COCURRICULAR ACTIVITIES AS CONTRIBUTORS TO THE DEVELOPMENT OF INTERCULTURAL COMPETENCE IN UNDERGRADUATE NON-NURSING ALLIED HEALTH STUDENTS: A CAUSAL-COMPARATIVE STUDY

by

Tanya Lewis

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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APPROVED BY:

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ABSTRACT

This quantitative, causal-comparative study aimed to explore the difference between the intercultural development scores of physical therapy assistants, radiological technology, sonography, and surgical technology undergraduate health science students based on their participation in a diversity module. Interculturally competent allied health students transitioning into practice support a more diverse, culturally competent workforce of healthcare workers challenged to care for an increasingly diverse patient population. There is scant research in higher education literature on the intercultural development of undergraduate non-nursing health science students. There is a gap in the literature on whether higher education systems should develop a standardized curriculum that supports intercultural development among allied health students. This study used a casual-comparative design to determine the impact of a diversity module identified as the cocurricular activity and independent variable on specialized groups of allied health science students at a private Michigan college. The study used a convenience sample of 500 undergraduate non-nursing health science students. Participants were surveyed using the Intercultural Sensitivity Scale (ISS) to measure dimensions related to intercultural development. In addition, the researcher utilized the one-way analysis of variance (ANOVA) for data analysis. The data showed no statistical significance on the total scores of the ISS among the groups. However, the results provided insight into differences in intercultural development among the participant groups related to the cocurricular activity. It is recommended that future research be conducted by replicating this study and exploring the five subscales of the ISS.

Keywords: intercultural development, culturally competent, cocurricular activity, allied health students, higher education

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Dedication

But Jesus looked at them and said, "With man this is impossible, but with God all things are possible." (Matthew 19:26, KJV)

I began my doctoral studies in 2019 and the arduous journey to complete my doctorate has been one of the most fulfilling academic pursuits of my life. God served as my constant source of strength while providing me with a clan of people who encouraged me and provided on-demand support, wisdom, guidance, and listening ears along the way. I am thankful to GOD for always presenting me with opportunities to live a life of purpose.

I dedicate this dissertation to my greatest fan and beloved husband David Lewis. Your love and unwavering support are the greatest gifts of my life. Because of you…there is me! To my children, Toran, Tess, David Jr, and Danielle, thank you for believing in me and offering encouragement whenever I was feeling discouraged and needed to talk. You all represent the best of me and each of you continues to inspire me to be the best version of myself. I pray that this accomplishment makes you proud of your Mom and motivates you to keep striving for your heart's desire in life. Finally, to my first grandson Kairo Aiden Lewis…first of his name, may you always pursue your dreams with passion and live a life of purpose.

Acknowledgments

I want to thank my committee members, Dr. Jeffrey Savage and Dr. Barry Dotson, for their knowledge and expertise during my doctoral journey. A special thank you to my committee chair Dr. Savage for bringing new meaning to the word advocacy. Your sound voice and words of wisdom during some very difficult times served as wings of encouragement that helped me to persist. I'm forever grateful that you chose to work with me and I will strive to make you proud as I spread my researcher wings.

Finally, I'd like to acknowledge my family members, friends, and mentors who served as my support system along the doctoral journey. Your guidance and support over the years have shaped my growth as a leader so that I may continue to use the power of education to transform lives.

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List of Abbreviations

College Student Experience Questionnaire (CESQ)

General Education Diploma (GED)

Input Environment Output (IEO)

Intercultural Sensitivity Scale (ISS)

School of Foreign Languages (SFL)

CHAPTER ONE: INTRODUCTION

Overview

This quantitative causal-comparative study aimed to determine if a difference exists between the intercultural development scores of physical therapy assistant, radiological technology, sonography, and surgical technology health science students based on participation in a diversity module identified as a cocurricular activity. Chapter One provides an overview of the use of cocurricular activities as it relates to curriculum and intercultural development in higher education among health science programs. Included in the overview is background information that explores the theoretical framework for the study and relevant literature that provides historical, social, and theoretical insight into the issue. The problem statement examines the relevant literature on the topic. Further, the purpose and implications of the study are explored concerning its importance to quality healthcare. Finally, research questions are presented for the study, and applicable definitions are provided.

Background

As the population in the United States continues to be more ethnically and culturally diverse, there is an increasing need for intercultural and culturally competent healthcare professionals (Denson & Seltzer, 2011; Mairs-Levy, 2017; Menon & Suresh, 2020; Peck, 2017). This has become the catalyst for higher education to enhance undergraduate health science curriculum to include content that improves the intercultural and cultural competency of students entering the various healthcare professions (Abrishami, 2018; Hernandez & Hadley, 2020; Kirby et al., 2021; Zazzi, 2020). Wickline et al. (2020) suggested that college students today should increase intercultural competency for their personal and professional growth. Higher education systems should enhance their curriculum and inclusivity initiatives to include activities that may

support students' development of intercultural competency (Akdere et al., 2021; Gierke et al., 2018; Kirby et al., 2021; Wickline et al., 2020). In addition, a historical context of the development of intercultural competence as it relates to cocurricular activities supports the idea that both contribute to students' growth and development toward being productive members of society (Arruzza & Chau, 2021; Hernandez & Hadley, 2020; Mulrooney, 2017).

Historical Overview

Historically, as a means of encouraging students' development of intercultural and cultural competency, higher education institutions have implemented activities such as study abroad programs, clinical experiences, and student-led clubs, to name a few (Avgousti, 2018; Chan et al., 2018; Granel et al., 2021; Hagqvist et al., 2020; Philip et al., 2019)). These activities were initially viewed as extracurricular activities in primary, secondary, and post-secondary educational environments (Bruni-Bossio, 2021; Malazonia et al., 2021; Mulrooney, 2017). The use of extracurricular activities within various educational levels is viewed as non-academic or outside of regular classroom activities that are not aligned with the curriculum (Bartkus et al., 2012). High school and college students who participate in extracurricular activities continue to share some of the same barriers to completing their education. However, positive student-teacher relationships, parental support, community support, and school-sponsored extracurricular activities are all factors that continue to support student success (Kwon et al., 2020; Millunchick et al., 2021; Zaff et al., 2016). Over the past decade, there has been an increase in online activities in post-secondary education to support student personal growth and academic success (Avgousti, 2018; Chan et al., 2018; Farrell & Brunton, 2020; Sugden et al., 2021). For example, intercultural exchanges via video platforms continue to gain popularity as a new modality in exposing undergraduates to various cultural groups to enhance students' communication skills

and interactions with different cultural groups (Avgousti, 2018; Rivera-Vargas et al., 2021). Colleges and universities have increasingly provided opportunities for educational benefits that focus on academic success, professional development, and robust social activities (Bergen-Cico & Viscomi, 2012). Activities such as intercultural exchanges and others that are directly aligned and integrated with the curriculum are viewed in higher education as cocurricular activities which support student learning and help students improve a variety of skills (Bartkus et al., 2012; Jackson & Ruth, 2021; Kwon et al., 2020). These skills include but are not limited to communication, leadership, critical thinking, and problem-solving (Kwon et al., 2020; Suskie, 2015). Additionally, Tan and Pope (2007) expressed that cocurricular activities are defined as student attendance and involvement, which has a direct relationship with student engagement and academic performance.

As rates of cocurricular opportunities and activities such as service learning, cultural exhibits, and performances among college students continue to increase over the last few decades, many undergraduate students continue to lack a deeper understanding of the benefits of cultural diversity and social responsibility commitments (Richardson et al., 2020; Tan & Pope, 2007). Specifically, students in the health science disciplines perceive increased intercultural competency with direct exposure to people from various cultural groups (Arruzza & Chau, 2021; Hernandez & Hadley, 2020; Malau-Aduli et al., 2019; Zazzi, 2020). Additionally, Chan et al. (2018) note that cocurricular activities may provide opportunities for students to engage in intercultural learning. Overall, intercultural experiences and learning in higher education has major implications for society by preparing interculturally competent clinicians that maintain high ethical practices when providing healthcare (Armah et al., 2020; Kirby et al., 2021; Qin et al., 2021; Zazzi, 2020).

Society-at-Large

The racial and ethnic makeup of the United States has changed substantially since the country's founding, with dramatic changes occurring in just the last 20 years (Goyal et al., 2020; Puhy et al., 2021). Higher education has expressed a need for intercultural competence throughout all programs regardless of discipline (Abrishami, 2018; Goyal et al., 2020; Puhy et al., 2021; Wall-Bassett et al., 2018). Nursing and medical professionals have expressed concerns that it is vital to seek to understand those within society to foster tolerance and patience (Qin & Chaimongkol, 2021). Healthcare professionals are expected to serve individuals without discrimination while maintaining the prescribed ethical standards and code of conduct as detailed by their specific accreditation agency (Hernandez & Hadley, 2020). Research has shown that healthcare workers with minimal cultural understanding, low tolerance, and racial biases may yield poor-quality healthcare services (Baghdadi, 2018; Choi & Kim, 2018; Goyal et al., 2020). Farber (2018) found that nurse faculty and other specialized health science clinical faculty are inadequately prepared to develop cultural competence in nursing and other health profession students. Guerra and Kurtz (2017) expressed that the healthcare industry should continue to highlight cultural safety and intercultural competency as key components to improve the delivery of quality healthcare to patients and communities. To that end, research reflects that there are few training programs for intercultural competence available to healthcare workers (Armah et al., 2020; Kirby et al., 2021). Consequently, colleges and universities must ensure that a variety of strategies are incorporated into the health science curriculum to support culturally competent graduates regardless of their discipline.

Theoretical Background

To obtain an in-depth understanding of intercultural development as it relates to cocurricular activities, it is important to provide insight into the multidimensional construct of student involvement. Astin's (1999) student involvement theory provides a rationale for how educational outcomes of higher education are closely related to student's growth and development when involved with cocurricular activities. Tinto's (1993) theoretical model of student retention was pivotal to the development of Astin's student involvement theory. Tinto's model focused on the need for institutions of higher education to provide direct student activities that would support the retention and persistence of students (Tinto, 1993). Integrating the concept of student involvement in higher education can be a common objective that all stakeholders can focus on to ensure student success (Richmond, 1986). Hunt (2003) suggests that student involvement leads to deeper learning and enhanced communication skills among students. This suggests that enhanced communication skills fostered through cocurricular activities may have a relationship to the development of intercultural competence. Tinto (2006) expressed the need for further research to examine institutional practices that included the implementation of programs and activities that supports student persistence.

Higher education researchers have begun to explore relationships between student involvement and the development of communications skills, professional development, employment, and persistence (Chen, 2012; Fike & Fike, 2008; Jamelske, 2009; Nieto & Booth, 2010; Riggert et al., 2006; Willcoxson et al., 2011). Many of the studies found that student involvement had an impact or was a major contributor to student retention and academic success. To that end, Elassy (2013) presented a theoretical model of student involvement to address a gap in the literature regarding higher education institutions' practices as it relates to student

involvement and quality assurance activities. Findings suggested that the model could be utilized as a tool to diagnose the current status of student involvement and as a means to increase the quality and extent of student involvement in the quality assurance process of higher education institutions (Elassy, 2013).

Later, institutions of higher education utilized Astin's (1999) student involvement theory as a theoretical framework to explore extracurricular activities and cocurricular activities about student learning, student sense of belonging, student engagement, and student retention rates (Peck, 2017; Suskie, 2015; Tucci et al., 2019; Zaff et al., 2016). A wide array of studies in higher education has begun to emerge examining cocurricular activities and student involvement as it relates to academic success and intercultural development (Ayllon et al., 2019; Knekta & McCartney, 2018; Zhang & Han, 2019; Yakar & Alpar, 2018). In relation to this research study, student involvement refers to undergraduate health science students that have exposure to a variety of cocurricular activities embedded in their program curriculum. These cocurricular activities range from student health science clubs to clinical externships and internships in various healthcare settings. There is extensive literature on cocurricular activities and academic success with undergraduate nursing students and very little research in the same area examining health science students (Farrell & Brunton, 2020; Guerra & Kurtz, 2017; Kirby et al., 2021; Lozano-Jimenez et al., 2021; Zhang & Han, 2019).

Problem Statement

Health science disciplines and the healthcare industry continue to express a need for increasing intercultural competency in higher education curricula (Akdere et al., 2021; Goyal et al., 2020; Puhy et al., 2021). In recent years, these desired competencies are increasing in importance partly due to the changing demographic factors of the patient population in the

United States. The increasingly diverse population has resulted in more ethnic and minority individuals needing culturally competent care and healthcare services (Abrishami, 2018; Goyal et al., 2020; Kirby et al., 2021). A study by Ume-Nwagbo (2017) reports that ethnic minority groups comprised 28% of the U.S. population at the turn of the century and is projected to be 47% by 2050. Higher education systems continue to enhance their health science curriculum with cocurricular activities to include activities that may support students' development of intercultural competency (Guerra & Kurtz, 2017; Mulrooney, 2017). Sora et al. (2018) found that cocurricular activities can encourage increased interactions with peers from diverse backgrounds, which can elevate students' cultural awareness and sensitivity. In addition, Repo (2017) expressed higher education's ongoing attempts to develop standardized guidelines for implementing cultural content into health science curricula. However, findings indicate that although major improvements have been made, implementing cultural content in health science curricula are minimal. For this reason, research on the topic continues to suggest that cultural safety and intercultural competency in health science curriculum is needed to improve the delivery of healthcare to patients and communities (Zazzi, 2020). Consequently, there remains a gap in the literature concerning whether cocurricular activities support and foster the development of undergraduate students' intercultural competency in non-nursing health science programs (Hernandez & Hadley, 2020; Malau-Aduli et al., 2019; Zazzi, 2020). The problem is that the literature has not fully addressed how higher education systems should develop an effective standardized curriculum that supports intercultural development among non-nursing health science students in preparation for administering quality healthcare services.

Purpose Statement

The purpose of this quantitative causal-comparative study is to determine if there is a

difference between the intercultural development scores of physical therapy assistants, radiological technology, sonography, and surgical technology health science students based on participation in a diversity module. Involvement in cocurricular activities allows students to develop professional skills and intercultural competence. Since cocurricular activities are not required consistently across the curriculum, it is difficult to track student engagement among the various activities (Mulrooney, 2017). Therefore, the independent variable for this study is a cultural diversity module embedded in a specialized health science curriculum at a higher education institution. The completion of the module will be measured by the student's involvement in all activities assigned in the module to receive a minimum passing grade of 70 percent in the course. The dependent variable is the intercultural development of four groups of specialized non-nursing health science students. Yilmaz et al. (2017) conducted a descriptive study exploring cultural sensitivity among clinical nurses. The study conceptually defined intercultural development as the ability of an individual to enhance their understanding of various cultures as it relates to illness and health. Additionally, the authors utilized cultural competence as an overview concept that subsumes intercultural sensitivity and intercultural development to explore clinical nurses' ability to accept and respect the cultural differences of patients while providing care (Yilmaz et al., 2017). The dependent variable of intercultural development for this study will be measured utilizing the Intercultural Sensitivity Scale (ISS; Chen & Starosta, 2000). The population comprises full-time undergraduate health science students enrolled at a private, non-religious affiliated college in southeastern Michigan. The participants in the study are matriculating in specialized health allied programs at a private, nonprofit college.

