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The Effect of High-Fidelity Cultural Simulation on the Development of Cultural Competence Among Baccalaureate Nursing Students

Tatayana Maltseva

THE EFFECT OF HIGH-FIDELITY CULTURAL SIMULATION ON THE

DEVELOPMENT OF CULTURAL COMPETENCE AMONG BACCALAUREATE

NURSING STUDENTS

DISSERTATION

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Tatayana Maltseva

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THE EFFECT OF HIGH-FIDELITY CULTURAL SIMULATION ON THE
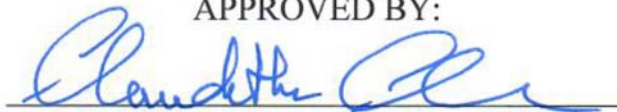DEVELOPMENT OF CULTURAL COMPETENCE AMONG BACCALAUREATE
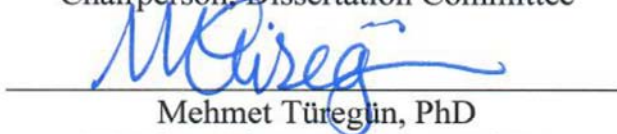NURSING STUDENTS

DISSERTATION

by

Tatayana Maltseva

2016

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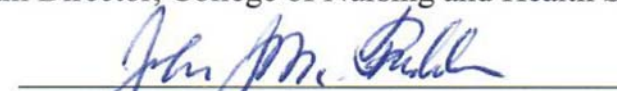Chairperson, Dissertation Committee

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Abstract

Background: The minority population, with the exception of non-Hispanic single-race Whites, is projected to be 235.7 million out of a projected total U.S. population of 439 million. By 2023, minorities will comprise more than half of the country's children. The majority of health care experts have identified cultural diversity as a challenge that may compromise patient care. Cultural incompetence could lead to inappropriate care, cultural biases, stereotypes, prejudice, ethnocentricity, and discrimination (Dean, 2005).

Purpose: The purpose of this quantitative study is: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students.

Theoretical Framework: Campinha-Bacote's cultural development framework and model provided theoretical guidance for this study.

Methods: A quasi-experimental one group pre-test/ post-test research design was employed in this study to find the effect of high-fidelity cultural simulation on the development of cultural competence among baccalaureate nursing students.

Results: Data was collected over a three-month period from a convenience sample of baccalaureate nursing students (N=137). There was a statistically-significant difference in the mean between pre-test and post-test total scores related to cultural high-fidelity simulation (t (136) =-6.372, p<.001). Hypothesis 1 for research question 1 was supported and indicated that participants' cultural competence post-test scores were statistically

significantly higher after being taught through cultural high-fidelity simulations, as compared to their pre-test scores. Pearson r correlation coefficient revealed that cultural awareness ($r=.663$, $p<.001$) was positive, with a significant correlation to students' cultural desire construct ($r=.663$, $p<.001$).

Hypothesis 1 for Research Question 2 was supported. Statistical analysis revealed that the cultural desire construct was positively and statistically significantly correlated with the participants' cultural awareness ($r=.663$, $p<.001$), cultural knowledge ($r=.532$, $p<.001$), cultural skills ($r=.505$, $p<.001$) and cultural encounters ($r=.653$, $p<.001$).

Hypothesis 2 for Research Question 2 was also supported; however, hypothesis 1 for the Research Question 3 was not supported. A 2X2 factorial MANOVA design with Wilks' Lambda statistic in multivariate tests indicated significant group differences only in the traditional age variable with respect to the dependent variable of cultural competence ($\lambda=.823$, $F(5, 128)=5.499$, $p<0.001$). Univariate analysis of variance (ANOVA) was conducted on each dependent variable of cultural competence subscales as a follow up test to MANOVA. The results indicated that traditional age demonstrated statistical significance on cultural encounters subscale, ($F(1,132)=6.183$, $p=.014$, $\eta^2=.694$). Interaction effect between traditional age and education variables produced statistical significance on cultural skills of cultural competence development subscale, ($F(1,132)=4.083$, $p=.045$, $\eta^2=0.518$). Education did not produce statistically-significant results. Profile plots produced significant interaction between cultural skills, cultural encounters, traditional, and non-traditional age group. Multiple regression analysis was conducted to identify which independent variables age, ethnicity, educational level, and native language were individually or collectively significant predictors of cultural

competence development. Research Question 4 was not supported because the linear combination of the four predictors revealed no significant regression model, (F (9,126) =1.477, p=.163, R^2 = 0.095). Multiple regression analysis revealed that the highest scores on the IAPCC-SV post-test were associated with Hispanic ethnicity (t=2.422, β=.289, p<.05), two years of college education (t=2.172, β=0.429, p<.05) and four years of college education (t= 2.281, β=.458, p<.05).

Conclusion: Study results contributed to the understanding of how cultural competence develops in baccalaureate nursing students. Moreover, an innovative pedagogical strategy of high-fidelity cultural simulation demonstrated a significant effect on cultural competence development in nursing students. Nurses have a great responsibility to be culturally-sensitive and proactive in learning about diverse cultural groups. Future studies should be built on the findings of this research study to improve cultural competence among health care professionals by the utilization of high-fidelity cultural simulation in nursing curricula and inter-professional education to reduce health care disparities and inequalities in care of diverse populations.

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I would also like to give special thanks to Dr. Maria Olenick, Professor Henry Henao, Professor Mark Fonseca, Joel Hernandez and STAR nursing simulation center support facilitators at Florida International University for allowing me to conduct this research study at the STAR nursing simulation center. In addition, I must also acknowledge Dr. Campinha-Bacote for allowing me to use IAPCC-SV instrument for data collection processes. Dr. Campinha-Bacote's scientific knowledge in cultural competence guided me throughout my study. Finally, I must also acknowledge all

nursing students who agreed to participate in the study. Your willingness to learn the new

high-fidelity cultural simulation was greatly appreciated.

DEDICATION

This dissertation is dedicated to the memory of my grandmother – Ester Radashkovich. She was a Russian language teacher in the small town of Byelorussia. My grandmother has been my inspiration throughout my life. Her enduring passion for teaching and learning encouraged me to pursue a higher degree. My grandmother's dedication to education, and lifelong pursuit of knowledge will live with me forever. This is for you, grandma!

To my parents, Inna Maltseva and Yusik Baskin, who had the courage to give everything up in our home town of Gomel, Byelorussia in order to insure better lives for their daughters in the United States. I am very grateful for your unconditional love, support, and care. To my sister, Olga Poisik, who constantly encouraged me to be strong, wise, and diligent in pursuing my professional career goals. In addition to my significant other, Alan Schwartz, whose unconditional love, comfort, and a shoulder to cry on, have sustained me through the difficult times. Alan, your sense of humor made me laugh and helped me to keep my life in balance. You are sincerely an incredible person! Finally, I dedicate this dissertation to all immigrants whose cultures need to be recognized by healthcare practitioners in the healthcare arena.

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CHAPTER ONE

The majority of health care experts have identified cultural diversity as a challenge that may compromise patient care. Cultural incompetence could lead to inappropriate care, cultural biases, stereotypes, prejudice, ethnocentricity, and discrimination (Dean, 2005). According to the United States Census Bureau (2008), minorities in the United States (US) are expected to become the majority by 2042. The minority population, with the exception of non-Hispanic single-race Whites, is projected to be 235.7 million out of a projected total U.S. population of 439 million. By 2023, minorities will comprise more than half of the country's children. Culturally - competent care has been an essential component for nurses to function in a globally - diverse environment. The American Association of Colleges of Nursing (AACN, 2008) and the Institute of Medicine (IOM, 2011) uphold the position that cultural competence is an essential element of nursing education and practice.

The changing population demographics on national and global levels requires future nurses to understand and communicate with people facing major health problems, who come from diverse racial, ethnic, and cultural backgrounds. Advances in technology have influenced the development of nurses' fragmented approach toward patients and creates a distant relationship and a barrier in the delivery of holistic, culturally-competent care. In preparing future nurses, it has been imperative that nursing faculty members become more creative and innovative in using different teaching strategies to promote the development of cultural competence among undergraduate nursing students. High-fidelity simulation has validated an innovative teaching strategy that enhances

critical thinking, prioritization, delegation, and a comprehensive approach to nursing care delivery.

The purpose of this quantitative study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students. This one group pre-test/post- test quantitative quasi-experimental research design study tested the effect of high-fidelity cultural simulation scenarios on the development of cultural competence. Campinha-Bacote's (2007) model of cultural competence facilitated and guided this study with the purpose to examine key elements of how cultural competence can be developed in a simulated structured environment.

Background of the Study

The Institute of Medicine (IOM) report (2004), *In the Nation's compelling interest: Ensuring diversity in the health care workforce,* underlined that minority groups in the United States received inappropriate quality of care and suffered from multiple health- related disparities. When health care providers fail to recognize the unique health values and beliefs of individuals from other cultures, races, or ethnic backgrounds disparities occur. Correspondingly, these disparities could jeopardize patient-centered care that is in detail adapted to each individual's personal beliefs and values. There was evidence in the literature documenting that healthcare disparities were related to the lack of cultural competence among healthcare practitioners (Betancourt, Green, Carrillo, &

Park, 2005; Campinha-Bacote, 2007). Harris (2010) identified that cultural competence had possibilities for elimination of health care disparities in a minority population. Campinha-Bacote (2011) affirmed that cultural competence has engaged a life-long journey of commitment toward the comprehension and utilization of patient-centered care.

Cultural competence development requires a strong cognitive and affective background, a valid foundation of cultural knowledge, sensitivity, and awareness. The advantage of utilizing high-fidelity simulation is to introduce students to cultures unknown to them, build knowledge about these cultures, and develop cultural competence. Cultural sensitivity has been identified as a major curricular component in the *Essentials of Baccalaureate Education for Professional Nursing Practice* (American Association of Colleges of Nursing, 2008). Therefore, it is a nurse educator's responsibility to increase cultural sensitivity and awareness to ensure that nursing students build a cultural foundation of knowledge, attitudes, and skills to enter the nursing workforce as culturally- competent practitioners.

Unfortunately, faculty members did not have appropriate preparation and effective methods of teaching and integrating a cultural component in the nursing curriculum (Waite & Calamaro, 2009). Currently, faculty members often introduce cultural experiences only through classroom lectures, or the clinical settings and describe familiar cultures to the students. Students also tend to socialize within the same cultural group in the classroom settings. Moreover, students may not be exposed to all existing human cultures in the clinical areas or may encounter some cultures only partially. Lack of innovative pedagogical strategies and little experience with diverse student populations

could result in a cultural incompetence of nursing students and a future disconnect between patient and a nurse.

Bednarz, Schim, & Doorenbos (2010) analyzed barriers in education that prevented nursing students from attaining cultural competence. These barriers included, but are not limited to, a new cohort of diverse students requiring nontraditional approach; difficulties among faculty members to recognize the need for a change in implementation of new teaching strategies, and a current political culture of correctness in colleges and universities which prevented faculty members from being open-minded and innovative in their actions. It was much easier for faculty members to teach what they were taught before rather than to endeavor unfamiliar teaching strategies. Changes require a knowledge about the needs of diverse students; implementation of cross-cultural communication; and development of cultural competence among educators (Billings & Halstead, 2012). Teaching future health care professionals about specific cultures was not sufficient enough in the development of cultural competence, because it lead only to memorization of facts about a selected culture. It was imperative that educators bridge the gap of cultural awareness, knowledge, theory, and cross-cultural communication skills in teaching culturally- congruent care (Hawala-Druy & Hill, 2012).

Historical Perspective of Cultural Simulation

Philosophical views on simulation contribute to understanding the experience of the reality represented through simulation. Aristotle described a noble function of art to represent this reality. In his view, humans could draw knowledge and experience through simulated representation of drama. Aristotle offered the principle of *mimesis,* which promotes knowledge of the real world through the simulated form of poetics and drama.

Therefore, Aristotle's view of gaining knowledge and reality through the simulated experience has remained a dominant influence in increasing adoption of simulation technology in nursing science and other disciplines (Dunnington, 2013).

The historical evolution of cultural competence began in nursing with the work of Florence Nightingale in 1854 with soldiers during the Crimean War. Nightingale was the first nurse who took care of diverse populations during the war. Furthermore, some philosophers implicated their studies about human nature. For example, Heidegger (1889-1976) was a philosopher concerned with humans and the nature of *being*. Heidegger examined aspects of reality revealed by technology and allowed the phenomenon to be noticed. In addition, Heidegger offered insight into simulation to illustrate the construct of reality and open up more meaningful experiences to humans. According to Heidegger, objects in reality exist in the world in four connected ways: through earth, sky, mortals, and divinities. Therefore, simulation could bring forward the connection of these objects for a richer and closer experience of the natural world (Dunnington, 2013). Currently, the use of simulation has progressed beyond operational training in order to focus on complex human responses in variable, emergent, and diverse human contexts.

Psychologists have posited that humans are connected through interactions with the natural world. They provided a framework with an interactive approach for therapists to work with culturally- diverse populations (Sue et al., 1986; Sue & Sue, 1999). Many psychologists emphasized that cultural knowledge and awareness were necessary multicultural counseling competencies while working with different ethnic groups. Psychologists working with diverse populations must study this area of specialty in order to develop cultural participation in the human mental restructuring of cognitive functions

as well as behavior (Shweder et al., 2006). Anthropologists positioned the evolution of cultural competence by viewing the relationship between culture, personality, and behavior. Anthropologists and psychologists discussed the elimination of cultural biases in their studies and developed conceptual models and techniques to reduce cultural prejudices (Marsella, Dubanoski, Hamada, & Morse, 2000).

A theoretical framework developed by Leininger (1978) established a new field of transcultural nursing and embraced a notion of culturally- congruent nursing care in the theory of cultural diversity and universality. Leininger's theory became the first nursing theory to introduce cultural congruency, later renamed in other theories as cultural competence, based on the cultural diversity of the clients. Moreover, Leininger (1995) emphasized the importance of knowledge gained from direct experience from people, *emic*. The professional perspective of culture is *etic* knowledge. *The emic* point of view is one held by the expert who is a member of the cultural group he or she is describing. An etic view is one held by a person describing a cultural attribute of which he or she is not part of it. *Emically* derived knowledge is essential to establish nursing's epistemological and ontological foundation. Cultural congruency or competency e*mical* knowledge could be described and developed through different innovative approaches such as simulation.

Campinha-Bacote (2002) began building a theoretical foundation of cultural competence in which she initially presented only four constructs: *awareness, knowledge, skills, and encounters*. There was no relationship between the constructs; therefore, this was not a clear picture of cultural competence as a process. Consequently, Campinha-Bacote added a fifth construct called *cultural desire*, developed a related pictorial diagram for cultural competence, and expanded the relationship and the definitions of the

constructs. Finally, based on empirical evidence, Campinha-Bacote (2010) made a discovery that the key construct in the process of becoming culturally - competent was cultural encounters. This construct became the center of the model of cultural competence. Campinha- Bacote (2010) identified the significance of cultural competence development through cultural encounters in which learning moved from cultural awareness to proficiency. Contact with diverse cultural groups enhanced communication skills, eliminated stereotypes, and promoted positive intercultural relationships among people (Campinha-Bacote, 2005; Campinha-Bacote, 2010). Cultural competence developed through the learning process integrated throughout the curriculum and immersion experiences in different cultural groups.

Peplau's theory of interpersonal relationship (1997) further explored cultural learning and required openness to and involvement with human's existential situations. Peplau viewed knowledge based on the logical positivism paradigm in order to encompass the diversity of humans' interactions by observing behaviors, seeking to repeat experience in similar situations, noting regularities concerning the nature, and naming the phenomena. Heidegger (1977) suggested a notion that technology may frame what is experienced and known. Therefore, the learner may experience and reveal new knowledge through interactions in a simulated environment and through an immersion into the unknown. The learners' experience and the attainment of learning outcomes could be measured through different instruments.

Several instruments exist that measures cultural competence. Madeline Leninger (1978) was the first researcher who developed a Sunrise Model to guide cultural diversity and universality theory and measure cultural congruency. Rew, Becker, Cookston,

Khosropour, and Martinez (2003) developed the Cultural Awareness Scale (CAS). This survey measures the degree of cultural awareness, a component of cultural competence.

Purnell's (2002) model for cultural competence consists of twelve domains of cultural characteristics for a person, family, and community in the global society and measures a number of cultural attributes: heritage, communication, family roles and organization, workforce issues, bio-cultural ecology, high-risk behaviors, nutrition, pregnancy and childbearing practices, death rituals, spirituality, health care practices, and health care practitioners.

Campinha-Bacote (1997, 2002, 2005, and 2010) created an inventory for assessing the process of cultural competence among healthcare professionals (IAPCC). This instrument measured only four components of cultural competence*: cultural awareness, cultural knowledge, cultural skill and cultural encounters*. Campinha-Bacote revised IAPCC in 2002 based on the empirical evidence, added the fifth element of cultural competence- cultural desire and renamed the instrument to the Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals-Revised (IAPCC-R) (Campinha-Bacote, 2002). Currently, Campinha-Bacote's inventory is widely used to measure cultural competency based on the five constructs: *awareness, knowledge, skills, encounter, and desire*.

Historical Development of Simulation

Simulation has provided an innovative method for the learning and development of cultural competence. Harder (2010) discussed an evolution of simulation in nursing education. Asmund Laerdal created the first simulated mannequin in 1958. This simulator named as Resusci Anne was very well received in nursing education, due to affordability

and accessibility. The earliest medical simulator for training of health care professionals was Harvey, which launched to life in 1968. This simulator had no full body but provided 25 different cardiac functions.

The second simulation movement included more technically advanced computerized equipment launched in 1970. The first full-scale human patient anesthesia simulator had a synchronized heart beat with carotid and temporal pulses, and corresponding blood pressure. This mannequin allowed for the performance of basic airway management.

The third movement began in the 1980s and has continued to the present day. During the third movement in the1980s, Gaumard Scientific Company developed Noelle- a birthing - female simulator that included a newborn manikin capable of being delivered during the labor process. The female simulator contained a computerized uterus which produced contractions, an artificially imitated placenta, and the umbilicus cord. In 2000, Laerdal Company launched the first SimMan mannequins, which can offer both mid-and high-fidelity simulation. Currently, Laerdal continues to advance SimMan by implementing more human functions, such as change of a skin color during cyanosis, eyes blinking, pupillary dilations and constrictions in response to a light and accommodation and vocal responses to communication (Rosen, 2008).

High-fidelity real patient simulators can deliver actual physical responses and environmental interactions (Jeffries, 2007). Gaumard Scientific Company launched a new obstetric simulator in 2014, named Victoria. This simulator has more realistic anatomical structures of the uterus and cervix which allows the fetus to rotate in expected ways through the birth canal. Simulation technology has become more readily- available,

and nursing educators are becoming more aware of its benefits. Abrahamson, Denson, and Wolf (2004) emphasized that advances in technology made possible the development of human-like simulators with physiological responses and communication abilities. Nursing educators use high-fidelity simulators to teach critical thinking skills, communication, advance cardiac life support, and delegation. (Gordon & Buckley, 2009; Hauber, Cormier, & Whyte, 2010).

Currently, simulation is taking a new direction in learning to become more purposeful. It has extended beyond performing psychomotor skills into being able to cognitively analyze the presented scenario and integrate knowledge, communication abilities, and attitudes into the simulated experience. Harder (2010) emphasized further that the learner is better able to learn from the situation encountered during simulation when it is combined with debriefing and reflection on the experience. A structured simulated environment has provided the development of multiple learning outcomes for nursing schools' curricula.

Cultural Competence for Healthcare Professionals

Health care professionals play an important role in promoting cultural competence practices through developing culturally - competent educational programs, policies and research about cultural groups. The American Medical Association (AMA) emphasized the significance of cultural competence development in physicians through continuing educational programs, publications with a focus on diverse cultural groups, and relevant policies and treatment guidelines for minority populations. The Society of Family Medicine developed a curriculum with a focus of integrating cultural competence in the practice (Like, Steiner, & Rubel, 1996). The American Psychological Association (APA)

recognized that cultural awareness has been an important parameter of cultural - competence development. The APA has also issued a position statement and guidelines for psychologists to know cultural heritage and social identities, and apply knowledge of other cultures into the practice (APA, 2005). The National Association of Social Workers (NASW) and the Council on Social Work Education (CSWE) identified imperative measures of cultural awareness in social work interventions. The incorporation of cultural factors in all levels of social work services are mandated by the NASW Code of Ethics (Bridge, Massie, & Mills, 2008).

It is known that cultural competence has been an essential component of the nursing profession since nurses provide care to diverse cultural populations in hospitals and communities. Many nursing organizations have issued position statements aimed at increasing cultural competence and engaging nurses in patient-centered care. The American Nurses Association's Code of Ethics for Nurses (2010) identified in Provision One that the core value of the nursing profession was a respect for human dignity, uniqueness of every individual, and worth of cultural diversity. The American Nurses Association (ANA) issued a position statement in 1998 recommending that courses in cultural competence should be included in nursing curriculum; moreover, in this statement, ANA posited that cultural diversity has been a vital component of nursing practice. The American Academy of Nursing (AAN) streamlined to implement AAN's strategic plan to eliminate the gaps in health disparities and inequalities. AAN also identified that poor health outcomes were related to the lack of cultural competencies in health care. An AAN expert panel (2001) on cultural competence was charged with the task to develop strategies that will advance cultural competence in the academic and

hospital settings, and address the complex health needs of diverse populations and eliminate the disparities gap in the healthcare arena.

Currently, many nursing programs are diligently striving to increase the levels of cultural competence in nursing students by implementing cultural immersion programs, classroom without borders initiatives, and global learning studies with a major focus on vulnerable populations (Kardong-Edgren, & Campinha-Bacote, 2008; Renzano, Romios, Crock, & Sonderlund, 2013). The greater emphasis is now placed by governmental and private entities in the health care industry to integrate cultural competence into patient-centered care. Many states, including, Florida, require nurses and other healthcare professionals to complete workshops on diversity and cultural competence training (US DHHS, 2015). Despite recommendations of the IOM report (2004), the Office of Minorities Health guidelines (2012) and the increased immigrant population in the United States, very little progress has been made in research to determine the best strategies to increase the levels of cultural competence among health care professionals (Betancourt, Green, Carillo, & Park, 2005). Many teaching methods have not been empirically tested to identify the best strategies, which would improve the levels of cultural competence among nursing and other healthcare professional students.

Baccalaureate Nursing Students

Billings and Halstead (2012) identified that nursing students are quite diverse in their learning needs and expectations. They reported that according to the U.S. Department of Education, the enrollment of nontraditional college students older than 25 years has increased by 25% over the years. This delay in entering into college resulted in a progressively - older nursing student population (Billings and Halstead, 2012). During

the 2004–2014 academic years the department noticed a significant increase in the enrollment of students younger than 25 years and students older than 25 years across the board in colleges and universities. Currently, the college student population is becoming more culturally- diverse with a larger representation of minority groups. According to the U.S. Department of Education, in 2008, the conferral of baccalaureate degree rate increased by 10 % for Asians/Pacific Islanders, by 6 % for African-Americans, and by 4 % each for Hispanics and American Indians/Alaska Natives.

The baccalaureate degree nursing education requires four to five years of study in the college or university settings. During this curriculum progression students take nursing courses necessary for satisfaction of a baccalaureate in science degree. Nursing students are enrolled either full - time, part-time or in accelerated programs to obtain their baccalaureate in science degree upon graduation. Undergraduate nursing courses consist of didactic specialty, clinical components, leadership and research: fundamentals, medical-surgical, psychiatric, obstetric, pediatric, community nursing courses and hospital or community health clinicals. Upon graduation, students earn their Bachelor of Science degree in nursing and are eligible to take the National Council for Licensure Examination (NCLEX) for Registered Nurses (RN) and after that, practice as an RN in healthcare. This educational route is the foundation for graduate nursing education. Currently, all efforts have been made for the baccalaureate degree to be a minimum requirement to enter the professional nursing practice in the United States.

Nursing faculty are challenged with responsibilities of teaching traditional and non-traditional students from various backgrounds and life experiences. Nursing faculty more than ever before are faced with teaching students with significant technological and

computer savvy -experiences and demands. On the other hand, economic instability forces the older generation to return back to school in order to obtain a secondary education and find new employment upon graduation. Faculty must be determined to continually think creatively, as they improve interactive learning and teaching for the successful integration of nursing students into an ever - changing health care system (Billings & Halstead, 2012).

Problem Statement

Racial and ethnic health disparities are present in the United States, which undesirably affect the quality of care received by ethnic minority groups. The complexities of health care require educators to prepare culturally - competent nurses who can provide care to the diverse population in the public arena. Proficient and culturally - competent nurses can eliminate these disparities by closing the racial and ethnic inequalities (Bagnardi, Bryant, Colin, 2009).

The practice of cultural competence should start with educating nurses about differences in the care of diverse patient populations. Evans and Greenberg (2006) suggested that the lack of cultural competence and underrepresentation of ethnically - diverse nurses are linked to severe health disparities for Hispanic and American Indian populations who suffer from high rates of morbidity and mortality, compared to Caucasian American groups. Moreover, there is the shortage of ethnically-and culturally-diverse nurses who can provide culturally and linguistically congruent care for such minority population.

Nursing students enrolled in nursing programs should represent the diversity of minority populations they will serve in the healthcare arena. Nurse educators are required

to find the correct pedagogical strategies, which increase levels of cultural competence among nursing students. Cultural competence has been investigated widely in the nursing literature (Grossman, Mager, Opheim & Torbjornsen, 2012; Kardong-Edgren, & Campinha-Bacote, 2008; McNiesh, 2015); however, there is a sparse amount of research conducted about cultural competence development among baccalaureate nursing students through the use of high-fidelity simulation. Through high fidelity simulation developing cultural competence among nursing students is paramount. New knowledge must be generated related to the development of cultural competence among nursing students using high-fidelity clinical simulation. This lack of cultural competence and linguistic diversity in nurses has the potential of affecting the care provided to these vulnerable minority populations.

Purpose of the Study

The purpose of this quantitative study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students.

Theoretical and Operational Definitions of Key Terms

A theoretical definition provides meaning by defining concepts. Theoretical definitions may be borrowed from theory and synthesized from the literature. This represents the primary means of expression for communicating the meaning of the concepts to the reader (Waltz, Strickland, & Lenz, 2010). The operational definition

defines something in terms of the operations that can be measured. It is how concepts will be measured in a particular study. It represents the outcomes of the process of operationalization. The empirical indicators such as measurement tools, instruments, and surveys are part of the operational definition (Waltz, Strickland, & Lenz, 2010).

Baccalaureate Degree Nursing Students

Theoretical definition. The baccalaureate degree nursing student refers to one who is currently receiving a four-year undergraduate nursing education. The curriculum is designed on the rigorous scientific methods in preparation of future registered nurses to implement the care of the clients with complex medical illnesses in the healthcare field (AACN, 2008). At the baccalaureate level, nursing students are taught from the perspective of various disciplines, including liberal arts education, leadership, research, and nursing specialty courses.

Operational definition. This study discussed the baccalaureate degree nursing students in a four-year college nursing program. This data about the characteristics of study participants was measured by items on the researcher's developed demographic survey.

High-Fidelity Simulation

Theoretical definition. Simulations mimic real-world processes in which characteristics of humans and behaviors can be represented. Simulations allow students to think critically, prioritize care, delegate and render care for diverse patients in a safe non-threatening environment (Billings and Halstead, 2012). High-fidelity computerized simulators deliver adequate indications to allow for full clinical immersion. High-fidelity patient simulators are sophisticated and they provide a high level of realism and

interactivity to the learner (Jeffries, 2007). The human-like simulator has vocal, respiratory, cardiac, and bowel sounds. Moreover, the simulator has palpable peripheral pulses, and different skin colors. The pupils of the simulator's eyes can blink and respond to light and accommodation. High-fidelity simulators can provide a feedback to medical and nursing interventions and demonstrate responses to therapeutic interventions and quality of actions.

Operational definition. High-fidelity simulation is an innovative pedagogical method which facilitates development of not only psychological skills and emotional intelligence, but also skills including critical thinking, cultural competence, communication, prioritization, and delegation. Teaching strategies in simulation encourage students to reflect on their actions and correct their interventions to improve patient- simulator responses and outcomes (Jeffries, 2007). Participants were surveyed to measure self-efficacy and satisfaction scales after the simulation and results demonstrated satisfaction and self-confidence with simulation teaching and learning. These scales allowed the educator to measure how the student felt about a particular subject; for example, the cultural scenario at the moment the participant was tested. The measures have a four-point Likert Scale responses from "strongly agree" to "strongly disagree". Instruments of self-efficacy and satisfaction with the instructional strategies are used in simulation evaluation (Jeffries, 2007).

Pedagogical Method

Theoretical definition. Pedagogy is the science of helping students to learn. Pedagogy is a unique dialogue between theory and practice, to learning and teaching which is composed of complex human traditions. Social, cultural phenomena, and

technology influence the ways in which people learn, and, consequently, what makes for effective teaching (Beetham & Sharpe, 2013). Innovative pedagogy consists of a variety of methods, including simulation, which engage learners to think critically. According to Bloom's taxonomy, innovative teaching methods deliver learning material to work on the higher levels of cognitive, affective, and psychomotor domains of learners (Billings & Halstead, 2012).

Operational definition. Innovative pedagogical methods were employed in this study in order for the participants to discover knowledge and meaning. The participants gained knowledge by transforming experience. They derived meaning from the experience and applied the meaning they have created of practicing simulation. The utilization of simulation in nursing education allowed learners to experience the application of theory in a safe environment, where mistakes can be corrected without risks to real patients (Billings & Halstead, 2012). Innovative pedagogical methods of high-fidelity simulation were measured by administering student satisfaction and self-confidence in the learning tool developed by National League of Nursing (NLN).

