please review the following information about the purpose and logistics of this study:

- I am conducting research with aspiring, current, and past nursing students at Central Wyoming College who are members of one or more identity groups who are underrepresented in the nursing program and later, the nursing workforce. Representation is considered in terms of gender, race, ethnicity, socioeconomic status, and whether or not English was the interviewee's first language
- My research is looking specifically at the admissions process. Questions will focus on your experiences as a pre-nursing student, a nursing student, and/or a working nurse.
- I am especially curious about how the application process impacted you, and any thoughts you have about how this could be improved.

I am reaching out to you in hope that you are willing to participate in an up to 45-minute Zoom interview. This interview will be recorded and then deleted after I get a copy of the transcript. I will remove your name from the transcript. All data will only be used for this study, will be treated confidentially, and any report on the results of this research will not reveal your identity.

If you wish to continue, please complete the following

1. Reply with any questions you have
2. Fill out the consent form (attached).
3. Here are the interview slots I have available. Can you reply with the options that best fit your schedule?

[List of dates and times redacted, but ranged from May 7, 2024 - May 17, 2024 in 33 total time slots]

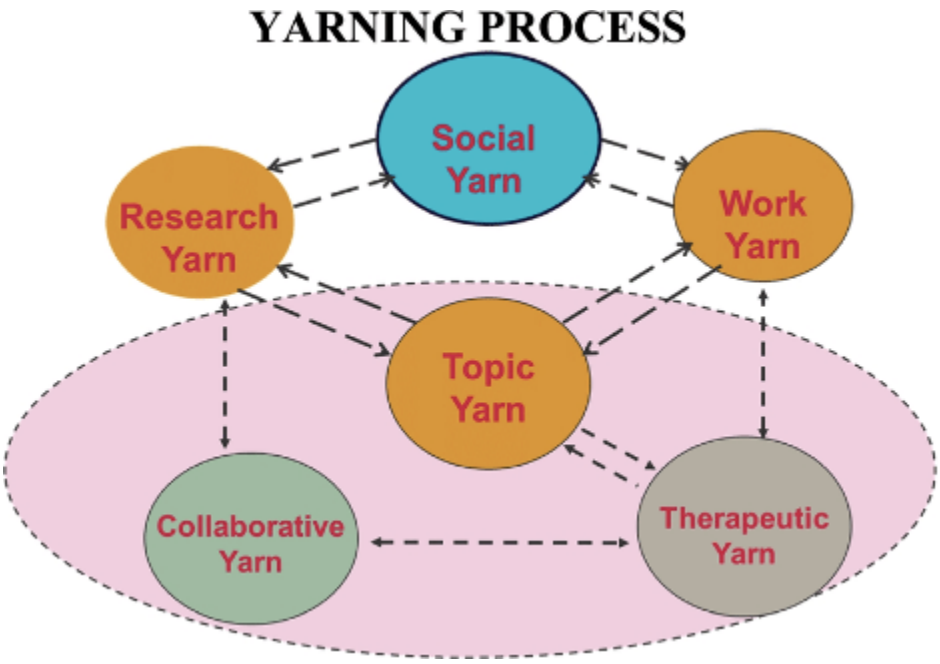
If none of these options work, let me know! We can explore others that are further out. Thanks again. I look forward to working with you!

Tori

APPENDIX E: INTERVIEW TOOL AND SAMPLE QUESTIONS

Figure 2

Yarning Process Diagram



Note: This image is licensed under a Creative Commons Attribution 4.0 International License . (Kennedy et al., 2022).

Ten 45-minute interviews were conducted with past and current nursing students who identify with one or more of the following groups that are underrepresented in nursing programs and the workforce: Indigenous or nonwhite, male, and low income (as indicated by Pell eligibility). The interview mechanism was an approximation of a research topic yarn. Conversations had a structured beginning, where the researcher explained the context of the study. In this case, the topic was the nursing admissions process, including the analytic criteria that currently determines acceptance status. The conversation was loosely structured around keywords that relate to the topic, including any identification of admissions barriers, particular components of the admissions process (TEAS score, GPA, prerequisite courses).

Modeled after Murawin's (2022) Indigenous Employment Index with undertakes interviews using the yarning method, the following guide was used to support a semi-structured interview that investigated key topic areas, which included cultural responsiveness, cultural affirmation, creativity, nursing aspirations, barriers, admissions process, prerequisite coursework, campus climate, bias, discrimination, servingness, resources, engagement, Indigenous community engagement. Each interview included the following components:

- An explanation of the study - "I am conducting research with current and past nursing students at CWC who are members of one or more identity groups that are underrepresented in the nursing program and later, the nursing workforce.
- An explanation of the logistical factors - ethical approval through Antioch University, Zoom audio recording and transcription, interview storage and other data plans
- Explain participants can ask to stop at any time, particularly if they feel distressed, and that it is important to provide honest opinions. (no right or wrong answers)
- Ask for questions.

The interviews were semi structured. Each of the following questions were used at least once in the study. Bolded questions were asked of all participants. Prompt questions were implemented as needed:

- **Tell me about yourself and where you're from.**
    - **How do you define your cultural identity?**
- **Why did you choose to go into nursing?**
- **Tell me about your experience applying for the nursing program.**

    - How inclusive, culturally safe and responsive do you feel this process is?
- **How is the program going for you now? Is it the same or different than you expected?**
- **What do you think makes a good nurse?**
- **Where are you in the nursing program or your career?**
    - What has had the biggest impact on you?
- **Can you describe the college's commitment to diversity and inclusion?**
    - How responsive do you feel the college is to the experiences of Indigenous (or other underrepresented identity) students, including wellbeing, inclusion and cultural safety and experiences of racism?
    - Did parts of your CWC education recognize non-Western, including Indigenous perspectives? If so, how?
    - Did parts of your nursing education recognize non-Western, including Indigenous perspectives? If so, how?
- **Overall how would you evaluate CWC's approach to selecting nursing candidates?**

APPENDIX F: CONSENT FORM

Consent to take part in research

I_____ voluntarily agree to participate in this research study.

____ I understand that I can withdraw at any time or refuse to answer any question without any kind of consequences.

___ I understand that I can withdraw permission to use data from my interview within two weeks after my interview, and the information will be deleted.

___ I have had the purpose of this study explained to me in writing and I have had the opportunity to ask questions about the study.

___ I understand participation involves one interview with potential follow-up questions.

___ I understand that I will not benefit directly from participating in this research.

____I agree to my interview being audio-recorded.

___ I understand that all information I provide for this study will be treated confidentially and that any report on the results of this research will not reveal my identity. (This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.)

___ I understand that anonymous extracts from my interview may be quoted in Tori Stanek's dissertation.

___ I understand that signed consent forms and original audio recordings will be retained on a password protected computer until Antioch University confirms the results of Stanek's dissertation.

___ I understand a transcript of my interview in which all identifying information has been removed will be retained for two years after Antioch University confirms the results of Stanek's dissertation.

___ I understand that I am entitled to access the information I have provided at any time while it is in storage as specified above.

___ I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

Signature of research participant

_____ _____

Signature of participant Date

Signature of researcher

I believe the participant is giving informed consent to participate in this study

_____ _____