Significance of the Study

This study will contribute to the current body of knowledge in higher education on the emerging interest in intercultural development of undergraduate non-nursing health science students. Allied health professions play an integral part in providing care to patients and communities of an increasingly diverse patient population (Hernandez & Hadley, 2020). Consequently, this study provided needed insight into similar studies of the same nature relating to the intercultural development of non-nursing students in the health science disciplines such as speech pathology, radiological technology, and cardiac sonography (Arruzza & Chau, 2021; Hernandez & Hadley, 2020; Menon & Suresh, 2020; Peck, 2017). It is important to note that this study utilized the Intercultural Sensitivity Scale (ISS) to measure dimensions related to intercultural development, which include engagement, confidence, enjoyment, attentiveness, and awareness of cultural differences (Deardorff, 2006). In addition, the data gathered through this study may highlight relationships between the cocurricular activity and varying levels of intercultural development among groups of non-nursing allied health science students (Arruzza & Chau, 2021; Yakar & Alpar, 2018; Zazzi, 2020). Whether the data reveals significant differences between the disciplines intercultural development or not, the results will provide insight into the institution's effectiveness when implementing cocurricular activities in its curriculum. This information will also be helpful to various allied health professions accreditation organizations and the healthcare industry, which are both invested in improving health care standards and ensuring that healthcare workers provide patients and communities with quality interculturally competent care (Abrishami, 2018; Malau-Aduli et al., 2019; Zazzi, 2020). Additionally, this study sought to compare the different intercultural development scores among the identified specialized health science student groups after the successful completion of

the diversity module. Finally, the findings provided information on enhancing undergraduate curriculum to include additional strategies which incorporate cocurricular activities that support intercultural development (Akdere et al., 2021; Gierke et al., 2018; Wickline et al., 2020).

Research Question

RQ1: Is there a difference in intercultural development scores among physical therapy assistants, radiological technology, sonography, and surgical technology health science students?

Definitions

1. *Allied Health* – A broad group of health professions that apply scientific principles and evidence-based practice to optimize outcomes for patients, clients, and communities (Arruzza & Chau, 2021).
2. *Cocurricular Activities* – "Activity that requires student attendance which has a direct relationship with student engagement and academic performance" (Tan & Pope, 2007, p. 3).
3. *Extracurricular Activities* – A broad group of activities at different educational levels that are non-academic or outside of regular classroom activities that are not aligned with curriculum health (Bartkus et al., 2012).
4. *Intercultural Competence* – The knowledge of the varied communication styles between cultural groups and demonstrating the ability to adjust one's communication style to effectively communicate with individuals from varied cultural groups which will support their abilities in providing care for a diverse population (Zazzi, 2020).
5. *Intercultural Development* – The ability to demonstrate interpersonal growth in relation to gaining knowledge, attitudes, and communication skills with various cultural groups (Deardorff, 2006).

6. *Student Involvement* - The overall physical and psychological energy that a student gives to the academic experience (Astin, 1999).

CHAPTER TWO: LITERATURE REVIEW

Overview

This literature review aims to synthesize the existing research about cocurricular activities and their impact on intercultural competency in undergraduate health science students. This chapter will highlight recent and historical literature regarding cocurricular activities as it relates to the intercultural development of students in higher education. First, applicable theories are explored related to cocurricular activities that include the theory of student involvement, theory of identity development, and the theory of experiential learning. Next, an integrative synthesis of related educational literature will articulate how student learning and engagement influence cocurricular activities. A thorough review of the literature is explored regarding cultural and intercultural competence in secondary and higher education. The chapter ends with a summary highlighting an identified gap in the literature concerning cocurricular activities in higher education and their relevance to educational outcomes.

Theoretical Framework

Theory of Student Involvement

Alexander Astin's (1984) student involvement theory provided the theoretical framework for this study to understand better how student learning outcomes in higher education within the curriculum are interrelated to students' growth and development when involved with cocurricular activities. The theory further offers that student involvement is defined as the overall physical and psychological energy a student gives to the academic experience. To that end, a highly involved student would spend time on campus engaging with peers and student organizations. An uninvolved student may neglect studies and minimizes contact with peers and faculty or extracurricular activities on campus. It is important to note that the origination of

Astin's (1984) student involvement theory was developed through his interest in exploring principles that are foundational to classical learning and student development theories. For this study, Chickering's (1969) theory of identity development and Kolb's (1984) experiential learning theory provided historical context and served as supporting ideas that are highlighted as foundational constructs for Astin's (1984) student involvement theory as the theoretical framework for this study.

Finally, the theory suggested foundational assumptions that student involvement impacts the student as an individual and education as a whole. The constructs of the student involvement theory and its associated five basic assumptions serve as a framework for understanding the benefits of cocurricular activities as they relate to student learning outcomes and the development of intercultural competence. Astin's theory presents five basic assumptions:

1. Involvement may be generalized as the student's lived experience, or more specific, such as preparing for a test.
2. Involvement is fluid and occurs on a continuum that is unique to each student.
3. Involvement can be quantitative or qualitative.
4. Involvement theory purports that what a student gains from being engaged with educational activities is directly proportionate to the extent of the quality and quantity of their involvement with the program or activity.
5. Involvement theory states, "the effectiveness of any educational policy or practice is directly proportional to the quality and quantity of student involvement" (Astin, 1999, p. 519).

Astin's (1984) theory of involvement has elements similar to Tinto's (1975, 1993) model of student retention. Tinto's model suggested that retention is a component of the student's

ability and behaviors to evolve into an active participant in college. In contrast, Astin's theory explains that student involvement in cocurricular activities supports growth and personal development, which correlates to increased retention. Both theories suggest that student involvement correlates with high student persistence, retention, personal development, and academic success in college. Astin (1984) indicated that student retention should be viewed as an element of student involvement and that students with greater participation in activities at their institution have a higher persistence rate.

Institutions of higher education, including their specialized divisions and academic departments, have long been preoccupied with implementing strategies that support enrolled students to persist and complete their studies (Elassy, 2013). Consequently, researchers in higher education have maintained an intense focus on concepts such as student retention and student engagement to understand better the phenomenon of the high proportion of students who were not completing their courses or dropping out of college (Elassy, 2013; Hunt, 2003; Jamelske, 2009; Knekta & McCartney, 2021). Andrade et al. (2020) utilized Astin's (1984) theory as an underpinning for their study conducted at a large regional institution in the Western United States that explored a new aspect of persistence research. The researchers surveyed the opinions of over 3000 graduating seniors and alumni regarding elements that influence their decision to return to the same college, transfer to another institution, or not attend college altogether if they had an opportunity to choose again. The survey question topics ranged from essential learning outcomes (critical thinking skills, interpersonal skills, lifelong learning) and disciplinary knowledge to understanding diversity, global perspective, and community involvement. The results reflected that students who scored significantly lower ratings for essential learning outcomes, reflective learning, and academic engagement indicated they would not attend college

(Andrade et al., 2020). This suggests that students' perceived learning experience, academic integration, and involvement significantly impact student attitudes towards persistence in higher education. In addition, the research findings of the authors noted significant interrelations between students involved in sports, academic success, and persistence (Andrade et al., 2020). Studies similar in nature suggest that Astin's student involvement theory fails to fully address the student's individual needs as a factor that may impact persistence and retention. These studies indicate that their perceived academic abilities, emotional intelligence, financial aid status, sports affiliation, culture, and gender, are examples of contributors that significantly impact persistence (Andrade et al., 2020; Kovacs, 2022; Fike & Fike, 2008; Riggert et al., 2006; Tight, 2020).

Empirical research further testing Astin's theory has found that for educational programs and institutions to be successful, policies and engaging activities relevant to student learning outcomes must exist to ensure that students have intentional involvement, which may lead to academic success (Drexler & Campbell, 2011; Hunt, 2003; Moseley et al., 2020). Webber et al. (2013) conducted a study of 2,000 undergraduate college students and tested Astin's theory by exploring whether student engagement in academic activities and the quality of student effort are critical to academic success. The findings indicated that students' higher levels of engagement in various activities contributed to a higher cumulative grade point average and perceived satisfaction with the overall academic experience. In addition, the authors noted that students involved in community service or service-learning cocurricular activities demonstrated increased levels of engagement and reported a sense of personal pride, awareness of the world, and awareness of personal values (Webber et al., 2013).

In the context of higher education and personal development within the framework of Astin's theory, faculty and peer relationships continue to be examined in educational literature.

Subsequently, student involvement and effort related to positive relationship building, student learning, and personal development is underexplored. Further, researchers offered that student involvement and participation are interchangeable with student engagement and effort. This includes involvement and effort in developing quality relationships with faculty and peers as a focal point of the educational process (Bowden, 2011; Pascarella & Terenzini, 1991; Webber et al., 2013; Willcoxson et al., 2011; Wolf-Wendell et al., 2009). Besides their faculty, students interact with various representatives of their college or university, such as academic advisors, librarians, assigned faculty mentors, and other staff members. In general, these interpersonal relationships have the potential to be quality relationships by which the student gains confidence in their abilities to persist and experiences personal growth and development (Castaldo, 2007).

Astin (1999) conducted a longitudinal study of college dropouts that expressed a primary reason for their departure was a lack of involvement or sense of belonging. This suggested that student cocurricular involvement and interactions with peers, faculty, and staff at the institution accentuate student behaviors and contribute to retention and persistence. While scholars acknowledge the importance of student involvement, most note that Astin's theory does not address critical elements of college student's success such as intellect, personal growth, cultural identification, and other demographics, including race and age (Atuahene, 2021; Huang & Chang, 2014; Pascarella & Terenzini, 1991; Webber et al., 2013; Wirt & Jaeger, 2014).

Researchers investigating student involvement have acknowledged that educational, purposeful activities should be available to students and that institutional policies and practices induce students to participate in designated activities. This ethos suggested that student involvement responsibility belongs to college administrators, staff, and faculty and less to the student. It is important to note that Astin's theory purports that a positive relationship exists

between faculty-student interactions and student development and satisfaction with the college experience. Consequently, as interactions between students and faculty increase, student development and satisfaction also increase, leading to continued student involvement (Astin, 1993). Because higher education researchers expressed a need to identify explanatory variables for student involvement and correlations between student-faculty and student personal development, the demand grew for additional research to discern the most significant contributors to student involvement and overall student academic success in college.

Educational researchers exploring teacher-student relationships continue to utilize Astin's theory as a framework to identify the impact of quality relationships with faculty, peers and other college representatives as it relates to student's involvement and personal development (Ayllon, 2019; Chen, 2012; Yakar & Alpar, 2018). A longitudinal study by Snijders et al. (2022), with over 1500 participants, investigated the quality of relationships between students and staff from three colleges in the United States. The purpose was to evaluate whether the relationship bond between faculty and students had quality dimensions such as trust and affective commitment. The researchers identified the relationship quality construct as consisting of measurements such as trust, honesty, affective commitment, satisfaction, and affective conflict. The findings suggested that relationship quality is essential to student engagement and that building positive relationships with faculty, peers and staff positively influences personal development and student involvement. Additionally, a positive association was identified between students' perceptions of the quality of their relationships with the college or university, student involvement, sense of belonging, and alumni loyalty (Snijders et al., 2021). Although research is ongoing concerning the extent of the role of relationship quality in higher education, this study's findings support Astin's theory that there are desirable outcomes for higher education institutions regarding

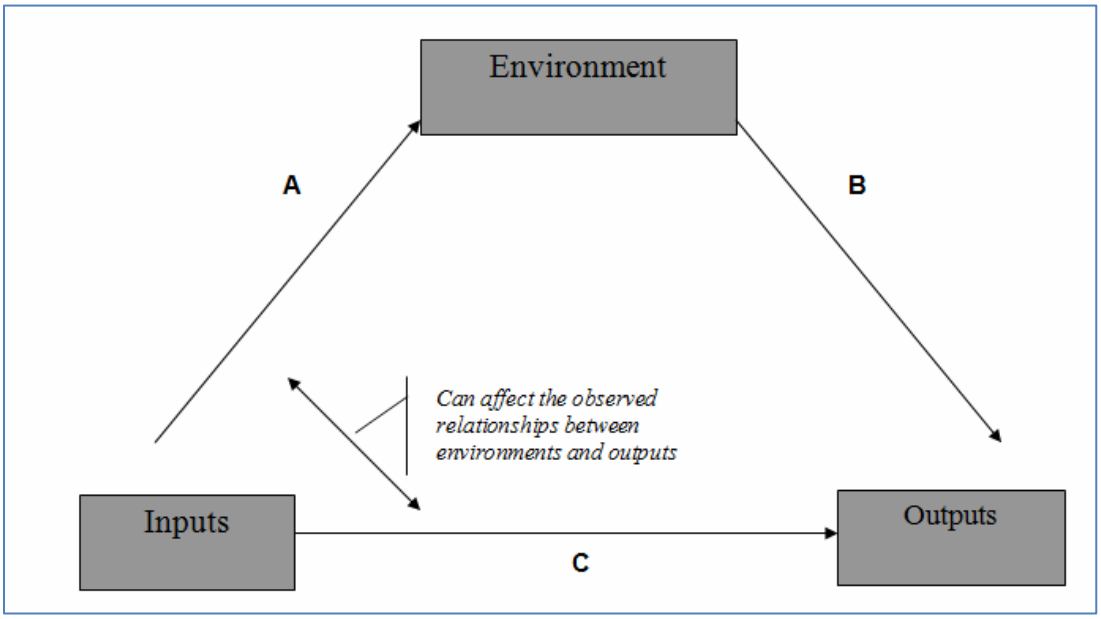
student growth and personal development when there is academic, faculty, and peer involvement (Astin, 1993).