Cultural Competence

Theoretical definition. Cultural competence is a continuing process in which health care professionals constantly endeavor to attain the power to work effectively within the cultural context of individual, family, and community (Campinha-Bacote, 2003). Cultural competence consists of the integration of five cultural components: *awareness, knowledge*, *skills*, *encounters* and *desire* (Campinha-Bacote, 2007).

Operational definition. Levels of cultural competence were measured by the inventory for assessing the process of cultural competence among healthcare

professionals-Student Version (IAPCC-SV). The IAPCC-SV consisted of 20 items; each question was rated by a four-point Likert-type scale and measured five constructs of cultural competence – *awareness, knowledge, skills, encounters,* and *desire* (Campinha-Bacote, 2007). The levels were scored based on these constructs – a culturally- proficient participant obtained the score from 75-80; culturally-competent - 60-74; culturally-aware - 41-59; and a culturally-incompetent participant could score from 20-40. (Campinha-Bacote, 2007).

Research Questions and Hypotheses

1. What effect does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?

> **H$_1$**. Participants' cultural competence post-test scores will be statistically significantly higher after being taught to the cultural high-fidelity simulations compared to their pre-test scores.

2. What kinds of relationships exist among the subscales of cultural competence scale?

> **H$_1$**. Participants who score high on the cultural desire construct will score high on the cultural awareness construct.
>
> **H$_2$**. Participants who achieve the cultural desire construct will score high on the cultural knowledge, skills, and cultural encounters construct.

3. Are there significant differences in cultural competency development based on the students' demographic characteristics (e.g. age, gender, level of education)?

> **H$_1$**. There are differences on the students' cultural competence development based on the students' demographic characteristics (e.g. age, gender, level of education).

4. Which of the following individual or combined demographic variables (e.g. age, ethnicity, educational level, and native [first] language), individually or grouped, are predictors of the level of cultural competence?

Theoretical Framework

The discovery of cultural competence began in 1969 when Josepha Campinha-Bacote experienced culturally diverse encounters of being from the Cape Verde Islands located in the peninsula of West Africa. This experience created her passion to integrate culture and health care into the cultural competence model (Campinha-Bacote, 2007). In 1991, Campinha-Bacote developed the first version of the cultural competence model – *Culturally Competent Model of Care.* In this original model, only cultural awareness, cultural knowledge, cultural skill, and cultural encounters were identified as the four constructs of cultural competence (Campinha-Bacote, 2007). In 1998, Campinha- Bacote revised the model and included a fifth construct – cultural desire. At that time, she lengthened the definitions of the constructs to include new knowledge in the field of transcultural care (Campinha-Bacote, 2007). Josepha Campinha-Bacote (1998) modified the pictorial representation of the theoretical model into a Venn diagram to include all five constructs of cultural competence and their interdependent relationship.

In 2002, Campinha-Bacote modified the construct of cultural desire and offered this construct in a symbolically - represented volcanic picture. Campinha-Bacote posited that when the volcano erupts, it motivates the healthcare provider's desire to engage in cultural competence by acquiring cultural knowledge, advancing cultural assessment, pursuing cultural encounters, and creating an awareness of culturally-sensitive situations (Campinha-Bacote, 2007). This schematic representation of a volcano had a strong

relationship with the phenomenon in this study, since a goal of high-fidelity cultural simulation was to develop culturally-competent practitioners, ignite in them cultural desire, and identify how an individual can progress through five cultural constructs before reaching the top of Volcano Mountain - cultural competence (Campinha-Bacote, 2007).

Lastly, in 2010, Campinha-Bacote analyzed multiple research studies which used her model and discovered that cultural encounter was the key construct in the process of becoming culturally-competent. Campinha-Bacote revised her model and placed the cultural encounters construct in the center of all constructs. An individual obtains cultural awareness, cultural knowledge, cultural skills, and cultural desire only through the continuous process of cultural meetings, or encounters (Campinha-Bacote, 2010). Figure 1 represents the latest model of the cultural competence process in the delivery of healthcare services based on scientific evidence. The person gains cultural competence only through the process of cultural encounters, which represent a direct connection between cultural meetings with five cultural constructs – awareness, knowledge, skills, encounters and desire (Campinha-Bacote, 2010).

Figure 1. The Process of Cultural Competence in the

Josepha Campinha- Bacote's theory of cultural competence has provided a theoretical foundation to guide this study. This theory of cultural competence and cultural model were congruent with the research problem identified in this study. Knowledge antecedents of this framework combined the fields of anthropology, psychology, sociology, transcultural nursing and medicine. Cultural competence is a dynamic human process of learning and experience which does not exist in space (Campinha-Bacote, 2008). The development of cultural competence allows nurses to endeavor endlessly to provide the best care to individuals, families, and communities within the context of cultural environment and diverse populations (Campinha-Bacote, 2010).

Campinha-Bacote's cultural competence framework was a good fit for this study, since it addresses each person as a unique individual. This framework posits that at the core of cultural competence is patient-centered care. Therefore, culturally-competent nurses who gain cultural awareness, knowledge, skills, encounter, and desire are capable of rendering effective, patient-centered care. Based on this theoretical framework, cultural awareness, cultural knowledge, cultural encounters, cultural skills, and cultural desires were explained to demonstrate how cultural competence develop in nursing students in a simulated environment.

Cultural awareness engages thorough a methodical self-examination and assessment of one's own cultural heritage (Campinha-Bacote, 2007). According to Campinha-Bacote's framework (2007), the culturally- congruent health care provider develops self-awareness and a respectful attitude toward other cultures. Cultural

knowledge focuses on obtaining resources and education about the diverse cultural

groups and variations within the cultural groups (Campinha-Bacote, 1998). Cultural

encounter gives the healthcare provider an ability to act, send and receive both verbal and

nonverbal responses correctly in each culturally-different context. Moreover, cultural

encounters require linguistic competence (Campinha-Bacote, 2007). Cultural skills

facilitate an assessment of collecting cultural data regarding the client's health-related

problems (Campinha-Bacote, 1998). The health care provider's approach to the patient

must be in a culturally-sensitive manner. Lastly, cultural desire motivates the health care

provider to engage in the cultural competence process. Cultural desire consists of

humanistic acts of caring, love, and spirituality (Campinha-Bacote, 2003b).

The culturally-sensitive health provider who reaches the cultural desire level

recognizes cultural differences and similarities; openness and commitment; willingness

and compassion (Campinha-Bacote, 2003c). Campinha-Bacote's (2007) cultural

competence model posits that cultural desire ignites a journey towards cultural

competence. This model offers health care providers with the necessary steps to render

and implement culturally-competent and sensitive care to all clients from diverse cultural

groups. Cultural desire is considered a mastery level of cultural competence. An

individual must progress through each component gradually and holistically to reach that

level. A health care practitioner must experience all five constructs and integrate them all

in the patient's care in order to be considered a culturally-competent provider.

Campinha-Bacote's model of cultural competence (2007) was used to guide the

design for cultural simulation scenarios and intervention. This model was appropriate for

this study because it offers a path for education and research in quantitative and

qualitative studies (Campinha-Bacote, 2010; Garrido, Dlugasch, & Graber, 2014; Kardong-Edgren, 2008). Campinha-Bacote's framework supported a multifocal approach to cultural competence, starting with the fundamental level of cultural awareness first before reaching a mastery of cultural desire. In addition, Campinha-Bacote's theory endorsed the cultures of patient as a teacher and health care professional or student as a learner. During high-fidelity cultural simulations students learn presented cultures in a culturally-prepared context. This model recognized cultural competence as a process-oriented procedure to meet patient-centric needs. Moreover, Campinha-Bacote's model has been empirically tested. Many researchers have used this model as a theoretical framework in their studies (Garrido, Dlugasch, & Graber, 2014; Kardong-Edgren, et.al. 2010; Morris 2007; Noble, 2007). Research studies that have employed Campinha-Bacote's model of cultural competence reported that participants improved levels of cultural competence after the intervention and reached cultural proficiency. Taking into consideration that the current study used the components of cultural competence; such as awareness of participants, their cultural knowledge, skills, encounters, and desire, it is evident that Campinha-Bacote's model aligned very well with this study.

Relationship of the Theory to this Study

Cultural competence is a dynamic and always changing process. Building a construct of this process requires a strong foundation of knowledge, communication abilities, attitude, and skills before someone can be deemed culturally-competent. High-fidelity simulation as an innovative pedagogical method that allows the researcher to use interactive cultural scenarios to increase cultural competence and self-confidence levels of students in a controlled, simulated environment. The pedagogical strategy of high-

fidelity simulation is to teach cultural concepts and facilitate the development of cultural competence among Baccalaureate nursing students. Campinha-Bacote's model of cultural competence provided a framework for students to increase their cultural awareness, knowledge, skills, encounters, and desire during the simulation experience. This framework acknowledges the learner's use of a deep thinking process to meet diverse individual needs. The complex cultural dynamic movement allows students to interact with the patient cultural simulator in a culturally- appropriate controlled environment. This determines if any increase in cultural competence level occurred after the cultural simulation scenarios. Moreover, it improves students' self-confidence and self-efficacy levels in caring for diverse cultural populations.

The schematic model presented in Figure 2 represents the relationship of the theory to this study. The independent variables were high-fidelity cultural simulation scenarios with nursing students. The dependent variables were cultural competence, and the five constructs of cultural competence – *cultural awareness, knowledge, skills, encounters*, and *desire*. The relationship among some demographic students characteristics, such as gender, health care experience, and level of education was assessed as it related to the influence of high-fidelity cultural simulation and its effect on the development of cultural competence, sensitivity, and, finally, proficiency. This model provided a schematic representation and framework for this research study. Nursing students conducted cultural meetings or encounters through high-fidelity simulation process.

Cultural competence, sensitivity, and proficiency are in the center of the model, since these elements comprise cultural awareness, cultural knowledge, cultural skills,

cultural encounters and cultural desire. This model has shown a sequential process relating to a central theme – establishment of cultural competence, sensitivity and proficiency by completing the necessary phases first – cultural awareness, cultural knowledge, cultural skills, and cultural desires. Cultural desire is the final stage of reaching cultural competence. If cultural desire cannot be reached, the process of cultural competence starts over with cultural encounters through high-fidelity simulation or a new teaching strategy until the cultural desire component has been achieved. Nursing students cannot be considered culturally-competent if they do not attain the cultural awareness, cultural knowledge, cultural skills, cultural encounters, and cultural desire in a sequential order.
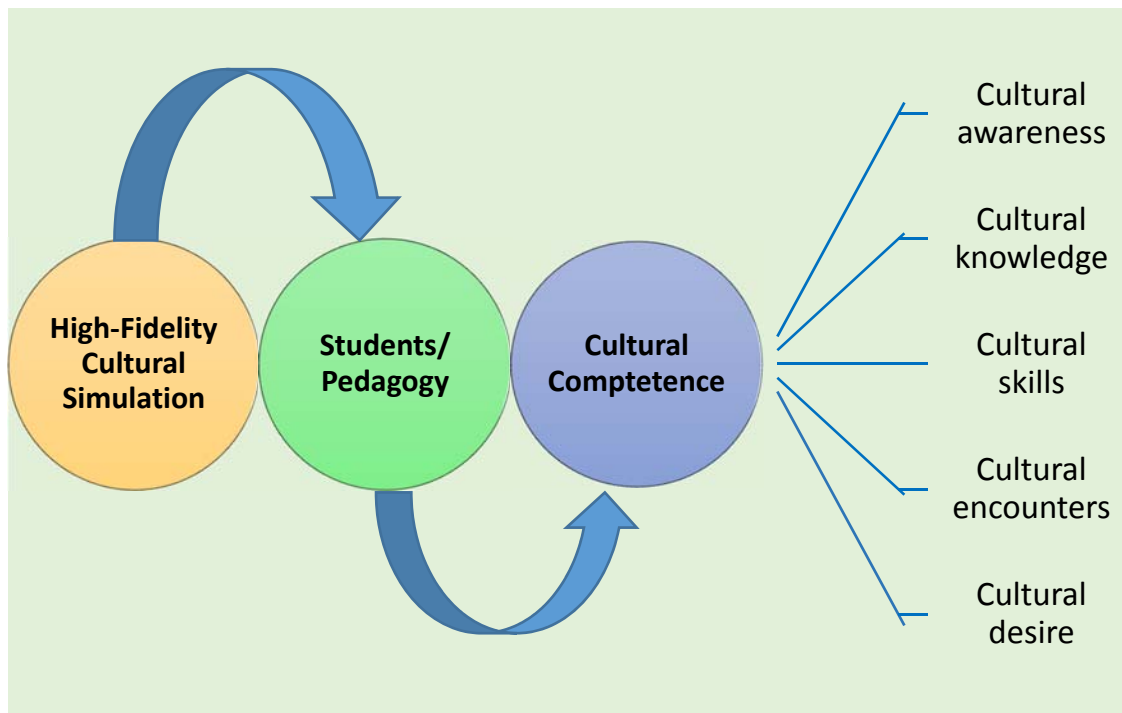
Figure 2. (Maltseva, 2015). Relationship model of high-fidelity simulation, nursing students, and cultural competence.

Assumptions

Researcher Assumptions

According to Powers and Knapp (2006) an assumption is a notion considered to be true. Researcher assumptions are consistent with particular views of the world and reality and can be based on the knowledge, personal beliefs and values. Researcher assumptions about the levels of cultural competence include that any types of changes, such as relocation to a new cultural environment, which can create more resilience to the cultural competence process. Another assumption is that nontraditional nursing students have already been exposed to different cultures in their life experience, which may contribute to their desire to learn different aspects of familiar and even new cultures.

Theoretical Assumptions

Theoretical assumptions are made on the basis of provisional support through previous research. These assumptions need to be made more explicit in order to understand the discipline each theory portrays (Powers & Knapp, 2006). The central assumption of Campinha-Bacote's model represents cultural groups beyond their country of origin and patient's ethnicity. The other assumptions of the Campinha-Bacote model (2007) posits that cultural desire is pivotal in the construction of cultural competence; cultural groups have variations, and all encounters are cultural encounters, therefore, cultural competence is an essential component in providing culturally-appropriate care to all clients (Campinha-Bacote, 2007). Another assumption of the model is that the process of cultural competence consists of five inter-related constructs (Campinha-Bacote, 2007). The main focus of this theory is modeled on socio-economic status, religion, political

orientation, age, gender, sexual orientation, language, occupational status and their influence on the development of cultural competence.

This study had the following assumptions:

1. There is a shortage of culturally-proficient nurses to care for diverse patient populations.

2. The instruments utilized in this study are valid and reliable.

3. Participants responded honestly and precisely to the cultural competence tool.

4. The inventory for assessing the process of cultural competence among healthcare professionals and the demographic instrument are valid and reliable.

5. Campinha-Bacote's cultural development theoretical framework is supported by empirical evidence and was a reliable and valid model to guide this study.

6. The research design and methodology are suitable for answering the research questions and testing the hypotheses.

7. There is a positive, direct relationship between cultural competence development and progressive patients' outcomes (Campinha-Bacote, 2010).

Significance of the Study

Cultural competence facilitated the fulfillment of the IOM report (2004) recommendation, which dictates the elimination of health care disparities by approaching the individual from a holistic perspective, and improving health care- related outcomes. Being culturally- competent requires an extensive understanding of the uniqueness of each individual. The American Nurses Association (ANA) position statement directs each nurse to respect values, beliefs and practices of each individual under their care.

Nurses should be sensitive to the differences of each individual: empathetic to their cultural needs, and become creative in professional encounters with diverse cultural groups. Global immigration has increased significantly within the last 12 years from 150 million in 2000 to 214 million in 2010 (Renzaho et.al, 2013). This demographic move creates multiple health disparities, negatively affecting minority cultural groups (Krishman, Diette & Skinner, 2001; Sheifer, Escarce, & Schulman, 2000; Brach & Fraserirector, 2000; IOM, 2004).

The primary health care disparities among cultural groups are lack of immunizations for adults and children; misdiagnosis of mental illnesses, and failure to receive proper services for psychiatric therapy and medication management; and the inability to obtain the best treatment for cancer, HIV infection, diabetes, and cardiovascular diseases (Campinha-Bacote, 2007; IOM 2004; Rust, et. al., 2006). The deficiency of cultural sensitivity among clinicians may contribute to these ethnic and racial disparities. Cultural competence among health care providers has helped to reduce health related disparities and improve quality of care and treatment outcomes. Hence, this study facilitates different approaches which future nurses can use in developing and increasing their levels of cultural proficiency in taking care of culturally-diverse populations. Examining the effect of cultural simulation as a pedagogical method on the development of cultural competence in baccalaureate nursing students has significance for nursing, education, practice, research, and health/public policy.

Significance of the Study to Nursing

Investigation of cultural competence from the nursing lens engage nurses in holistic treatment approaches and patient-centered high quality of care. It may also bring

meaning for nurses of patients' cultural practices and, furthermore, create a successful integration of these practices into a system of culturally-congruent nursing care. Furthermore, this cultural simulation may expand the nursing profession's body of knowledge. The evolving role of simulation is shifting from traditional learning to experiential learning. Participants could discover, how to construct knowledge and meaning through the complexity of a simulation. Students can master complex scenarios in simulation many times and repeatedly use simulation for remediation and clinical practices (Billings and Halstead, 2012). Moreover, nursing graduates need to be better educated and equipped to work in the complex global healthcare environment of diverse cultural populations.

Implications for Nursing Education

An essential component of the nursing profession is to become culturally-competent. Currently, there are no specific teaching strategies which focus on the development of cultural competence. This study provides a new pedagogical strategy for the utilization of high-fidelity cultural simulation to teach cultural concepts and facilitate the development of cultural competence among baccalaureate nursing students. High-fidelity simulation is a powerful tool that serves not only in mastering the skills but also in developing strong clinical reasoning and complex holistic critical thinking. This study may empower nurse educators to correct cultural incongruences of students in a controlled simulated environment before actual encounter with diverse patients in the clinical area.

Implications for Nursing Practice

The findings from this study could assist health care practitioners to deliver high-quality individualized, culturally-competent patient care with a major emphasis on the patient's beliefs, values, and practices within a cultural environment. Moreover, these findings may decrease health care disparities and improve patients' satisfaction and treatment outcomes. The implications for practice are that cultural simulations are potentially effective in increasing the levels of cultural competence development among future nurses. Culturally-competent and sensitive nurses facilitate patients' care from the holistic standpoint and integrate an individualized approach for patient treatment modalities.

Implications for Nursing Research

Examining the effect of cultural simulation as a pedagogical method on the development of cultural competence in baccalaureate nursing students has the potential to demonstrate the need for investigation of outcome-based culturally congruent patient care. This would make progress in the effort to fill the gap that currently exists regarding the body of knowledge about cultural competence development among baccalaureate nursing students through cultural simulation. Research with high-fidelity cultural simulation concentrating on diverse cultural values, beliefs, and practices can create new evidence-based teaching guidelines for educators in assessing cultural competencies in nursing students. A new model of high-fidelity cultural simulation offers a new directions toward patient-centered care by expanding knowledge of both technology and culture. In addition, this study could indicate a way to provide the utilization and validation of Campinha-Bacote's model from a scientific perspective.

Implications for Health/Public Policy

The main goal of the health public policy is to build a supportive environment to empower people to lead healthy lives (World Health Organization, 2000). Health care professionals can serve as ambassadors in advocating for equality and respect for all diverse cultural groups and minority populations. Cultural competence is an essential strategy for reducing disparities among diverse populations; improving access to the health care and facilitating patient-centered quality of care. The results of this study may show promise in becoming central for future federal, state, and private grants and proposals addressing the cultural health promotion and elimination of disparities in diverse patient populations in the health care arena. The research findings could facilitate the creation of new health and public policies that promote high-quality and culturally - congruent nursing care. Positive measurable patients' outcomes and satisfaction with care at the hospital and other health care sectors will serve as evidence that culturally - competent care has been provided and maintained among clinicians. Moreover, this type of care promotes an attitude of mutual respect and trust in the partnership between provider and patient, both of whom have the common goal of improved, sustained health. Lastly, based on the results of this study, governmental assistance may be allocated to purchase high-fidelity simulators to educate cultural competence in nurses.

Scope and Limitations of the Study

The scope of this study focuses on the establishment of innovative pedagogical methods of high-fidelity cultural simulation related to the development of cultural competence in baccalaureate nursing students. This research aimed to discover the ways in which high-fidelity cultural simulation can be innovatively implemented to increase

cultural competence in baccalaureate nursing students. The sample of participants

included nursing students who were in their second semester of nursing school, and who

could speak and write in English.

The following limitations were present in this study:

1. One-group pretest and posttest quasi-experimental research design was used in

    this study. There was no control or randomization of participants.

2. The non-probability convenience sample was limited only to baccalaureate

    nursing students.

3. There were incongruences in reporting data in the instrument by study

    participants.

4. Incompletely-filled instruments produced the limitation of reporting the

    information.

5. This study investigated the relationship between prior exposure to diverse cultures

    and evidence of development of cultural competence through experience with the

    simulation.

Threats to Internal and External Validity

A distinction is made between internal and external validity. These types of

validations are significant factors in determining the relevance of this research study. An

instrument used in a research study is said to be valid if this instrument measures what is

supposed to be measured (Gay, Mills, &, Airasian 2009). An experimental design allows

the researcher some degree of control over threats to the internal and external validity of

the research.

Threats to Internal Validity

Internal validity is the degree to which observed differences on the dependent variable are a direct result of manipulation of the independent variable (Powers & Knapp, 2006). Internal validity speaks to whether the effects observed in a study are due to manipulation only by the independent variable, or by some other factors. According to Gay et.al (2009), internal validity can be maintained by controlling extraneous variables, using standardized instructions and eliminating investigator effects.

Internal validity focuses on the threats that influence the outcomes of a study. The use of random selection of participants, control and experimental groups, as well as manipulation of independent variables are methods to control threats to internal validity. The researcher maintains the congruency in research between selected questions, hypotheses, research designs, methods of data collection, and statistical analysis in order to maintain the internal validity (Burns & Grove, 2009).

Attrition or mortality of the participants is a threat to internal validity because participants may drop out of the study due to different personal and professional obligations. Other threats to internal validity in a study may be lack of randomization; different demographic characteristics of study participants, and life experiences might influence different responses. The pre-test may prepare participants for the post-test, thereby creating inaccurate and biased responses, constituting significantly threats to internal validity.

Threats to External Validity

External validity refers to the extent to which the results of a study can be generalized to different settings, other people, and different times. It is the degree to

which study results are applicable or generalized to groups and environments in external settings. External validity can be maintained by setting experiments in a more natural setting and using random sampling to select participants. Any research study is externally-valid if the results are generalized to the population other than those directly involved in the study. A quantitative study has a high degree of external validity when the results can be generalized to people, measuring instruments, and settings outside of the particular study. Threats to external validity can limit generalization of experimental results to other populations. These threats include, but are not limited to interactive effects, reactive arrangements, and multiple treatment interference (Burns & Grove, 2009; Gay, Mills, & Airasian, 2009). This study had the following threats to its external validity:

1. Participants of the study could behave differently by knowing that they are part of the study. This phenomenon is known as the *Hawthorne Effect.* (Powers & Knapp, 2006).

2. Generalizability of the results and application to another setting and population could be limited due to the fact that only one convenience, non-randomized sample of baccalaureate nursing students was used in this study.

Chapter Summary

This chapter discusses the background of cultural competence development. The statement of the problem reveals that nursing curriculums consistently lack cultural competence integration into their program of studies. The purpose of the study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students. The definitions of key terms including the theoretical and operational definitions of baccalaureate degree nursing students, high-fidelity simulation, pedagogical methods and cultural competence are delineated.

The study was designed to find the answers to the research questions: What effect do culturally appropriate high-fidelity simulation scenarios have on the development of cultural competence in baccalaureate nursing students? What kinds of relationships exist among the subscales of cultural competence scale? What is the relationship among select demographics (age, gender, health care experience, level of education) and cultural competence development in baccalaureate nursing students? Which of the following demographic variables (e.g. age, ethnicity, educational level, and native [first] language), individually or grouped, are predictors of the levels cultural competence? What is the effect of simulation on determining the learning outcomes among baccalaureate nursing students in a medical-surgical nursing course? The theoretical model of cultural competence developed by Campinha-Bacote proposed that there is a rise of cultural

awareness within an interactive human community and discussed the levels of cultural

competence development of reaching in gradual order five major constructs – *cultural*

awareness, knowledge, skills, encounters, and *desire* (Campinha-Bacote, 2007).

Assumptions of the study have been underlined in this chapter. The significance of the

study had been framed in the domains of education, practice, nursing research, and

health/public policy. This chapter discussed scope and limitations of the study, and

threats to external and internal validity. Chapter two follows with the literature review.

CHAPTER TWO

REVIEW OF THE LITERATURE

The purpose of this quantitative study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students.

The body of literature accessed for this study using the EBSCO host, CINAHL database, and Google Scholar. Key search-terms included cultural competence, high-fidelity simulation, critical thinking, clinical judgment, and nursing students. The literature was limited to the English language, and research-related to the development of cultural competence among nursing students in high-fidelity cultural simulations as well as students' perceptions, awareness and desire, knowledge, encounters, and skills of cultural competence and cultural sensitivity. There was an abundance of scholarly work depicting cultural competence in nursing. A total of 30 articles from nursing and other disciplines were reviewed; however, only 18 articles were considered classic and current (within 5 to 10 years). These articles were selected to address cultural competence, high-fidelity simulation, and nursing students.

Despite the abundance of scholarly work, there was a noteworthy gap in the literature regarding the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence in baccalaureate nursing students. This

researcher hopes to fill the gap in the literature and add to the current body of knowledge in nursing science by studying cultural competence development via the simulation.

For the purpose of this study, the following representation of the literature expressed the significance of cultural competence and how it could be fostered in nursing students through utilization of the simulation process. It is important to understand the context to depict simulation effects on the development of critical thinking, clinical judgment and cultural competence in nursing and other health care discipline students. The literature found most pertinent to cultural competence development educational strategies in fostering this competency in nursing students and other categories necessary to review for relative conception of studied variables.

A study of the literature revealed that nursing researchers have dedicated many studies to an examination of the effects of simulation as an innovative pedagogical strategy on the development of critical thinking skills; however, very few research studies have investigated the cultural competence development through the use of simulation. The following categories were addressed in the review of the literature section: simulation and critical thinking in nursing education, simulation and clinical judgment, cultural competence and simulation, development of cultural constituents, and cultural educational interventions in the nursing curriculum.

Simulation and Critical Thinking in Nursing Education

Health care providers currently are challenged with complex patient diseases, care situations, and the need to make decisions rapidly in the face of limited or incomplete information. Simulation as an innovative teaching strategy can facilitate the development

of critical thinking, acquisition of knowledge and growth of self-confidence to make such quick decisions.

Gates, Parr, and Hughen (2012) performed a quantitative experimentally-designed study with the purpose to examine the effect of high-fidelity simulation participation on the development of knowledge acquisition in 104 undergraduate nursing students. The researchers tested the following hypothesis: that students participating in a simulation experience will receive higher scores on an examination of course content covered in the simulation than students who did not participate in the simulation. Medical-surgical nursing students were randomly-assigned to the control and experimental group that underwent pulmonary embolism (PE) and gastrointestinal bleeding (GI) simulations. The two 10-items examinations were created by the researchers and administered to the control and experimental groups. Analysis of variances (ANOVA) and multiple regression techniques were used in statistical software to evaluate the main study hypothesis.

Analysis of the gathered data indicated that the statistically-significant *beta coefficient* after the introduction of PE simulation moving from 0.105 to 0.186 and *r* increased by 8%. Moreover, *r* increased by 9.9% (moving from 0.042 to 0.141) after the introduction of GI simulation and raised students' examination scores on the GI bleed examination by 8.6 percentage points. The findings of this study helped to develop an evidence-based pedagogy, indicating that participating in high-fidelity simulations increased knowledge acquisition and retention in nursing students. The researchers recommended that future research should be done to explore the most effective ways to utilize the integration of simulations in traditional clinical courses. Cost-benefit analysis

of simulation should be included in future research to determine the most efficient use of resources and accomplishment of the best program outcomes.

Kaddoura (2010) conducted a qualitative exploratory descriptive study to answer the following research question: "How do new graduate nurses characterize the role of clinical simulation in influencing critical thinking, learning, and confidence of new critical-care nurses during their training?" A convenience nonprobability sampling method was used to select 10 participants who were new baccalaureate prepared graduate nurses. Data was collected by demographic questionnaire and semi-structured interview methods. Data was analyzed, coded, and transcribed by using qualitative data analysis software until the following themes emerged: a) just-in-time learning of cognitive and psychomotor skills; b) fostering critical thinking and leadership skills through feedback on simulation; c) safety in a nonthreatening learning environment.

The meaning of these themes indicated that feedback from peers and nurse educators during the debriefing process showed that these methods facilitated incorporation of correct knowledge and behaviors into students' skill set. Moreover, feedback was the process of reflection which inspired a transformation of knowledge and the development of critical thinking skills. Clinical simulation conducted in a safe teaching environment allowed learners to develop psychomotor and cognitive skills without risk to a live patient. Simulation engaged interactions of learner-centered teaching practices that stimulate critical thinking (Kaddoura, 2010). The findings of this study indicated that simulation - assisted participants obtained a deeper understanding of critical care nursing concepts, and helped them to develop critical thinking skills. The

researcher recommended utilizing simulation for collaborative team education: safety measures, promotion of critical thinking, and leadership skills in nurses.

As an innovative pedagogical strategy, high-fidelity simulation has been a valuable tool in development of critical thinking in nursing students. According to Burns, O'Donnell, and Artman (2010) a quasi-experimental study on high-fidelity simulation demonstrated efficacy in problem-solving skills among first-year nursing students. Researchers developed a 14-item attitude instrument to evaluate attitudinal change pre- and post-simulation and tested the hypothesis that adding high-fidelity simulation to traditional lecture units is an effective method of facilitating first-year nursing students' knowledge of the nursing process.