Researchers in higher education acknowledged the importance of student involvement as it relates to persistence, academic success, personal development, and quality student-faculty relationships. However, discourse continues among researchers concerning the need to increase both quantitative and qualitative lenses to examine how a collegiate environment contributes to students' sense of belonging and involvement in activities on campus (Chen, 2012; Huang & Chang, 2014; Millunchick et al., 2020; Moseley et al., 2020; Strayhorn, 2008; Theeke & Hall, 2021). Upon review of the literature, there are a plethora of college impact models and developmental theories developed to explore student involvement specific to higher education (Astin, 1984; Chickering, 1969; Kearsley & Schneiderman, 1999; Kolb, 1984; Vygotsky, 1978). Astin (1993) proposed an inputs-environment-outputs (I-E-O) model of change specific to the college environment. According to the model, various student outcomes are variables of two factors that are inputs (e.g., demographics) and environment (e.g., experiences in college), which allowed for a focus on the origins of students' personal and social learning (Astin, 1993; Strayhorn, 2008; Wirt & Jaeger, 2014). It is essential to understand that Astin's I-E-O college model explained that pre-college characteristics, demographics, and the institutional environment impacted student outcomes such as belongingness (Astin, 1993). Astin (1999) expressed that inputs can be considered the personal qualities that students bring to the educational experience and may affect the student's environment within the higher education institution. The I-E-O model represented in Figure 1 is utilized in this study as a critical element of Astin's (1984) student involvement theory because it allows for the exploration of how student learning outcomes within the curriculum are influenced by and interrelated to students' growth and

intercultural development when involved with cocurricular activities. The conceptualized model of Astin's (1984) theory is represented in Figure 2 and details the characteristics of the student at the time of enrollment, environmental elements, and outcomes which are psychological, behavioral, affective, and cognitive in nature.

Figure 1

Input-environment- outcome (I-E-O) Model

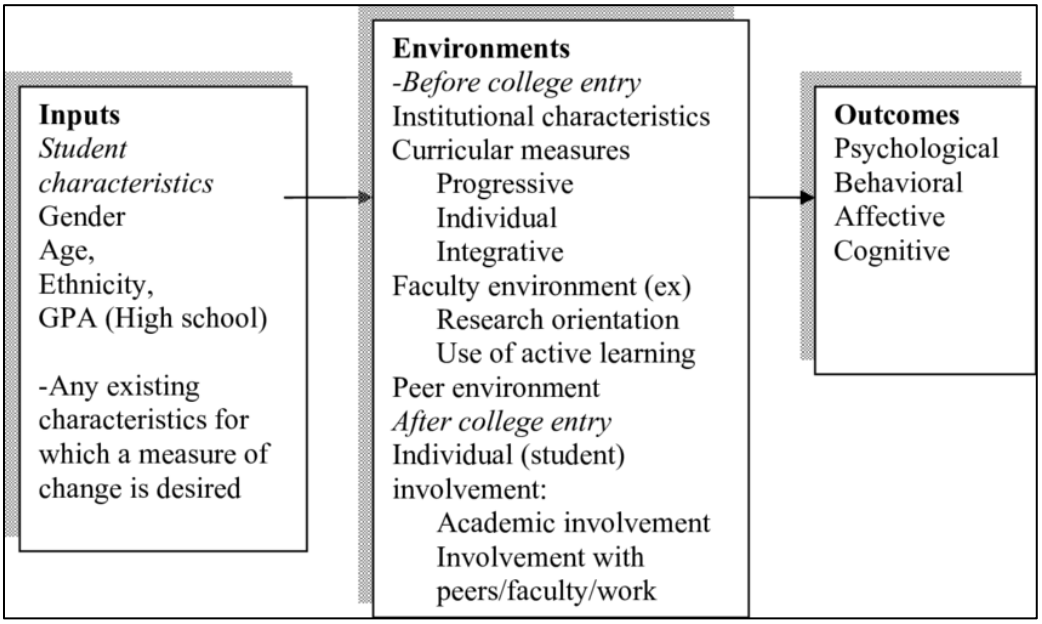


Note: This figure demonstrates Astin's Input-Environment-Output (I-E-O) model as it relates to students' involvement with higher education institutions as the environment.

Specific note: Students who attend college enter with cultural beliefs, behaviors, attitudes and/or characteristics (i.e., inputs). The arrows indicated from inputs to environment and outcomes suggest that student inputs may impact the environment and outcomes. The activities students are engaged in on college campuses, academic involvement, student-faculty relationships (i.e., environments), support personal development, persistence, and academic success (i.e., outcomes).

Figure 2

Input-environment- outcome (I-E-O) model of change



Note: This figure operationalized Astin's Input-Environment-Output (I-E-O) model of change as it relates to the origins of change a college student may experience.

Specific note: Students who attend college enter with cultural beliefs, behaviors, attitudes and/or characteristics (i.e., inputs). The arrows indicated from inputs to environment and outcomes suggest that student inputs may impact the environment and outcomes. The activities students are engaged in on college campuses, academic involvement, student-faculty relationships (i.e., environments), support personal development, persistence, and academic success (i.e., outcomes).

Several demographic traits considered inputs using Astin's IEO model included characteristics such as sex, race, marital status, and year in college. In addition, the environmental factors may include but are not limited to faculty-student interactions, campus activities, in-class discussions, and student clubs and organizations (Strayhorn, 2008). With an understanding of the existing literature and Astin's model, researchers considered the importance of inputs to student success to avoid overestimating the impact of institutional environments on student development. Consequently, education researchers conducted studies on the higher education experience by exploring environmental variables such as curriculum, active learning strategies, peer environment, and cocurricular activities that would induce a positive change in students to support their academic success, sense of belonging, and personal development (De Sisto et al., 2021; Drexler & Campbell, 2011; Mulrooney, 2017; Pascarella & Terenzini, 1991; Zegre et al., 2022).

Studies in higher education have identified that African Americans, Hispanic Americans, and other minority groups complete educational endeavors disproportionately lower than their Caucasian counterparts (Zaff et al., 2017). Additionally, various studies reported that among students enrolling at 4-year public institutions, African American students have the lowest completion rates at 45.6%. In comparison, other ethnic groups completion rates ranged between 55% and 71%, with Caucasian students yielding the highest completion rates and African American males delivering the lowest completion rates (Atuahene, 2021; Chen, 2012; Tahir, 2021; Tight, 2020; Willcoxson et al., 2011; Zaff et al., 2017). It is important to note that upon review of the literature, some rationales offered for the poor completion rates among African Americans include inadequate preparation for college, lack of self-driven motivation, and finances (Atuahene, 2021; Theeke & Hall, 2021). Atuahene (2021) conducted a study with

minority male students to explore relationships between cumulative GPA and three explanatory variables, including active learning, student cooperation, and the college environment. The study aimed to investigate factors contributing to minority male students' academic success in a four-year public university. The study applied Astin's (1984,1999) student involvement theory and IEO model of change which offered that the quality of effort spent on academics and social activities provided by the institution would influence student learning, development, and retention. The researchers surveyed 160 academically successful minority male students using the College Student Experience Questionnaire (CESQ) and completed a multiple linear regression. The results identified the amount of time students spent on their academic work per week as a predictor of student success. Although the researcher expressed the small sample size as a limitation of the study, the results confirmed that students' quality effort and time spent with academic studies yielded higher GPA and overall student success, which indicates a positive relationship between active learning, student involvement, and academic success (Atuahene, 2021). The IEO model assisted the researcher in better understanding why some students' outcomes vary based on input characteristics such as effort dedicated to academic studies. However, a weakness in the IEO model is that relationships between specific student demographics, such as ethnicity, student effort, and age, are difficult to ascertain regarding the extent of environmental factors' influence. Therefore, relationships between student outcomes and environmental factors should not be examined using the IEO model until the effects of the input variables are controlled for (Astin, 1993).

Success at college is not solely measured by completion of academic studies and overall GPA. Academic behaviors can indicate success in college through students' self-management abilities, leadership qualities, and critical thinking and problem-solving skills, which are

components of personal development needed for success in society (Chen, 2012; Tahir, 2021). Previous studies applying Astin's IEO model suggested that academic and social activities are critical contributors to retention, personal development, and academic success (Soria et al., 2018; Webber et al., 2013; Willcoxson et al., 2011). Other researchers focused on exploring specific cocurricular and extracurricular activities offered in the educational environment as primary predictors of student academic success and retention regardless of student demographics (i.e., inputs) (Bergen-Cico & Viscomi, 2012; Bielefeldt et al., 2020; Chan et al., 2018; Edwards, 2021; Hunt, 2003). Zegre et al (2022) examined the relationship between campus recreation facility access and retention of first year undergraduate students at a public university over four academic years. The authors utilizing Astin's (1984) IEO college impact model of change as a framework determined a significant relationship between first year retention and use of the college's recreational facility. Further, results indicated that facility users had 8.4 percentage points higher retention than non-users (Zegre et al., 2022). Although the findings support student involvement as it relates to retention, there remains a gap in the literature when using the IEO model to determine whether specific activities in the college environment can predict retention considering the varying exposure levels that students have to their environmental conditions.

Another important aspect of student involvement relates to viewing students as individuals and their interconnectedness with people in the environment. Specifically, colleges and universities strive to facilitate active learning strategies which support cognitive skills development and offer opportunities for students to enhance communication skills through exposure to peers from various cultural backgrounds. Kohlbry (2016) identified five central constructs in the process of becoming culturally or interculturally competent: cultural awareness, knowledge, skills, encounter, and desire. When juxtaposing Kohlbry's five primary constructs

with Astin's IEO model, students' incoming demographic characteristics and social experiences are foundational to the process of how students may develop intercultural and cultural competency when interacting with the higher education environment. In addition, these constructs assist in further understanding that cultural encounters or face-to face encounters are essential to developing intercultural competence, which may be gained through cocurricular activities. However, student demographic traits and student involvement within higher education in concert may not be adequate for students to achieve cultural and intercultural competence. Therefore, guided activities with specific student learning outcomes, such as cocurricular activities, have continued to emerge in higher education. Hunt (2003) suggested that student involvement leads to deeper learning and enhanced student communication skills. This indicates that enhanced communication skills fostered through cocurricular activities may relate to developing intercultural competence.

Even though a review of the literature explored the benefits of cocurricular activities as they relate to student involvement, it is essential to note the opposing literature. Some researchers have expressed that student involvement in cocurricular activities alone does not support cultural understanding and sensitivity development (Campinha-Bacote, 2013; Choi & Kim, 2018; Govender et al., 2017). In relation to this research study, undergraduate health science students have exposure to various cocurricular activities embedded in their program curriculum. These cocurricular activities range from student health science clubs to clinical externships and internships in different healthcare settings. Although there is extensive literature on cocurricular activities and academic success among undergraduate nursing students, there is a gap in the literature concerning cocurricular activities and their relation to the development of intercultural competence in non-nursing health science students. Further continued research in

this area will extend the current body of knowledge by integrating the concept of student involvement in higher education as a common objective that all stakeholders can focus on to ensure student success (Richmond, 1986).

Research utilizing Astin's (1984) theory of involvement as a theoretical framework remains prevalent to determine educational effectiveness concerning its policies and capacity to induce student involvement (Soria et al., 2018). It is consistent throughout the literature that students are expected to actively participate in the frequency and intensity of their involvement, including engaging in their developmental process. The environment (student involvement in cocurricular activities) is the catalyst and influencer of the student's development. Still, it should not be viewed as an independent cause of student success in higher education, whether it be retention, high GPA, or personal development (Pascarella & Terenzini, 2006). Consequently, numerous learning and developmental theories are foundational to the theoretical approach identified for this study. However, the foundational theories selected to support Astin's (1984) theory of involvement provides context on the importance of identity and personal development as it relates to student involvement and the development of intercultural competence.

Chickering's (1969) theory of identity development supports the theoretical framework of this research study as it reinforces that students in higher education should have intellectual and interpersonal competence to benefit from student engagement activities that may support their intercultural growth and development. Chickering developed the theory as a developmental process for students, specifically in higher education. The theory identifies vectors of development or stages that a person progresses through that involve personal interactions which contribute to the student's development of their unique identities (Chickering, 1969). Kolb's (1984) experiential learning theory was chosen as an underpinning theory for this study because

of the focus on learning as a process through experiences such as group activities and clinical simulations that are unique to allied health students. According to Kolb, experiential learning is "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combinations of grasping and transforming the experience" (Kolb, 1984, p.26). In addition, Kolb's (1984) experiential theory can be referenced in this research study as it relates to student learning through experiences gained from extracurricular and cocurricular activities.

Theory of Identity Development

Students attending college and pursuing degrees that lead to professional careers experience significant personal and professional development. These involve interpersonal skills, academic performance, acquiring a sense of belonging at the institution, and their perception of self as a new professional. Chickering's (1969) theory of identity development originally focused on the process of identity development. Chickering and Reisser (1993) revisited the theory to specifically explore the identity development of students in higher education. The theory explores students' development and abilities concerning engaging with society as a whole across seven vectors. "These seven vectors include: developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity" (Chickering & Reisser, 1993, p. 38). One vector is not dependent on another and allows students to transition between vectors at their own pace and order as milestones are reached for further identity development. To assess how students achieve each vector, the role of student development theory must be applied to current and future generations of students. Another key aspect of

students' ability to progress through vectors is understanding the unique generation of the student population (Chickering & Reisser, 1993).

Literature has supported that Chickering's (1993) seven vectors are important to students' psychological development and contribute to the theoretical framework as it relates to student involvement (Drexler & Campbell, 2011; Prather et al., 2018). Chickering argued that student identity development during their time at college is heavily influenced by environmental variables. These environmental variables have the greatest impact when students engage in activities such as field trips, study abroad programs, and student groups to name a few (Chickering & Reisser, 1993). In addition, student-faculty relationships, curriculum, student housing friendships, and technology in teaching are also examples of identified environmental variables that support identity development during the college experience. (Chickering & Reisser, 1993; Moseley et al., 2020). Therefore, student involvement in college activities fosters various relationships and cultural awareness that assist with cognitive and social development which is needed for identity development. Despite the strong benefits of the theory of identity development to higher education, researchers highlighted the limitations of the theory for consideration. Chickering's vectors are directly applied to white, middle-class male college students and lacked examination of varying ethnic groups' development experience. In addition, Chickering's vectors failed to consider that student's development of identity is also contributed to gender, race, sexual identity, and mental health (Drexler & Campbell, 2011; Foubert et al., 2005; McCarrell & Selznick, 2020). Therefore, limited literature confirms Chickering's theory through experiments and the existing literature concerning Chickering's vectors is overwhelmingly correlational.

Experiential Learning Theory

David Kolb's (1984) experiential learning theory is a constructivist learning theory grounded in the discipline of psychology and was developed from the original works of other leading education theorists such as John Dewey and Kurt Lewin. Kolb's (1984) theory elaborated on the early theories by defining the learning cycle and detailing learning styles that would be utilized in the continuum of the learning process (Kolb, 2014). The experiential learning theory suggests that learning is an individual process where one learns or acquires knowledge through their own experiences. Additionally, Kolb details four experiential learning stages: concrete learning, a reflection of experiences, adaptive thinking, and application of ideas and knowledge (Kolb, 2014). The components of experiential learning are highlighted as a learning cycle unique to the individual based on their learning style and past life experiences. Consequently, experiential learning involves the application of one's real-life experiences to the knowledge or skill introduced by the teacher (Kolb, 1976). Literature has supported the idea that Kolb's (1984) learning process is vital to students' success because it identifies that student engagement is increased by allowing students to connect with the material on a personal and individual level. Additionally, this style of learning promotes reflection and has enhanced the learning experience through interacting with others, teamwork, and real-world application of knowledge (Kolb, 2014). Therefore, the literature has supported that the experiential learning theory is essential to student engagement in higher education and contributes to the theoretical framework as it relates to student involvement (Conner, 2022; Kong, 2022; Morris, 2019). In essence, having greater insight into the process of students' identity development and their ability to utilize experiences to construct knowledge and guide behaviors is significant as it relates to the theoretical framework for this study.

The role of higher education remains relevant to ensuring overall college success while ensuring various professionals are filtered into society to meet the needs of an ever-changing population in the United States (Arruzza & Chau, 2021). To fully understand higher education institutions as environments that influence student involvement as it relates to developing intercultural competence, an understanding of cocurricular activities and intercultural competence is critical. Additionally, gaining insight into the importance of intercultural competence to allied health and nursing students as it relates to quality healthcare delivery will further support the significance of this study. Many research studies detail the importance of intercultural competence for health science students to apply learned skills, develop professionally, and communicate across various cultural groups to provide culturally competent care. In addition, intercultural competence is needed for graduates seeking employment and for success in the workplace as healthcare and the globalization of businesses continue to evolve in the United States (Kumlien et al., 2020; Kwon et al., 2020; Millunchick et al., 2021; Wickline et al., 2020).

Related Literature

In reviewing the related literature, the terms cocurricular and extracurricular activities in higher education are often used interchangeable. The lack of having a widely accepted definition for cocurricular activities has led to inconsistencies among researchers in their ability to adequately measure or classify the activities. Literature in higher education has begun to consistently define cocurricular activities as specifically aligned with curriculum (Bartkus et al., 2012). Further exploration of the literature reflects cocurricular activities are examined in relation to student engagement, student learning outcomes, and cultural competence development. However, a vast majority of these studies explore nursing students involved in

study abroad programs that are identified as cocurricular activities. The literature also reflects cocurricular activities and the development of intercultural and cultural competence in nursing students. Finally, literature related to cocurricular actives and undergraduate non- nursing undergraduate health science students will be explored.

Cocurricular Activities

Today higher education institutions acknowledge that most out-of-classroom experiences, also known as cocurricular activities that are integrated in curricula and aligned with student learning outcomes help students improve a variety of skills. These skills include communication, leadership, critical thinking and problem solving (Bruni-Bossio & Delbaere, 2021; Fong et al., 2021; Millunchick et al., 2021; Soria et al., 2018; Theeke & Hall, 2021). However, the literature reflects that academia has not clearly defined and differentiated cocurricular activities from extracurricular activities which has led to some confusion among researchers. Bartkus et al. (2012) offered that a meaning of extracurricular is simply the "extra" or additional activities that is beyond or in addition to the curriculum. Additional studies suggest that cocurricular activities were not readily defined in the literature and that both definitions should be intuitive to the researcher (Soria et al., 2018; Theeke & Hall, 2021). However, the definition offered for extracurricular activities is broad at best and does not add context for future research. Various researchers have offered that cocurricular activities should not be defined but viewed as student engagement. Bergen-Cico and Viscomi (2013) utilized Astin's (1984) student involvement theory to suggest that cocurricular activities are facets of student involvement as it relates to curriculum. Whereas Tan and Pope (2007) expressed that cocurricular activities are defined as student attendance which has a direct relationship with student engagement and academic performance. Consequently, the literature does not offer a clear and generally accepted definition

for cocurricular activities but opts to use the term as a social interaction variable when examining relationships to student retention, graduation rates, readiness for employment, and academic performance.

Cocurricular Activities and Student Engagement

The concept of student involvement has led researchers to examine variables that may impact student engagement in higher education. Soria et al. (2018) suggested that pre-college variables such as, gender, race/ethnicity, socioeconomic status, sexual orientation, political beliefs, or religious beliefs may be indicators of whether students will become engaged with cocurricular activities. However, these findings do not consider that the pre-college variables may not be as impactful to cocurricular activities as when the same activities are required and aligned with curricula. It has been implied in a study by Tahir (2021) that participation in non-academic cocurricular may not benefit academic performance in the same manner as cocurricular activities that are directly aligned with curriculum. Consequently, the body of literature in this area supports that student learning is prevalent when aligned with cocurricular activities regardless of pre-college variables (Jach & Trolian, 2021; Hollinger-Smith, 2022; Lifschutz, 2019; Miller et al., 2021; Roche et al., 2020; Shulruf, 2011). Although scholars continue to identify important connections between pre-college variables and student learning, further research is needed to examine the extent of the impact of cocurricular activities on student engagement.

Cocurricular Activities and Student Learning

Research regarding cocurricular learning is understudied and does not often explore the extent of student involvement in cocurricular activities or the specific skills developed when participating in specific activities. There is a small number of studies that examined contributions

of cocurricular learning environments with a focus on a broad variety of concrete experiences. Researchers explored cocurricular environments that offered students opportunities for learning suggested that students perceived they developed interpersonal and communication skills that may not have been developed in classroom environments (Halberstadt et al., 2019; Kwon et al., 2020). However, other studies suggest that cocurricular environments may not be as important as student's willingness to participate in the cocurricular activities (Bielefeldt et al., 2020; Edwards, 2021; Lange et al., 2019; Pradhananga et al., 2022). In addition, there are studies that identified a combination of predictors to suggest student participation. These predictors included student demographics, college knowledge and proactive behaviors which contributed to the participation in various cocurricular activities (Millunchick et al., 2021; Roche et al., 2020; Tahir, 2021; Yanik et al., 2021). Further research offers studies that explore cocurricular activities and their relationship to student learning. Various finding suggests that cocurricular learning and cocurricular activities provide opportunities for student learning which influences affective and cognitive growth within students. Some researchers focus on the relationships between student club involvements and the development of student's critical and analytical thinking skills to highlight the impact of cocurricular activities on student development. (Garton & Wawrzynski, 2021; Gettig & Fjortoft, 2020; Kwon et al., 2020; Millunchick et al., 2021). However, the body of literature in this area offers little insight on the extent or impact of student learning or the specific skills, knowledge and attitudes that may be developed through cocurricular learning. The literature reflects that ongoing research is necessary to determine best practices for the use of cocurricular activities as it relates to student learning and educational outcomes.

Measuring Cocurricular Learning

The last decade has yielded educational researchers with an increased interest in how to measure cocurricular learning in higher education. Having a generally accepted definition of cocurricular activities and an understanding of how to consistently measure variables of cocurricular learning will assist higher education systems to better evaluate the effectiveness of the cocurricular activities in relation to specific student learning outcomes and program outcomes. Gettig and Fjortoft (2020) discussed the various challenges of measuring cocurricular experiences as they sought to collect evidence of effectiveness in students learning objectives. It was determined that concepts and attributes such as teamwork, spiritual development and organizational attributes were among many that are difficult to measure in cocurricular experiences. Additional research involves qualitative studies where students describe the benefits of cocurricular learning while using descriptors of which skills student's perceive as enhancing their growth, attitudes, and social skills (Bringle & Wall, 2020; Kwon et al., 2020; Millunchick et al., 2020; Sriram et al., 2020; Waltz & Sasso, 2021). Further research is needed to identify measurable variables of cocurricular learning.

Cocurricular Activities in Education

Zaff et al. (2020) suggested high school and college students often share some of the same barriers to completing their education. Additionally, positive student -teacher relationships, parental support, community support, school sponsored cocurricular and extracurricular activities are all factors that support student success. When exploring cocurricular activities in undergraduate programs, there may be parallels with high school students that suggest these type activities support student learning and may impact intercultural competence. High school students who are involved in programs and practices that are designed to support their academic

success, also yielded high graduation rates and positive social outcomes (Dunn et al., 2020; Hatch, 2021; Roslan & Hamid, 2020; Zaff et al., 2017). However, various researchers have been unable to determine if high school students' participation in extracurricular activities has casual effects on higher academic achievement, retention, and improved social skills (Shulruf, 2011). This suggests that further research is needed to examine whether a causal relationship exists between extracurricular activities and educational outcomes in secondary education.

In higher education, studies utilizing hierarchical linear modeling identified correlational results that suggest cocurricular activities assisted students in minimizing racial biases through the participation of diversity programs (Denson, & Seltzer, 2011; Kulp et al., 2019). Other researchers offered results that suggest significant relationships between student grade point averages, student learning outcomes, academic performance, and cocurricular activities as they relate to student success (Bruni-Bossio & Delbaere, 2021; Evans et al., 2020; Hawkins et al., 2021; Kezar & Holcombe, 2019; Krause & Moore, 2021). Although there are consistent barriers to measuring cocurricular learning, researchers consistently identify the positive impacts of cocurricular activities through both quantitative and qualitative research. Peck (2017) offered, that career learning through cocurricular engagement is of high value to post-secondary education. Graduates need to be career ready and have skills that connect to high emotional intelligence which supports readiness for the ever-changing workforce in society. The desire to have graduates' careers ready is further supported in the literature as researchers evaluate colleges and universities that have incorporated cocurricular activities within their undergraduate curriculum. Results from this research yield evidence that students from both secondary and higher education environments are found to have improved communication skills and develop professional attributes when exposed to cocurricular activities that include study abroad

experiences and student clubs with culturally diverse members (Avgousti, 2018; Bruni-Bossio, 2021; Chan, 2018; Lemon & Wawrzynski, 2020). Consequently, researchers in higher education continue to explore relationships between cocurricular activities and the development of social skills, communication skills, and cultural competence (Edwards, 2021; Gettig & Fjortoft, 2020; Pradhananga et al., 2022). The need for students to have intercultural competence is among these skills as they prepare to enter the workforce (Menon, & Suresh, 2020; Peck, 2017). This suggested that although cocurricular activities add value to secondary and postsecondary education, researchers continue to examine the extent of cocurricular activities' impact to educational objectives and student success.

Professional Development and Cocurricular Activities

Higher education maintains a goal to ensure that undergraduates gain skills as they matriculate to ensure their employability in the workforce. Research suggests the involvement of cocurricular activities provides students with opportunities to develop professional skills. Since cocurricular activities are not required consistently across the curriculum it is difficult to track student engagement among the various activities (Hawkins et al., 2021; Hollinger-Smith & Cox, 2021; Lifschutz, 2019; Mulrooney, 2017). Overall, by exploring student perceptions researchers have ascertained that students find value in cocurricular professional development workshops that support their transition into the workforce. However, students have expressed they prefer that cocurricular professional development workshops and similar activities not be associated with grades (Bruni-Bossio, 2021; Miller et al, 2021; Menon & Suresh, 2020; Mulrooney, 2017). Anecdotally, although it is evident that employability is a major concern for higher education, there is a need to explore students' intercultural competence as an indicator of readiness in an increasingly diverse workforce.

Further review of the literature highlights studies of study abroad experiences being widely regarded in higher education as a cocurricular activity that promotes professional development skills as it relates to student learning (Bruni-Bossio, 2021; Mulrooney, 2017). Over the past decade, there has been an increase of online intercultural exchanges as a new modality in exposing undergraduates to various cultural groups to enhance students' communication skills and interactions with different cultural groups (Avgousti, 2018). Qualitative findings identified three themes regarding motivation, barriers and enablers regarding intercultural communications. Both quantitative and qualitative findings suggest a strong relationship between study abroad experiences as cocurricular activities positively impacting students' intercultural communications (Chan et al., 2018). The literature reflects ongoing studies concerning the impact of study abroad programs on the professional development of undergraduate students in specialized health science programs.

Cultural Competence in Higher Education

Higher education systems have begun to understand the importance of cultural competence to the overall success of students. Purnell and Paulanka (2008) defined cultural competence as, "developing an awareness of one's existence, sensations, thoughts, and the environment without letting it have an undue influence on those from other backgrounds; demonstrating knowledge and understanding of the client's culture; accepting and respecting cultural differences; and adapting care to be congruent with the client's culture" (p. 3). This definition encompasses the multifaceted nature of developing cultural competence. To that end, healthcare professionals are required to be competent to provide care for patients, clients, families, and groups from various cultural backgrounds. Higher education systems acknowledge the need for culturally competent health care in the United States and have responded by

researching options to enhance student learning to include opportunities for students to develop cultural competence (Anderson et al., 2003; Goyal et al., 2020; Kumlien et al., 2020; Punti & Dingel, 2021).

The focus on cultural awareness and cultural sensitivity has emerged in the literature as essential skills necessary to develop cultural competence (Puhy et al., 2021; Punti & Dingel, 2021). Colleges and universities may provide social opportunities for students to be emerged in cross-cultural and cross-racial engagements that may prepare them to enter an increasingly diverse workforce and global society (Chan et al., 2018; Kumlien et al., 2020). While higher education institutions may provide opportunities for students to develop cultural awareness, to date, the literature is unclear on the importance of faculty to students' development of cultural competence. Cultural competence may be difficult to teach due to its various operational definitions and lack of standardized training for faculty (Kula et al., 2021; Mokel & Canty, 2020; Puhy et al., 2021; Tosun, 2021). The lack of cultural competence training for faculty may also depend on the employment status of the faculty as it relates to required workload. Baccalaureate nursing, premedical, and allied health programs from all regions of the United States, may define requirements for full-time faculty differently (Anton-Solanas et al., 2021; Goyal et al., 2020). For example, one nursing program may deem full-time status as a standard set of hours per week versus another program utilizing a specified number of credits taught per academic year as full-time status. Consequently, college and university administration decisions vary on how determinations are made concerning which faculty members meet the necessary qualifications to receive available cultural competence training. This implies that many faculty may inadequately be prepared to develop cultural or intercultural competence in students due to varied face-to-face time with students or lack of standardized training on teaching cultural competence.

Significant research indicates that many faculty in higher education were influenced by their cultural experiences and may not have the intercultural or cultural competence to be able to adequately support students in this area. Intercultural and culturally competent students transitioning into practice are needed due to the increasingly diverse client and patient population (Anton-Solanas et al., 2021; Bell, 2020; Goyal et al., 2020; Puhy et al., 2021; Wall-Bassett et al., 2018). Some researchers that widely acknowledged the importance of adequately trained faculty to support cultural competence development in students, also suggested that limited information is available detailing the specific elements of cultural competence that should be taught. The absence of theoretical clarity over what establishes cultural competence attributes is a major barrier for faculty developers that attempt to develop competence training courses for faculty (Hutchins & Goldstein, 2021; Liu et al., 2021; Prieto, 2020; Puhy et al., 2021; Williams et al., 2020).

The focus of cultural competence among faculty is specifically essential in clinical education among clinical faculty in health science undergraduate programs. Liu et al. (2021) expressed that earlier clinical education research at the beginning of the 21st century highlighted concerns related to racial discrimination and inequality, emphasizing developing cultural knowledge of ethnic communities. However, emerging research in clinical education argues that cultural training requires supporting self-awareness, and an awareness of the uniqueness of other individuals with a commitment to understanding and addressing societal issues that may impact health care (Liu et al., 2021; Haber-Curran & Guramatunhu, 2020; Gulikers et al., 2019; Heng & Yeh, 2022; Dignazio et al., 2019). Overall, the emerging research suggested that cultural competence training goes beyond preparing individual clinical educators to be culturally

competent, it expands to the need for health care teams and organizations to deliver culturally competent care to patients and communities.