A total of 125 nursing students participated in the study. Data analysis was performed, using a paired sample t-test. The results indicated that knowledge attainment was statistically significant after the simulation (z=-6.602, $p<0.001$). All study participants demonstrated a significant positive difference for multiple attitudinal items, including critical thinking ($p<0.001$), nursing knowledge, confidence, and communication with other team members ($p<0.001$). The researchers recommended using simulation in practicing realistic patient scenarios and exploring simulation for more complex purposes, which can impact learning and patient care outcomes.

High-fidelity simulation provided critical thinking development in educating nursing students across the curriculum. Shinnick and Woo (2013) conducted a one-group, quasi-experimental, pre-test, post-test design study with the purpose to investigate the effect of human patient simulation on critical thinking in pre-licensure nursing students. A convenience sample (n=154) of four cohorts of pre-licensure nursing students

was obtained to participate in this study. Three simulation scenarios of acute congested

heart failure cases were created by the researchers. The Health Sciences Reasoning

(HSR) test was used to measure critical thinking of the participants before and after the

simulation. Scores of greater than 25 indicated that a participant had strong critical

thinking skills, whereas scores below 25 indicated that critical thinking was still in the

 learning and development process. The researchers developed the 12-items HF clinical

knowledge included in both the pre-test and post-test and focused on the symptom

management of a patient with heart failure. A confidence level was evaluated and

measured by a 12-item Likert Scale with 1=not confident and 5= extremely confident.

The participants completed the Health Science Reasoning test before and after the

simulation; they also completed the clinical knowledge questionnaire.

Paired *t*-tests for pre- and post-test knowledge and critical competence scores

were examined to analyze the data. Pearson's Correlation and Chi Square Analysis was

completed to determine the significance for multivariate regression. Multivariate

regression was performed to influence critical thinking ability. Paired *t*-tests revealed that

total HSRT scores between the pre-test and post-test decreased slightly and was not

statistically-significant (p=0.76). However, analysis of knowledge scores post-simulation

compared to pre-simulation revealed a mean improvement of 6.5 points ($p<0.001$). The

researchers concluded that pre-licensure nursing students who were older had increased

critical thinking scores after HPS, but those with prior employment did not (Shinnick &

Woo, 2013). The researchers recommended the integration of problem-solving into the

human patient simulation scenarios and undertaking pertinent evaluations of critical

thinking during the simulation as valuable components for faculty to assess safe patient

care for the future nurses. The researchers reinforced that student's age, knowledge, and more realistic self-confidence assessment are predictors for higher critical thinking ability (Shinnick and Woo, 2012).

An increased interest into high-fidelity simulation occurred among nursing faculty and researchers in teaching specialty courses. Brown and Chronister (2009) conducted a comparative correlational research study to evaluate the effect of simulation on critical thinking and self-confidence of nursing students during an electrocardiogram course. A convenience sample (n=140) of senior-level baccalaureate nursing students was recruited from a critical-care nursing course. The treatment group (n=70) received weekly simulation exposure in addition to lecture. The control group (n=70) received a traditional lecture teaching. The nine simulation scenarios were implemented to present cardiac dysrhythmias and changes in patient status.

The results were compared with a control group that received traditional didactic instructions on cardiac nursing concepts about cardiac dysrhythmias and electrocardiogram. Critical thinking was measured using the customized Evolve Electrocardiogram exam. This test was written at the application level or higher-evaluation, analysis, and synthesis level in order to correctly measure the critical thinking component. The researchers conducted the two-sample t-test to evaluate differences in critical thinking scores in the experimental and control groups.

 The results showed no statistically-significant differences between control and experimental groups (p>0.06). Two-sample t-tests were performed to compare the levels of self-confidence between the treatment and control groups. The mean responses were not significantly different for the first three items, but were significantly higher for the

control group for items 4 and 5 on the self-confidence scale ($p<0.05$). These findings were conclusive for this study, that simulation activities scheduled toward the end of the course were more effective in influencing self-confidence than weekly interactions (Brown & Chronister, 2009). The researchers performed a correlational analysis using the combined data for the control group and experimental group to investigate the correlation between post-test self -confidence and standardized ECG sim-test scores. The results demonstrated the statistical significance ($p< 0.05$) with correlation coefficient $r=0.441$.

The researchers concluded that the higher critical thinking scores on the ECG sim-test corresponded to a higher self-confidence level in the participants. A pre and post-test analysis of self-confidence for the control group, using the paired t-test demonstrated statistically significant increases ($p<0.05$) on all items. This finding validated the hypothesis that the participants attained self-confidence after the simulation, compared with levels of self-confidence reported by a control group. The researchers recommended that high-fidelity simulation activities positively influenced the development of self-confidence in the nursing students. Another recommendation was made that simulation would be more effective on the development of a higher level of critical thinking if it was delivered towards the end of the course, or during the second semester of the nursing program, when students had already gained substantial knowledge of a subject matter.

Defining the utilization of simulation not only in laboratory settings but also in electronic computerized format has occurred with the advancement of technology and science and further increased critical thinking in the nursing students. Weatherspoon,

Phillips, and Wyatt (2015) conducted a randomized controlled study to evaluate the effect electronic interactive simulation had on senior baccalaureate nursing students' critical thinking and clinical judgment skills. The researchers used a randomized controlled pre-posttest design. A convenience sample of 117 senior baccalaureate in science nursing students was selected for this study. The participants in the control group received a traditional paper case study simulation (TPCSS) whereas students in the experimental group received an electronic interactive simulation (EIS) experience. The researchers manipulated the intervention by presenting the same clinical scenarios in alternate format- TPCSS to the control group and EIS to the experimental group.

The researchers used the California Critical Thinking Dispositions Inventory (CCTDI) to measure the ability to solve the problems and make critical thinking decisions. The second instrument used in this study was the Triage Acuity Instrument (TAI) to measure the accuracy and efficiency of the decision-making process. Both instruments had been tested in empirical studies and demonstrated high reliability and validity indexes. Analysis of variance (ANOVA) mixed model statistical tests was performed to evaluate pre and post test data. The CCTI subcategories of truth-seeking open-mindedness and confidence in reasoning scales demonstrated statistically-significant differences in pre- and post-intervention scores between the TPCSS and EIS. The ANOVA results demonstrated that the truth-seeking subcategory had $p<0.003$, open mindedness had $p<0.006$ and confidence in reasoning revealed $p< 0.3$.

Moreover, the EIS group scored high in the post-intervention mean (M=305.6; SD =32.7) with a significant change, compared to the TPCSS group score (M=301.2, SD =31.6). These results demonstrated that experiential learning through electronic

interactive simulations contributed to the enhancement of critical thinking. The researchers recommended faculty to engage innovative pedagogies such as electronic simulation in education of the nursing students in order to increase their critical thinking skills. Another recommendation was made that paper case studies alone and without other pedagogical options may have had a constrained effect on the development of critical thinking disposition.

The multiple variations of simulation in different specialty courses created interest among nursing faculty members on the development of critical thinking skills. Shin, Ma, Park, Ji and Kim (2015) evaluated the effect of pediatric simulation courseware on critical thinking development in undergraduate nursing students and identified the outcomes of different numbers of simulation exposures on critical thinking in a multi-site environment. The researchers used a multi-site, pre-test, post-test design. A convenience sample (n=237) of undergraduate senior nursing students was recruited for this study from three different universities. The researchers designed the pediatric nursing simulation courseware to enhance students' clinical decision-making process. The Critical Thinking Disposition (CTD) tool was used to measure students' critical thinking abilities. The Simulation Effectiveness Tool (SET) was used to assess participant satisfaction with the simulation. Both instruments demonstrated acceptable validity and reliability indexes in the current and previous empirical studies with Cronbach's *alpha* of 0.845. Data was analyzed using descriptive statistics, paired *t*-tests for the pre-post CT test scores for each university and ANOVA for the CT and satisfaction scores among the schools.

The results demonstrated CT gains from post-test CT to the pre-test CT, among three universities: school C showed the highest gains of 2.45 followed by 1.50 at school B and 0.66 at school A. The findings of this study indicated that CT scores significantly increased after the simulation. Furthermore, CT subcategories of prudence, systematic organization, healthy skepticism, and intellectual properties scores increased in the nursing students after the simulation. The researchers recommended utilizing multiple-simulation exposures, because they contributed to the CT gains in areas of clinical competencies and clinical judgment skills in undergraduate nursing students ($p<0.001$).

All seven studies revealed that simulation, as an innovative teaching method, increased critical thinking scores among nursing students. Gates, Parr, and Hughen (2012) emphasized that simulation pedagogy facilitated the knowledge acquisition in medical-surgical nursing students anticipating work with patients presenting pulmonary embolism and gastrointestinal bleeding. Moreover, students who learned these diseases in the simulated environment scored higher on the course examination compared to students who did not receive experience with a simulation. Kaddoura (2010) also suggested in his qualitative study that simulation can improve critical thinking skills and foster positive learning experience in a non-threatening laboratory environment. Burns, O'Donnell, and Artman (2010) spoke out about the effects of high-fidelity simulation on the acquisition of knowledge and problem- solving skills. Shinnick and Woo (2013) emphasized that increased retention of knowledge as well as improved critical-thinking skills in taking care of the client with complex heart failure disease were the results of simulation experiences.

Moreover, acquisition of knowledge was another important factor in the development of critical-thinking skills. Brown and Chronister (2009) suggested that simulation had been beneficial in this area particularly when it was delivered toward the end of the semester, or at the beginning of the next semester for better knowledge acquisition and decision-making processes. Weatherspoon, Phillips, and Wyatt (2015) stressed out the benefits of electronic interactive simulation exercises and pointed out the fruitless outcomes of relying solely upon traditional teaching methods of undergraduate nursing students in relation to critical-thinking and decision-making processes of development. Shin, Ma, Park, Ji and Kim (2015) emphasized that multiple exposure to simulation activities contributed to higher levels of the decision-making process, critical thinking, and clinical competencies. These studies were congruent with Jeffries (2007) positive outcomes of simulation – retention of knowledge, critical thinking, learner satisfaction, and self-confidence. However, none of these studies examined the holistic process of competence development through high-fidelity simulation.

Simulation and Clinical Judgment

Investigation of current and available literature indicates that high-fidelity simulations had positive effects on the development of clinical judgment in nursing students. Lasater (2007) used a phenomenological qualitative design to examine the experiences of students in one nursing program during the first semester of using high-fidelity simulation as part of its regular curriculum. The researcher conveniently observed 39 students who participated in the simulation experience and invited them to discuss their reflection on it in the two focus groups. Clinical reasoning questionnaires were given in the focus groups. Data was analyzed by transcription and coding until the main

themes emerged: a) simulation served as an integrator for learning; b) assessment and reasoning were key to successful clinical judgment; c) learning from simulation in the laboratory frequently transferred to clinical practice settings; d) the acuity of scenarios increased students' awareness in their clinical practice; and e) debriefing was the most important phase for determining clinical judgment.

The findings of this study indicated that high-fidelity simulation influenced the development of clinical judgment in students. The meaning of these themes indicated that simulation supports an innovative pedagogy in preparing students to think analytically. Simulation served as an integrator of learning and combined together knowledge from theory classes, psychomotor skills from clinical laboratory sessions, and experience from clinical courses (Lasater, 2007). Furthermore, students emphasized that they valued connecting with other students during the simulated experience and proactively expressed their desire to receive more directed feedback from instructors. The scenarios forced them to anticipate what could happen in clinical settings which was beneficial in the development of their clinical judgment skills. The students gained an experience in simulation in complex cases they rarely could have encountered in clinical practicum settings. The researchers recommended utilizing high-fidelity simulation in which students have the opportunity to advance their clinical judgment skills without risk to a live patient. Furthermore, the researchers suggested conducting more studies with a broader cultural diversity of students to investigate their experiences of high-fidelity simulation and its effects on the development of clinical judgment (Lasater, 2007).

In another study, Mahoney, Hancock, Iorianni-Cimbak, and Curley (2012) indicated that using high-fidelity simulation helped facilitate more emphasis on clinical

reasoning. The researchers used a triangulation method of qualitative and quantitative components to explore the benefits of human patient simulation in pediatric acute care environment with traditional and non-traditional nursing students earning a Bachelor's of Science in Nursing degree (BSN). A total of 131 students participated in the study. The quantitative component of the study was measured by using a 5-point Likert Scale to evaluate accomplishment of learning objectives and effect of teaching instructions during simulation. Students were asked to write a reflection paper based on prepared open- and close-ended questions.

Thematic content analysis was used to analyze the qualitative component of the study. Unfortunately, the researchers did not reveal what statistical method they used to analyze the quantitative data; however, they indicated that learning objectives were met 80% of the time of simulated experience. The major findings of this study demonstrated that high-fidelity simulation could be used not only as a teaching strategy, but also as a tool that enhances students' preparation without injuring a patient. The researchers recommended that high-fidelity simulation incorporated into a pediatric nursing curriculum can be a very valuable tool bridging clinical and classroom learning. They suggested further research in integration of pediatric nursing students and medical students in other specialties of health care into high-fidelity simulation in order to create a multi-disciplinary environment with emphasis on partnership and communication with other disciplines (Mahoney, et.al. 2012).

High-fidelity simulation as an innovative teaching strategy has reinforced development of clinical decision-making processes in multiple studies. Cormier, Hauber, and Whyte (2010) conducted a quasi-experimental pilot research study with the purpose

to determine the relationship between nursing students' clinical prioritization in the decision-making process and knowledge development through experience in high-fidelity simulations. The sample was randomly-selected from a pool of 280 undergraduate nursing students and consisted of 15 study participants. The two physiological variables associated with the outcomes of care during high-fidelity simulations were mean arterial blood pressure and oxygen saturation. Demographic data was analyzed using descriptive statistics and bivariate correlations were performed to determine the nature of the relationship between physiological variables and course grades as a measure of knowledge.

The common physiologic variable of management of oxygen saturation and arterial blood pressure revealed a significant direct correlation with adult health grades (0.542, $p<0.05$) and an indirect correlation with fundamentals grade (-0.540, $p<0.05$). The outcomes of this study suggest that knowledge acquisition in high-fidelity simulation played a role in the improvement of clinical judgment and better patient outcomes. The researchers recommended that high-fidelity simulations promote an opportunity to correct and repeat clinical scenarios without risk to patients. The better instructional design during the simulation could generate practitioners who are proactively seeking opportunities to improve their own practice (Cormier, Hauber, & Whyte, 2010).

In a different experimental study, Linsey and Jenkins (2013) aimed to evaluate the impact of simulation on student nurses' clinical judgment during a rapid- response procedure. The research question of this study stated, "Does a clinical simulational intervention improve student nurses' clinical judgment?" The researchers developed an 11-item, multiple-choice survey to assess students' understanding of rapid-response

systems. The sample consisted of 79 baccalaureate nursing students in the final semester of their program. This sample group was randomly-divided into intervention (*n*=40) and control (*n*=39) groups. All participants completed the pre-test before the beginning of the simulation. The control group completed the post-test right after the traditional Code Blue scenario. The experimental group completed the posttest after receiving the rapid-response educational intervention. The researchers used independent samples *t*-test for statistical data analysis procedure.

The pre-test results revealed that both groups scored low on the pre-test: with the control group (*M*=57.05, *SD* = 16.47) and the intervention group (*M*=61.07, *SD*=17.19). An independent sample *t*-test (t (77) = 7.65, $p < .001$) revealed that nursing students who received the rapid-response educational intervention had significantly higher posttest scores (*M*=90.91, *SD*=8.73) compared to students who did not receive simulation (*M*=64.80, *SD*= 19.69). A comparison of pre and post-test scores indicated a statistical significance, $p < 0.001$.

 The findings of this study revealed that participants demonstrated post-intervention knowledge and clinical judgment gains in the experimental group. The researchers recommended using simulation as an innovative educational method in preparing students during a rapid-response exercise. Another recommendation was that outcomes related to clinical simulation should be examined further, rather than focusing only on students' perception of learning (Linsey & Jenkins, 2013).

Fostering clinical judgment skill is a necessity to preparing students to safely care for the elderly population. Johnson, Lasater, Hodson-Carlton, Siktberg, Sideras, and Dillard (2013) investigated role-modeling and clinical judgment effects in a geriatrics

simulation for a quasi-experimental study. The research question was focused on the differences in clinical judgment between treatment and control groups in a three-phase unfolding case, followed by interactions with an expert role-model in gerontology. The study sample included nursing students enrolled in their first clinical courses from four different schools in the United States (n=221) and one in the United Kingdom (n=54) for a total of 275 students. The researchers developed a simulation unfolding case of a geriatric client with a hip fracture. Participants were assigned to the treatment group and to the control group. Both groups participated in the simulation; however, the treatment group viewed the expert model video, while the control group did not.

The researchers developed a Likert Scale questionnaire to evaluate simulation activities and used the Laseter, Johnson, Hodson-Carlton, Siktberg, & Sideras (LCJR) (2012) toolkit instrument to measure clinical judgments of participants. This instrument demonstrated reliability and validity in empirical studies with a Cronbach's *alpha* reliability coefficient ranging from r=0.56 to 0.96. Descriptive statistics tests were performed to evaluate demographics and students' satisfaction with the simulation ratings. Independent sample *t*-tests helped analyze group differences in student satisfaction. The Kruskal-Wallis Test was selected by the researchers to analyze categorical data from the LCJR (Johnson et.al, 2013).

The findings of the study revealed a highly-significant difference *(p=0.000)* between the treatment and control group in relative to skills necessary to care for elderly patients. Among students in all schools their clinical judgment scores for noticing, interpreting, and responding to the situation between treatment and control group (p=0.000) were consistent in the treatment group. The researchers recommended using an

expert to provide a role-model for students before, during, and after the simulation, in order to increase their clinical judgment competencies.

Furthermore, high-fidelity simulation had a positive effect on students' self-confidence, satisfaction and academic success. Weaver (2015) studied the effect of a model demonstration during debriefing on students' clinical judgment, self-confidence, and satisfaction during a simulation activity in a quasi-experimental study. The purpose of this study was to identify whether or not a videotaped model demonstration conducted as a part of a debriefing session following a simulation improved clinical judgment, learner satisfaction, and self-confidence. A total sample of 96 students participated in this study. The researchers designed the simulation activity during which students had to provide care to a patient who was found on the floor, followed by either a regular debriefing procedure for the control group, or a model demonstration in addition to the regular debriefing procedure for the study group.

The National League of Nursing (NLN) instrument was used to measure student satisfaction and self-confidence with learning after simulation and reported that this instrument had positive validity and reliability when tested in empirical studies with Cronbach's *alpha* of 0.94 for satisfaction and 0.87 for self-confidence (Jeffreys & Rizzolo, 2006). The researchers evaluated clinical judgment during both simulations by using the Lasater Clinical Judgment Rubric (LCJR). Data was analyzed using a two-way multivariate analysis of variance (MANOVA) test for clinical judgment, satisfaction, and self-confidence. This statistical test was used to measure clinical judgments scales: noticing, interpreting, responding, and reflecting. A paired *t*-test was completed on the experimental group's model satisfaction scores after each simulation scenario.

The statistically-significant results revealed that the intervention group showed greater change in clinical judgment than the control group ($p < 0.01$). The researchers found that the intervention group had lower scores before the simulation activity compared to the control group; however, the intervention group developed higher scores at the end of the simulation than control group did. Students' satisfaction with learning was statistically-significant in the intervention group ($p<0.05$). The univariate test revealed that the difference in self-confidence for the intervention group did not reach statistical significance ($p>0.05$). The researchers recommended using a videotaped model demonstration during simulation debriefing, since that approach revealed effective method in developing clinical judgment in undergraduate nursing students.

The role of debriefing after the simulation was paramount in the development of critical thinking and clinical judgment. Mariani, Cantrell, Meakim, Prieto, and Dreifuerst (2013) examined the outcomes of structured simulation debriefings on learner's clinical judgment in a mixed-method triangulation study. The researchers used a quasi-experimental design for the quantitative portion of the study and a focus group for the qualitative component of the study. Students were randomly-assigned to the experimental ($n=42$) and to the control group ($n=44$), for a total sample size of 86. Forty- two students in the experimental group received the structured debriefing, including prior clinical experiences, educational preparation, reflection, and the current clinical situation, whereas students in the control group received unstructured debriefing in simulation. The participants' clinical judgment abilities were assessed using LCJR instrument. Seven students participated in a focus group for obtaining qualitative data.

The means of LCJR scores were analyzed with repeated measures of analysis of variance (RM-ANOVA) to assess time differences between groups. The RM-ANOVA did not indicate statistically-significant results (p=0.64). A two-way repeated measures multivariate analysis of variance (MANOVA) was used to determine statistical differences on the clinical judgment subscales. The data analysis revealed no statistically significant differences between the control and intervention groups in overall scales and subscales on the LCJR. The qualitative findings of the study demonstrated that students benefited from the structured debriefing simulation procedure in their overall learning and clinical reasoning. The researchers recommended using a structured debriefing procedure since it had a value for student- centered learning (Mariani, et al., 2013).

The literature has shown that simulation can facilitate clinical judgment and reasoning abilities among nursing students. Lasater (2007) qualitatively examined high-fidelity simulation in relation to clinical decision - making processes of undergraduate nursing students. A key issue identified by the researcher was that high-fidelity simulation was an essential tool for the integration of learning and development of clinical reasoning. Mahoney, Hancock, Iorianni-Cimbak, and Curley (2012) concluded that high-fidelity simulation allowed nursing students to be better future clinicians by providing them with the opportunity to examine their own abilities through post-simulation reflection and acquired clinical reasoning. In addition, Cormier, Hauber, and Whyte (2010) confirmed nursing students' knowledge development and prioritization of patients' care during high-fidelity simulation. Linsey and Jenkins (2013) supported the assumption that clinical simulation was not only the important strategy of educational activity, but also served as a crucial element of nursing education in clinical judgment

categories. Johnson et al. (2013) provided evidence for the effectiveness of simulation as a positive pedagogical method.

Furthermore, the researchers strongly supported students' exposure to expert role modeling in simulation procedures since it had a significant effect on the development of clinical judgment in the complicated care of older adults. Weaver (2015) emphasized that the innovative approach of using a videotaped model in simulational activities was a positive operational method in developing clinical judgment. This researcher provided evidence for innovative teaching during the simulation, as it has demonstrated a significant effect on clinical judgment skills in undergraduate nursing students. Mariani et al. (2013) highlighted that students' perceived the structured debriefing sessions as being beneficial for the development of clinical judgment, which included a holistic approach to taking care of the patient during the simulation. These studies emphasized that high-fidelity simulation has been an essential component in developing clinical judgment and reasoning in nursing students, and, therefore, prepares them to be competent health care providers. Even though these studies demonstrated a strong relationship between simulation and clinical judgment, none of them gave attention to the process of clinical decision-making skills in a simulation experience. The current study gave emphasis on the sequential steps of cultural competence development through high-fidelity simulation.

Cultural Competence and Simulation

Many simulated experiences in nursing educational programs have been guided toward the preparation of nurses in a controlled laboratory environment. The simulation proficiencies included prevention of medication errors, safety, nursing process geared

toward understanding illnesses, and the engagement of future nurses with technology in health care. Furthermore, the simulation laboratory has been used to provide specific clinical experiences for students due to increased competition for clinical placements (Nagle, McHale, Alexander & French, 2009; Roberts, Warda, Garbutt, & Curry, 2014). However, few studies regarding the effect of cultural simulation scenarios on developing cultural competencies and improving care of diverse population have been made.

Grossman, Mager, Opheim, and Torbjornsen (2012) conducted a bi-national simulation study using a quasi-experimental design. Faculty from a nursing program in the U.S. and a nursing program in Norway joined forces to develop culturally-appropriate simulation medical-surgical scenarios involving Muslim, Somalian, and Italian Catholic patients. The purpose of the study was to evaluate the effect of culturally-derived simulations on students' cultural awareness.

Convenience sampling was used. The Transcultural Self-Efficacy Tool (TSET) was administered to the American cohort ($n = 48$) and the Norway cohort ($n = 25$) of students before and after the cultural simulations. The TSET is a valid, reliable tool that measures student perception of cultural awareness. The data was analyzed using paired t tests and revealed statistically- significant differences between the pretest and posttest scores for the TSET. Total scores for the American students were $t = 2.34$, $p < .02$ and the values for the Norwegian students were $t = 14.30$, $p < .01$. The data was collected and analyzed in two separate settings. The findings of this study indicated that simulation was a useful methodology for teaching cultural awareness to nursing students. The researchers recommended the replication of this study by developing cultural- content scenarios and using cultural props in order to create a diversity in complex cultural simulation cases.

Cultural competence developed under environmental conditions in which diverse human interactions occurred in multicultural settings. Ndiwane, Koul, and Theroux (2014) conducted a quantitative study with a group of first-year graduate students ($n=29$) by using a pretest-posttest study design. The purpose of the study was to evaluate the cultural competence of nursing students after objectively structured clinical examinations (OSCE) in the multicultural simulated environment. A student satisfaction survey of 11 questions with a 5-point Likert Scale was used to evaluate students' satisfaction with OSCE, self-confidence, cultural awareness, and effect on critical thinking. The data was analyzed using pre- and post-cross-tabulation with the Wilcoxon Signed-ranks Test. The subscale means ranged from a 4.22 to a high of 4.45. The study revealed that students' scores on cultural knowledge improved significantly as a result of the post-intervention cultural simulation. The researchers recommended that the use of an objective structured clinical examination (OSCE) with culturally-diverse standardized patients allowed students to develop necessary skills in patient-centered care and positive health outcomes for patients from diverse cultural backgrounds.

Another area of interest in the development of cultural competence has occurred in researching the effects of interactive computerized scenario of the patients from different cultural background on the cultural competence development in students. Smith and Silk (2011) conducted a pilot study with the purpose of investigating the influence of an online interactive simulation depicting an Arab American Muslim patient on the knowledge, skills, and attitudes of second-year medical students. Participants were randomly-assigned to a control ($N=102$) or an experimental group ($N=97$). The experimental group had an interactive simulation with an Arab American Muslim patient,

and the control group engaged in traditional classroom teaching. Both groups completed a modified Clinical Cultural Competence Questionnaire to evaluate their knowledge, skills, and attitudes about culturally- competent healthcare (Smith & Silk, 2011). Inferential statistics of data analysis showed a statistical significance ($p<0.01$) for five of the outcomes measures in the experimental group, including knowledge of Arab Americans, diversity, and cultural sensitivity. The researchers recommended to use interactive patient simulation beyond the basic cultural-competence curriculum. This interactive simulation demonstrated the potential to improve the knowledge and skills of second-year medical students regarding the care of Arab American Muslim patients (Smith & Silk, 2011).

Ethnically-diverse students required interactions in a culturally rich environment in order to learn how to effectively communicate with people from different cultures. Bauer and Bai (2015) conducted a pre- and post-comparison study with the purpose to evaluate innovative simulation educational activities using a model to enhance cultural competency among graduate students. A sample consisted of 34 graduate students who voluntarily agreed to participate in the study. Each innovative educational activity addressed each construct of the Campinha-Bacote model (2007). Students participated in cultural simulation activities, assessed the cultural competence of organizations, and conducted the nutritional assessment of an individual across cultures. The Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals – Revised (IAPCC-R) was used to measure the five identified cultural competence constructs- cultural awareness, cultural knowledge, cultural skills, cultural encounters, and cultural desire. This instrument had had high validity and reliability indexes, with a Cronbach

alpha of 0.82. The researchers used repeated measure ANOVA to statistically analyze the results of overall 68.7 pre-test and 78.7 post-test results on the scale of cultural competence.

The data analysis demonstrated that evaluation of cultural competence constructs of the Campinha-Bacote Model improved significantly after completion of the course ($p<0.01$). The scores for four cultural constructs demonstrated statistically-significant results with a $p<0.01$. The researchers did not test the cultural desire construct, since they found out that there were no learning activities in this component. The findings of this study demonstrated a positive effect from the implementation of innovational simulation strategies to improve cultural competence in students. The researchers recommended using experiential learning activities in the courses to facilitate development of cultural competence in students.

A triangulation study that included quantitative and qualitative approaches was conducted to examine the effect of integration of inter-professional education and culture into advance practice simulations (Garrido, Dlugasch, & Graber, 2014). The study involved 108 participants from different nursing and health-science programs: family nurse practitioner (FNP), athletic training, and physical therapy. Students in this study were engaged in culturally-competent inter-professional simulation scenarios. Campinha-Bacote (2007) and Purnell's (2009) cultural frameworks guided this study from a theoretical perspective. All disciplines completed a pre- and post-Attitudes Toward Health Care Team Scale (ATHCTS). However, only FNP participants were asked to complete a pre-and post-Cultural Awareness Scale (CAS) and write a critical reflective essay after simulation. ATHCTS and CAS instruments indicated content validity indexes

with Cronbach's *alpha* of 0.83 and 0.88, respectively. *T*-test was used to determine the effect of cultural awareness.

Out of five subscales, only the behaviors and comfort with interactions subscales were statistically-significant ($p<0.05$). Analysis of data indicated that FNPs were more comfortable interacting with diverse populations. Results of ATHCTS demonstrated that inter-professional collaboration was poor, but shared leadership was valued. Critical reflection essays analysis demonstrated that FNPs were becoming culturally-competent (Garrido, et al., 2014). The researchers recommended using experimental teaching modalities such as cultural simulations to facilitate inter-professional culturally-competent learning. Furthermore, future studies should be focused on the cost-benefit ratio for cultural educational and inter-professional activities (Garrido, et.al, 2014).

The findings of Garrido et.al, (2014) study corresponded with the Fishwick, Kamhawi, Coffey, and Henderson (2010) research. Researchers investigated the effects of cultural training simulation program for undergraduate university students. A convenient sample of 160 participants was selected to complete this study. The researchers aimed to assess the simulation environment by measuring human performance during the simulated on-line cultural experience in China.