A broader and more holistic definition of cultural competency is needed to develop a better understanding of the barriers associated with developing a curriculum for cultural training while identifying specific elements that are measurable to assess the training effectiveness. Mayfield (2020) defined cultural competency as "the ability to use critical-thinking skills to interpret how cultural values and beliefs influence conscious and unconscious behavior, the understanding of how inequality can be and has been perpetuated through socialized behaviors; and the knowledge and determined disposition to disrupt inequitable practices to achieve greater personal and professional success for yourself and others" (p.15). This definition builds upon the earlier Purnell and Paulanka (2008) cultural competence definition by focusing on the need for educators to not only understand and adapt to the client's culture but to embrace a set of skills and actions that demonstrates knowledge of how societal influences and inequities impact cultural groups throughout generations. A culturally competent individual would need to advance their professionality by being proactive in gauging their capacity for successfully engaging with others from various cultural groups. To adequately support educators in higher education, would require standardized or individualized cultural training to include reliable and valid instruments to monitor and evaluate their cultural competence development (Dameron et al., 2020; Erba et al., 2020; Hamdan & Coloma, 2022; Jaladin et al., 2019; Morris et al., 2021; Mitchell-Brown, 2020). Educators, administrators, researchers, policymakers, and other stakeholders continue to fund research and explore options to support the enhancement of educators' cultural competence to ensure students are prepared to engage with an increasingly diverse society.

Cultural Competence of faculty and Nursing Students

There is a vast body of knowledge concerning nursing students and their exposure to cocurricular learning as it relates to their intensive clinical experiences embedded within nursing curricula (Choi, & Kim, 2018; Knecht et al., 2019; Lee et al., 2020; Wickline et al., 2020). Additional studies reflect that both faculty and nursing students often report they are culturally competent even without the benefit of standardized cultural competence training (Baghdadi & Ismaile, 2018). Further review of the literature indicates two major correlations emerging regarding the cultural competency of nursing faculty and their transcultural teaching behaviors. Faculty overwhelmingly report moderate levels of cultural competency in the areas of cultural knowledge and their transcultural teaching behaviors and cultural competency (Baghdadi, & Ismaile, 2018; Choi, & Kim, 2018; Qin et al., 2021)). When juxtaposing cultural competency research between faculty and nursing students, the literature suggests that nursing students report they are culturally aware and do not identify themselves as culturally competent when utilizing various instruments designed for healthcare professionals.

Educational research focused on undergraduate nursing student's self-efficacy and self-perceptions yield various results dependent on several variables that range from age of the student to specific clinical experiences in healthcare (Byrne, 2020; Knecht et al., 2019; Park et al., 2019). Some researchers suggested nursing students completing clinical experiences with diverse patients in varied communities, report increased self-efficacy and self-perceptions concerning cultural development. In addition, nursing students who provide direct patient care to those from various cultural groups, minimize the risk of harm to patients and report higher regard for safety protocols (Granel et al., 2021; Lee et al., 2020; Majda et al., 2021; Mitchell-Brown, 2020). It is important to note that several studies suggested that nursing students attributed their

cultural awareness development to the various clinical experiences in healthcare settings throughout their undergraduate nursing programs (Akdere et al., 2021; Chen et al., 2020; Gierke et al., 2018; Wickline et al., 2020). Although the cultural competence of faculty and nursing students is widely researched, there remains a gap in the literature concerning the cultural competence development of undergraduate health science students.

Intercultural Competence in Nursing Students

Cultural competence in healthcare refers to healthcare professionals being able to provide quality care to clients and patients from diverse cultures with varied beliefs and values. However, in reference to healthcare, intercultural competence is having knowledge of the varied communication styles between cultural groups and demonstrating the ability to adjust one's communication style in order to effectively communicate with individuals from varied cultural groups which will support their abilities in providing care for a diverse population (Zazzi, 2020). While the current literature reflects some understanding of the development of intercultural competence in nursing students, there remains very little research on effective training programs or specific cocurricular activities which support the development of intercultural competence (Armah et al., 2020). There are minimal, at best, standardized intercultural competency training programs for nursing students. Therefore, students in the health science disciplines such as nursing and others perceive increased intercultural competency with direct exposure to people from various cultural groups (Arruzza, & Chau, 2021; Hernandez, & Hadley, 2020; Malau-Aduli et al., 2019; Malazonia et al., 2021; Zazzi, 2020). In addition, research suggests that nursing students perceive that intercultural competence may not be fully obtained but may be enhanced through exposures to various cultures (Kirby et al., 2021). As it relates to this research study, a

gap in the literature is identified concerning the development of intercultural competence among non-nursing health science undergraduate students.

Summary

The racial and ethnic makeup of the United States has evolved substantially over the last few decades, with dramatic changes occurring in just the last 10 years. Higher education has expressed a need for cultural and intercultural competence throughout all educational programs regardless of discipline. Members of society should seek to understand those around us to foster tolerance and patience. Therefore, Astin's (1984) student involvement theory will be utilized as the theoretical framework for this study. This framework will allow an exploration of possible relations between student learning outcomes detailed in specialized health science curriculum and student's growth and development when involved with cocurricular activities. The collective literature suggests that cocurricular activities have a positive effect on student learning, personal development and student engagement which is evident when considering student retention rates and the achievement of academic success (Kwon et al., 2020; Millunchick et al., 2020; Soria et al., 2018; Tahir, 2021; Wirt & Jaeger, 2014). Yet, there are challenges to effectively measuring cocurricular learning in higher education. This is due to information regarding student needs, funding and the value of cocurricular activities not being communicated to stakeholders, to name a few (Gettig, & Fjortoft, 2020; Hawkins et al., 2021; Suskie, 2015). Consequently, current research reflects the different cocurricular activities involved among secondary and higher education. Additionally, extracurricular activities continue to be explored in secondary education and cocurricular activities are increasingly being utilized in higher education research studies as variables to understanding student progression and retention (Bartkus et al., 2012; Hawkins et al., 2021; Theeke & Hall, 2021). This suggests there is limited research on cocurricular learning

in secondary and higher education due to limited opportunities and various identified barriers (Bringle & Wall, 2020; Menon, & Suresh, 2020; Peck, 2017; Sriram et al., 2020; Zaff et al., 2017).

To further support the need for this study, it was necessary to examine literature that suggested a need for extensive studies concerning the development of cultural and intercultural competence among undergraduate nursing students in higher education. These studies are imperative to understanding the strategies needed to develop culturally sensitive citizens and healthcare workers that will have an impact on society (Baghdadi, 2018; Choi, & Kim, 2018; Goyal et al., 2020; Jach & Trolian, 2021; Puhy et al., 2021; Qin et al., 2021; Wall-Bassett et al., 2018). Exploring cocurricular activities as a strategy to support the development of intercultural competency may provide knowledge to enhance undergraduate curriculum (Akdere et al., 2021; Gierke et al., 2018; Wickline et al., 2020). Some literature explores intercultural competence in nursing students in relation to cocurricular activities that include their clinical experiences in various healthcare settings (Armah et al., 2020; Kirby et al., 2021). The body of knowledge on the topic continues to suggest that cultural safety and intercultural competency in health science curriculum is needed to improve the delivery of healthcare to patients and communities. Colleges and universities should ensure that a variety of strategies are incorporated in curriculum to support culturally and interculturally competent graduates regardless of their health science specialty or discipline. Additional research would be needed to explore how higher education institutions have implemented cocurricular activities into its curriculum and determine if differences exist between undergraduate non-nursing health science students' development of cultural and intercultural competence as highlighted by this study.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative causal-comparative study is to determine if there is a difference between the intercultural development scores of physical therapy assistants, radiological technology, sonography, and surgical technology health science students based on participation in a diversity module. This chapter provides an overview of the research design and definitions of the variables utilized in the study. Next, the research questions and null hypotheses are presented. In addition, the participants, setting, and instrumentation are described including procedures used. Finally, an overview of the data analysis plan is provided.

Design

A quantitative, causal comparative design with one collection period was utilized to determine if the undergraduate, non-nursing health science students have differing levels of intercultural development between their specialized allied health programs within one university in the Northeastern United States. A causal-comparative design is appropriate for this study because it is nonexperimental and has existing formed groups with an independent variable that is present (Gall et al., 2007). Additionally, causal-comparative research is also used to investigate two or more groups concerning a cause or an independent variable (Creswell & Creswell, 2018). Mellizo (2018) used a causal-comparative design in a study that explored the differences of intercultural sensitivity between 4^{th}-6^{th} graders at two different schools that utilized transformative strategies for citizenship education.

For this study, the design was chosen because the purpose of the study is to investigate and gain insight as to whether participating in a diversity module identified as a cocurricular activity supports intercultural development among groups of non-nursing, undergraduate health

science students. Gall et al. (2007) suggested that causal comparative research explores cause- and -effect relationships where independent variables may be present or absent at several levels and the research explores if groups differ on the dependent variable. Finally, this study identifies the cocurricular activity as a diversity module which represents the independent variable that is embedded in the health science curriculum at the university. The diversity module is identified as a cocurricular activity for this study because of its alignment to curriculum that may support students' development of intercultural competency (Guerra & Kurtz, 2017; Mulrooney, 2017; Theeke & Hall, 2021; Tucci et al., 2019). The dependent variable is identified intercultural development in non-nursing health science students. A review of the literature reflects extensive research on the intercultural development of nursing and medical students (De Sisto & Huq, 2021; Friesen et al., 2020; Sercu, 2022; Soria et al., 2018; Theeke & Hall, 2021; Tucci et al., 2019). To that end, this study may provide insight into whether a cocurricular activity contributes to the intercultural development of students in unique allied health programs.

Causal-comparative research designs allow for the selection of one independent variable or several (Gall et al., 2007). By measuring one independent variable, the researcher may easily comprehend whether the specific independent variable had a statistical impact on the identified dependent variables (Gall et al., 2007). The participants' intercultural development will be represented with the Intercultural Sensitivity score which is measured using the Intercultural Sensitivity Scale (ISS) instrument (Chen & Starosta, 2000). The scores from the instrument will be compared among the four groups of non-nursing health science students who completed the diversity module.

Research Question

RQ1: Is there a difference in intercultural development scores among physical therapy assistants, radiological technology, sonography, and surgical technology health science students?

Hypothesis

The null hypothesis for this study is:

$H_0$1: There is no significant difference in intercultural development scores, as measured by the Intercultural Sensitivity Scale, among physical therapy assistants, radiological technology, sonography and surgical technology health science students.

Participants and Setting

This section provides an overview of the participants and setting. In addition, a description of the population, participants, sampling technique, and sample size will be detailed. Finally, this section will conclude with an in-depth description of the setting which involves the modality in which the study will be conducted.

Population

Participants for this study were drawn from a convenience sample of undergraduate health science students. Convenience samples are often readily available to the researcher, meet the needs of the study, and may be generalizable (Creswell & Creswell, 2018). Convenience sampling is appropriate for this study because the researchers focus on college-level health science curricula and clinical education for allied health professionals. Research by Bal (2020) utilized a convenience sample for the School of Foreign Languages (SFL) at a state university to explore the differences in intercultural development among groups of English learners proficient in a second language. In addition, the Intercultural Sensitivity Scale (ISS) instrument was utilized in Bal's study to measure the intercultural sensitivity of the students concerning their specific language proficiency (Bal, 2020). Another study utilizing the Intercultural Sensitivity

Scale (ISS) instrument was conducted by Besey and Sibel (2021) who examined the intercultural development of nurses and factors that influenced their intercultural sensitivity levels. Besey and Sibel's (2021) descriptive study found that nurses with increased preliminary knowledge about their patients before providing care affected their intercultural sensitivity.

The health science student participants for this study are still enrolled in nationally accredited allied health programs at the college. Students participating in the study are from the first or second academic year of their associate degree plan of study. In addition, students participating in the study attend in-person classes at one of the five college campus locations. There are no online courses embedded in the undergraduate health science curriculum of the selected allied health programs. In addition, the population is composed of traditional and non-traditional-aged undergraduate students from various college campus locations who live in both suburban and rural areas.

Participants

For this study, the convenience sampling method was used to sample approximately 500 undergraduate allied health science students, which was more than the minimum number of participants needed for a medium effect size. According to Gall et al. (2007), 144 students is the required minimum for a one-way ANOVA with four groups when assuming a medium effect size with a statistical power of .70 at the .05 alpha level. The desired sample size for this study was 30 to 50 students per allied health program. Creswell and Creswell (2018) suggested that a minimum sample size for causal-comparative research designs was 30 participants per group. Participants included physical therapy assistants, radiological technology, sonography, and surgical technology undergraduate programs. The institution provided the researcher with an email contact list of students matriculating in the allied health programs. Participants were

provided with a description of the study via their college email account and provided with the option to participate or decline involvement in the study. Those who chose to engage in the study were formally identified as voluntary participants by the researcher. The survey was launched May 2023 during the Spring semester of the 2022-2023 academic school year.

Of the 162 participants, 55 (80.0%) were in the radiology technology program, 17 (88.2%) were in the surgical technology program, 35 (80.0%) were in the physical therapy assistant program, and 55 (96.4%) were in the sonography program. The sample included 22 (13.6%) males and 140 (86.4%) females from the allied health programs detailed above. Since participants in each group were pre-existing and were enrolled in identified allied health programs, additional educational demographics related to years of school completed were not collected. The ages of participants ranged between 18 and 60. The ethnicity of participants included 17 (10.5%) African American, 136 (84.0%) Caucasian, 0 (0.0%) Hispanic, 1 (0.60%) Asian, and 8 (4.9%) Mixed Identities. Table 1 presents the demographic characteristics of the sample.