The simulated cultural research ITC- Sense of Present Inventory (ITC- SOPI) and Intercultural Sensitivity Scale (ISS) helped to determine the measurements of sense of presence and cultural sensitivity. The researchers reported the preliminary qualitative results of the study for fifty participants at that time. Subjects perceived that an interactive cultural simulation environment was more important and more enjoyable, compared to web scenarios of the same content. The qualitative data provided by the

researchers indicated that multi-varied virtual environment cultural platforms were effective in conducting cultural training simulations and accomplishing culturally-sensitive objectives. Based on the results of this study, the researchers recommended that cultural training system simulation was a useful platform in training across multiple disciplines.

Cultural competencies were essential for achieving satisfying and effective interactions between culturally-diverse clients and health care providers. The role of nurse educators was to prepare culturally-competent practitioners who strive to improve health care outcomes of diverse populations. The literature supported this notion of appropriate preparation of culturally competent nurses. Grossman, Mager, Opheim, and Torbjornsen (2012) believed that culturally- competent simulation scenarios taught nursing students to be more culturally - aware. Ndiwane, Koul, and Theroux (2014) thought that cultural simulations improved cultural knowledge. Smith and Silk (2011) established that cultural interactive on-line simulation enhanced cultural competences of students in taking care of clients from the Middle East. Bauer and Bai (2015) emphasized that participation in cultural simulation improved cultural awareness, enhanced cultural knowledge, developed cultural skills, and facilitated cultural encounters in different cultural groups. Furthermore, it improved overall cultural competence among graduate students.

Garrido, Dlugasch, & Graber (2014) suggested that interprofessional cultural collaborative simulation could improve culturally-sensitive care and develop cultural competencies in graduate nursing students. Fishwick, Kamhawi, Coffey, and Henderson (2010) believed that a cultural simulation platform as an innovative pedagogy facilitated

students' desire to learn about different cultures. The literature identified the importance of incorporating cultural competence in nursing education and described how simulation can improve cultural awareness, knowledge, and skills (Merril & Hummel, 2010; Roberts, et. al 2014). While cultural competence was identified as an important component of the curriculum in these research studies, none of them addressed the effect of high-fidelity cultural simulation on the development of cultural competence; specifically, in baccalaureate nursing students.

Development of Cultural Constituents

Each culture consists of elements distinct to every cultural affiliation. Knowing cultural constituents, language, awareness, knowledge, and skills contributed to a better preparation of a culturally-competent and sensitive health care provider. Accordingly, Benavides-Vaello, Stevens, and Vines (2014) conducted a qualitative, interpretative descriptive study with the purpose to evaluate students' perceptions of the use of simulation in Spanish for healthcare professional courses. A convenience sample of 28 students enrolled in the course was used in the study. Data was collected through focus groups interviews. Data analysis was performed through coding, indexing, and interpretation until the development of themes and data saturation occurred. The following themes emerged about simulation: a) simulation provides a very real experience, b) simulation provokes anxiety, c) simulation increases confidence related to recognizing limitations when communicating with Spanish-speaking patients, d) students felt support from the group, and e) students wanted more use of simulation throughout the entire course.

The meaning of these themes indicated that students learned Spanish through the simulation. The results of this study demonstrated that simulation could be effectively used to evaluate Spanish proficiency among inter-professional healthcare students. The researchers recommended that simulation serves as a powerful tool to help students understand how communication issues can occur between patients and health care providers, impending efficient care.

A prospective, cross-sectional, descriptive study was conducted by Mareno and Hart (2014) aimed to compare the levels of cultural awareness, knowledge, skills, and comfort of nurses with undergraduate and graduate degrees when encountering patients from diverse populations. A total of 365 nurses participated in the study. The Clinical Cultural Competency Questionnaire (CCCQ) was used to measure nurses' perceptions of their cultural awareness, knowledge, skills, and comfort level when caring for patients from culturally-diverse populations. Descriptive statistics and independent t-tests were used to compare subscale scores from the CCCQ and cultural diversity training between undergraduate and graduate nurses.

Data analysis demonstrated that the difference in the mean scores for cultural diversity training in the work setting was statistically-significant (t=3.289, p<0.01). Undergraduate-degree nurses scored lower than graduate-degree nurses on cultural knowledge. Based on the results of this study, the researchers recommended using simulations as a venue for undergraduate and graduate students to practice cross-cultural communication and increase cultural proficiencies.

Integration of culturally-competent activities in the classroom facilitated knowledge development, better learning outcomes, and cultural sensitivity. McArthur,

Greathouse, Smith, and Holbert (2011) conducted a quantitative assessment study of the cultural knowledge, attitudes, and experiences of junior and senior dietetics students. Ninety-eight junior and 185 senior dietetics students participated in this study. Cultural knowledge was measured using a cultural nutrition test developed by the researchers. The researchers obtained total scores on the 40 multiple-choice questions. The Mann-Whitney Test was used to compare the median test scores of students who had and those who had not, previously taken a cultural college course. The Pearson Correlation was used to measure the strength of association among variables. The statistical analysis indicated that there was no statistical significance in overall scores for students who received and who did not receive cultural instructions. The majority of the students strongly agreed with the statement that if they were given a choice, they would prefer to work with clients from their own cultural background. The researchers found a weak positive correlation (R (df) =.140, p=.04) between the number of activities in which the students had participated and their knowledge scores on the cultural assessment test. The findings of this study indicated that students possessed an inadequate knowledge based on cultural health beliefs, traditional food practices, and communication styles. The researchers recommended that students would benefit from more interactive cultural learning opportunities throughout their academic curriculum.

The cultural norms of clinical simulation in undergraduate nursing were investigated by McNiesh (2015). The researcher employed a qualitative ethnographical research design to discover relationships, values, beliefs, and cultural norms of the students' practice within the simulated environment. Ninety-nine baccalaureate nursing students participated in the observational part of the study, and twenty-five students

participated in the small-groups interviews. The participants were selected via a convenience sample procedure and were observed during scheduled simulations in medical-surgical nursing, pediatric, and obstetrical nursing. Each observed simulation session included a clinical group of 8 to 10 students. Data was gathered in the form of field notes and reflective memos, following the observations. Data analysis was performed by coding and contextual analysis until the data saturation was reached. The following themes were evident in this study: familiarization to the setting, enacting the full nursing role, making mistakes in a safe place, being watched and evaluated, and collective learning. These themes added to the conclusion that including a cultural context to the learning in simulation can facilitate development of effective clinical reasoning for undergraduate nursing students (McNiesh, 2015). The researcher recommended that simulation represented an effective pedagogy in clinical education by providing a constructed cultural environment, which allowed students to interpret culture through cultural norms.

These research studies focused on the importance of knowing cultural constituents in providing culturally-sensitive care. Benavides-Vaello, Stevens, and Vines (2014) stressed that cultural simulations can improve foreign language proficiencies. Mareno and Hart (2014) recommended using simulations to improve cross-cultural communication skills. McArthur, Greathouse, Smith, and Holbert (2011) considered implementation of more interactive cultural learning strategies to expand knowledge, awareness, skills, communication, and cultural health-care practices among the students. McNiesh (2015) contextualized that the cultural standards of clinical simulation in the

undergraduate nursing education linked to the development of broad-practice based skills and complex clinical reasoning for nursing students.

The main focus of these research studies was on cultural constituents. However, there was a scarcity of data available in the literature pertinent to the best strategies to advance cultural constituents in nursing students and other health-care providers. Moreover, the literature was sparse about the value of simulation practice for cultural competence and sensitivity, public and interpersonal skills, and communication and collaboration with other health-care disciplines. This study is designed to provide empirical evidence concerning cultural competence development in nursing students through high-fidelity simulation.

Cultural Educational Interventions in the Nursing Curriculum

An increased diversity among patient populations in the healthcare system and the demands for preparing culturally-sensitive practitioners creates the needs for implementation of cultural competency in the nursing curriculum. Kardong-Edren, Cason, Brennan, Reifsnider, Hummel, Mancin, and Griffin (2010) evaluated the cultural competencies of graduating nursing students from six different baccalaureate in nursing programs. These programs used different cultural teaching strategies in their curriculum. For example, free-standing cultural courses, integration of culture into the curriculum, summer immersion cultural study experience, and community health nursing courses in different countries outside of the United States were utilized. One nursing program structured cultural competence into the curriculum that facilitated cultural knowledge to expand from previous courses. Campinha-Bacote's (2003) conceptual framework provided guidance for this descriptive post-test-only design study. The snowball

sampling technique was used to select six programs and recruited 515 nursing students

from the different nursing programs. Campinha-Bacote's (2010) Inventory for Assessing

the Process of Cultural Competency among Healthcare Professionals –Revised (IAPCCP-

R) was employed to measure cultural competency in participants of this study.

The scores of 80-100 indicated greater levels of cultural competency. Statistical

univariate analysis was performed to evaluate differences in students' cultural

competency associated with curriculum methodology. A multivariate analysis of variance

(MANOVA) was used to evaluate the differences in students' subscales of IAPCC-R of

construct scores. Bonferroni's Technique was used to assess differences among schools

in relationship to cultural-competency levels. Multiple regression analyses processed the

statistical data to determine the influence of students' demographic characteristics,

cultural experience, and education on the levels of cultural competency.

Cronbach's *alpha* of 0.81 of the IAPCC-R evidenced good reliability among all

participants. Univariate analysis of variance revealed significant difference in total

inventory scores associated with the nursing programs ($p=0.03$). MANOVA on the

subscales of cultural competency indicated the overall significant effect (F=5.4, df=25,

1877, $p=0.00$, partial eta squared=0.5 with an observed power of 1.0). Kardong-Edren,

et.al (2010) reported that students in a nursing program that utilized the integrated culture

care theory as a framework into the curriculum scored better than students in other

programs on IAPCC-R. These participants were the oldest in the sample ($M=29$ years),

and had prior degrees. Overall, the researchers reported that undergraduate nursing

students for all six programs - regardless of education or intervention - continued to score

in the culturally-aware range on the IAPCC-R. The researchers recommended exploring

other promising approaches of increasing cultural competencies among nursing students, by utilizing high-fidelity human patient simulators.

Creating a learning environment based on the needs of the students, engaging them in active communication, and exposing them to different cultural backgrounds facilitate accomplishment of learning outcomes. Noble, Nuszen, Rom, and Noble (2014) researched the effect of a cultural competence educational intervention for first-year nursing students in Israel. This quasi-experimental study used a convenience sample to recruit 146 first-year nursing students. The students were divided into an interventional group from one school and a control group from another nursing school. The interventional group received a 2 -hours faculty lecture on cultural competence and delivered a student group cultural presentation.

Campinha-Bacote's Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals –Revised (IAPCC-R) was used to measure cultural competence constructs- awareness, knowledge, skills, encounter, and desire before and after the intervention. The researchers revealed that students in the experimental group developed a higher level of cultural competence scores after the cultural intervention (68 ± 6 to 73 ± 6, p=0.000) compared to the control group (67 ± 6 to 66 ± 6). These findings are conclusive that cultural integrative teaching strategy is an effective method in improving the cultural competence scores of first-year nursing students. Based on the findings of this study, the researchers recommended implementing evidence-based teaching strategies in order to facilitate effective cultural competence simulation. The researchers recommended that it would be advisable to conduct future studies in nursing

education in which Campinha-Bacote's (2012) newer student version tool- IAPCC-SV is utilized.

Creative teaching pedagogy outside the classroom in a different country is another method of developing cultural competence. Curtin, Martins, Schwartz-Barcott, DiMaria, and Ogando (2013) investigated the effectiveness of an international service-learning program on the development of personal and professional roles of nursing students. Using Riner's reflective framework, the researchers qualitatively evaluated the experiential learning of nursing students. The international service learning program included didactic session, immersion experience in the country, and a debriefing session. The sample consisted of ten nursing students.

The thematic analysis of data revealed the emergence of five major themes: physical adaptation, handling frustration in the inability to meet patients' needs, increased confidence in speaking Spanish and assessing health problems, increased cultural awareness, and managing a shift of focus from self to others. The meaning of the first theme disclosed that adapting to the physical environment of a foreign country is challenging for students in the physical component. The second theme revealed that students expressed frustration when they were unable to perform more nursing duties for the indigent patients who required extensive medical and psychiatric care. The third theme emphasized that students increased their nursing assessment skills and Spanish language proficiencies. Students began to feel more confident as nurses and interpreters. The fourth theme revealed that students increased their feelings of appreciation of the United States and Dominican Republic health care systems. Furthermore, students

recognized cultural differences, particularly in situations where specific cultural issues were evident in patients.

The final fifth theme revealed that students focused more on communication with people rather than on themselves and their electronic devices. This is a pandemic issue in education. Reflective journaling of students' feelings and emotions documented the transformation of students' perspectives on their professional and personal roles in nursing practice (Curtin et.al, 2013). The researchers concluded that curriculum integration was needed for global learning, social consciousness, and global cultural competence development. The researchers recommended exploration of reflection models as a beneficial technique to facilitate students' critical reflection. Furthermore, another recommendation was made toward global learning integration for the development of global cultural competence in nursing students.

In another international study, Ballestas and Roller (2013) conducted a comparative quantitative pre-test, post-test design to measure the effects of a one-week course program abroad on the improvement of cultural competence in baccalaureate nursing students. A purposive sampling technique was employed by the researchers to recruit 18 participants for this study. All participants enrolled in this international course and volunteered to participate in the study located in Costa-Rica. The IAPCC-R instrument developed by the Campinha-Bacote (2007) was used to measure levels of cultural competence. The cultural competence proficiency scores increased, as cultural incompetence scores decreased. Data was compared for pre and post items of IAPCC-R. The overall mean score before the students' international course in Costa-Rica was 66.3 points out of possible 100 points. The overall mean score for post-test increased to 78.8

points. The researchers used *t*-test to compare the means of dependent variables for independent variables before and after the international experience. The results of the *t*-test demonstrated a statistical significance (*t* (*df*) =5.62, *p*< 0.000). The findings of the study indicated that 13 students who were culturally-aware before the course increased their scores to the culturally-competence level after the completion of the international course experience. The researchers recommended that faculty members teach in the study-abroad programs even for a short period of time in order to improve cultural competence in baccalaureate nursing students.

Cultural competence development among nursing students could occur in local and international service-learning programs through different exposures to diverse populations, as evidenced by this research study. Amerson (2010) conducted a pre- and – post comparative quantitative study to evaluate the impact of international and local service-learning experiences on cultural competence of baccalaureate nursing students. A convenience sample consisted of 69 baccalaureate nursing students enrolled in a community-health nursing course to evaluate cultural competence following the completion of international and local service-learning projects.

The Transcultural Self-Efficacy (TSET) tool was administered at the beginning and conclusion of the semester. The researcher reported construct validity for this instrument. A paired samples *t*-test was used to compare the pretest total score to the posttest. The researchers found a significant increase from pretest to posttest (*t*=-9.995, *p*<0.001). Multivariate analysis (MANOVA) was used to analyze the effect of a clinical section between pre-post-test on each subscale. The results demonstrated no statistical significance (*p*>0.05). The researcher concluded that international and local service-

learning projects increased cultural competence in cognitive, affective, and psychomotor domains in the learning processes of nursing students. The researcher recommended utilizing service-learning projects at the local and international levels in order to increase cultural proficiency among nursing students. Furthermore, exposure to the different cultures facilitated cultural sensitivity development in decision-making health care practices.

Multicultural educational interventions with an emphasis on the special needs of diverse human populations could contribute to effective cultural competence development in nursing students. Gallagher and Polanin (2015) conducted a systematic review and meta-analysis of educational interventions designed to increase cultural competence in professional nurses and nursing students. A total of 25 studies on cultural competence interventions were synthesized to extrapolate the increase of cultural competence in nursing students and professionals. Data analysis was done by using coding and meta-analysis techniques which included synthesis of effect sizes within the studies to create an independent effect size for each study (Gallagher & Polanin, 2015). The results of the pretest-posttest synthesis indicated a statistically-significant, moderate program effect and overall cultural competence ($p<0.01$). The results of the treatment-control synthesis indicated a positive program effect, but non-statistically significant results. The researchers concluded that the science of cultural competence training in nursing students requires a methodological rigor through consistent and thorough research to maximize the potential of cultural competence training. These authors stressed that cultural competence training can lead to greater cultural awareness and to potential patients' benefits. The researchers recommended maximizing cultural

development training and increasing methodological rigor, program procedures, and practices in the science of cultural competence training for nursing students.

In another culturally-focused study, Hawala-Druy and Hill (2012) measured students' levels of cultural competence after the completion of an experimental interdisciplinary course. The researcher used a triangulation method with the intent to design and implement an innovative interdisciplinary course that promotes culturally-competent outcomes for millennium students. The sample consisted of 106 students from two semesters. Nursing, pharmacy, physical therapy, occupational therapy, and physician assistants students voluntarily participated in this study. The Inventory for Assessing the Process of Cultural Competence- Student Version (IAPCC-SV) was used to measure the level of cultural competence. The IAPCC-SV demonstrated good internal consistency with a Cronbach's *alpha* of 0.75 and good test-re-test reliability of 0.870 in the empirical studies (Campinha-Bacote, 2007).

Quantitative data was analyzed by the following statistical tests: descriptive statistics, paired *t*-test, and one-way ANOVA. Mean of the pretest demonstrated the score of 60.8, SD of 7.6 whereas the mean of the posttest increased significantly to 70.6, SD of 8.1. The results demonstrated statistically-significant increases in IAPCC-SV scores among females ($p<0.001$), pharmacy specialty students ($p<0.001$), and class semester subgroups for Fall and Spring ($p<0.001$). The pharmacy specialty group ($p<0.001$) showed greater improvement in IAPCC-SV scores, compared to nursing ($p=0.04$). Qualitative data was examined by analyzing the reflective journals of eight entries over the course of the semester. The researchers found that cultural competency and sensitivity improved as evidenced by reflective journaling data. Furthermore, journal entries showed

that students enjoyed the non-traditional structure of the course. The researchers recommended implementing interdisciplinary courses with an emphasis on cultural competence development for all health science students, including dentistry and medical students.

Cultural competence development requires an integrative approach in the creation and implementation of various teaching strategies throughout the curriculum. The researchers - Kardong-Edren, Cason, Brennan, Reifsnider, Hummel, Mancin, and Griffin (2010) felt that high-fidelity simulation could be a venue for increasing cultural competence in nursing students. Other researchers - Noble, Nuszen, Rom, and Noble (2014) suggested that integrative, culturally-multifaceted strategies can be appropriate in delivering and creating culturally-competent learning environments for nursing students. This was also congruent with the findings of Curtin, Martins, Schwartz-Barcott, DiMaria, and Ogando (2013). These researchers posited that international service-learning integration into the curriculum could facilitate nursing students learning about the health needs of diverse cultural populations.

Ballestas and Roller (2013) spoke out to say that a broad course study can enhance cultural competence levels from cultural awareness to cultural competence and proficiency in baccalaureate nursing students. Amerson (2010) hoped that baccalaureate nursing students would engage more in the international and local service-learning projects in multiple courses of nursing curriculum in order to enhance their desire to provide culturally-congruent care. Gallagher and Polanin (2015) strove for implementation of scientific rigor in the curriculum for a better preparation of cultural competence training. Hawala-Druy and Hill (2015) believed that a cultural

interdisciplinary course would prepare health professional students to provide a culturally congruent and sensitive care to diverse populations. Even though these research studies spoke out about different teaching strategies, none of them provided scientific evidence about the best pedagogy for cultural competence development in nursing students.

Chapter Summary

This chapter brings into perspective empirical evidence concerning the development of cultural competence through various teaching strategies and innovative programs. The literature review was done based on the following categories: simulation and critical thinking in nursing education, simulation and clinical judgment, cultural competence and simulation, development of cultural constituents, and cultural educational interventions in the nursing curriculum. Several research studies were reviewed addressing the phenomenon of cultural competence. Teaching through high-fidelity simulation as an innovative pedagogy showed some light in the improvement of cultural competence scoring. The literature has shown that simulation increases the positive learning outcomes in critical thinking, clinical judgment, reasoning, and cultural competence. The literature demonstrated evidence that cultural competence constituents are important attributes in providing culturally-congruent care to diverse populations. Given the fact that there was very limited empirical study about cultural competence development utilizing a high-fidelity cultural simulation, it became evident that this topic must be expanded to bring a new body of knowledge in nursing science. Chapter three will follow with methods.

CHAPTER THREE

METHODS

The purpose of this quantitative study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students. Josepha Campinha-Bacote's (2010) cultural competence framework and cultural competence model provided guidance for this study. The effects of cultural scenarios, high-fidelity cultural simulation, and innovative pedagogy on cultural competence development among baccalaureate nursing students were examined. Select demographic variables such as age, gender, and previous experience with other cultures might impact the levels of cultural competence development in baccalaureate nursing students. A demographic questionnaire was utilized to describe the characteristics of the sample, which were operationalized via an inventory for assessing the process of cultural competence among healthcare professionals-Student Version (IAPCC-SV). This chapter presents an overview of the research questions, design, data collection, and data analysis. In addition, the selection of setting and sample is highlighted and inclusion and exclusion criteria are presented.

Overview of the Design

Quantitative research constitutes the organized, empirical examination of observable phenomena via mathematical and statistical procedures in natural and social sciences (Gay, Mills, & Airasian, 2009). Quantitative research design was relevant for this study because it is concerned with precise measurement, replicability, prediction, and control in an organized, systematic manner. The research questions posed in this study are as follows:

1. What effect does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?

2. What kinds of relationships exist among the subscales of cultural competence scale?

3. Are there significant differences in cultural competency development based on the students' demographic characteristics (e.g. age, gender, level of education)?

4. Which of the following individual or combined demographic variables (e.g. age, ethnicity, educational level, and native [first] language), individually or grouped, are predictors of the level of cultural competence?

These research questions were examined via causal comparative analysis in Question One, correlation analysis in Question Two, factorial multivariate analysis of variance in Question Three and multiple regression analysis in Question Four. Identification of relationships between independent and dependent variables corresponded only with the quantitative research methodology in the proposed research questions of this study. The research questions were investigated, using descriptive and inferential statistical methods. The data collected for this study was numerical in nature. The scoring of cultural

competence levels represented data in numerical form and, therefore, could be investigated by performing quantitative research methodology. Consequently, quantitative research methodology was suitable for this study.

Quantitative studies have the following properties: adoption of the hypothesized sequence, objective and structured measuring procedures, and extensive usage of numbers to reflect the measurements and summarize the results (Powers and Knapp, 2006). This research study contained formulation of research questions and hypotheses, methodology, data collection, and statistical analyses of data for the purpose of answering research questions, or validating hypotheses, obtaining results, and stimulating discussion of findings- as known properties of quantitative research. Furthermore, quantitative studies employ a clear explanation of research hypotheses, and questions, guiding theoretical framework to build the design reveal transparent methodology based on the stated questions or hypotheses. Quantitative studies facilitate the selection of valid and reliable instruments and tools, statistical data analyses, interpretation of data finding, and determination of research significance and dissemination (Fitzpatrick &Wallace, 2006). Another major component of quantitative research has been to test hypotheses through different statistical methods in order to find the relationship between independent and dependent variables. Parts of the numerical data were generated by administering the Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals-Student Version (IAPCC-SV) to the participants.

A quasi-experimental one-group pre-test post-test research design was used for this study to investigate the effect of using cultural high-fidelity simulation scenarios as a teaching strategy on the development of cultural competence in baccalaureate nursing

students. A quasi-experimental research design could contain manipulation and control but lacks randomization of subjects to the treatment condition. Pre-test post-test research group design involved determination of effectiveness of treatment. A pre-test was administered before the treatment or intervention. The same instrument used in the pretest was administered after the treatment or intervention to establish the efficacy of treatment or intervention (Gay, Mills, & Airasian, 2009). This was a very beneficial property of the pre-test post-test design because the researcher could compare pre-and post-test results and make determinations about the effectiveness of treatment.

Quasi-experimental research designs could be more practical in nursing research that took place in an environment less suitable for full experimental control and random assignments into the groups. Furthermore, this quasi-experimental research design provided adequate control of threats to validity and helped to determine the relationship between studied variables. (Powers & Knapp, 2006). Therefore, it was an applicable approach for the purpose of this study which was pursued to examine the effects of cultural high-fidelity simulation as a teaching strategy and the demographic characteristics on the development of nursing students' attitudes, awareness, knowledge, skills, encounters and desires of cultural competence. Figure 3 depicts the relationship between the independent variables (IVs) and the dependent variables (DVs) of the study.
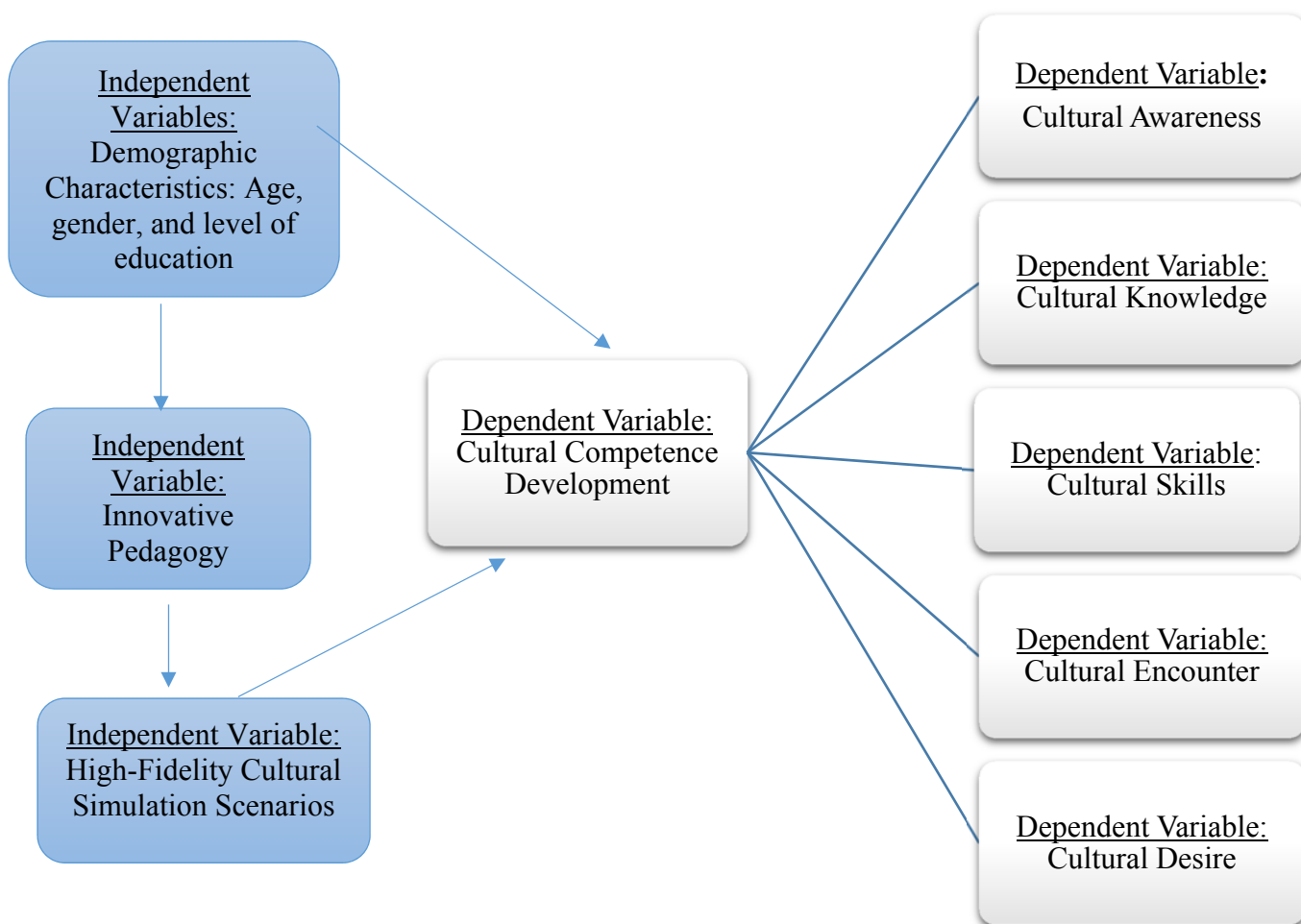
Figure 3. Maltseva (2015) Conceptual framework of the relationship between independent variables of innovative pedagogy of high-fidelity cultural simulation scenarios, demographic variables of age, gender, and level of education and the dependent variable of cultural competence development with its subscales of cultural awareness, cultural knowledge, cultural skills, cultural encounter, and cultural desire.

Cultural competence was operationalized by IAPCC-SV with the following five subscales: cultural awareness, cultural knowledge, cultural skills, cultural encounters, and cultural desire.

1. **"Cultural awareness** comprises of thoughtful insight, self-analysis and reflection of personal stereotypes, biases, assumptions, prejudices about individuals from other cultures" (Campinha-Bacote, 2007, p. 27).

2. **"Cultural knowledge** is a process of learning about different culture and diverse groups" (Campinha-Bacote, 2007, p. 37).

3. **"Cultural skills** require an individual to have the ability to collect cultural data and perform culturally sensitive physical examination" (Campinha-Bacote, 2007, p. 49).

4. **"Cultural encounters** is the act of meeting and interacting with clients from culturally diverse backgrounds" (Campinha-Bacote, 2007, p.71).

5. **"Cultural desire** allows an individual to have a genuine and unique motivation to engage in the process of becoming culturally competent; not like one wants to have to, but one wants to have cultural awareness, knowledge, skills and encounters about other cultures and diverse cultural groups" (Campinha-Bacote, 2007, p.21).

Research Questions and Hypotheses

The following research questions and hypotheses had been tested in this study to examine the relationship between IVs and DVs.

1. What effect does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?

H_1. Participants' cultural competence post-test scores will be statistically significantly higher after being taught to the cultural high-fidelity simulations compared to their pre-test scores.

2. What kinds of relationships exist among the subscales of cultural competence scale?

H_1. Participants who score high on the cultural desire construct will score high on the cultural awareness construct.

H$_2$. Participants who achieve the cultural desire construct will score high on the cultural

knowledge, skills, and cultural encounters construct.

3. Are there significant differences in cultural competency development based on the

students' demographic characteristics (e.g. age, gender, level of education)?

H$_1$. There are significant differences on the students' cultural competence development

based on the students' demographic characteristics (e.g. age, gender, level of education).

4. Which of the following individual or combined demographic variables (e.g. age,

ethnicity, educational level, and native [first] language), individually or grouped, are

significant predictors of the level of cultural competence?

Sample and Setting

A sample presents a subcategory of a population. This is often studied in

reference to representation of a whole population. From a scientific point of view, it was

hard to imagine anything more important than selecting the correct representation of the

population through the sampling process. Sampling is the process of selecting the number

of individuals from a population, by which the selected individuals represent the larger

group of studied population (Gay, Mills, & Airasian, 2009). This researcher used a

nonprobability convenience sampling procedure in conducting this study. Nonprobability

sampling required the researcher to choose only the subjects who fulfilled the needs of

the study and had the specified characteristics.

Moreover, the researcher believed that the process of selected sampling

represented a target population – baccalaureate nursing students. The sample in this study

consisted of baccalaureate nursing students who were enrolled in a nursing program at an

accredited college of nursing located in South Florida. The following inclusion criteria

were used for selecting the participants in this study. The participants were eighteen years of age and older; had completed two years of college level nursing prerequisites, were enrolled in the fundamentals of nursing or medical surgical courses, and had had prior simulation experience. These students were enrolled in a clinical course which had a mandatory high-fidelity simulation component. Participation in the high-fidelity simulation was required according to the course objectives. The researcher did not have access to the clinical or didactic grades of the students. Participation in the simulation activity was mandatory for successful course completion.

The curricula of this nursing program were congruent with the guidelines of the Florida State Board of Nursing and the respective accrediting agencies. The fundamental and medical-surgical courses were offered during the second and third semesters of the nursing program. The setting was at a single four year college institution. This institution offers Baccalaureate, Masters, and Doctoral degrees in nursing. The fundamental and medical-surgical courses included didactic and clinical teaching. The prerequisites for these course included admission to the nursing program, theory, laboratory and clinic and Physical Assessment. The didactic component of the fundamental and medical-surgical courses consisted of 96 hours, and the clinical component was 120 hours. The students studied the essentials of a nursing process in a nursing foundation course. Students in the nursing program had been engaged in simulation at anywhere from 25 to 50 percent of their required clinical hours. The Florida State Board of Nursing has permitted the use of simulation for up to 50 percent of clinical time. Comparison of the cultural competence results before the simulation during the fundamental or medical-surgical semester and

immediately after the simulation was expected to produce findings about the effectiveness of cultural simulation scenarios on the development of cultural competence. The nursing students enrolled in the fundamental or medical-surgical courses already had been exposed to the nursing knowledge, didactic, clinical, and simulation experience.

Projected Sample Size

Marshall (1996) identified that the aim of quantitative studies is to select a representative sample so that the results of studying the sample could be generalized back to the population. The choice of sample size depends upon the parameters of the phenomenon under study; for example, the expected size of differences in the outcome variable between the intervention and control group (Marshall, 1996). The sample size in this study must be adequate to represent the population. Besides, the smaller the sample size, the more chances for the researcher to encounter sampling errors, threats to internal validity, and reliability of data to represent the entire population. Hayat (2013) suggested that ethical consideration should be given to the size of a realistic sample as well as to the benefits and risks associated with smaller or larger numbers of participants. Duffy (2006) has pointed out that the more stringent the significance level, the greater the necessary sample size. Likewise, Duffy proposed that the researcher should be able to estimate the potential attrition rate in order to compensate for study subjects drop out and based on the attrition rate recruit more participants to gain accurate study results.

Sample Size by Power Analysis

A p*riori* power analysis was conducted using G* Power 3 version 3.1 software to determine an appropriate sample size for the number of variables and statistical methods employed in this study (Faul, Erdfelder, Lang, & Buchner, 2007). The *alpha*

level (α) was set at 0.05, and the desired power *beta* (1-β) was set at acceptable value of

0.85. The medium effect size was established at 0.0625. The power analysis was

organized for 6 groups, 3 predictors, and 5 response variables based on the hypotheses of

the study. It was estimated that a sample size of 116 participants would be required for

multivariate analysis of variance (MANOVA) with three predictor variables ($k=3$).

Tabachnik and Fidell (1996) recommended the use of $n \geq 104+k$ for multiple regression

analysis for testing individual predictors, where, k represents the number of predictors

and n is the sample size. The formula resulted in 107 participants using three predictors.

Based on the projected sample size, the selection of participants was made from the

College of Nursing. It was anticipated that some surveys might be returned incomplete

(in which greater than 30% of the data is absent) and could be un-usable; therefore, 34

additional participants were recruited for this study, totaling 150 students.

Inclusion Criteria

Inclusion criteria for this study required that participants must be at least eighteen

years of age or older, be able to speak, read and write English, be currently enrolled in a

BSN nursing program in the fundamentals of in nursing or medical-surgical courses, in

addition to being exposed to several simulation practices not related to cultural

competence.

Exclusion Criteria

Exclusion criteria of the study eliminated participants who had not been enrolled

into a BSN nursing program or had not been through at simulation experience and had a

license as a practical nurse. Participants were excluded from the study if they were not in

their first or second medical-surgical semester, could not read or write English, or were not able to provide the consent of participation in this research.

Ethical Considerations

Ethical considerations must be strictly enforced when conducting research with human subjects. Participants of the study had rights to anonymity, autonomy, beneficence, non-maleficence, veracity, and justice. They also had rights to voluntary participation or withdrawal from the study. In compliance with protection of human subjects in this study, this researcher completed a National Institute of Health (NIH) training course of protection of human subjects, obtained approval for the research study from Barry University's Institutional Review Board, and Florida International University Institutional Review Board (See Appendix A), and from the administrator of the College of Nursing from which the researcher accessed and recruited participants (See Appendix D). Once the IRB approvals were obtained, the researcher conducted an informational session on site for faculty and students to inform them about the study. After the informational session was completed, participants received a cover letter, which detailed the purpose of the study, provided the name of the researcher and advisors, risks, and benefits, and a detailed explanation about the study. The cover letter served as a consent form for participation in this study.

The researcher ensured that each participant received a clear explanation about the study and their right to withdraw at any time without penalty. Participants were instructed not to write any identifying information on the survey in order to protect and maintain anonymity. Participants were instructed to take an index card with a pre-written four-digit numerical code from a box, and write this code on the pre and post surveys.

They were instructed to keep this index card until they were done with simulation and write the same number on the posttest surveys. The pre-test surveys were placed in an envelope labeled 1 and post-test surveys were included in another envelope, labeled 2. Both envelopes were sealed afterwards. This researcher was not present in the room while participants were completing both surveys. There were neither benefits nor risks to the participants in this study.

Upon completion of the surveys, the participants placed them in the sealed envelope 1 for the pre-test before the simulation and envelope 2 post-test after the simulation and dropped these envelopes inside a locked box which was located outside the laboratory center in the institution. Each participant received a thank you note upon completion of posttest from the researcher. Data collected from the surveys were entered into IBM Statistical Package for Social Sciences (IBM SPSS) Version 22 and stored in a password-protected computer file and on an USB flash drive by the researcher. Committee members and the researcher had access to study data and statistical analyses. The data will be kept in a locked cabinet in the researcher's home office for a period of five years after completion of the study and would then be destroyed by the researcher.

Access and Recruitment

Upon obtaining approval from Barry University's Institutional Review Board and from Florida International University Institutional Review Board, the administrator of the College of Nursing through which the researcher was to access and recruit participants, the recruitment process began. Once approvals had been obtained the researcher attended simulation sessions during the medical-surgical semester when simulation was offered for

College of Nursing. During these simulation meetings, the researcher conducted an informational session lasting approximately 10 minutes to explain the purpose of study.

The researcher explained that the study consisted of three phases: Phase 1 which took place before the simulation, including completion of two surveys, totaling 31 questions; Phase 2, which comprised of one hour actual simulation procedure during which students participated in high-fidelity cultural simulation; and Phase 3, which was conducted after the simulation with the completion of two surveys, totaling 33 questions. After the informational session, the researcher distributed the cover letter, (See Appendix B), to each potential study participant. The cover letter included the name of the researcher, the organization of affiliation, advisors, and the purpose of the study, risks and benefits, and a detailed explanation of the study. The cover letter provided a report that participation in this study was strictly voluntary.

Once participants had read the cover letter and agreed to participate, they were asked to select an index card with a four-digit number on it from the box. It was explained to the participants that this number must be written on all surveys in order for the researcher to correlate the results before and after the simulation. The four-digit computer-generated random number protected confidentiality and anonymity of participants. If participants wanted to withdraw from the study, they could do so without any consequences and at any time.

Data Collection Procedures

Upon obtaining the approvals for IRB protocols and administrative support, the data collection process began. Once participants read the cover letter and agreed to participate, they were asked to get an index card with a four-digit numerical code on it

from a box. Once they selected a card, they received two envelopes from the researcher: the first envelope was labeled with a numerical number 1, indicating a pre-test, and the second envelope was labeled with a number 2 for post-test. The envelope labeled number 1 contained the demographic survey and the Inventory for Assessing the Process of Cultural Competence among Health Care Professionals-Student Version (IAPCC-SV) for the pre-test. The envelope labeled with number 2 contained IAPCC-SV Instrument for post-test, Student Satisfaction and Self-Confidence in Learning Instrument. The participants were instructed to write the numerical code from the index card first on surveys located in envelopes 1 and placed them back in envelope 1 and then on surveys located in envelope 2. Once participants wrote their numerical code on the surveys from envelope 2 they were instructed to place these surveys back in envelope 2, hand-deliver envelope 2 to the researcher and to not complete surveys until they were done with simulation.

Upon completion of writing a numerical code on all pre- and- post surveys, the participants were instructed to complete the pre-test items from envelope 1: the demographic survey containing 11 items and IAPCC-SV instrument with 20 questions. It took participants 31 minutes to complete the pre-test. Once the surveys were completed, the participants received direction from the researcher to place IAPCC-SV instrument and the demographic survey back in an envelope number 1, seal the envelope and hand-deliver it to the researcher to be deposited in locked box located outside of the clinical laboratory room. After placing envelope 1 in the locked box, each participant was directed by the researcher to go to the simulation room and engage in a simulated high-fidelity culturally-based exercise. The cultural component of the simulation depicted

cultural values, beliefs, and healthcare practices alien to western cultural beliefs and

health care practices. The simulator wore cultural clothing and spoke in a language other

than English based on the selected culture. An interpreter was available to the participants

to translate what was being said into English. The simulation lasted no more than one

hour. The total length of time commitment for the participants was approximately 1hour

and 30 minutes. The researcher observed a cultural high-fidelity simulation.

High-Fidelity Cultural Simulation Intervention

During the simulation, students were exposed to the culture of a Haitian-American

and performed care as would be appropriate to a post-operative patient. The students

were expected to perform a respiratory assessment, assess pain level, identify the need for

an incentive spirometer, and provide patient education on preventing respiratory

complications. These procedures required them to integrate an understanding of cultural

values, beliefs and practices into the patient's care. Furthermore, the students were

anticipated to provide culturally-competent care including appropriate education

materials that incorporated the Haitian American culture. The students were assigned to

roles of nurses, patient care assistants, interpreters, and family members during the High-

Fidelity Cultural Simulation Scenario (See Appendix K).

Upon the completion of the cultural simulation, the participants returned to the

classroom and finished the two post-surveys located in envelope 2: IAPCC-SV and

Students Satisfaction and Self-Confidence in Learning Instrument. IAPCC-SV consisted

of 20 items, and Students Satisfaction and Self-Confidence in Learning Instrument

contained 13 items: in all, a total of 33 items. It took the participants approximately 33

minutes to complete these post-tests. Once participants had completed the surveys, they

placed them in the envelope 2 and sealed it. Each participant was asked to hand-deliver surveys immediately following the completion to the researcher. The researcher deposited the envelopes in the locked box located outside of the clinical laboratory in a secure area. Each participant received a thank you note from the researcher after placement the post-test envelope 2 in the box. The study accepted the surveys which were fully completed and assumed that all the questions had been answered to the best ability of the study participants.

Data Management and Storage

Upon completion of pre- and post-test surveys, participants were asked by the researcher to place each survey in an envelope, seal it and drop it in a locked box located in a secure area in front of the clinical laboratory. Once the locked box was cleared, all surveys were stored in a locked filing cabinet in the home office of the researcher. The pre-and post-surveys were placed in the same locked file cabinet and data was entered in the IBM Statistical Package for Social Sciences (IBM SPSS) Version 22 by the researcher. The surveys were accepted to the study only if they were fully completed, and all questions had been answered. Incomplete surveys were shredded by the researcher. All data entered into IBM SPSS Version 22 was stored in a computer protected by a login key and password known only to the researcher. All entered data had a computer-protected password. Moreover, the data was stored on a USB flash drive as a back up to prevent any loss of data. This USB flash drive was locked in a cabinet in the home office of the researcher.

Instruments Measures

The data for this research study was gathered using a demographic questionnaire, a student satisfaction and self-confidence in learning tool for post-simulation effect (National League for Nursing, 2005), and the inventory for assessing the process of cultural competence among health care professionals- student version by Campinha-Bacote (2007) (See Appendix G). Permission to use standardized instruments had been obtained from NLN and from the Transcultural Care Inc. prior to data collection.

Demographic Questionnaire

An eleven- item demographic survey, (See Appendix E), had been developed by the researcher in order to gather data for the demographic variables, age, gender, ethnicity, country of origin, religious preferences, and level of education. The demographic questionnaire consisted of nominal data, with the exception of age data and self-reported grade point average (GPA). Items 1 through 7 were used to gather nominal data for the following demographic variables: gender, ethnicity, country of origin, level of education, religious preference, GPA and age, which were two continuous variables. Item 8 described the participants' occupation, since some students might work in the health care as allied health care personnel. Item 9 was a close-ended question which assessed the primary language. Item 10 was an open-ended question which allowed the participants openly indicate their native language if English was their second language. Item 11 included an interval level item aimed to learn about the participant's exposure to other cultures.

Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals- Students Version (IAPCC-SV)

The healthcare delivery today, as never before, has been in great needs for culturally-competent care, as evidenced by projected demographic changes in the United States; long-standing disparities in ethnic groups; legislative mandates; and a competitive edge in the market place. Campinha-Bacote (2007) developed a widely-used instrument to measure levels of cultural competence among healthcare professionals and students. This instrument was intended to be used for the following health profession students: physician assistant students, medical students and residents, nursing students, dental students, pharmacy students, and physical therapy students (Campinha-Bacote, 2007).

The IAPCC-SV is a self-administered paper-and pencil instrument, which consists of 20 items, to measure five constructs of cultural competence. The cultural competence constructs are cultural awareness, cultural knowledge, cultural encounters, cultural skills, and cultural desire. The subjects read each statement and circled one response. This instrument used a four-point Likert-type scale with the following responses: strongly agree, agree, disagree, and strongly disagree. The IAPCC-SV was based on the Inventory for Assessing the Process of Cultural Competence among Health Care professionals – Revised (IAPCC-R). Campinha-Bacote used IAPCC-R for health students but noted the lower reliability of this instrument; therefore, IAPCC-R had to be revised to increase the reliability (Campinha-Bacote, 2007).

Reliability. An instrument is considered reliable when it produces consistent measures and results from time to time and from measure to measure. (Powers & Knapp, 2006). The IAPCC-SV was originally based on the Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals-Revised (IAPCC-R). Vito, Roszkowski, and Wieland (2005) recommended revision of the IAPCC-R for nursing

students' testing. This instrument showed lower reliability when used for the nursing students. As a result of this, Campinha-Bacote (2007) modified the IAPCC-R instrument with a goal to create the new instrument for students' testing. The IAPCC-SV instrument was a result of revision of the IAPCC-R (Campinha-Bacote, 2007).

In using the IAPCC-SV, Fitzgerald, Cronin, & Campinha-Bacote (2009) reported a moderate internal consistency (Cronbach *alpha*) of 0.783. Reliability coefficients were calculated for the five subscales of this instrument. The Cronbach *alpha* for cultural desire was 0.67. An *alpha* of 0.74 represented the reconceptualization of four other constructs. The new conceptualized subscales, named cultural composites produced a more acceptable Cronbach *alpha* coefficient of 0.735. The scores on the IAPCC-SV (*n*=90) ranged from 49 to 74, with a mean of 59.79 and standard deviation of 5.62. The participants scored high on the cultural-awareness construct. IAPCC-SV instrumentation used in their study revealed a total scale score of moderate variability with an internal consistency reliability for the overall scores that was 0.783 (Fitzgerald, Cronin, & Campinha-Bacote, 2009).

Validity. Powers and Knapp (2006) identified the importance of instrument validity in quantitative research. They posited that an instrument was said to be valid if it really did measure the investigated construct in the study. The relationship should be relevant between measures produced by the instrument. Fitzgerald, Cronin, & Campinha-Bacote (2009) identified construct validity by basing IAPCC-SV items on the five constructs of Campinha-Bacote's (2007) theoretical model. Face validity and content validity were established through a group of expert reviewers' evaluations of evidence-based national literature on cultural competence in health care.

Clevenger (2011) found in a pre/post quasi-experimental research design study that an IAPCC-SV instrument was valid in measuring the cultural competence of 74 baccalaureate nursing students. The levels of cultural competence were measured before and after the service learning in the treatment group, and in the control group which received traditional community teaching. A t - test data analysis revealed the significant difference on the posttest, but not on the pretest results in both groups $(p<0.01$ on the post-test, and $p=0.6$ on the pre-test). This instrument demonstrated validity in measuring cultural competence as evidenced by acceptable scoring in five cultural constructs – cultural awareness, cultural knowledge, cultural skills, cultural encounters, and cultural desire.

Scoring. The IAPCC-SV consisted of twenty items which measured the five cultural competence constructs- cultural awareness, cultural knowledge, cultural skills, cultural encounters, and cultural desire. This instrument used a 4-point Likert-type scale with response categories of strongly agree, agree, disagree, and strongly disagree. The completion time was 10 to 15 minutes. Scores could range from 20-80, with higher scores demonstrating a higher level of cultural competence and cultural proficiency (Campinha-Bacote, 2007). Items 1,3,15 indicated cultural awareness construct; items 4,6,8,9,12 represented cultural knowledge; items 7,17,18 corresponded with cultural skills; items 10,11,13,14,19 depicted cultural encounters construct, and items 2,5,16,20 applied to cultural desire. Table 1 summarizes the subscales and the corresponding item numbers.

Table 1. *Subscales of Cultural Competence and the Corresponding Item Numbers in the IAPCC-SV instrument.*

Subscales of Cultural Competence	Corresponding Item Numbers
Cultural Awareness	1,3, and 15
Cultural Knowledge	4,6,8,9, and 12
Cultural Skills	7,17, and 18
Cultural Encounters	10,11,13,14, and 19
Cultural Desire	2,5,16, and 20

The following scoring guide was employed: items 1 through 13 and 15 to 20 received 4 points for strongly agree, 3 points for agree, 2 points for disagree, and 1 point for strongly disagree. Item 14 had a reverse coding: 4 points applied to strongly disagree, 3 points applied to answer disagree, 2 points were given to answer agree, and 1 point was given to answer strongly agree. The levels of cultural competence were scored by adding the points. A culturally-proficient score was between 75 and 80; culturally competency was between 60 and 74, culturally-aware was between 41 and 59, and culturally-incompetent is between 20 and 40 (Campinha-Bacote, 2007). The IAPCC-SV instrument helped to find new strategies to educate and reinforce the importance of cultural competence in the healthcare arena, and to contribute to positive health care outcomes in diverse populations. Fitzgerald, Cronin, and Campinha-Bacote (2009) recommended the

use of the IAPCC-SV instrument for qualitative and quantitative measurements of cultural competence in patient simulation research.

Effect of Simulation on Student Satisfaction and Self-Confidence in Learning (SSSCL)

Simulation is an innovative pedagogy that requires the form of measurements of learning outcomes. Attitude scales allow the educator to measure how the student feels about a particular subject at the moment of being tested (Jeffries, 2007). Jeffries (2007) reported that the Students Satisfaction and Self-Confidence in Learning tool (SSSCL) was used in simulation evaluation to measure attitude of learners toward the simulation strategy as a method of instruction. This instrument helped evaluate the effectiveness of simulation as an innovative pedagogy. Data collected by Student Satisfaction and Self-Confidence in Learning instrumentation helped to answer the first research question about the effectiveness of teaching using high-fidelity simulation as an innovative pedagogical strategy. This instrument was developed by the National League of Nursing (NLN) in 2003 to evaluate students' attitudes toward the simulation. The instrument consisted of 13 Likert scale-type items designed to measure the following two variables: student satisfaction with the simulation, and self-confidence in learning. The first five items of the instrument measured student satisfaction with simulation, and the remaining eight items measured self-confidence in learning. The NLN recommended the use of this tool in correlation with different learning instruments to determine the effect of simulation on learning outcomes.

Reliability. The NLN reported that reliability of the Students Satisfaction and Self-Confidence in Learning tool using Cronbach's *alpha* was 0.94 for satisfaction, and 0.87

for self-confidence, respectively (Jeffries and Rizzolo, 2006). Franklin, Burns, and Lee (2014) studied the psychometric properties of the Student Satisfaction and Self-Confidence (SSSC) scale in a sample of 2,200 surveys completed by novice nurses from a liberal arts university in the United States. Cronbach's *alpha* reliability was 0.92 for the satisfaction subscale in this study, and 0.83 for the self –confidence subscale, with an overall reliability of 0.92. The researchers recommended removing Item 13 in order to increase the reliability to 0.94 of the self-confidence subscale. The NLN did not remove Item 13 from the SSSC survey yet. For this reason, this researcher would use the entire SSSC scale to determine the reliability of the self-confidence subscale in this study.

Validity. The instrument measured student satisfaction and confidence of knowledge and skills about nursing process of the patient presented in the simulation. Franklin, Burns, and Lee (2014) identified the strong concordant validity of the SSSCL instrument. They reported a correlation coefficient of 0.78 between the satisfaction and self-confidence subscales. Furthermore, they concluded that this instrument had sufficient validity to be used in educational research. According to them, content validity of this instrument requires improvement in relation to Item 13.

Scoring. SSSCL instrument consisted of 13 items that assessed the attitudes toward satisfaction with instruction and self-confidence in learning in simulation. A self-confidence subscale, which consisted of the last 8 items of the instrument measures mastery, skills development, necessity, resources, and knowledge of how to obtain help to solve clinical problems in simulation. A satisfaction subscale, the first five items assessed satisfaction with teaching methods, diversity of learning materials, facilitation, motivation, and the appropriateness of simulation. A five-point Likert Scale allowed the

participant to select one response from strongly disagree – 1 point, disagree-2 points, undecided -3 points, agree – 4 points, and strongly agree -5 points. Scores were calculated by adding the points for items. The higher scores indicated more satisfaction with learning simulation instruction and more self-confidence in learning during the simulation (Franklin, Burns, & Lee, 2014).

Data Analysis Plan

Upon data collection, all surveys were examined for the purpose of establishing accuracy and identifying any missing data. Only completed surveys were used for data analysis. The data had been entered into IBM SPSS version 22 by the researcher and checked for accuracy, any inconsistency, and outliers. Prior to conducting inferential and multivariate analyses descriptive statistics were employed to describe the sample characteristics and to evaluate pre-test and post-test scores. The central tendency measures (mean and median), standard deviation and ranges, frequency distributions were used for summarization of data. A pre-test was used to establish a baseline for the subsequent analyses.

Pre-test and Post-test Design

A pre-test and post-test design was used to measure the results after the treatment or intervention. The characteristic of a pre-test and post-test study design is that two measurements are made on the same experimental unit: the pretest is made prior to administration of treatment or intervention, and the post-test is made after the intervention or treatment has occurred. Researchers using the pre-test/post-test design need to be aware that the treatment effects could be biased if the pre-test scores are not

reliable. One recommendation has been made to use a General Linear Model framework in order to eliminate the bias (Cornell University, statistical consulting unit).

A General Linear Model framework had been the preferred method for analyzing pre- and post-design data. Pre-test scores have been a covariate in this category. A General Linear Model framework eliminates bias and reduces error variance. The first question of the study, "What effect does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?" was answered by pre-test-post-test statistical analysis within a General Linear Model framework. A paired sample *t*-test could be used in comparing means before and after the treatment in pre- and post-test research design. Dimitrov and Rumrill (2003) asserts that this method is useful in comparing groups and measuring change before and after treatment. The outcomes in this framework might be raw post-test scores or a change in scores, as they produced precise comparable results for the treatment effect. The change score in cultural competence development could represent the dependent variable in a General Linear Model framework that analyzes two groups- the scores of cultural competence development before the simulation, and the scores of cultural competence development after the simulation. The assumption of a General Linear Regression applies to pre-test measurement reliability, and the linear relationship between pre-test and post-test scores. The benefit of a General Linear Model framework is that this framework could undergo modifications if an error or disruption in analysis has been detected (Cornell University, Cornell Statistical Consulting Unit).

Pearson Correlation Coefficient Matrix

The Pearson *r* correlation coefficient helps to find the degree to which two sets of scores are related. The Pearson *r* correlation coefficient is the most appropriate measure relationship when the variables are represented by using either interval or ratio scales. The Pearson *r* correlation coefficient measures the strength of the linear relationship between two variables. An *r* value of -1 indicates a perfect negative linear relationship between two variables, an *r* value of 0 indicates no linear relationship between the variables, and an *r* value of 1 indicates a positive linear relationship between variables. The second question of the study, "What kinds of relationships exist among the subscales of cultural competent scale?" was analyzed by using Pearson *r* correlational coefficient. A Pearson correlation coefficient matrix was used to investigate the relationships among the subscales of cultural competence before and after the post-test.

Factorial Multivariate Analysis of Variance (MANOVA)

Factorial multivariate analysis of variance (MANOVA) is a statistical analysis technique used to investigate the effects of two or more independent variables and interactions of them on a set of dependent variables. A different linear combination of dependent variables is formed for each main effect and interaction in factorial MANOVA (Tabachnick and Fidell, 1996). The third question of the study, "Are there significant differences in cultural competency development based on the students' demographic characteristics (e.g., age, gender, level of education) was investigated by conducting a factorial MANOVA. Factorial MANOVA is a design which involves both multiple independent and dependent variables. This question investigated the effects of the

independent variables of age, gender, and the level of education on cultural competence development with five subscales (dependent variables).

The first combination would maximize the division between different age group categories; the second linear combination would maximize the distribution between males and females; the third linear combination would maximize the separation among number of years in school, gender, and levels of education. The advantage of factorial MANOVA in measuring several dependent variables contributes to the discovery of changes as a result of differing treatments (Mertler &Vannatta, 2005). MANOVA minimized the occurrence of an overall Type I error rate, and retained that rate at a 0.05 probability level. Furthermore, MANOVA integrated the intercorrelations among dependent variables into the analysis (Metler & Vannatta, 2005).   For this question, the researcher wanted to investigate the effects of age, gender, and level of education on cultural competence development via its five subscales. This design represented a 2X4X2 factorial MANOVA design. Tabachnick & Fidell (1996) recommended an overview on the use of the MANOVA and carefully considered the need for additional dependent variables to prevent the inflation of a Type I error. The *Bonferroni-type* adjustment might be necessary to set a more stringent *alpha* level for the test of each dependent variable in order for dependent variables to not exceed an *alpha* level of 0.05. (Tabachnick & Fidell, 1996).

Multiple Regression Analysis

Multiple regression analysis is a useful statistical procedure in determining the degree to which variables are correlated**.** This type of analysis is beneficial to predict the outcomes and investigate the effects of how variations in one set of variables correspond

to variations in another variable, based on the multiple correlation coefficient. Furthermore, multiple regression analysis is an extension of simple linear regression analysis, as it involves more than one independent variable or predictor. Multiple regression analysis is a technique which predicts the value of a single dependent variable from a weighted linear combination of independent variables. Mertler and Vannatta (2005) identified that a multiple regression is similar to a simple regression with exception of the presence of more coefficients; one for the Y – intercept and one for each of the IVs. As in the example of written equation $Y = B_0 + B_1X_2 + B_2X_2 + \ldots + B_k X_k + e_i$, Y stands for predicted outcomes, B represents the regression coefficient for each IV, and e_i is the residual term. In a multiple regression analysis, an *F*-test of significance is used to determine if the relationship between independent and dependent variables is statistically-significant (Mertler & Vannatta, 2005).

The fourth research question of the study, "Which of the following individual or combined demographic variables (e.g. age, ethnicity, educational level, and native [first] language), individually or grouped, are predictors of the levels of cultural competence?" was investigated by multiple regression analysis. In this study, whether or not the value from the linear combination of the independent variables could be used to predict the value of a single dependent variable of cultural competence, cultural awareness, cultural knowledge, cultural skills, cultural encounters, and cultural desire is determined. Furthermore, the resulting linear model and its statistical significance is examined.

Chapter Summary

This chapter described the quasi-experimental one group pre-test/ post-test research design employed in this study. The instruments, SSSCL and IAPCC-SV, and their psychometric properties were presented. In addition, a demographic questionnaire developed by the researcher was discussed. The participants were selected through a convenience sampling technique and underwent inclusion and exclusion evaluations. They were notified about the purpose of the study, the risks and benefits, and anonymity. The participants completed the pre-test, followed by a high-fidelity cultural simulation, and immediately after the simulation, they completed the post-test. The demographic questionnaire was used to determine the homogeneity of the sample, SSSCL scale measured students' attitudes toward the simulation and their self-confidence, and an IAPCC-SV instrument was employed to measure cultural competence development among nursing students. A data analysis plan identified which statistical methods were employed in the study to answer the research questions. Chapter Four will follow with findings of the study.