Table 1

Crosstabulations: Demographic Characteristics by Allied Health Programs

Demographic Characteristics	Radiology Technology (*N* = 55)		Surgical Technology (*N* = 17)		Physical Therapy Assistant (*N* = 35)		Sonography (*N* = 55)		Total (*N* = 162)	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Gender										
Female	44	80.0	15	88.2	28	80.0	53	96.4	140	86.4
Male	11	20.0	2	11.8	7	20.0	2	3.6	22	13.6
Age										
18 to 20	18	27.3	4	23.5	8	22.9	15	27.3	42	25.9
21 t0 29	28	50.9	8	47.1	22	62.9	33	60.0	91	56.2
30 t0 39	8	14.5	4	23.5	4	11.4	5	9.1	21	13.0
40 to 49	3	5.5	0	0.0	1	2.9	0	0.0	4	2.5
50 to 59	0	0.0	0	0.0	0	0.0	1	1.8	1	0.6
60 or 0lder	1	1.8	1	5.9	0	0.0	1	1.8	3	1.9
Race/Ethnicity										
White	46	83.6	15	88.2	31	88.6	44	80.0	138	84.0
Black	4	7.3	2	11.8	3	8.6	8	14.5	17	10.5
Asian	0	0.0	0	0.0	0	0.0	1	1.8	1	0.6
Multiethnic	5	9.1	0	0.0	1	2.9	2	3.6	8	4.9

Setting

The study was conducted in an asynchronous environment at a private, not-for-profit college in the Northeastern United States during the 2022-2023 academic year. The participating college has five campuses located throughout Michigan. As of 2023, 4,896 students were enrolled across all five campuses with 1,158 students enrolled in undergraduate allied health programs. Full-time student enrollment was 67% and part-time student enrollment was 35%. In 2023, the minority enrollment was 7%, with 5% being African American. Overall, 92% of students was Caucasian with 70% of the students identified as female and 30% identified as male. (U.S. News Education, 2023).

As reported by the participating college, participants completed the required 16-week diversity module one semester before entering their allied health program. The researcher sent emails to participants via their assigned college email addresses with information about the study, deadlines for completion, and requests for consent. Once consent was obtained, participants were asked to fill out the Intercultural Sensitivity Scale (ISS) via a digital form. The completion of the form concluded the participants' active engagement in the study. The researcher ensured availability via email to answer questions from participants, administration, and faculty throughout the research process.

Instrumentation

This study used the Intercultural Sensitivity Scale (ISS) to measure the intercultural sensitivity levels of participants. The purpose of this instrument is to "measure three aspects of an individual's intercultural sensitivity that supports intercultural development which includes cognitive, affective and behavioral constructs" (Chen & Starosta, 2000, p. 4). Additionally, the ISS was used to measure the dependent variable for research question one, intercultural development of the identified allied health students. The researcher obtained permission from the authors to utilize and reference the instrument in this manuscript and has included the (ISS) in Appendix A. The need for this instrument arose from research conducted by Bennet (1986) that explored a developmental approach to train educators and adult student learners on their growth and development of intercultural competence. The findings suggested that intercultural sensitivity occurs as a stage of intercultural development and constructs such as self-awareness, understanding and valuing other cultures, and effective intercultural communication required an evaluation instrument. Consequently, this pivotal research highlighted the need for a more effective indicator and measurement of intercultural sensitivity as a precursor for intercultural

competence. Since then, the Intercultural Sensitivity Scale instrument has been used in over 220 educational studies (Altan, 2018; Besser et al., 2021; Dertli & Gunay, 2022; Okuyan & Greenwood-Nambiar, 2020; Purabdollah et al., 2021).

The Intercultural Sensitivity Scale has had few revisions since the tool was created in 2000 by the original authors. The Intercultural Sensitivity scale was minimized from its original 74-item version to 44-items, and finally, its 24-item version is currently available (Chen & Starosta, 2000). However, since the instrument is designed to accommodate an American sample, proposals have been accepted to modify the scale to accommodate cultural differences. Consequently, the 24-item Intercultural Sensitivity Scale was abbreviated to create a 15-item version (ISS-15) to permit use in non-English speaking cultures (Petrovic et al., 2015; Wang & Zhou, 2016). Educational researchers continue to use the original 24-item Intercultural Sensitivity Scale for studies conducted in the United States (Aktas et al., 2019; Yakar & Alpar, 2018; Yilmaz et al., 2017).

The creators of the instruments designed the instrument to assess overall intercultural communication competence to be distinguished from intercultural awareness through individuals possessing six affective elements. The authors further suggested that the following elements would contribute to intercultural sensitivity: self-esteem, self-monitoring, empathy, interaction involvement, open-mindedness, and suspending judgment. In addition, the authors created five affective subscales required for intercultural sensitivity. The first subscale is responsibility in communication which refers to the individual's respect and skills for effective communication. The second is respect for cultural differences which refers to the individual's ability to show empathy and express understanding of various cultural groups. The third is self-confidence in communication, which refers to an individual's ability to be self-awareness of their

communication abilities when interacting with different cultural groups. The fourth is communication enjoyment which highlights an individual's comfortability when communicating with various cultural groups. The fifth is care in communication, which refers to one's desire to gain as much information as possible when interacting with people from different cultures (Chen & Starosta, 2000).

The authors established the instrument's construct validity by completing a factor analysis and comparing the scale with four other instruments with related measures. Chen and Starosta (2000) utilized five factors with eigenvalues of 1.00 or higher drawn from the 44 items of intercultural sensitivity. The first factor labeled Interaction Engagement accounted for 22.8% of the common variance, which included six items and had an eigenvalue of 10.03. The second factor labeled Respect for Cultural Differences accounted for 5.2% of the common variance, which included six items that had an eigenvalue of 2.30. The third factor was identified as Interaction Confidence accounted for 3.9% of the common variance, which included five items that had an eigenvalue of 1.73. The fourth factor identified as Interaction Enjoyment accounted for 3.0% of the common variance, which included three items that had an eigenvalue of 1.33. The last factor identified as Interaction Attentiveness accounted for 2.0% of the common variance, which included three items that had an eigenvalue of 1.00. The principal axis factor analysis reflects all eigenvalues were greater than one with common variances among the factors (Chen & Starosta, 2000).

The authors established the reliability of the instrument by determining the Cronbach alpha of each subscale in comparison to similar scales. In addition, the authors conducted four separate studies utilizing the ISS and four similar scales to explore reliability. The factors of interactive engagement, respect for cultural differences, and interaction confidence had reliability

coefficient scores of .87, .88 and .86. The factors of interactive enjoyment and interaction attentiveness had reliability scores of .84 and .79. The overall Cronbach's alpha reliability coefficient of the Intercultural Sensitivity Scale was .89 which met and exceeded the accepted reliability threshold level of .7 (Chen & Starosta, 2000). The lowest of the subscale is Interaction Attentiveness at .72, followed by the highest of the subscale being Interaction Confidence at .90 (Chen & Starosta, 2000). To further demonstrate the reliability of the constructs, the researchers computed Pearson product-moment correlations and found that significant correlations exist between the ISS and all five measures at the $p < .05$, with values ranging from $r = .17$ to $r = .52$ (Chen & Starosta, 2000). This reported data represents positive correlations since the values range between -1.0 and 1.0 (Gall et al., 2007). The ISS continues to be utilized in academic studies that range from healthcare to information technology professionals (Aksoy, & Akkoc, 2019; Aktas et al., 2019; Yakar, & Alpar, 2018; Yilmaz et al., 2017). The ISS demonstrates strong reliability and predictive validity for future use (Chen & Starosta, 2000).

The instrument consists of 24 questions distributed across the five subscales. Prior to developing the subscales, questions 2, 4, 7, 9, 12, 15, 18. 20, and 22 had to be reverse-coded. Questions in the 5 subscales consists of: Interaction Engagement (items 1, 11, 13, 21, 22, 23, and 24), Respect for Cultural Differences (items 2, 7, 8, 16, 18, and 20), Interaction Confidence (items 3, 4, 5, 6, and 10), Interaction Enjoyment (items 9, 12, and 15) and Interaction Attentiveness (items 14, 17, and 19). The instrument used a 5-point Likert-type scale with values from Strongly Agree to Strongly Disagree. Responses correspond to numbers as follows: Strongly Agree = 5, Somewhat Agree = 4, Neutral = 3, Somewhat Disagree = 2, Strongly Disagree = 1. Scoring the subscales was calculated by computing an mean score for the overall scale and each of the five subscales with higher scores suggesting higher levels of intercultural

sensitivity (Chen & Starosta, 2000). The use of a mean score allows the scoring to be in the original scale from 1 to 5 and allows comparison across the subscales. However, higher scores achieved suggested an indicator of greater intercultural sensitivity (Chen & Starosta, 2000).

The instrument was created in SurveyMonkey, with a shareable link for electronic distribution. The researcher embedded the shareable link in the recruitment email. The participants were provided with instructions before the launch of the instrument. The instrument took approximately five to eight minutes to complete. The Intercultural Sensitivity Scale questions and detailed instructions on completing the instrument are provided in Appendix A. Once all participants completed the instrument, this researcher scored the instrument using the instructions detailed in Appendix A. In addition, Appendix B details the author's written permission include the instrument in this manuscript. The authors of the Intercultural Sensitivity Scale have allowed the use of this instrument for academic research purposes.

Procedures

The researcher applied to Liberty University's Institutional Review Board (IRB) and received approval to conduct research with human subjects and exemption status detailed in (Appendix D). Concurrently, the researcher submitted a formal application to the participating college of interest. The researcher gained formal consent from the participating college to conduct the research study, including sampling its students and institutional IRB approval. See Appendix C for organizational consent.

Once IRB approval was achieved, the researcher finalized the study procedure with the dissertation committee. The instrument was finalized as part of this process by combining the instrument questions and instructions along with the demographic questions into one online survey. See Appendix E for included demographic questions. This process involved drafting an

email to be utilized in recruiting participants. Prior to drafting the email, the researcher confirmed with the participating college that potential allied health students involved in the study completed the curriculum-aligned diversity module as a required component of their undergraduate education. The email explained the study's purpose and provided directions on how to participate, time investment (10-15 minutes), confidentiality, and a link to the survey. The link to the survey included three sections. The initial section highlighted an embedded link to the consent form. The consent form outlined the study and anticipated risks to participants, which are minimal due to the confidential nature of the data collected by the researcher. The researcher identified available incentives in the consent form to increase the response rate, which included informing participants of their chance to win a $100 Visa gift card for participating in the study. See Appendix F for the participant consent form. The researcher reviewed the recruitment email and the step-by-step procedure with the Provost and President of the participating organization. See Appendix G for the recruitment email and instructions.

When approval was gained from the dissertation committee, Provost, and IRB of the participating organization to move forward with the study, the researcher sent out the email to potential participants, including confirmation of consent to participate, instructions, and the survey link to the target population. The survey remained open for two weeks for participants to complete. While the survey remained open, the researcher sent three reminder emails to participants encouraging completion of the survey. The initial email was sent out to the population during the first week and two subsequent emails during the second week before the survey closed.

The researcher implemented additional strategies to protect participants' privacy. First, the researcher stored all data for the study in a personal Google Drive account that is secured

with 3-step authentication. No other staff, faculty or administrators from the participating organization had access to this account throughout the research process. Lastly, the researcher ensured the privacy of participants by not requiring their names or any other personally identifiable information, such as student identification numbers or email addresses.

Upon closure of the survey, data for the study were downloaded from SurveyMonkey to the researcher's Excel file for data cleaning. The data were then transferred to IBM-SPSS ver. 29 for analysis. When the study was concluded, the researcher removed all data from the SurveyMonkey site to protect the identity of the participants, The researcher committed to retain the data on a password-protected USB drive for five years. After this time, the data will be erased from the USB drive using a shredder program. The detailed data analysis procedures are described in the next section.

Data Analysis

To analyze the data collected for this quantitative, causal-comparative study, the researcher chose a one-way analysis of variance (ANOVA) to test the total scores for ISS. The researcher determined that the ANOVA as a statistical test was appropriate for this study because of the necessity "to compare the amount of between-groups variance in individuals' scores with the amount of within-groups variance" (Gall et al., 2000, p. 318). The data analysis related to the research question, of whether a difference exists between the intercultural development scores among physical therapy assistant, radiological technology, sonography, and surgical technology allied health science students, as measured by the Intercultural Sensitivity Scale, based on participation in a diversity module further supports a one-way ANOVA was the most appropriate for this study based on investigating one independent variable. According to Gall et al. (2007), descriptive statistics involving multiple groups with various subscales should be tested for

statistical significance by conducting an ANOVA to avoid a Type I error that may be found when utilizing multiple *t-tests*. The Statistical Package for the Social Sciences (SPSS) was used to determine whether the null hypothesis would be rejected.

Using the scale authors' protocols, specific items were reverse-coded. Mean scores were obtained for each of the five subscales and the total score using the IBM-SPSS transform command. This researcher used IBM-SPSS to conduct statistical analysis including assumption testing and a test for a correlation coefficient to address the hypothesis. A total of 172 participants from the four allied health programs' pre-existing groups completed and returned surveys, which exceeded the minimum number required for the study. Of the 172 surveys, 10 surveys were eliminated due to incomplete data, leaving 162 used for the study. The final response rate was 35%. Before running the analysis, the assumption of no extreme outliers was examined by the researcher by screening the data for inconsistencies and outliers using a Box and Whisker plot. Outliers are data points that differ significantly from the scores within the sample (Gall et al., 2007).

In screening the data, the first three methodological assumptions must be met for the ANOVA. According to Laerd Statistics (Barthlow et al., n.d.; Laerd Statistics, 2017), this includes one dependent variable that is measured at the continuous or ordinal level and one independent variable with two or more categorical, independent groups. Another methodological assumption test includes independent observations, indicating no relationships among the groups. After testing the first three assumptions, the researcher could better account for the distribution of scores across the participants. Descriptive statistics were utilized to compute the mean (*M*) and standard deviation (*SD*). The Kolmogorov-Smirnov ($n > 50$) was used to test for the assumption of normality because the sample size is greater than 50. The final assumption testing

for homogeneity of variances was examined using Levene's test of equality of error variance. Levene's test of equality is used to compare two or more groups for a quantitative variable (Gall et al., 2007). All decisions on the statistical significance were made using a criterion alpha level of .05

The data analysis, related to the research question of whether a difference exists between the intercultural sensitivity scores among physical therapy assistant, radiological technology, sonography, and surgical technology health science students, as measured by the Intercultural Sensitivity Scale, was based on participation in a diversity module. The study's research question and the null hypothesis explored differences among students who completed the assigned diversity module and their varying intercultural development depending on their allied health programs. By comparing the Intercultural Sensitivity Scale scores among the four groups, the data analyzed can help identify if the diversity module influenced the students' intercultural development or if students' cultural interactions via varying clinical experiences among the groups influenced their intercultural development. The findings of the data analysis are presented in chapter four.

CHAPTER FOUR: FINDINGS

Overview

This study aimed to determine if there was a significant difference in the intercultural sensitivity scores among physical therapy assistant, radiological technology, sonography, and surgical technology health science students after they participated in a required cocurricular activity within their health science curriculum. The independent variable was the diversity module identified as the cocurricular activity, and the dependent variable was the intercultural sensitivity scores of the non-nursing allied health science students. Chapter four provides an overview of the research question, null hypothesis, and consequent results of the data analysis.

Research Question

RQ1: Is there a difference in intercultural development scores among physical therapy assistants, radiological technology, sonography, and surgical technology health science students?

Null Hypothesis

$H_0$1: There is no significant difference in intercultural development scores, as measured by the Intercultural Sensitivity Scale, among physical therapy assistants, radiological technology, sonography, and surgical technology health science students.