CHAPTER FOUR

FINDINGS OF THE STUDY

The purpose of this quantitative study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students. The study examined the effects of different independent variables such as age, ethnicity, level of education, and native language as predictors of cultural competence development. Furthermore, the study explored the relationships between cultural competence subscales, examined differences in cultural competence development based on the students' demographic characteristics, and evaluated the effect of high-fidelity cultural simulation on cultural competence development of baccalaureate nursing students. This chapter provides the characteristics of the research sample, psychometric characteristics of the instruments utilized, exploratory data analysis for measurements, and furnishes the descriptive and inferential statistics used to analyze the data with extensive hypotheses testing explanation.

A substantial number of culturally-diverse patients in the healthcare arena create a need for nurses to become culturally-competent. Furthermore, culturally-sensitive care promotes better patient health care outcomes and facilitates trust and compliance with treatment regimens. Preparation of nursing students to become culturally-competent begins with a nursing program curriculum that integrates various innovative strategies to enhance cultural competence. Moreover, evidence in the research literature has

demonstrated that high-fidelity simulation is an effective and innovative pedagogy for teaching and improving critical thinking skills, clinical judgment and promoting students' confidence (Burns, O'Donnell, & Artman, 2010; Shinnick & Woo, 2013; Brown and Chronister, 2009; Shin, Ma, Park, Ji & Kim, 2015). Nonetheless, there was a limited number of studies investigating the integration of high-fidelity cultural simulation on cultural competence development among nursing students (Merril & Hummel, 2010; Roberts, et. al., 2014).

The data for this study was collected over a three month-period using the following instruments: Inventory for Assessing the Process of Cultural Competence Student Version (IAPCC-SV) developed by Campinha-Bacote (2007), Students Satisfaction with Simulation and Learning Instrument developed by the National League for Nursing (2003), and a researcher-developed demographic questionnaire. All participants were recruited from one College of Nursing, located in the Southeast of Florida. A nonprobability convenience sample consisting of 141 nursing students enrolled in a medical-surgical course was recruited from a baccalaureate degree-nursing program from a university located in Southeast Florida. The same medical-surgical faculty members who had extensive expertise in medical-surgical nursing taught all the students in different didactic sections.

This study was a quantitative quasi-experimental, pre-test/post-test one group research design with no randomization of the sample. The participants took the pre-test first, then they participated in the high-fidelity cultural simulation, and after that they completed the post-test. All participants were exposed to the same high-fidelity cultural simulation, which depicted a Haitian-American client with strong spiritual health beliefs

and practices. The simulation was conducted during the participants' scheduled class laboratory date and time and performed in a small-group environment. A combined number of 282 surveys were collected for the pre-test and post-test: each test consisted of 141 surveys.

The participants labeled each pre-test and post-test survey with a computer-generated random number. The pretest surveys were matched with post-test survey data using this generated number. Surveys were examined for completeness by this researcher and only fully-completed surveys were used for data analysis. Three surveys were eliminated from the study due to missing multiple nonrandom answers on up to 5 questions either on the pre-test or post-test. One participant did not take the post-test and left prior to the simulation for personal reasons unrelated to the study.

Data was entered into the IBM SPSS.v. 22, and descriptive statistics were used to examine various properties of the sample. Hypotheses tests were performed using a paired-sample *t*-test within General Linear Model Framework, Pearson product moment correlations, a 2X4X2 factorial MANOVA, and Multiple Regression Analysis. The success of the high-fidelity cultural simulation was evaluated by comparing results of the pre-test and post-test. Using one group pre-and post-test design, the researcher evaluated whether or not there was an increase in cultural competence level after the high-fidelity cultural simulation intervention. The relationships among the cultural competence subscales- *cultural awareness*, *knowledge*, *skills*, *encounters* and *desire* were analyzed in this study. The evaluation of differences in cultural competency based on the students' demographic characteristics: age, gender, and level of education were further investigated in this research. Finally, predictors of the levels of cultural competence based on

individual and combined demographic variables- age, ethnicity, educational level, and the first language were examined.

Cultural competence was analyzed before and after the cultural high-fidelity simulation using IAPCC-SV instrument developed by Campinha-Bacote in 2007. The IAPCC-SV instrument measures *cultural awareness, knowledge, skills, encounter,* and *desire* and gives overall scores for levels of cultural competence. The high-fidelity cultural simulation as a pedagogical strategy was analyzed using the Student Satisfaction and Self-Confidence with Learning tool, developed by National League for Nursing (NLN) in 2003. This instrument consisted of 13 items: the first five items measure satisfaction with current learning and the last eight items measure self-confidence in learning. Demographic data of age, gender, ethnicity, country of origin, GPA, level of education, first language, and exposure to diverse cultural groups was collected using a researcher-developed demographic survey. Data was analyzed by using IBM SPSS .v. 22 for Windows. The findings are presented in the following sections: 1) sample description, 2) characteristics of the sample-descriptive results, 3) exploratory data screening for measurements, 4) results of psychometric assessment, 5) revisiting of research questions and hypotheses, 6) statistical tests and findings for each research question and hypothesis.

Sample Description

After receiving permission from the Barry University and Florida International University Institutional Review Boards, as well as the chair of the undergraduate-nursing program at Florida International University, a convenient sample of 141 nursing students enrolled in a medical surgical course were recruited. The participants were eighteen years

of age or older, spoke, read, and wrote in English, and enrolled in a BSN program. The participants were exposed to several simulation practices during fundamentals and medical surgical courses not related to high-fidelity cultural simulation competence. One hundred and thirty seven out of 141 students qualified for the study.

Three surveys were omitted since they were incomplete. These surveys were missing five consecutive answers on the pre-test and post-test; therefore, they were eliminated from the study. In addition, one participant decided not to participate in the high-fidelity cultural simulation and asked to be excused after the pre-test was completed due to personal reasons. The researcher anticipated collecting data from 150 participants; however, one clinical group of nine participants was cancelled by the laboratory director and there were not able to participate in the study.

The sample size by power analysis indicated a minimum sample size of 116 participants for this study. Therefore, the obtained sample size (n=137) was adequate for data analysis procedure. The medium effect size of 0.0625 was used at the significance level of 0.05 with a power value of 0.85. Martinez-Mesa, Bonamigo, Gonzalez-Chico, Bastos, and Duqai (2014) recommend the statistical power value to be between .8 and .9 for a large sample size to determine the relationships among study variables. This researcher did not receive any more approvals from other universities or colleges of nursing, despite of multiple contacts to the deans and program directors. Nonetheless, this experience did not reflect on data and power analysis.

Characteristics of the Sample-Descriptive Results

The sample consisted of 113 females and 24 males with an age range from 18 to 51 years (M= 24, SD= 6.073). The majority of the participants' age were between 20 and

29 years old. The traditional age for the nursing students is considered to be between 18 to 22 years old for this study. One participant did not disclose his or her age; therefore, only one piece of data for age was missing in the statistical analysis. A box plot for the variable age is presented in Figure 4.
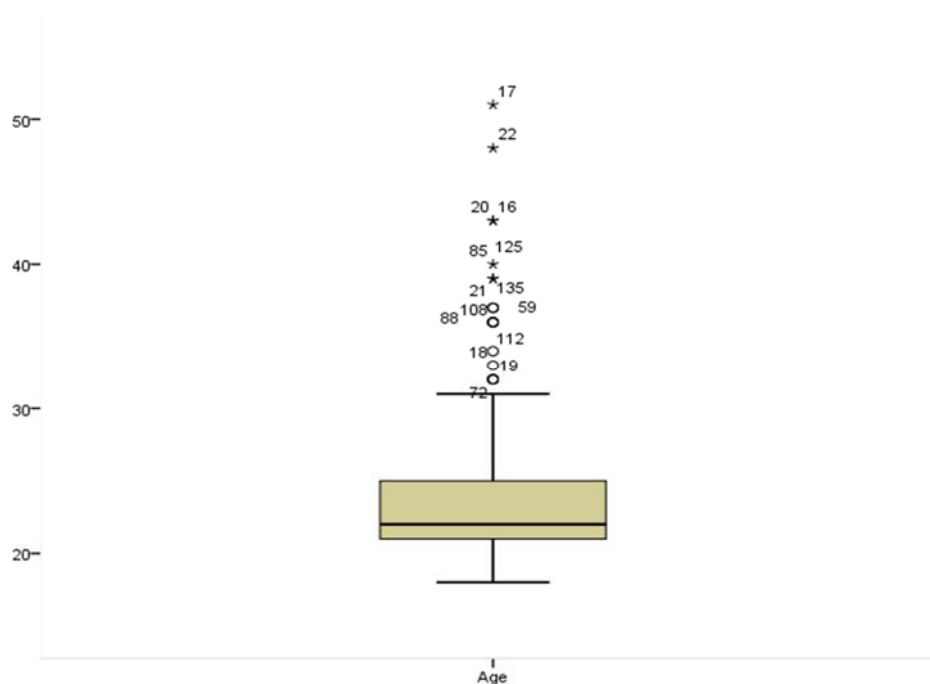
Figure 4. A box plot for variable age.

Demographic data of ethnicity, gender, level of education, GPA, country of origin, exposure to other cultures are reported. The ethnic composition of the sample in this research study consisted of a large group of Hispanics *n*=87 (63.5%), followed by Caucasians *n*=24 (17.5%), African-Americans *n*=7 (5.1%), and Asians *n*=6 (4.4%). The frequency distributions for the variable ethnicity and gender are provided in Table 2. The majority of the participants were born in the United States *n*=85 (61.3%), followed by Cuba *n*=24 (17.5%), Philippines *n*=4 (2.9%), Colombia *n*=4 (2.9%), Venezuela *n*=3

(2.2%), and Ecuador *n*=3 (2.2%). The frequency distribution for the variable country of

birth is reported in Table 3.

In relation to level of education, a sizable majority of participants *n*=76 (55.5%),

completed two years of college, followed by participants *n*=50 (36.5%) who completed

four years of college, 7 participants only graduated from high school *n*=7 (5.1%) and 4

participants *n*=4 (2.9%) had completed their master's degree. Table 4 reports these

frequencies.

The mean GPA for all participants was 3.68. Major religious preference for the

sample was Catholicism *n*=53 (38.7%) followed by Atheists *n*=40 (29.2%), Christianity

n=35 (25.5%), and other religions showed minimal frequencies as listed in the Table 5.

Participants' occupations represented nursing students *n*=108 (78 %,) and laboratory

technicians *n*=5 (3.6%) (see Table 6). The rest of the sample illustrated minimum

frequencies for other occupations Participants primarily spoke English as their first

language *n*=70 (51%) compared to almost an equal number of participants who spoke

English as a second language *n*=67 (48.9%), Table 6 displays the frequency distributions

from the variables occupation and first language.

Table 2

Participants' Ethnicity and Gender

	Large South Eastern University	
Ethnicity	*n*	*%*
Hispanic	87	63.5
Caucasian	24	17.5

	African-American	7	5.1
	Asian	6	4.4
	Black	5	3.6
	Filipino	3	2.2
	Jamaican	2	1.5
	Others (Bi-racial, Caribbean, West Indian)	3	0.21
	Total	137	100
Gender	Male	24	17.5
	Female	113	82.5
	Total	137	100

Table 3. *Frequency Distribution for Country of Birth.*

	Large South Eastern University	
Country of Birth	*n*	*%*
United States	84	61.3
Cuba	24	17.5
Philippines	4	2.9
Colombia	4	2.9
Venezuela	3	2.2
Ecuador	3	2.2

Peru	2	1.5
Haiti	2	1.5
Nicaragua	2	1.5
Jamaica	2	1.5
Panama	1	0.7
Bahamas	1	0.7
Dominican Republic	1	0.7
Pakistan	1	0.7
Belize	1	0.7
Trinidad	1	0.7
Argentina	1	0.7
Total	137	100

Table 4. *The Frequency Distribution for the Variables Level of Education*

	Large South Eastern University	
Level of Education	*n*	*%*
High School	7	5.1
2 years of College	76	55.5
4 years of College	50	36.5
Master Degree	4	2.9
Total	137	100

Table 5. *The Frequency Distribution for the Variables Religious Preferences*

	Large South Eastern University	
Religion	*n*	*%*
Catholic	53	38.7
Christian	35	25.5
Judaism	1	0.7
Atheist (none)	40	29.2
Muslim	1	0.7
Seventh Day Adventist	4	2.9
Santeria	1	0.7
Islam	1	0.7
Agnostic	1	0.7
Total	137	100

Table 6. *The Frequency Distribution for the Variables Occupation, and First Language*

	Large South Eastern University	
Occupation	*n*	*%*
Nursing student	108	78.8
Lab technician	5	3.6
Teacher	1	0.7

Others		5	3.6
Clinical coordinator		1	0.7
Case Manager		1	0.7
Medical technologist		1	0.7
Nursing assistant		3	2.2
Bartender		1	0.7
Banker		1	0.7
Martial Arts Instructor		1	0.7
Customer Service		4	2.9
Valet Parking		1	0.7
Sales Associate		1	0.7
Financial Representative		1	0.7
Pharmacy Technician		1	0.7
Administrative Assistant		1	0.7
Total		137	100
English as the	Yes	70	51.1
First language	No	67	48.9
Total		137	100

Table 7 illustrates that the majority of participants, n=54 (39.4%), reported extensive

exposure to more than five multiple cultural groups, followed by the participants who

reported multiple exposures to three or four cultures n=49 (35.8%), several participants

had minimal cultural exposure *n*=33, (24.1%), and only one participant identified no

cultural exposure *n*=1 (0.7%).

Table 7

Frequency Distribution of Cultural Exposure

	Large South Eastern University	
Cultural Exposure	*n*	*%*
No Exposure to Culture	1	0.7
Minimal Exposure	33	24.1
Multiple Exposures to 3 or 4 Cultures	49	35.8
Extensive Exposure To Multiple Cultural Groups More than 5	54	39.4
Total	137	100

Cultural background of the participants revealed a vast majority of individuals

from Cuban-American culture *n*=47 (34.3%) followed by other Hispanic-American

cultures *n*=32(23.4%). There were 9 participants who identified themselves as Americans

n=9 (6.6%). Several participants belonged to Filipino-American culture *n*=6 (4.4%),

followed by Jamaican-American culture *n*=5, (3.6%), Haitian-American culture *n*=4

(2.9%), African-American culture *n*=4, (2.9%), and Colombian-American culture *n*=4

(2.9%). The rest of the participants' cultures were from Latin America and Europe which

presented a small portion of participants (see Figure 5). The characteristics of the sample

based on the cultural, ethnic, and linguistic diversity are displayed in Figure 5.
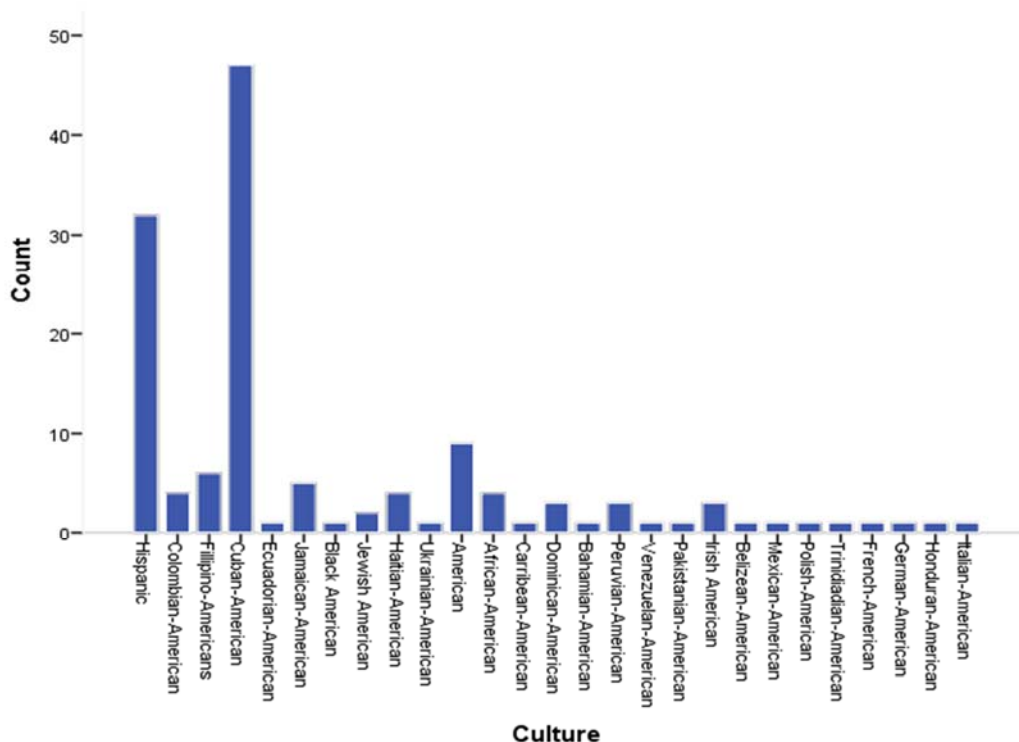
Figure 5. Cultural, ethnic, and linguistic diversity (*N=137*).

On the Inventory for Assessing the Process of Cultural Competence Scale Among Health Care Professionals - Student Version (IAPCC-SV), participants responded to a four–point Likert-like type scale, ranging from 4 (strongly agree) to 1 (strongly disagree). The total scores for the cultural competence scale were computed before and after the cultural competency simulation –post-test for a comparison of the pre-test and post-test mean scores. Overall pre-test mean was *M*=64.38 (*SD*= 6.062), which corresponded to the cultural competence range among participants. The cultural competence scores increased after the cultural high-fidelity simulation as evidenced by the new mean score of *M*=67.14 (*SD*=7.085). Table 8 displays the mean scores for overall cultural competence before the high-fidelity cultural simulation in pre-test

(IAPCC-SV total) and the mean post-test score after the simulation (PIAPCC-SV total).

The mean of the post-test scores in cultural competence increased by 2.75 points after the

implementation of high-fidelity cultural simulation.

Table 8

Mean and Standard Deviations for Cultural Competence and the five subscales (N=137)

Measure	Pre-test Mean (SD)	Post-test Mean (SD)
Total	64.38(6.062)	67.14(7.085)
Cultural awareness	10.93(1.079)	10.85(.951)
Cultural knowledge	14.27(1.983)	15.42(2.347)
Cultural skills	8.91(1.533)	9.77(1.530)
Cultural encounters	16.53(1.883)	16.79(2.143)
Cultural desire	14.19(1.611)	14.31(1.692)

Data Screening for Measurements

Frequency distributions and descriptive statistics, identifying missing data,

determining the extreme values and checking the underlying assumptions are necessary

for assessing whether or not the assumptions for the subsequent analyses were satisfied

by the data.   Frequency distributions and descriptive statistics in the data demonstrated

no outside ranges of values within the data set. Categorical independent variables were

created for the ethnicity, level of education, gender, country of origin and cultural

exposure. Dependent variables were created in IBM SPSS.v.22 for Windows for cultural *awareness*, *knowledge, skills*, *encounters*, and *desire*, and overall cultural competence. Dependent variables were created for self-confidence and satisfaction with learning. Nonrandom missing data existed in three surveys, because these participants did not complete the five questions listed on the back of the survey page. In addition, one survey did not have the entire post-test data due to the inability of the participant to attend the simulation. According to Mertler and Vannatta (2005), nonrandom missing data creates discrepancies with respect to generalizability of the results. Therefore, these four surveys were eliminated from the data analysis.

The IAPCC-SV instrument consists of 20 items, which measured constructs of cultural competence- *cultural awareness, knowledge, skills, encounters* and *desire*. Students were asked to rate items on a five-point Likert–type scale ranging from 1 to 5 – strongly disagree to strongly agree, respectively. Items 1, 3, and 15 measured cultural awareness construct; items 4, 6, 8, 9, 12 measured cultural knowledge; items 7, 17, 18 measured cultural skills; items 10, 11, 13, 14, 19 measured cultural encounters, and items 2, 5, 16, and 20 measured cultural desire construct. One item had a reverse coding, in which strongly agree was assigned to 1, agree 2, disagree 3, and strongly disagree 4.

Skewness for the pre-test scores before the high-fidelity cultural simulation was -0.162, and skewness for the post-test after the simulation was -0.92. These values indicated very slight negative skewness for the pre-test and post-test IAPCC-SV scores. This negative skew demonstrated that participants did very well overall, while only a few did poorly, and the distribution of the scores was approximately normal.

The frequency distribution and histogram for IAPCC-SV pre-test and post-test scores are approximately normal as depicted in Figures 6 and 7. There seemed to be no unusual values or outliers in the pre-test and post-test scores.
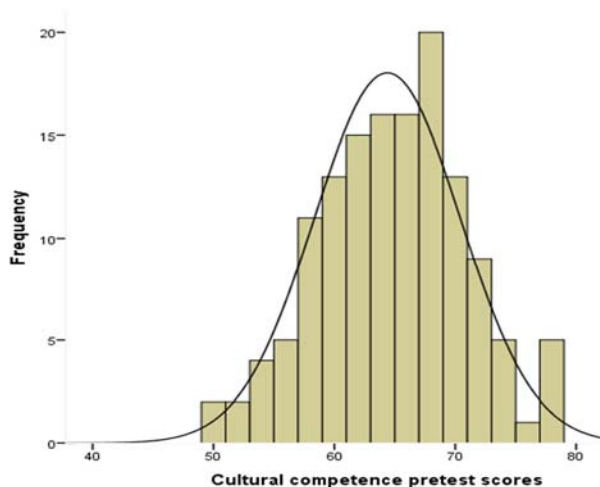
Figure 6. The distribution of cultural competence pre-test scores
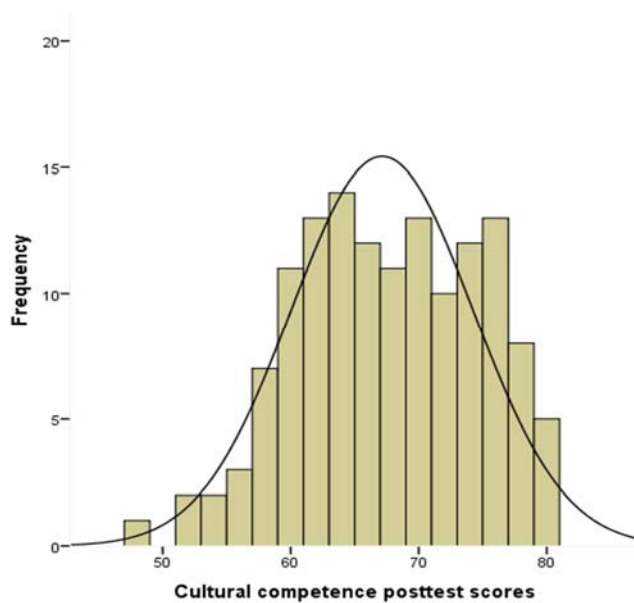
Figure 7. The distribution of cultural competence post-test scores.

The frequency distribution for SSSCL instrument has a negatively- skewed distribution with a skewness value of -1.980 and kurtosis value of 7.890. Figure 8 shows a negatively-skewed distribution. The Kolmogorov-Smirnov statistical test was employed to assess the normality. If the Kolmogorov-Smirnov test of normality produces statistically-significant results, the assumption of normality is violated, indicating that the variables are not normally-distributed and the null hypotheses is rejected (Mertler & Vannatta, 2005). The data representing the total scores of SSSCL instrument were assessed for univariate normality by performing Kolmogorov-Smirnov statistical test. Additionally, the total scores obtained by SSSCL instrumentation was analyzed via descriptive statistics, inspection for outliers, and creation of normality plots. Results demonstrated statistical significance and indicated that the SSSCL scores were not normally-distributed (*Statistic* = .142, *p*=.000). These results demonstrated violation of the assumption of normality. Further analysis of data in the box plot revealed that SSSCL scores contained two outliers in rows 125 and 50. The overall SSSCL score in row 125 was 23 and the overall score in row 23 was 13. The rest of the scores in the data set ranged from 42 to 68. Removal of these outliers only slightly improved the data set. Visualization of the histogram as illustrated in Figure 8 displayed a negatively skewed distribution since it has a long tail in the negative direction. Transformation procedure is recommended by Mertler & Vannatta (2005) for negatively-skewed distribution. Reflection method in transformation procedure helps to convert a distribution with negative skewness to one with positive skewness. The box plot is depicted in *Figure 9*.
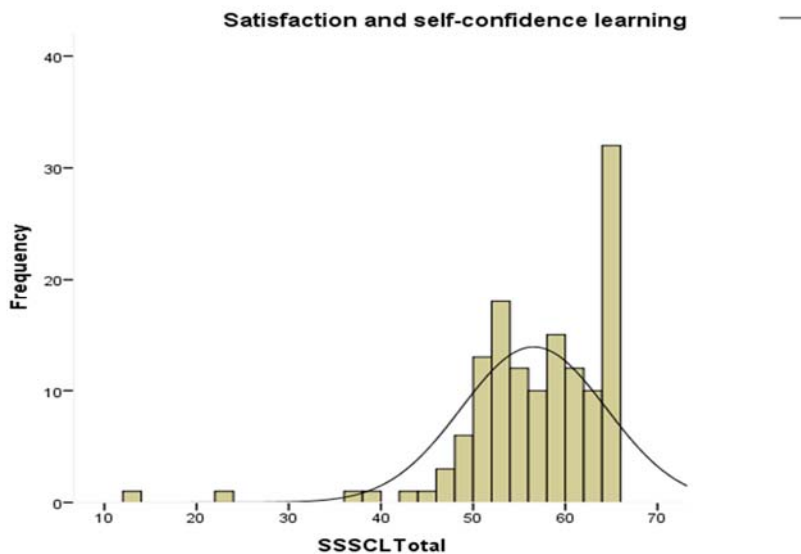
Figure 8. The distribution of self-confidence and learning scores.
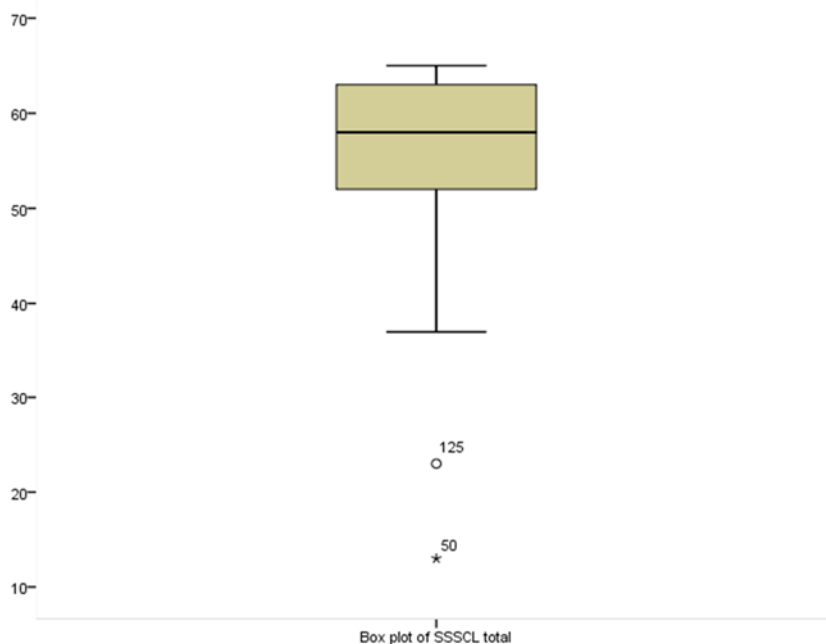
Figure 9. Boxplot for Satisfaction with Simulation and Self-Confidence with Learning

Q-Q plots were used to assess how well the variable of cultural competence fits a

normal distribution. In a normal Q-Q plot, the observations are positioned in increasing

order and plotted against the expected normal distribution value. The plot should

resemble a straight line in normal distribution and points are close to that line (Mertler

&Vannatta, 2005). Examination of Q-Q plots of the cultural competence variable in the

pre-test and post-test indicated a normal distribution. Results are depicted in Figures 10

and 11 and they indicate the plot is represented in a straight line.
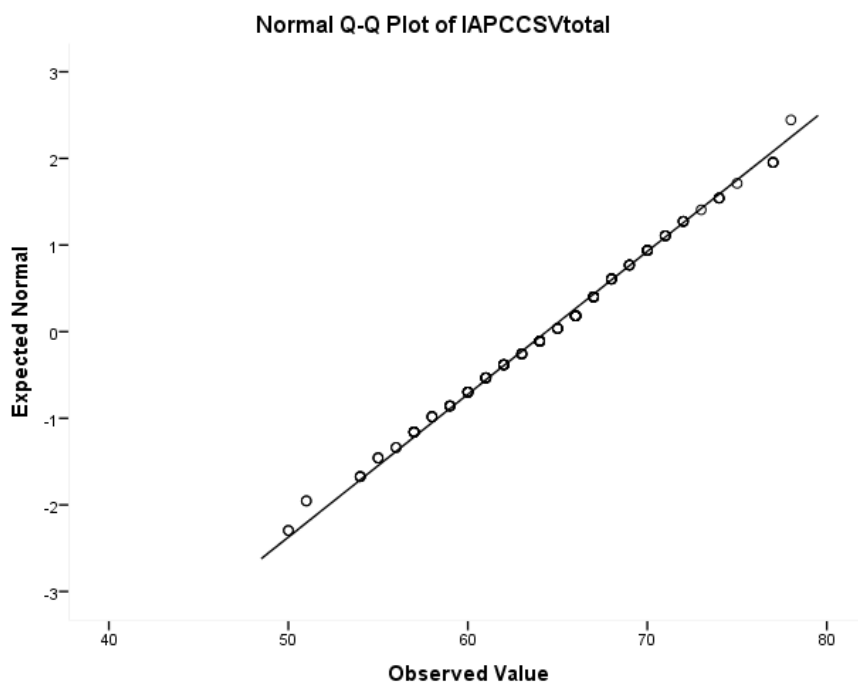
Figure 10. The normal Q-Q plot of pre-test scores of cultural competence.

Normal Q-Q Plot of PIAPCCSVTotal
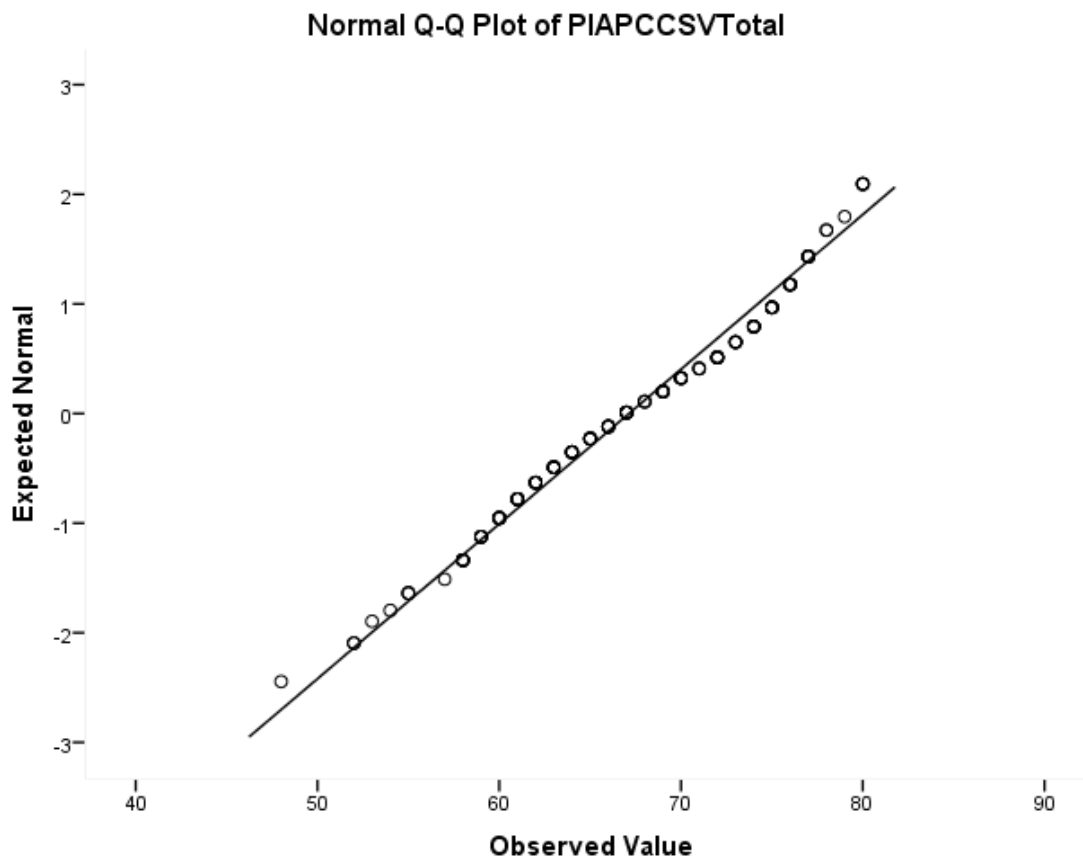
Figure 11. The normal Q-Q plot of the post-test scores of cultural competence.

Furthermore, data distribution was checked for multicollinearity to determine if variables have moderate to high inter-correlation in regression. The variance inflation factor (VIF) measures multicollinearity by performing multiple regression analysis. Stevens (1992) suggested that if the VIF value is greater than ten or tolerance statistic values for the independent variables is less than 0.1, multicollinearity is present. Multicollinearity was not detected in this analysis, collinearity tolerance statistic values for independent variables were greater than zero, ranging from .858 and .948, and the VIF values were less than 10. The results are listed in Table 9

Table 9

Multicollinearity Statistics

_____

Variables	Tolerance	VIF
Age	.858	1.165
Gender	.967	1.034
Ethnicity	.933	1.071
Education	.827	1.209
First language	.890	1.123
Culture	.948	1.054

_____

Dependent Variable: Exposure

Results of Psychometric Assessment

Inventory for Assessing the Process of Cultural Competence among Health Care Professionals- Student Version (IAPCC-SV)

Campinha-Bacote's (2007) inventory for assessing cultural competence (IAPCC-SV) was used to measure the effect of high-fidelity cultural simulation on cultural competence development among baccalaureate nursing students. The instrument consists of 20 Likert-like scale items. Chronbach's *alpha* coefficients for the IAPCC-SV total scale were 0.84 for the pre-test and 0.89 for the post-test. The results are reported in Table 10. The IAPCC-SV instrument used in the Fitzgerald, Cronin, & Campinha-Bacote (2009) study revealed the total scale score of moderate variability with internal consistency reliability for the overall scores with a Chronbach's *alpha* coefficient of 0.783. The current study demonstrated higher Chronbach's *alpha* values compared to Wilson's (2011) study in which Cronbach's *alpha* coefficient for the total item scales was

.793. In addition, Okere, Gleeson, Mitchell, Melzer and Olson (2012) reported that

IAPCC-SV tool revealed good test/re-test reliability with a Chronbach's *alpha* coefficient

of 0.870.

A detailed item analysis in this study revealed that the deletion of item 14 which,

is reverse coded, would increase the Chronbach's *alpha* coefficient to 0.90, and improve

reliability. The mean for IAPCC-SV score obtained in this study before the high-fidelity

cultural simulation was M=64.38 (*SD*=6.062) compared to the mean of *M*=67.14

(*SD*=7.085) for the post-test scores. Palombaro, Dole, and Black (2015) also reported

similar results of improvement in the mean score after the cultural intervention

experience in a group of physical therapy students where the pre-test mean score was

M=56.51 (*SD*=4.82) before the intervention, and the post-test mean score was *M*=64.16

(*SD* = 6.19) after the cultural learning opportunities given in the course as shown in Table

10. Chronbach's *alpha* coefficient for pre-test subscale 1 cultural awareness was 0.567

compared to 0.620 in post-test. Chronbach's *alpha* coefficient for subscale 2 cultural

knowledge was 0.607 in the pre-test and 0.683 in the post-test. Chronbach's *alpha*

coefficient was 0.607 for subscale 3 cultural skills in the pre-test compared to 0.716 in

the post-test. Chronbach's *alpha* coefficient was 0.676 for subscale 4 cultural encounters

compared to 0.674 in the post-test. Lastly, Chronbach's *alpha* coefficient for cultural

desire in subscale 5 was 0.677 in the pre-test, versus 0.739 in the post-test.

Student Satisfaction and Self-Confidence in Learning

The SSSCL instrument was developed by the National League of Nursing (NLN)

in 2003 to evaluate students' attitudes toward simulation. The instrument consists of 5-

point Likert- type scale items designed to measure two variables: 1) student satisfaction

with simulation and 2) self-confidence in learning. The items from one to five of the instrument measure student satisfaction with the simulation and the remaining eight items measure self-confidence in learning. The maximum score for the first five items is 25, and 40 for the remaining 8. The overall reliability of the instrument was determined by a Chronbach's *alpha* coefficient of 0.93 as reported in Table 10. Chronbach's *alpha* coefficient was 0.821 for the subscale one satisfaction with the simulation and Chronbach's *alpha* coefficient was 0.658 for subscale two self-confidence with learning for this study. This overall reliability result was congruent with Franklin, Burns, and Lee's (2014) study with an overall reliability of 0.92. These researchers recommended removing item 13 in order to increase the self-confidence subscale *alpha* reliability to 0.94. Elimination of item 13 would increase the Chronbach's *alpha* coefficient to 0.94 in this study. Jeffries and Rizzolo (2006) confirmed that the reliability of the Students Satisfaction and Self-Confidence in Learning instrument by means of Cronbach's *alpha* value of 0.94 for satisfaction, and 0.87 for self-confidence, respectively.

The mean for this study was *M*=4.35 (*SD*=4.168), which corresponded to the mean *M*=4.14 reported by Omer's (2016) study using SSSCL instrumentation to evaluate nursing students' perceptions of satisfaction and self-confidence with a clinical simulation experience. Omer's (2016) study did not report the standard deviation, and used an additional 10 items from other available tools added to the SSSCL instrument, totaling 23 items, to evaluate satisfaction with simulation and self-confidence in learning. Omer (2016) reported a Chronbach's *alpha* coefficient of 0.897 for satisfaction with the simulation and 0.871 for self-confidence in learning. The Chronbach's *alpha* coefficients

for the total and the subscales of IAPCC-SV and SSSCL instruments for this study are

displayed in Table 10.

Table 10

Reliability Estimates: Chronbach's Alpha for Study Measures

Instrument	Number of Items	Chronbach's *alpha*
IAPCC-SV (pre-test)	20	0.84
Cultural awareness	3	0.567
Cultural knowledge	5	0.607
Cultural skills	3	0.607
Cultural encounters	5	0.676
Cultural desire	4	0.677
IAPCC-SV (post-test)	20	0.89
Cultural awareness	3	0.620
Cultural knowledge	5	0.683
Cultural skills	3	0.716
Cultural encounters	5	0.674
Cultural desire	4	0.739
SSSCL	13	0.93
Satisfaction with simulation	5	0.821
Self-Confidence with learning	8	0.658

Revisiting Research Questions and Hypotheses

The study addresses the following four research questions with corresponding theme hypotheses:

1. What effect does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?

H_1. Participants' cultural competence post-test scores will be statistically significantly higher after being taught to the cultural high-fidelity simulations compared to their pre-test scores.

2. What kinds of relationships exist among the subscales of the cultural competence scale?

H_1. Participants who score high on the cultural desire construct will score high on the cultural awareness construct.

H_2. Participants who achieve the cultural desire construct will score high on the cultural knowledge, skills, and cultural encounters construct.

3. Are there significant differences in cultural competency development based on the students' demographic characteristics (e.g. age, gender, level of education)?

H_1. There are significant differences on the students' cultural competence development based on the students' demographic characteristics (e.g. age, gender, level of education).

4. Which of the following individual or combined demographic variables (e.g. age, ethnicity, educational level, and native [first] language), individually or grouped, are significant predictors of the levels of cultural competence?

Statistical Tests and Findings for Each Research Question and Hypothesis

Research Question 1, Hypothesis 1

RQ1: What effect does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?

H$_1$. Participants' cultural competence post-test scores will be statistically significantly higher after being taught to the cultural high-fidelity simulations, compared to their pre-test scores.

Hypothesis 1 focused on the effects of cultural simulation on the development of cultural competence. The total scores of cultural competence instrumentation were analyzed for comparison before and after the simulation. Students' satisfaction and self-confidence scores after the simulation were examined in relation to cultural competence. Pre-test scores served as a co-variate. The appropriate statistical technique to test this was a paired sample *t*-test situated within General Linear Model framework. Moreover, the researcher performed a paired samples *t*-test to compare pre-test and post-test mean scores. A paired sample *t*-test was appropriate to perform, because this test is used to investigate pre- and post-test design studies before the intervention to match with the data from the same participants. The data from the participants reduced the error variance and increase the statistical power.

A paired sample *t*-test was performed to compare the mean total scores of IAPCCSV before (*M*=64.38, *SD*=6.062) the high-fidelity cultural simulation and after (*M*=67.14, *SD*=7.085) the simulation as listed in Table 11(a). Descriptive statistics in Table 11(a) shows that post-test results (*M*=67.14, *SD*=7.085) were higher after the high-fidelity cultural simulation than in pre-test results (*M*=64.38, *SD*=6.062). A paired

sample *t*-test analysis was performed at a one-tail level in IBM SPSS v.22. There was a statistically-significant difference in the mean between pre-test and post-test total scores related to cultural high-fidelity simulation (t (136) =-6.372, $p<.001$), as indicated in the Table 11(b). While this sample of student participants did demonstrate mean differences between the total scores of pre-test and post-test, these differences can be attributed to the high-fidelity cultural simulation experience. However, this requires a certain amount of caution, because the design did not have a control group due to constraints in data collection procedures. Hypothesis 1 for research question 1 was supported.

Table 11(a).

Paired Sample t-test for Comparisons of Mean Scores Before and After the High-Fidelity Cultural Simulation.

Outcome	*N*	*M*	*SD*	*SE*
Pre-test total scores	137	64.38	6.062	0.518
Post-test total scores	137	67.14	7.085	0.605

Table 11(b).

Paired Sample t-test for Comparisons of Mean Scores Before and After the High-Fidelity

Cultural Simulation.

Paired Differences (pre-test- post-test)   95% CI for

M	SD	SE	Mean Difference	t	df	Sig. (1-tailed)
-2.759	5.068	.433	-3.615, -1.903	-6.372	136	.000*

*p<.001

An unexpected finding occurred whereby twenty-six participants progressed to the cultural proficiency level and ninety-one participants demonstrated cultural competence after the high-fidelity cultural simulation exercise (*n*=137). These findings are depicted in histograms of Figures 12, and 13.
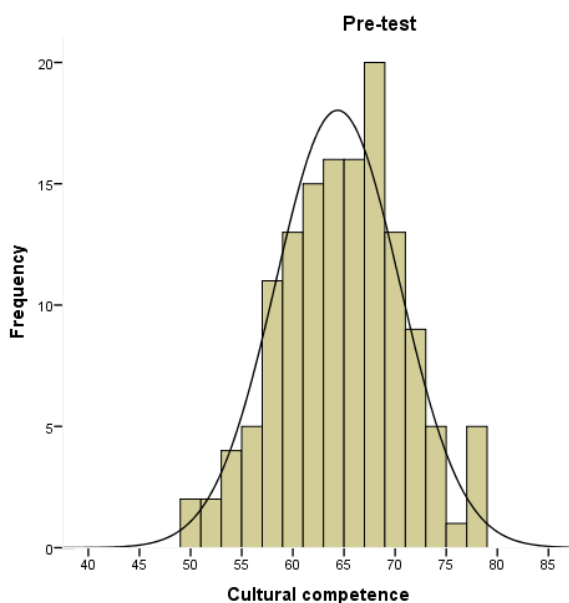
Figure 12. The pre-test cultural competence scores.
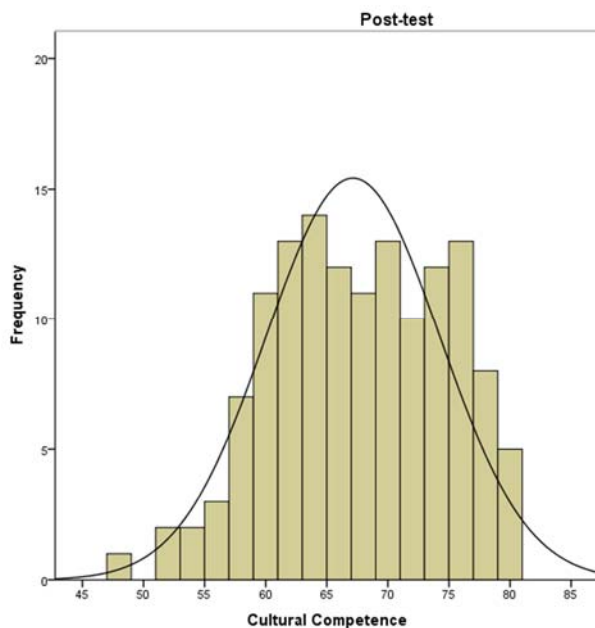
Figure 13. The post-test cultural competence scores.

Research Question 2, Hypotheses 1 and 2

RQ2: What kinds of relationships exist among the subscales of the cultural competence scale?

H$_1$. Participants who score high on the cultural desire construct will score high on the cultural awareness construct.

The aim of Hypothesis 1 for Research Question 2 was directed at identifying the relationship between cultural desire and cultural awareness constructs. Cultural awareness items on the post-test were correlated with cultural desire items on the post-test. The Pearson *r* Correlation coefficient was used to investigate the significance of the strength of the relationship between cultural awareness and cultural desire. Five subscales for each category of cultural competence had been created based on the coding for each item of the IAPCC-SV instrument. Items 1, 3, and 15 represented cultural awareness; items 4, 6, 8, 9, and 12 corresponded with cultural knowledge; items 7, 17, and 18 reflected on cultural skills; items 10, 11, 13, 14 and 19 illustrated cultural encounters, and

the last items 2, 5, 16 and 20 characterized cultural desire. Statistical analysis revealed

that cultural awareness was positively and statistically significantly correlated to

students' cultural desire constructs (r=.663, p<.001). This hypothesis was supported

because correlation showed significance at the specified 0.01 level one-tailed. Since the

correlation is positive, this means that students who scored high on cultural awareness

achieved cultural desire. Table 12 provides a summary of correlations between cultural

awareness and cultural desire subscales.

Table 12

Pearson Correlations and Descriptive Statistics Between Cultural Awareness and

Cultural Desire Subscales (N=137).

	Cultural Awareness	Cultural Desire
Cultural Awareness	1	.663
Cultural Desire	.663	1
Sig. (one-tailed)		0.000
M	10.85	14.31
SD	.951	1.692

H₂. Participants who achieve the cultural desire construct will score high on the cultural knowledge, skills, and cultural encounters construct.

Hypothesis 2 for Research Question 2 was supposed to verify that a positive significant correlation exists between cultural knowledge, cultural skills, cultural encounters and cultural desire. The subscale categories were created to match items of the IAPCCSV instrument for cultural knowledge subscale 2, cultural skills subscale 3, cultural encounters subscale 4 and cultural desire subscale 5. The subscales were correlated using the Pearson correlation coefficient r. If the relationship is not linear, Pearson's r will not produce valid correlations among the variables (Gay, Mills & Artisan, 2009). The matrix of scatter plots was created and presented in Figure 14 between cultural knowledge, cultural skills, encounters, and cultural desire. Therefore, the relationships among these subscales could be considered linear, as indicated by the straight lines in scatter plots.
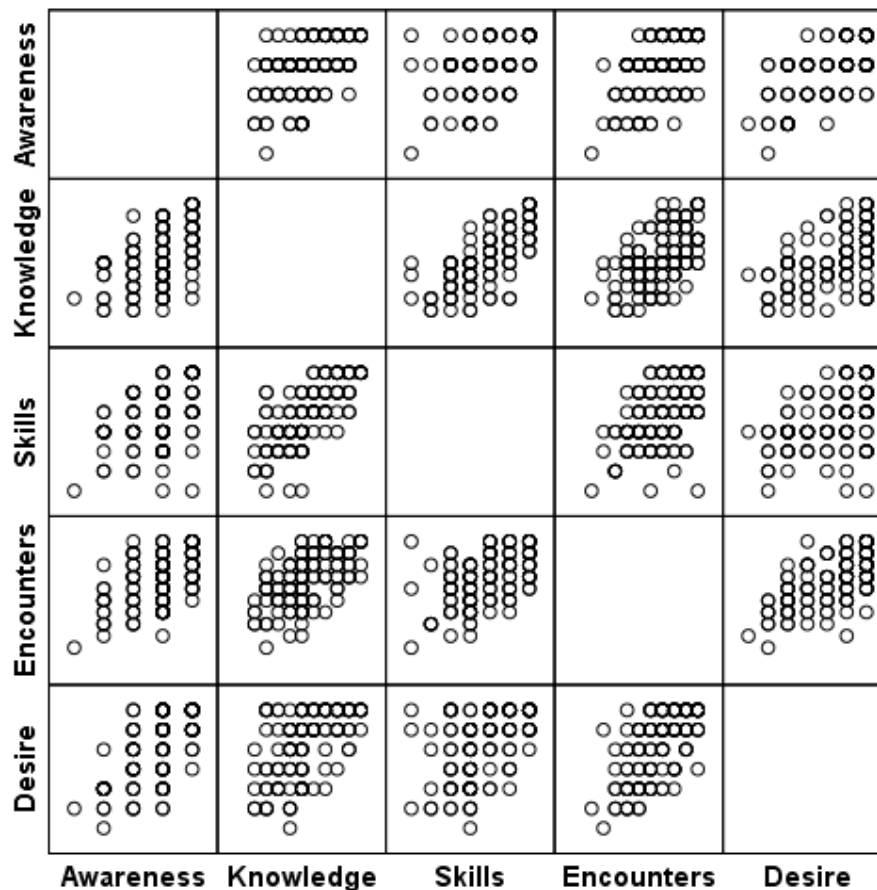
Figure 14. Scatterplots of the relationship between cultural competence subscales

An actual correlational matrix was generated for all five subscales. Statistical

analysis revealed that the cultural desire construct was positively and statistically

significantly correlated with the participants' cultural awareness (r=.663, p<.001),

cultural knowledge (r=.532, p<.001), cultural skills (r=.505, p<.001) and cultural

encounters (r=.653, p<.001). Since the correlation is positive, this means that

participants also achieved a high cultural desire construct score high on the cultural

knowledge, skills, and cultural encounters construct. One-tail positive correlation

significance contributes to the equation in which, if one number increases, the correlated

number increases as well. Hypothesis 2 for Research Question 2 were supported. Table

13 demonstrates the correlations between cultural awareness, knowledge, skills, encounters, and desire.

Table 13.

Correlations between Cultural Knowledge, Cultural Skills, Cultural Encounters, and Cultural Desire Subscales (N=137)

Correlations		Cultural Subscales				
		Awareness	Knowledge	Skills	Encounters	Desire
Awareness		1	.492**	.476**	.540**	.663**
Sig. (one-tailed)			.000	.000	.000	.000
M	10.85					
SD	.951					
Knowledge		.492**	1	.738**	.578**	.532**
Sig. (one-tailed)		.000		.000	.000	.000
M	15.42					
SD	2.347					
Skills		.476**	.738**	1	.514**	.505**
Sig. (one-tailed)		.000	.000		.000	.000
M	9.77					
SD	1.530					
Encounters		.540**	.578**	.514**	1	.653**
Sig. (one-tailed)		.000	.000	.000		.000
M	16.79					

SD	2.143				
Desire		.663**	.532**	.505**	.653** 1
Sig. (one-tailed)		.000	.000	.000	.000
M	14.31				
SD	1.692				

** *p*<.001.

Research Question 3 and Hypothesis 1

RQ3: Are there significant differences in cultural competency development based on the students' demographic characteristics such as age, gender, and level of education?

H₁. There are significant differences on the students' cultural competence development based on the students' demographic characteristics such as age, gender, and level of education.

The hypothesis for Research Question 3 was directed toward investigating whether or not there were significant relationships between students' cultural competence development and their demographic characteristics such as age, gender, and level of education. A factorial MANOVA was performed since the hypothesis consisted of multiple independent and dependent variables. A factorial MANOVA design extends a two-group design to allow for two or more categorical independent variables (Mertler & Vannatta, 2005). The three categorical independent variables in this study are age, gender, and level of education. Tabachnik and Fidel (1996) recommend linear combination of dependent variables to form for each interaction and each main effect in a factorial MANOVA statistical analysis.

The factorial MANOVA design facilitated the separation between the cells of the interactions in a 2X4X2 structure to determine if there were significant main effects of age, gender, and level of education and the interaction of these demographic characteristics on the five subscales of cultural competence development. A 2X4X2 design represents an experiment with independent variables; the first independent variable of gender has two levels of male or female; the next independent variable of education has four levels; high school, two years of college, four years of college, and master's degree. The last independent variable is age, which has two levels: traditional age and non-traditional age for this study. Since the sample predominately consisted of females (n females=113, and n males= 24), and so was not well balanced, the gender category was eliminated from the design. The age variable was recoded into the nominal variable of traditional age for the college students (ranging from 18 to 22 years of age) and non-traditional (age ranging from 23 years of age and above) for this study. Hence, the newly- recoded age variable had two levels.

Cross-tabulation was performed to determine cells interactions between traditional age and education. Cross- tabulation demonstrated no cell interaction between the high school and master's degree education variables. There was a statistically significant difference in the high school education for non-traditional age and for master's degree for traditional age ($x^2(3)$ =30.45, $p<.001$). The results are presented in Table 14. Therefore, the educational variable was recoded to only two variables; four years of college degree and no four years of college degree. Elimination of the gender variable and recoding the educational variable produced a 2X2 factorial MANOVA design in which the first 2 corresponds to two variables of education – four years college

degree and no four years college degree, and the second 2 of the factorial MANOVA design represents two levels of age: traditional and non-traditional for this study. Subscales of *cultural awareness, knowledge, skills, encounters,* and *desire* were created and computed, based on IAPCC-SV instrument value for each construct.

Table 14.

Results of Cross-Tabulation and Chi-Square Test for Education and Traditional Age.

Education	Age		Total
	Traditional	Nontraditional	
High School	7	0	7
2 years College	58	17	75
4 years of College	19	31	50
Master's Degree	0	4	4
Total	84	52	136

x^2=30.45, *df*=3, *p*<.001

Box's M Test of equality of covariance matrices, presented in Table 15, revealed that equal variances could be assumed (*F* (45,11690.001)=.978, *p*=.0514). Box's M Test revealed that test of the null hypotheses observed that covariance matrices of the dependent variables are equal across all groups: new education variable, traditional age and new education variable with traditional age interaction.

Table 15

Box's M Test of Equality of Covariance Matrices.

Box's M	F	df1	df2	Sig.
48.674	.978	45	11690.001	.514

Design: Intercept+Education+ Age+ Education * Age

When Box's M Test is not significant, the Wilks' Lambda statistic is used as the test statistics (Mertler & Vannatta, 2005). Therefore, Wilks' Lambda was used as a test statistic. Wilks' Lamba statistic in multivariate tests indicated significant group differences only in the traditional age variable with respect to the dependent variables of cultural competence (λ=.823, F(5, 128)=5.499, p<.001). The value of Wilks' Lambda was .823, which was the total amount of unexplained variance of the composite of cultural competence. The observed power was large to produce 98 % of the total variance with the grouping variable (η=.989). There was no statistically significant main effect of the education variable (λ=.981, F (5, 128) =.495, p=.780), and the interaction effect of education and age (λ=.149, F (5, 128) =1.660, p=.149) with respect to cultural competence development. Hence, Factorial MANOVA did not produce statistically significant results for the main effects of education, and the interaction effect of age and education. Factorial MANOVA produced statistical significance for the main effect of age. The results are listed in Table 16.

Table 16.

Multivariate Tests.

Effect Observed	Value	F	Hypothesis df	Error df	Sig.	Partial. eta sq	Noncent parameter	power [d]
Education								
Wilks' Lambda	.981	.495	5.000	128.000	.780	.019	2.474	.181
Age								
Wilks' Lambda	.823	5.499	5.000	128.000	.000	.177	27.497	.989
Education * Age								
Wilks' Lambda	.939	1.660	5.000	128.000	.149	.061	8.301	.562

Levene's test of equality of error variances demonstrated that the error variances for the five subscales are equal across the groups. These results are shown in Table 17.

Table 17.

Levene's Test of Equality of Error Variances in Five Subscales.

Subscales	F	df1	df2	Sig.
Cultural				
Awareness	2.421	3	132	.069
Knowledge	.548	3	132	.651

Skills	.935	3	132	.426
Encounters	.652	3	132	.583
Desire	.920	3	132	.433

Design: Intercept + Education + Age + Education * Age

Univariate analysis of variance (ANOVA) was conducted on each dependent variable of cultural competence subscales as a follow up test to MANOVA. The results indicated that traditional age demonstrated statistical significance on the cultural encounters subscale, $(F (1,132) = 6.183, p=.014, \eta^2=.694)$. The interaction effect between traditional age and education variables produced statistical significance on cultural skills of cultural competence development subscale, $(F (1, 132)=4.083, p=.045, \eta^2 =.518)$. There was no significant main effect on education in five subscales of cultural competence. The results are listed in Table 18.

Table 18.

Tests of Between Subjects Effects.

Source	Dependent Variable	Type III Sum of Squares	df	M^2	F	Sig.	Part. Eta Squared	Noncent. Parameter	Observed Power [f]
Education									
	Cultural Awareness	.888	1	.88	.977	.325	.007	.977	.166
	Cultural Knowledge	1.280	1	1.280	.228	.633	.002	.228	.076
	Cultural Skills	.101	1	.101	.043	.835	.000	.043	.055
	Cultural Encounters	.009	1	.009	.002	.964	.000	.002	.050

Cultural Desire	.070	1	.070	.024	.877	.000	.024	.053
Age								
Cultural Awareness	2.931	1	2.931	3.224	.075	.024	3.224	.430
Cultural Knowledge	7.552	1	7.552	1.348	.248	.010	1.348	.211
Cultural Skills	.973	1	.973	.419	.519	.003	.419	.098
Cultural Encounters	27.519	1	27.519	6.183	.014	.045	6.183	.694
Cultural Desire	2.426	1	2.426	.836	.362	.006	.836	.148
Education * Age								
Cultural Awareness	.081	1	.081	.090	.765	.001	.090	.060
Cultural Knowledge	2.561	1	2.561	.457	.500	.003	.457	.103
Cultural Skills	9.486	1	9.486	4.083	.045	.030	4.083	.518

Furthermore, profile plots produced significant interaction between cultural skills, cultural encounters, and traditional, and non-traditional age groups, as shown in Figure 15. The traditional age group seemed to be performing better on the cultural skills compared to the non-traditional age group.
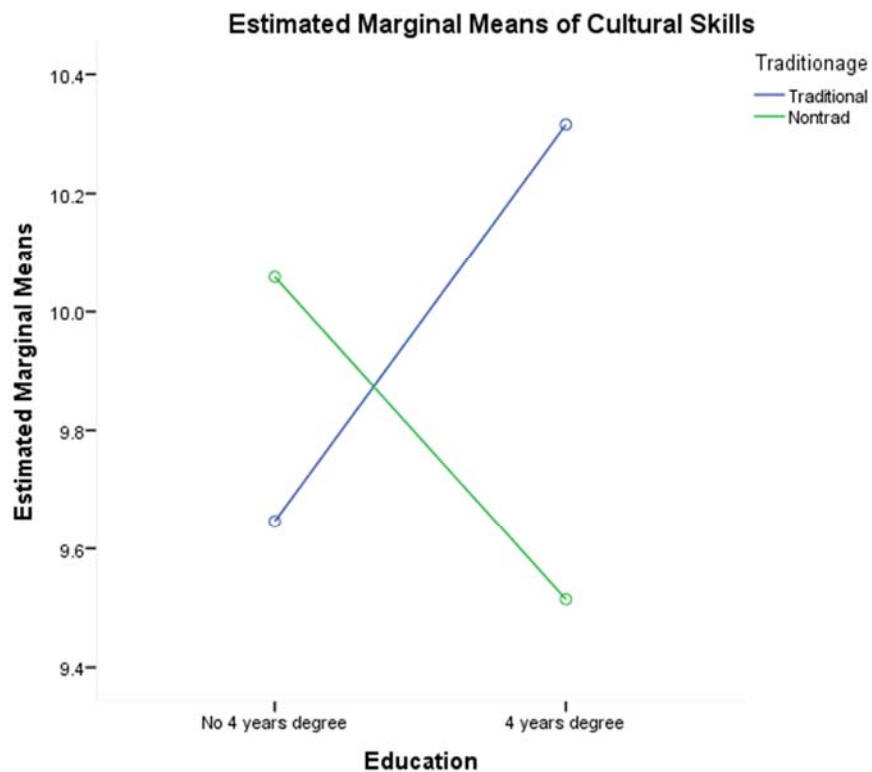
Figure 15. Estimated Marginal Means of Cultural Skills, Education and Age.