Descriptive Statistics

Responses to the five subscales measuring intercultural sensitivity and the associated subscales were summarized using descriptive statistics. The sample consisted of 162 participants. The measures of central tendency and dispersion were obtained for each of the four allied health groups. Table 2 presents the results of this analysis.

Table 2

Descriptive Statistics: Intercultural Sensitivity Scale and Subscales by Allied Health Program

				Range	
Scale	*n*	*M*	*SD*	Min.	Max.
Interaction Engagement					
Radiology technology	55	1.95	.44	1.00	2.86
Surgical technology	17	1.85	.33	1.14	2.29
PT assistant	35	1.82	.45	1.00	2.57
Sonography	17	1.82	.45	1.00	2.86
Cultural Differences					
Radiology technology	55	1.60	.47	1.00	2.67
Surgical technology	17	1.54	.48	1.00	4.00
PT assistant	35	1.55	.48	1.00	3.20
Sonography	17	1.51	.42	1.00	3.40
Interaction Confidence					
Radiology technology	55	2.39	.58	1.20	3.60
Surgical technology	17	2.01	.74	1.00	4.00
PT assistant	35	2.12	.56	1.20	3.20
Sonography	17	2.06	.54	1.00	3.40
Interaction Enjoyment					
Radiology technology	55	1.89	.52	1.00	3.33
Surgical technology	17	1.69	.58	1.00	2.67
PT assistant	35	1.66	.62	1.00	3.00
Sonography	17	1.53	.43	1.00	2.33
Interaction Attentiveness					
Radiology technology	55	2.22	.64	1.00	3.33
Surgical technology	17	2.22	.55	1.00	3.00
PT assistant	35	2.10	.65	1.00	3.33
Sonography	17	2.20	.58	1.00	3.67
Total ISS					
Radiology technology	55	2.01	.39	1.28	2.83
Surgical technology	17	1.86	.36	1.18	2.50
PT assistant	35	1.85	.44	1.04	2.79
Sonography	17	1.82	.35	1.04	2.42

Results

Hypothesis

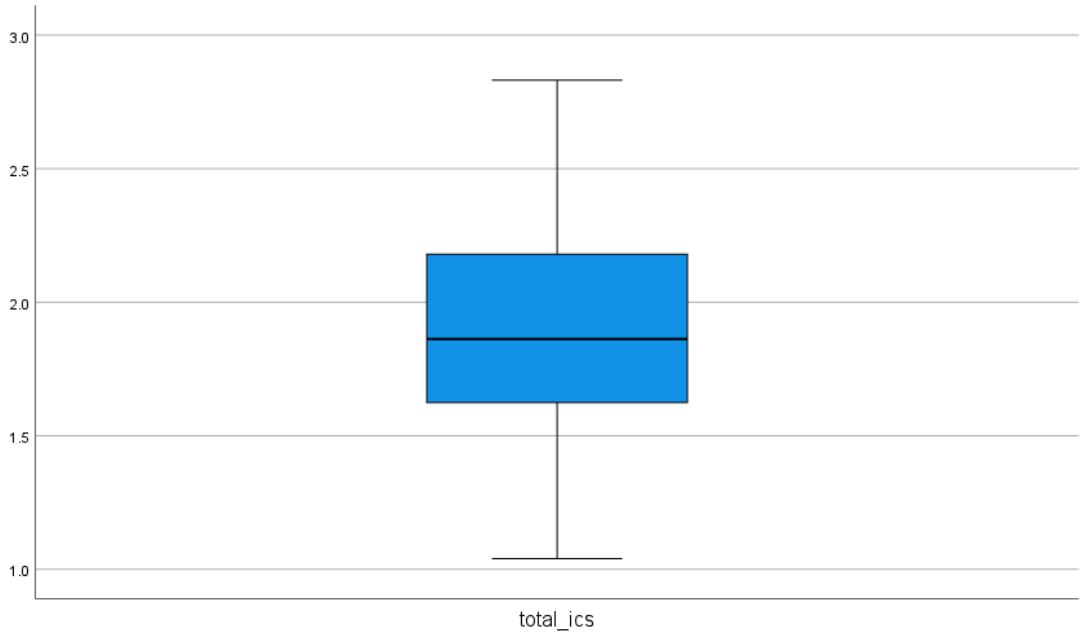
$H_0$1: There is no significant difference in intercultural development scores as measured by the Intercultural Sensitivity Scale among radiological technology, surgical technology, physical therapy assistants, and sonography health science students.

Data Screening

Data screening was used to determine outliers among the variables. Additionally, data screening was conducted on each group's dependent variable. The researcher scanned for data entry errors and inconsistencies. Box and whisker plots were used to detect outliers in the dependent variable. No data errors or inconsistencies were identified. Figure 3 provides the box and whisker plot for the total ICS scale and the five associated subscales.

Figure 3

Total Scores for the Intercultural Sensitivity Scale



Assumptions

According to Laerd Statistics (Barthlow et al., n.d.; Laerd Statistics, 2017), six assumptions must be met to use a one-way ANOVA. The first three assumptions were methodological and included (a) the dependent variable being continuous (ratio or interval), (b) one independent categorical variable with at least two levels, and (c) independent observations. The data for this study met these three assumptions. The fourth assumption was that no significant outliers were present in the data. No data errors or inconsistencies were identified. The assumption of normality was the fifth assumption. This assumption was tested with the Kolmogorov-Smirnov test of equality. Normality was examined using the Kolmogorov-Smirnov because the sample size was greater than 50 participants (Warner, 2013). The results of the Kolmogorov-Smirnov test were not statistically significant ($p = .200$), indicating the data for the Total Intercultural Sensitivity Scale were normally distributed. As the scores met the normality assumption, a one-way ANOVA could be used to compare the allied health groups on intercultural sensitivity. The sixth assumption of homogeneity of variance was met based on the results of Levene's test of equality of error variances which was not statistically significant ($F[3,158] = 1.65$, $p = .181$). The one-way ANOVA testing the total scores for the ISS is presented in Table 3.

Table 3

One-way Analysis of Variance: Intercultural Sensitivity Scale by Allied Health Program

Allied Health Program	*n*	*M*	*SD*	*F*	*p*	η^2
Radiology Technology	55	2.01	.39	2.55	.058	.05
Surgical Technician	17	1.86	.36			
Physical Therapy Assistant	35	1.85	44			
Sonography	55	1.82	.39			

Results for Null Hypothesis

The null hypothesis for this study stated there was no significant difference in intercultural development scores as measured by the Intercultural Sensitivity Scale among physical therapy assistants, radiological technology, sonography, and surgical technology allied health science students. The results of the one-way ANOVA were not statistically significant $F(3, 158) = 2.55$, $p = .058$, $\eta^2 = .05$. Based on this result, the null hypothesis of no significant difference in scores of the ISS among allied health programs was retained. Because of the failure to reject the null, post hoc analysis was not conducted.

CHAPTER FIVE: CONCLUSIONS

Overview

The purpose of this quantitative causal-comparative study was to explore the difference between the intercultural development scores of specified allied health science students based on participation in a cocurricular activity within the allied health science specialized program curriculum. This chapter revisits Alexander Astin's (1984) theoretical framework as it relates to the research question and hypothesis. It synthesizes the study results in juxtaposition to the literature and details the implications for higher education and healthcare. Limitations of the study and ideas for further research are also included in this chapter.

Discussion

This study sought to highlight a relationship between cocurricular activity and the intercultural development scores of physical therapy assistants, radiological technology, sonography, and surgical technology allied health science students. The null hypothesis for the research question stated, "There is no significant difference in intercultural development scores, as measured by the Intercultural Sensitivity Scale, among physical therapy assistants, radiological technology, sonography, and surgical technology health science students." The independent variable for this study was a cultural diversity module embedded in the allied health science curriculum at the participating college. The dependent variable was the intercultural sensitivity scores of the groups of specialized allied health science students. The researcher sampled approximately 500 undergraduate health science students enrolled in nationally accredited allied health programs at the participating college. Participants completed the online 16-week cultural diversity module as one of the requirements for entry into a specialized allied health program. A one-way analysis of variance (ANOVA) tested the total Intercultural

Sensitivity Scale (ISS) scores, with results showing a non-statistically significant difference among the groups, where F (3, 158) = 2.55, p = .058, η^2 = .05.

Although the one-way ANOVA results necessitate failing to reject the null, one does so with the knowledge that null hypothesis statistical significance testing assesses group differences and relationships between variables based on the probability of finding the results one did by chance (Field, 2018). That the results of the present study would be statistically significant at an alpha of .06 but not .05 underscores the need for full disclosure in research studies and the need for stakeholders to clarify their risk tolerance in practical decision-making under uncertainty. Among other implications, this means that the findings from this study can still be useful to practitioners, depending on their needed level of probabilistic certainty. For example, the findings did reveal that radiology technology students had noticeably higher scores on interaction confidence than physical therapy assistant students. These results suggest that radiology technology students have more positive perceptions of intercultural confidence than do students in the other three allied health programs, which confirms the research of Kolbry (2016) who suggests that higher clock hours of service-learning immersion and clinical experiences foster cultural competence among nursing and allied health students. Radiology technology students also had higher scores than sonography students, a result supported by the research from Anitori (2014) based on the length of the student's academic program and the various transcultural experiences encountered in their communities of interest.

Kohlbry (2016) suggests that students becoming culturally or interculturally competent involves desire and face-to-face social experiences that can be gained through cocurricular activities. There may be various reasons why the radiology student's ISS scores were higher than other groups. Some studies suggest that cocurricular activities require interactive engagement to

be impactful (Bielefeldt et al., 2020; Edwards, 2021; Lange et al., 2019; Pradhananga et al., 2022). This researcher asserts that radiology technology students have clinical experiences during the first semester of their program, whereas the other three groups have their first clinical rotation/experience in the second year of study.

Researchers have explored the benefits of cocurricular activities and have offered opposing findings as it relates to student involvement, and concluded that student involvement in cocurricular activities does not support cultural understanding and intercultural development (Bergen-Cico & Viscomi, 2012; Bielefeldt et al., 2020; Chan et al., 2018; Edwards, 2021; Hunt, 2003). Concerning this research study, allied health science students had exposure to a cocurricular activity embedded in their program curriculum. The findings of this study affirm the theoretical framework and current literature that, based on the higher ISS scores of the radiological students, intercultural development was present but not significant. Consequently, the cultural diversity module identified as a cocurricular activity did not yield higher ISS scores among three of the four allied health student groups. It is important to note that the ISS could not measure variables such as personal development, active learning, and the desire to engage with various patient populations. Many research studies detail student demographics, such as ethnicity, student effort, age, and environmental factors that influence students' intercultural development (Chen, 2012; Tahir, 2021).

Moreover, the focus on cultural awareness and sensitivity has emerged in the literature as foundational to developing intercultural competence. Cocurricular engagement allows students to enhance their professional attributes and interpersonal and communication skills, which leads to increased intercultural competence (Garton & Wawrzynski, 2021; Gettig & Fjortoft, 2020; Kwon et al., 2020; Millunchick et al., 2021). Allied health professionals are imperative to providing

quality care to patients and communities of an increasingly diverse patient population (Hernandez & Hadley, 2020). The findings from this study, although not statistically significant at the .05 level, nonetheless relate to these researchers' work by suggesting that effective cultural competence training is needed and should include a variety of strategies that range from cocurricular activities to service-learning experiences. Cocurricular activities designed to foster allied health students' perceived cultural competence skills in clinical practice may contribute to their overall development of intercultural competence.

This study's relevance is based on the need to enhance the undergraduate health science curriculum to ensure additional strategies and cocurricular activities that support students' intercultural development and cultural competence are implemented. The need for allied health specialized accreditation organizations to examine their curriculum standards concerning developing intercultural competence for allied health professions is imperative to producing culturally competent healthcare professionals (Hernandez & Hadley, 2020). Allied health professionals are expected to be competent and maintain the highest ethical standards while demonstrating cultural understanding, intercultural competence, and high-quality healthcare services (Baghdadi, 2018; Choi & Kim, 2018; Goyal et al., 2020). To that end, the results of this study reflect essential information that will support higher education in its ongoing efforts to improve health science curricula and the healthcare industry as it strives to provide patients and communities with quality healthcare. Give another sentence or two as to why this is true.

Based on Astin's (1984) student involvement theory as the theoretical framework for this study, learning objectives in higher education embedded within the curriculum are interrelated to students' growth and development when involved with cocurricular activities. This theory further suggests that student involvement influences students and their education. Consequently, student

involvement correlates with high student persistence, retention, personal development, and academic success in college (Astin, 1984). Astin's theory posits that for educational programs and institutions to be successful, policies and cocurricular activities relevant and aligned to student learning outcomes must be present to support intentional student involvement, which may lead to academic success (Drexler & Campbell, 2011; Hunt, 2003; Moseley et al., 2020).

Student involvement, as it relates to academic success and personal development, is foundational to fostering intercultural competence (Chen, 2012; Huang & Chang, 2014; Millunchick et al., 2020; Moseley et al., 2020; Strayhorn, 2008; Theeke & Hall, 2021). This study produced findings supporting Astin's theoretical constructs and their relationship to the development of cultural competence. Radiology technology students had higher ISS scores, suggesting a relationship exists between the cocurricular activity (diversity module) and the ISS scores. However, there was a lack of significance in the total ISS scores concerning the impact of the cocurricular activity on the intercultural development of the other three allied health science groups. It is important to note that the ISS is a reliable and valid instrument utilized in academic studies concerning intercultural development. When scoring and computing a mean score for the overall scale, lower scores suggest lower levels of intercultural sensitivity (Chen & Starosta, 2000). Consequently, the researcher of this study offers that overall lower mean ISS scores may be related to a lack of cultural diversity among the student population at the participating institution. The participating college for this study reports that 92% of its students are Caucasian (U.S. News Education, 2023). Additionally, the college has multiple campuses exclusively located in rural areas with minimal ethnic and cultural diversity.

The collective literature reports that cocurricular activities have a positive effect on student learning and student engagement, which is evident when allied health science students

demonstrate cultural awareness and cultural sensitivity when interacting with patients (Kwon et al., 2020; Millunchick et al., 2020; Soria et al., 2018; Tahir, 2021; Wirt & Jaeger, 2014). Nevertheless, higher education continues to face limited opportunities to develop allied health undergraduate curriculum that include cocurricular activities which are designed solely to assist students with intercultural development (Akdere et al., 2021; Gierke et al., 2018; Wickline et al., 2020). Finally, this study and others are key to understanding the strategies needed to develop culturally sensitive and interculturally competent healthcare workers that will have a positive impact on society (Baghdadi, 2018; Choi & Kim, 2018; Goyal et al., 2020; Jach & Trolian, 2021; Puhy et al., 2021; Qin et al., 2021; Wall-Bassett et al., 2018).

Implications

The implications of this study are significant as it affirms previous assertions concerning the relationship between cocurricular activities and the intercultural development of allied health students. This study's findings confirm a relationship between the benefits of cocurricular activities as they relate to intercultural development. However, a causal relationship between this study’s research variables was not confirmed. In addition, this study adds to the literature by addressing the gap concerning how higher education institutions have implemented cocurricular activities into their allied health science curriculum to support the development of intercultural competence in allied health students. Finally, although this study highlighted no statistical significance in the total ISS scores among the allied health groups, it is important to note that the identified allied health groups have varying clinical hour requirements guided by specialized accreditation organizations. These varying clinical hour requirements among the allied health programs may explain the higher ISS scores of the radiology students. This study may need to be

replicated with each allied health group's clinical hour requirements considered as a variable that may impact intercultural development.

Beyond implications for curriculum improvement and clinical practice, this study also provides ideas for integrating intercultural development strategies throughout the allied health curriculum to support the student's intercultural development at each matriculation stage through their specialized program. Many studies also suggest that increased clinical experiences of allied health students offer face-to-face patient interactions, which may support the development of intercultural competence. Students in the health science disciplines, such as nursing and others, express that students perceive increased intercultural competency when they are engaged in activities that involve direct exposure to people from various cultural groups (Arruzza & Chau, 2021; Hernandez & Hadley, 2020; Malau-Aduli et al., 2019; Malazonia et al., 2021; Zazzi, 2020). This research study adds to the literature by explicitly focusing on allied health students and their development of intercultural competence, as current studies saturate the body of literature with studies exploring intercultural development among nursing students. Having a greater insight into the intercultural development of allied health students assists the participating college in enhancing its allied health science curriculum. As higher education institutions seek to continuously improve their curricula with oversight from specialized accreditors, it is assumed that new allied healthcare workers will provide interculturally competent, quality healthcare to patients.

Limitations

Casual-comparative studies include limitations since they are nonexperimental, and causal inferences cannot be made (Warner, 2013). Limitations to this research include a reliance on a convenience sampling of voluntary participants. According to Gall et al. (2007), a major

issue when using convenience sampling is that the study results lack generalizability, which threatens external validity. A total of 172 participants from the four allied health programs' pre-existing groups completed and returned surveys with a final response rate of 35%. Consequently, generalization to a broader population of allied health students is a limitation of this study. The study was limited to one college in Michigan with multiple campuses located in rural areas. The demographics of the rural areas are limited in cultural and ethnic diversity, which minimizes the exposure allied health science students would have to diverse patient populations within their clinical experiences.

A second limitation concerns using Likert-type survey instruments such as the ISS. These types of self-report instruments create limitations in the reliability and validity of the answers provided by the participants (Gall et al., 2007). It is assumed that participants would answer survey questions honestly. However, the researcher offered students an opportunity to enter a drawing to win a $100 VISA card if they consented to participate in the study. Consequently, some participants may have completed the survey solely to be entered into the drawing and may not have answered the survey questions truthfully. Chen and Starosta (2000) established the construct validity and reliability of the ISS used for this study. However, it is important to note that a different instrument measuring intercultural sensitivity may have yielded different results.

Recommendations for Future Research

As mentioned above, the researcher details the various implications concerning the relevance of this study to the current body of literature concerning intercultural development among allied health students. Understanding various strategies needed to support the development of intercultural competence is foundational to allied health professions, higher education, specialized health accreditation organizations, and the healthcare industry, which

remain committed to providing patients and communities with quality interculturally competent allied healthcare professionals. Based on the research findings of this study, there are recommendations for future research. The recommendations are as follows:

1. This study may be replicated utilizing a larger sample of health science students from multiple colleges in different regions of the country. A larger sample size may increase or enhance the reliability of the findings.
2. The researcher recommends replication of this study to include administering the ISS to students before enrolling in their prospective programs and again upon completion of their program to explore intercultural development. Administering pre-and post-tests of the ISS will provide future researchers with percentages and averages to be used to explore relationships among the groups.
3. The researcher recommends replicating this study using a non-parametric test to explore if the five subscales of the ISS varied among the four allied health groups. Exploring the subscales of the ISS will allow the research to determine the specific areas of strengths and needs for improvement concerning intercultural development.
4. This study could be replicated to include the clinical hour requirements of each allied health program to explore if relationships exist between intercultural development and clinical experiences. The use of clinical hours as a variable could help future researchers identify the significance of student involvement and intercultural development as it relates to clinical experiences.

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APPENDIX A: Intercultural Sensitivity Scale

Below is a series of statements concerning intercultural communication. There are no right or wrong answers. Please work quickly and record your first impression by indicating the degree to which you agree or disagree with the statement. Thank you for your cooperation.

5 = strongly agree, 4 = agree, 3 = uncertain, 2 = disagree, 1 = strongly disagree

1. I enjoy interacting with people from different cultures.

2. I think people from other cultures are narrow-minded.

3. I am pretty sure of myself in interacting with people from different cultures.

4. I find it very hard to talk in front of people from different cultures.

5. I always know what to say when interacting with people from different cultures.

6. I can be as sociable as I want to be when interacting with people from different cultures.

7. I don't like to be with people from different cultures.

8. I respect the values of people from different cultures.

9. I get upset easily when interacting with people from different cultures.

10. I feel confident when interacting with people from different cultures.

11. I tend to wait before forming an impression of culturally-distinct counterparts.

12. I often get discouraged when I am with people from different cultures.

13. I am open-minded to people from different cultures.

14. I am very observant when interacting with people from different cultures.

15. I often feel useless when interacting with people from different cultures.

16. I respect the ways people from different cultures behave.

17. I try to obtain as much information as I can when interacting with people from different cultures.

18. I would not accept the opinions of people from different cultures.

19. I am sensitive to my culturally-distinct counterpart's subtle meanings during our interaction.

20. I think my culture is better than other cultures.

21. I often give positive responses to my culturally-different counterpart during our interaction.

22. I avoid those situations where I will have to deal with culturally-distinct persons.

23. I often show my culturally-distinct counterpart my understanding through verbal or nonverbal cues.

24. I have a feeling of enjoyment towards differences between my culturally-distinct counterpart and me.

Items 2, 4, 7, 9, 12, 15, 18, 20, and 22 are reverse-coded before summing the 24 items.

Dimensions

- Interaction Engagement: 1,11, 13, 21, 22, 23, and 24
- Respect for Cultural Differences: 2, 7, 8, 16, 18, and 20
- Interaction Confidence: 3, 4, 5, 6, and 10
- Interaction Attentiveness items: 14, 17, and 19

APPENDIX B: Permission to use Instrument

[External] Re: Request Permission to include the ISS in a Doctoral Manuscript

Guo-Ming Chen [redacted]
Fri 7/8/2022 8:31 AM
To: Lewis, Tanya [redacted]

[EXTERNAL EMAIL: Do not click any links or open attachments unless you know the sender and trust the content.]

Dear Tanya, thanks for the request. Yes, you have our permission to use the IS Scale for non-profit research purposes.

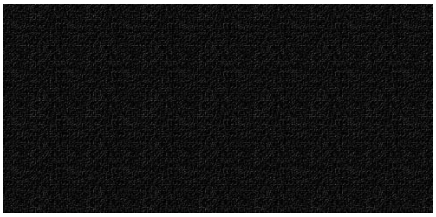
Best.

guo-ming

On Wed, Jul 6, 2022 at 10:43 PM Lewis, Tanya [redacted] wrote:

> Dr. Chen,
>
> I hope you are doing well. My name is Tanya Lewis and I'm currently a doctoral candidate at Liberty University in Lynchburg, Virgina. I have found that the ISS is available to use for educational purposes and research. I am pleased to share with you that the ISS is an excellent match for my proposed research study. The purpose of my quantitative causal- comparative study is to determine if there is a difference among non-nursing health science students and their intercultural development based on class participation of a cocurricular activity identified as an online diversity module.
>
> Consequently, I'm requesting your written permission to include the ISS instrument with directions on scoring the instrument in my proposal manuscript. Please let me know if you have any questions or need additional information on my proposed research. Finally, I am happy to share my research findings and provide you with a completed copy of my dissertation when it is available. I look forward to hearing from you.
>
> Regards
>
> Tanya Lewis
>
> Doctroal Candidate

APPENDIX C: Organizational Consent and IRB Approval Letter



Principal Investigator: Tanya Lewis

From: Institutional Review Board Date: November 9, 2022

Re: Application #19097IB “Cocurricular Activities as Contributors To The Development Of Intercultural Competence In Undergraduate Non-Nursing Allied Health Students: A Causal-Comparative Study”.

Dear Principal Investigator, Thank you for your submission of the above-named protocol. The project has been identified as exempt under guidelines provided by the rule of Health and Human Services. The [redacted] Center for Graduate Studies grants your permission to conduct your study. Please note that it is the researcher's responsibility to ensure that data is collected and maintained in a manner that meets the established criteria. No changes in procedure or documentation should be made without consultation with the Institutional Review Board (IRB). Changes to procedures may require the project to be resubmitted under a different category. This project has been approved with no revisions for one year (expires on November 9, 2023). If the project extends beyond this date, a request for modification must be submitted no later than 30 days prior to the above date.

Please remember that any changes to the protocol will require the submission of a revised protocol to the IRB. Any adverse reaction by a research subject is to be reported immediately to the Chair of the IRB via e-mail at irb@[redacted].edu.

Questions concerning the IRB decision, or any concerns may be directed to the IRB Chair, through Dr. [redacted], Professor of Accounting, [redacted] Center for Graduate Studies at irb@[redacted].edu

Sincerely,

[redacted] Center for Graduate Studies

APPENDIX D: IRB Approval Letter

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

May 10, 2023

Tanya Lewis
Jeffrey Savage

Re: IRB Exemption - IRB-FY22-23-1303 Cocurricular Activities as Contributors to the Development of Intercultural Competence in Undergraduate Non-Nursing Allied Health Students: A Causal-Comparative Study

Dear Tanya Lewis, Jeffrey Savage,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under the following exemption category, which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:104(d):

Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).
The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Your stamped consent form(s) and final versions of your study documents can be found under the Attachments tab within the Submission Details section of your study on Cayuse IRB. Your stamped consent form(s) should be copied and used to gain the consent of your research participants. If you plan to provide your consent information electronically, the contents of the attached consent document(s) should be made available without alteration.

Please note that this exemption only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of

continued exemption status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this exemption or need assistance in determining whether possible modifications to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,
G. Michele Baker, PhD, CIP
Administrative Chair
Research Ethics Office

APPENDIX E: Demographic Questions

Below is a series of demographic questions included within the first section of the link to the research survey concerning intercultural development.

1. Which program are you currently enrolled?

2. What is your gender?

3. What is your age?

4. Are you White, Hispanic, Black or African-American, American Indian or Alaskan native, Asian, Native Hawaiian or Pacific islander, or some other race?

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APPENDIX F: Consent Form

Title of the Project: Cocurricular Activities as Contributors to the Development of Intercultural Competence in Undergraduate Non-Nursing Allied Health Students: A Casual-Comparative Study
Principal Investigator: Tanya Lewis, Doctoral Candidate, Liberty University

You are invited to participate in a research study. Participants must be undergraduate health science students registered for courses in the physical therapy assistant, radiological technology, sonography, or surgical technology program. Taking part in this research project is voluntary. Please take time to read this entire form and ask questions before deciding whether to take part in this research.

The purpose of the study is to determine if there is a difference between the intercultural development scores of health science students in allied health programs. The results may provide insight into the institution's effectiveness when implementing cocurricular activities into the health science curriculum.

If you agree to be in this study, I will ask you to do the following:

1. Complete the online survey linked in the email sent to you by May 31, 2023. It should take approximately 10 minutes to complete.

Participants should not expect to receive a direct benefit from participating in this study.

Benefits to society include will contribute to the current body of knowledge in higher education on the emerging interest in intercultural development of undergraduate non-nursing health science students. Additionally, the data gathered through this study may highlight relationships between the cocurricular activity and varying levels of intercultural development among groups of non-nursing allied health science students.

The expected risks from participating in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

The records of this study will be kept private. Research records will be stored securely, and only the researcher will have access to the records.

- The researcher will remove all data from the site used to present the survey and transfer data to the researchers' private Google drive. All data will then be removed from the researcher's Google Drive and transferred to the researcher's hard drive to be safely stored.
- Participant responses will be anonymous.
- Data will be retained for at least three years after the completion of the study.

You will be entered into a raffle to receive a $100 Meijer gift card if you reply to the email sent to you and confirm you would like to be entered. Otherwise, you will not be entered into the raffle.

No action will be taken against an individual based on his or her decision to participate or not participate in this study. Participation in this study is voluntary. Your decision to participate or not participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to withdraw at any time before submitting the survey.

If you choose to withdraw from the study, please exit the survey and close your internet browser and inform the researcher via email that you wish to discontinue your participation. Your responses will not be recorded or included in the study.

The researcher conducting this study is Tanya Lewis. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at [redacted] or email [redacted]@Liberty.edu. You may also contact the researcher's faculty sponsor, Dr. Jeffery [redacted]

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher **you are encouraged** to contact the IRB. Our physical address is Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA, 24515; our phone number is 434-592-5530, and our email address is irb@liberty.edu.

Disclaimer: The Institutional Review Board (IRB) is tasked with ensuring that human subjects research will be conducted in an ethical manner as defined and required by federal regulations. The topics covered and viewpoints expressed or alluded to by student and faculty researchers are those of the researchers and do not necessarily reflect the official policies or positions of Liberty University.

Before agreeing to be part of the research, please be sure that you understand what the study is about. You can print a copy of the document for your records. If you have any questions about the study later, you can contact the researcher using the information provided above.

APPENDIX G: Recruitment Email

Dear Student,

As a doctoral candidate in the School of Education at Liberty University, I am conducting research on cocurricular activities as contributors to the development of intercultural competence in undergraduate non-nursing allied health students as part of the requirements for a doctoral degree. The purpose of my research is to determine if there is a difference between the intercultural development scores of physical therapy assistants, radiological technology, sonography, and surgical technology health science students, and I am writing to invite you to join my study.

Participants must be undergraduate health science students registered for courses in the physical therapy assistant, radiological technology, sonography, or surgical technology programs. Participants, if willing, will be asked to complete an online survey. It should take approximately 10 minutes to complete the survey. Participation will be completely anonymous, and no personal, identifying information will be collected.

A consent form is provided as the first page of this survey. The consent document contains additional information about my research. After you read the consent form, please right-click here (online survey) to proceed to the survey. Doing so will indicate that you have read the consent information and would like to take part in the survey.

You will be entered into a raffle to receive a $100 Meijer gift card if you reply to this email and confirm that you would like to be entered. Otherwise, you will not be entered into the raffle.

Sincerely,

Tanya Lewis

Tanya Lewis
Doctoral Candidate

[redacted]Liberty.edu