Factorial MANOVA results showed that students' cultural competence varies by educational level and age factors. Table 19 displays the *post-hoc* analysis results with pair-wise comparisons of cultural desire in relation to education. This comparison indicated that the mean level of cultural desire was different for students with high school, and those with two years of college education. Analysis produced a statistically significant difference between high school and two-year college education in relation to cultural desire subscale. This finding is significant at the .05 level. High-school and two-year college students reported a stronger desire to learn about other cultures than did students with other educational levels. All other subscales of cultural competence did not show statistical significance in relation to education.

Table 19.

Multiple Comparisons between Subscale of Cultural Desire and Education

DV	(I) Education	(J) Education	Mean Diff.	S.E	Sig.
Cultural Desire HS		2YC	-1.39*	.667	.040

*The mean difference is significant at the .05 level

Overall, the hypothesis was supported only in relation to age as it was related to cultural competence development among baccalaureate nursing students in subscale of cultural encounters and education and age interaction in the cultural skills subscale. The educational level did not produce a significant effect on cultural competence.

Research Question 4

RQ4: Which of the following individual or combined demographic variables such as age, ethnicity, educational level, and native [first] language, individually or grouped, are predictors of the levels of cultural competence?

This question focused on identifying significant predictors of cultural competence among the set of variables consisting of age, ethnicity, educational level, and native [first] language. A multiple regression analysis was conducted to evaluate which of the independent variables of age, ethnicity, educational level, and native language significantly predict the development of cultural competence. The multiple correlation coefficient R was used to identify the strength of the correlation between the predictor variables and criterion variables. A coefficient of determination, R^2, would provide information on the amount of variance in the dependent variable that is accounted for by the set of independent variables.

Each independent variable in a multiple regression analysis is evaluated for its contribution to the prediction of dependent variables and compared to the other individual or grouped independent variables in the regression model. Multiple regression handles all independent variables in the analysis as continuous, or binary categorical variables. Age is a continuous variable, while ethnicity and education are categorical nominal independent variables with four distinct levels. Therefore, dummy or artificial variables were created in this study to represent ethnicity and education as binary categorical variables. Native language has two levels, coded as one is for English as a first language, and coded zero is for English as a second language. Therefore, no recoding to a dummy variable for the native language was required. The ethnicity variable was revised and grouped into four categories: Caucasians, African-Americans, Hispanics, Asians, and Islanders. Caucasian ethnicity served as a reference category to which the other ethnicity categories were compared. Caucasian ethnicity coded zero for all dummy variables in the set. African-Americans, Hispanics, Asians and Islanders ethnic categories were coded either as one or zero to represent dichotomous variables. Table 20 summarizes the dummy coding for the ethnicity variable.

Table 20

Dummy Coding for Ethnicity Categories

Ethnicity	dAfric.-Americans	dHispanics	dAsians	dIslanders
Caucasians	0	0	0	0
African-Americans	1	0	0	0

Hispanics	0	1	0	0
Asians	0	0	1	0
Islanders	0	0	0	1

Educational level was grouped into three dichotomous variables, with codes assigned to each educational level either as one or zero. High school education was used as a reference category to which other educational categories were compared. Table 21 represents the dummy coding for educational categories.

Table 21

Dummy Coding for Education Categories

Educational Level	dtwo Years College	dfourYears College	dMasters
High School	0	0	0
Two years of College	1	0	0
Four years of College	0	1	0
Masters	0	0	1

A pre-analysis data screening procedure for multiple regression indicated normal distribution for the continuous variables and demographic characteristics that have linear relationships with cultural competence. Prior to execution of the regression analysis, data was checked for multicollinearity to determine if variables have moderate to high inter-correlation. Stevens (1992) suggested that if VIF is greater than ten or tolerance statistic

values for independent variables are less than 0.1, multicollinearity is present.

Multicollinearity was not detected in the analysis. Collinearity tolerance statistic values

for independent variables were greater than 0.1 and variance inflation factors (VIF) were

less than 10 in the current study. Mertler and Vannatta (2005) have recommended that if

there is no evidence of multicollinearity, it is safe to perform and interpret multiple

regression.

Multiple regression analysis was conducted to identify which independent

variables age, ethnicity, educational level, and native language were individually or

collectively-significant predictors of cultural competence development. Research

Question 4 was not supported, because the linear combination of the four predictors

revealed no significant regression model, $(F(9,126) = 1.477, p = .163, R^2 = 0.095)$.

Results are listed in Table 22 as model summary.

Table 22.

The Model Summary Table

R	R^2	Adj.R^2	SE of Est.	Change Statistics					
				R^2 change	F change	df1	df2	Sig. F Change	Sum of Squares
.309	.095	.031	6.993	.095	1.477	9	126	.163	6,811

Predictors: first language, ethnicity, age, education.

Approximately 9.5% of the cultural competence variance was accounted for by

the linear combination of the predictors. Regression analysis results indicated that an

overall model of four predictors (age, ethnicity, educational level, and native language)

did not significantly predict cultural competence development. None of four independent

variables, age, ethnicity, educational level, and native language turned out to be

significant predictors of cultural competence development among baccalaureate nursing

students. R^2 value of .095 represents small effect size according to Cohen (1988). This

model accounted for 9.5% of the variance in cultural competence.

The results of analysis of variance (ANOVA) presented in the Table 23 shows

that there were no statistically significant mean differences in levels of reported

predictors of age, ethnicity, educational level, and native language on cultural

competence development in baccalaureate nursing students, $(F (9,126) =1.477, p=.163)$.

Table 23

Analysis of Variance (ANOVA)

Model	Sum of squares	df	Mean Square	F	Sig.
1. Regression	650.050	9	72.228	1.477	.163
Residual	6161.296	126	48.899		
Total	6811.346	135			

Age was recoded into a new age variable to determine if there is any statistical

significance for this independent variable in relation to cultural competence prediction.

This recoding of age was suggested by the fact that the factorial MANOVA analysis

showed statistically significant effects of age on cultural encounters and cultural skills

subscales. Since age is a continuous variable, it was recoded to a dichotomous variable, as one for the traditional age group from 18-22 years old and zero for the nontraditional age group from 23 years of age and up. Multiple regression analysis indicated an R^2 value of 0.09 and no statistical significance at the .05 level for the age variable. Loss of information resulting from dichotomizing the age variable possibly resulted in a decreased R^2 value. Age was not a significant predictor for the development of cultural competence.

Cultural competence was measured by using Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals -Student Version instrument (IAPCC-SV) during the post-test. Scores between 60 and 74 on the post-test indicated cultural competence. Therefore, any significance in relationship between age, educational level, ethnicity, and speaking English as the first language could correlate with cultural the competence level. Multiple regression analysis revealed that the highest scores on the IAPCC-SV post-test were associated with Hispanic ethnicity (t=2.422, β=.289, p<.05), two years of college education (t=2.172, β=0.429, p<.05) and four years of college education (t= 2.281, β=.458, p<.05). Participants of Hispanic ethnicity and participants with two and four years of college education were found to be the strongest predictors for being culturally competent. Other ethnic groups, native language and master's level of education were not significant predictors of cultural competence. The regression model also suggested that age is not a good predictor of cultural competence (t=-1.604, β=-.148, p>.01). The multiple regression coefficient analysis summary is reported in Table 24. The negative β-coefficient between the two variables indicated that

as age increased, cultural competence decreased. One student did not identify his/her age.

Therefore, the multiple regression analysis was conducted using 136 participants.

Table 24.

Multiple Regression Analysis Coefficients.

Variable	Unstandardized Coefficient (B)	SE	Standardized Coefficient (β)	t	Sig.
Constant	62.084	4.039		15.370	.000
Age	-.173	.108	-.148	-1.604	.111
African-American	4.791	2.558	.199	1.873	.063
Hispanic	4.241	1.751	.289	2.422	.017
Asians	.493	2.766	.017	.178	.859
Islanders	4.394	4.352	.105	1.010	.315
Masters	2.897	5.135	.069	.564	.574
2yearsCollege	6.102	2.810	.429	2.172	.032
4years College	6.717	2.946	.458	2.281	.024
First Language	.020	1.331	.001	.015	.988

Note. R^2=0.095 (N=136, p>.001)

Chapter five will follow with a summary of the study and discussion.

Chapter Summary

This chapter discussed findings of the study. This research recruited a convenience sample of 141 participants, out of which only 137 participants were eligible to be included in the final data analysis. The chapter was divided into six areas for the data analysis explanation:1) sample description, 2) characteristics of the sample - descriptive results, 3) exploratory data screening for measurements, 4) results of psychometric assessment, 5) revisiting of research questions and hypotheses, and 6) statistical tests and findings for each research question and hypothesis.

Power analysis results indicated a minimum sample size of 116 participants for the study. Therefore, the obtained sample size of 137 participants was adequate enough for data analysis procedure as the medium-effect size was established at 0.0625 with a significance level of 0.05 and an acceptable power value of 0.85. The data was examined for verification that the assumptions of normality, linearity, and multicollinearity' were satisfied. Extensive demographic data of ethnicity, gender, level of education, GPA, country of origin, exposure to other cultures represented a diversified sample.

The measures of cultural competence constructs: *cultural awareness, knowledge, skills, encounters,* and *desire* and demographic variables were identified. First, a paired-sample *t*-test was performed to compare the mean total scores of IAPCCSV before (*M*=64.38, *SD*=6.062) the high-fidelity cultural simulation and after (*M*=67.14, *SD*=7.085) the simulation. There was a statistically-significant difference in the mean between pre-test and post-test total scores related to cultural high-fidelity simulation (*t* (136) =-6.372, *p*<.001). Hypothesis 1 for Research Question 1 was supported and indicated that participants' cultural competence post-test scores were statistically

significantly higher after being taught to the high- fidelity cultural simulation compared to their pre-test scores.

Second, the Pearson *r* Correlation coefficient revealed that cultural awareness (*r*=.663, *p*<.001) was positively and statistically significantly correlated to students' cultural desire construct (*r*=.663, *p*<.001). Hypothesis 1 for Research Question 2 was supported. An actual correlational matrix was generated for all five subscales. Statistical analysis revealed that the cultural desire construct was positively and statistically significantly correlated with the participants' cultural awareness (*r*=.663, *p*<.001), cultural knowledge (*r*=.532, *p*<.001), cultural skills (*r*=.505, *p*<.001) and cultural encounters (*r*=.653, *p*<.001). Hypothesis 2 for Research Question 2 was supported.

A 2x2 factorial MANOVA design with Wilks' Lambda statistic in multivariate tests indicated significant group differences only in the traditional age variable, with respect to the dependent variables of cultural competence (λ=.823, F(5, 128)=5.499, *p*<0.001). Univariate analysis of variance (ANOVA) was conducted on each dependent variable of cultural competence subscales as a follow up test to MANOVA. The results indicated that traditional age demonstrated statistical significance on cultural encounters subscale (F (1,132) =6.183, *p*=.014, η^2=.694). The interaction effect between traditional age and education variables produced statistical significance on cultural skills of cultural competence development subscale (F (1,132) =4.083, *p*=.045, η^2 =0.518). Education did not produce statistically-significant results. Profile plots produced significant interaction between cultural skills, cultural encounters, traditional, and non-traditional age group. Hypothesis 1 for the Research Question 3 was not supported.

Multiple regression analysis was conducted to identify which independent variables of age, ethnicity, educational level, and native language were individually or collectively significant predictors of cultural competence development. Research Question 4 was not supported, because the linear combination of the four predictors revealed no significant regression model, (F (9,126) =1.477, p=.163, R^2 = 0.095). Multiple regression analysis revealed that the highest scores on the IAPCC-SV post-test were associated with Hispanic ethnicity (t=2.422, β=.289, p<.05), two years of college education (t=2.172, β=0.429, p<.05) and four years of college education (t= 2.281, β=.458, p<.05).

CHAPTER FIVE

SUMMARY AND DISCUSSION

The purpose of this quantitative study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students. Campinha-Bacote's model (2007) of cultural competence guided this study from a theoretical perspective. This chapter is presented with a summary of the problem, purpose, hypotheses, data collection methods, participants' demographics, and background characteristics. Furthermore, results of the statistical analyses are discussed based on the demographic variables of age, gender, level of education, ethnicity, and native language in terms of their relationships and predictive factors of cultural competence development in baccalaureate nursing students. The innovative teaching strategy of high-fidelity cultural simulation was utilized, and an investigation to determine its effects on cultural competence development was conducted. Strengths and limitations of the study are also highlighted. Implications of the study in relation to nursing education, practice, research, and health/public policy are examined. In addition, recommendations for future studies are also presented.

Summary of the Study

The United States has great diversity in populations with respect to gender, age, ethnicity, language and culture. Minority groups represent the greatest challenge in accessing and maintaining compliance with the health care. According to Giger et. al. (2007) the impact of immigration in the United States contributes to the more diverse

health care needs. High morbidity and mortality rates among minority populations continues to be a major factor, requiring attention in the healthcare arena for improvement of the health status and treatment compliance among minority cultural groups. Therefore, the culturally-competent health care professionals play a critical role in reducing health care disparities and improving health care outcomes. The American Association of Colleges of Nursing (AACN, 2008) and the Institute of Medicine (IOM, 2011) have identified cultural competence as an essential element of nursing education and practice. The changing population demographics on national and global levels mandate future nurses to understand and communicate with people from diverse racial, ethnic, and cultural backgrounds who face major health problems and require culturally-sensitive approaches to treatment.

Cultural competence is a continuing process in which the health care professionals constantly endeavor to gain the power to work effectively within the cultural context of individual, family, and community (Campinha-Bacote, 2003). Cultural competence consists of the integration of five cultural components: *cultural awareness, knowledge, skills, encounters* and *desire* (Campinha-Bacote, 2007). Advances in technology influence the development of nurses' fragmented approach toward patients and creating a distant relationship and a barrier in the delivery of holistic culturally-competent care. In preparing future nurses, it is imperative that nursing faculty members become more creative and innovative using different teaching strategies to promote the development of cultural competence among undergraduate nursing students. High-fidelity cultural simulation experience validates an innovative teaching strategy that

enhances critical thinking, prioritization, delegation, and a comprehensive approach to nursing care delivery.

Cultural competence development requires a strong cognitive and affective background, as well as a valid foundation of cultural knowledge, sensitivity, and awareness. The advantage in utilizing high-fidelity cultural simulation is to introduce students to cultures unknown to them, build knowledge about these cultures, and further develop cultural competence. Cultural sensitivity has been identified as a major curricular component in the *Essentials of Baccalaureate Education for Professional Nursing Practice* (American Association of Colleges of Nursing, 2008). Therefore, it is a nurse educator's obligation to increase cultural sensitivity and awareness to ensure that nursing students build a cultural foundation of knowledge, attitudes, skills, and desire to enter the nursing workforce as culturally competent practitioners.

Lack of innovative pedagogical strategies and little experience with diverse populations can result in cultural incompetence for nursing students and a future disconnect between patient and a nurse. Lack of evidence in the literature about the proper cultural competence progress emphasizes the need to study cultural competence development in baccalaureate nursing students and determine the effects of high-fidelity cultural simulation as an innovative teaching method to facilitate cultural proficiency. As a result, the following questions were raised in this research study and the corresponding hypotheses were tested:

1. What effects does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?

H₁. Participants' cultural competence post-test scores will be statistically significantly higher after being taught to the cultural high-fidelity simulations compared to their pre-test scores.

2. What kinds of relationships exist among the subscales of cultural competent scale?

H₁. Participants who score high on the cultural desire construct will score high on the cultural awareness construct.

H₂. Participants who achieve the cultural desire construct will score high on the cultural knowledge, skills, and cultural encounters construct.

3. Are there significant differences in cultural competency development based on the students' demographic characteristics (e.g. age, gender, level of education)?

H₁. There are significant differences on the students' cultural competence development based on the students' demographic characteristics (e.g. age, gender, level of education).

4. Which of the following individual or combined demographic variables (e.g. age, ethnicity, educational level, and native [first] language), individually or grouped, are significant predictors of the levels of cultural competence?

Josepha Campinha-Bacote's (2010) cultural competence framework and cultural competence model provided guidance for this study. The effect of the independent variables; such as cultural scenario depicting a client from the Haitian culture, high-fidelity simulation as an innovative pedagogy on cultural competence development (dependent variable) among baccalaureate nursing students were examined. Select demographic variables such as: age, gender, and previous experience with other cultures impact the levels of cultural competence development in baccalaureate nursing students.

A researcher-developed demographic survey was utilized in this study to describe the characteristics of the sample, which was operationalized via an Inventory for Assessing the Process of Cultural Competence among Healthcare Professionals-Student Version (IAPCC-SV). A quantitative quasi-experimental one-group pre-test/post-test research design with no randomization was used for this study to investigate the effect of using cultural high-fidelity simulation as a teaching strategy on the development of cultural competence in baccalaureate nursing students. The data were collected over a three-month period using the following instruments: Inventory for Assessing the Process of Cultural Competence Student Version (IAPCC-SV) developed by Campinha-Bacote (2007), Students Satisfaction with Simulation and Learning Instrument developed by the National League of Nursing (2004), and the researcher – designed demographic questionnaire.

A nonprobability convenience sample consisting of 137 nursing students enrolled in a medical-surgical course was recruited from a baccalaureate degree-nursing program from a university located in Southeast Florida. Four surveys were eliminated from the study due to non-random consecutive missing answers on either the pre-test or post-test, assigning the final number of qualified participants for this study to 137. A *priori* power analysis indicated a minimum sample size of 116 participants for the study. Therefore, the obtained sample of 137 participants reflected an adequate sample size for the data analysis procedure. A medium-effect size of 0.0625, with a significance level of 0.05 and power value of 0.85 was used to conduct the power analysis by using software G*Power version 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009).

The same medical-surgical faculty who had extensive expertise in medical-surgical nursing taught all students in different didactic sections. The participants took the pre-test first, then they received the high-fidelity cultural simulation, and after that, they completed the post-test. All participants were exposed to the same high-fidelity cultural simulation depicting a Haitian-American client with strong spiritual health beliefs and practices. The simulation was conducted during the participants' scheduled laboratory date and time and performed in a small-group environment. The success of the high-fidelity cultural simulation was evaluated by comparing the results of pre-test and post-test.

Descriptive statistics was utilized to determine the consistency and accuracy of data inputted into the IBM SPSS v. 22 IBM. Hypotheses testing was performed, using a paired-sample *t*-test, the Pearson Correlational Coefficient, 2X2 factorial MANOVA and Multiple Regression Analysis. The researcher checked the data set for the assumptions of linearity, multicollinearity, and normality. The frequency distribution for the cultural competence pre-test and post-test scores were normal. Examination of Q-Q plots of the cultural competence variable in pre-test and post-test of cultural competence indicated a normal distribution. Multicollinearity was not detected in this analysis. Application of the Kolmogorov-Smirnov test demonstrated violation of the assumption of normality in SSSCL scores (*K-S statistic*=.142, *p*=.000). A transformation procedure and reflection method was recommended by Mertler & Vannatta (2005) to convert a distribution with negative skewness to one with positive skewness.

Hypothesis 1 for Research Question 1, which indicated that participants would improve cultural competence post-test scores after being taught high-fidelity cultural

simulation was supported by the results of the paired-sample t-test, (t (136) = -6.372, $p<.001$). The results showed that the students had a positive experience with the high-fidelity cultural simulation, which improved self-confidence with learning after the simulation. The second test for Hypothesis 1 paired sample t-test statistical analysis, further supported this hypothesis whereby participants' cultural competence post-test mean scores were statistically significantly higher after being taught the cultural high-fidelity simulations compared to their pre-test mean score (t (136) = -6.372, $p<.001$). The linearity was checked via the scatter plots. The matrix of scatter plots depicted a linear relationship between cultural knowledge, cultural skills, cultural encounters, and cultural desire as indicated by visualization of the straight lines in scatter plots. The significance test for Pearson's r correlation demonstrated that the construct of cultural awareness significantly correlated with the cultural desire construct; therefore, Hypothesis 1 for Research Question 2 was supported, ($r=.663, p<.001$). This hypothesis was aimed at identifying the relationship between cultural desire and cultural awareness constructs.

In addition, Hypothesis 2 for Research Question 2 was also supported. The purpose of this hypothesis was to discover the correlation between the cultural desire construct and cultural knowledge, cultural skills, and cultural encounters constructs. The significance test for Pearson's r correlational identified statistically significant positive correlation between participants' cultural awareness ($r=.663, p<.001$), cultural knowledge ($r=.532, p<.001$), cultural skills ($r=.505, p<.001$), cultural encounters (r=.653, $p<.001$), and cultural desire.

Hypothesis 1 for Research Question 3 was aimed at finding the differences in students' cultural competence development based on the students' demographic

characteristics (age, gender and level of education). This hypothesis was only supported

for traditional 18 to 22 years of age in this study, as it related to cultural competence

development in the subscale of cultural encounters evidenced by factorial MANOVA

(F(1,132)=6.183, p=.014, η^2 =.694). A 2X2 factorial MANOVA analysis revealed that

traditional age was significant in all five subscales for multivariate tests.

The independent variable of gender was eliminated, since the sample

predominately consisted of females (n females =113, and n males=24) and it interfered

with cells interactions in factorial MANOVA. The educational variable was re-coded to

only two variables: four years of college degree, and no four years of college degree since

cross-tabulation demonstrated no cell interactions between the high school and master's

degree level of education. Wilks' Lambda statistic in factorial MANOVA indicated

significant group differences only in the age variable with respect to cultural competence

development (λ=.823, F(5,128)=5.499, p<.001).

The interaction effect between traditional age and education variables produced

statistical significance on cultural skills in cultural competence development subscale (F

(1,132) =4.083, p=.045, η^2=.518). The profile plots produced significant interaction

between cultural skills, cultural encounters, and age group. The *post hoc* analysis found

statistically significant results in the cultural desire construct, which is associated with

high school and two years of college education. This finding is significant at the .05 level.

Multiple regression analysis did not establish a statistical prediction of individual or

combined demographic variables such as age, ethnicity, educational level, and native

[first] language, individually or grouped on cultural competence. A multiple regression

analysis demonstrated that the highest scores on the cultural competence post-test were

associated with Hispanic ethnicity, (β=0.289, p<0.05), two years of college education (β=0.429, p<0.05) and four years of college education (β=0.458, p<0.05).

Summary of the Findings

Data were gathered from baccalaureate nursing students enrolled in an accredited College of Nursing at a local university. A convenience sampling procedure was used to recruit the participants for this study. Demographic and background characteristics of the sample concluded the degree of application of the study findings of cultural competence level to all baccalaureate nursing students. Analysis and results of the study hypotheses are discussed to determine the relationships among study variables. The conclusion refers to the overall population from the studied sample, with a connotation to previous studies.

Demographics and Background Characteristics

The study participants were baccalaureate nursing students with a common age between 20 to 29 years old. The traditional age for nursing students is 18 to 22 years old for this study. The sample consisted primarily of females (n=113) and 24 males (n=24). The study sample is congruent with other studies and represents the target population of baccalaureate nursing students in relation to cultural competence development. Sargent, Sedlak, and Martsolf (2005), who studied cultural competence among nursing students and faculty reported that subjects in their groups were primarily females between ages of 17 to 35 years of age. Smit and Tremethick (2013) had a sample of 85 % female students in their study to investigate a strategy to promote cultural competence and collaboration in an interdisciplinary course. Kohlbry (2016) recruited the study sample of 91% females in the age range from 21 to 30 years to investigate nursing students' cultural competency.

This study concluded that the majority of students who are enrolled in nursing programs are females between ages of 20 and 30 years old.

The major demographic categories of the sample included ethnicity, country of origin, cultural background, educational level, religious preferences, occupation, exposure to different cultures and native language. The ethnic composition of the sample in this research study consisted primarily of Hispanics, Caucasians, and African-Americans. A majority of the participants were born in the United States and had cultural backgrounds from the Cuban-American and other Hispanic-American cultures. In relation to education, a majority of the participants had completed two and four years of college. The major religious preference of the study participants was Catholic. Participant's occupation broadly represented nursing students who primarily spoke English as their first language. The majority of participants reported extensive exposure to more than five multiple cultural groups. Kohlbry (2016) reported that students' ethnicity for her study was 54% primarily non-Hispanic whites. Sargent, Sedlak, and Martsolf (2005) had a majority of Caucasians (79.6%) followed by African-American (12.5%) participants in their study. Therefore, the current study consisted of a diversified ethnic cultural sample to represent the larger population.

The participants had encounters with different cultural groups and, therefore, had some common awareness of cultural representations of some populations. *U.S. News and World Report (2017)* identified the university where the study was conducted as having a high Hispanic undergraduate student population among baccalaureate level colleges and universities in the United States. According to the university's website, it is the number one university in the nation in awarding bachelor's and master's degrees to Hispanic

students (Retrieved from http://www.fiu.edu/about-us/rankings-facts/index.html). The College of Nursing in this university has 72 % of students from the Hispanic background.

In relationship to cultural competence, the research literature has identified the importance of this phenomenon in baccalaureate nursing students, in order for them to be more sensitive to patients' cultural values, beliefs and practices. Sargent, Sedlak, and Martsolf (2005) in their study recognized cultural competence as a concept of interest in nursing studies and promoted the notion of cultural competence development in nursing curricula. Nursing students are required to provide culturally-congruent care to reflect the needs of their patients, resulting in more diverse health care approaches. Existence of specific cultural conditions and diseases urge nursing students to be more knowledgeable about the ethnobiology and ethnopathology in health care requirements of ethnic and cultural groups. The growth of cultural awareness through cultural encounters and desire contributes further to cultural competence development among baccalaureate nursing students.

Relationship Among Major Study Variables

Cultural competence is a continuous process, in which an individual endeavors to achieve the ability to work within the cultural context of the individual, family, and the community from a diverse cultural/ethnic background (Campinha-Bacote, 2007). Cultural competence is a lifelong process and commitment, which starts as an educational program. As a construct, cultural competence consists of five subscales or levels. Each level must be achieved prior to the progression to the next level.

The first subscale is *cultural awareness* which requires a person to be sensitive to the values, beliefs and practices of others. The second subscale is *cultural knowledge,*

which involves an obtaining education about other cultures and cultural characteristics. The third subscale is *cultural skills*, which requires an individual to learn how to perform a cultural assessment. The fourth subscale is *cultural encounters*, which aim toward interactions with clients from diverse cultural groups and ethnic backgrounds. The last and final subscale is *cultural desire*, which motivates the individual to participate in the process of becoming culturally-competent (Campinha-Bacote, 2007).

Research Question 1, Hypothesis 1. This hypothesis specified that participants' cultural competence post-test scores would be statistically significantly higher after having been taught the high-fidelity cultural simulation compared to their pre-test scores. The research question for this hypothesis focused on the effect of high-fidelity cultural simulation teaching on the development of cultural competence in baccalaureate nursing students. Descriptive statistics showed that post-test results (M=67.14, SD =7.085) were higher after the high-fidelity cultural simulation than in pre-test results (M=64.38, SD=6.062). The mean increased by 2.76 points in the post-test after the cultural high-fidelity simulation. Furthermore, paired sample *t*-test compared the means between the total scores of cultural competence pre-test and post-test and indicated a statistical significance between the means of pre-test and post-test (t (136) =-6.372, p<0.001). Hypothesis 1 for Research Question 1 was supported. An increase in the post-test mean and statistically-significant results may be attributed to the high-fidelity simulation, even though this is a weak statement since the sample was lacking control group, randomization, and study had time constraints in data collection procedures.

High-Fidelity Cultural Simulation. High-fidelity simulation, as a teaching strategy had been used in nursing education for development of the nursing skills, clinical

judgement and critical thinking. Nursing educators use high-fidelity simulators to teach

critical thinking skills, communication, advance cardiac life support, and delegation.

(Gordon & Buckley, 2009; Hauber, Cormier, & Whyte, 2010). However, utilization of a

simulation experience for cultural competence development is a new concept not widely-

documented in the literature. A cultural content scenario depicting a patient from Haitian

culture was used in the high-fidelity cultural simulation in addition to cultural props in

order to create diversity in a complex cultural simulation. The cultural simulation was

conducted in an environment, very well suited for cultural learning. During this high-

fidelity cultural simulation students were audio-visually exposed to Haitian cultural

beliefs, values, health care practices and the Creole language. Cultural competence was

measured using the Inventory for Assessing Process of Cultural Competence Student

Version (IAPCC-SV) developed by Campinha- Bacote in 2007. Students' level of

satisfaction and self-confidence were measured using the National League of Nursing

Satisfaction with Simulation and Self-confidence with Learning instrument.

A majority of the students demonstrated a cultural competence level even before

the high-fidelity cultural simulation with the mean score of M= 64.38 (SD=6.062), which

indicates cultural competence level according to the IAPCC-SV instrument. None of the

participants was at the culturally-incompetent level before the simulation. Twenty-nine

(21%) participants demonstrated cultural awareness, one hundred and two (75%)

participants exhibited cultural competence and six (4%) were in the culturally-proficient

category before the cultural simulation (n=137). This phenomenon can be explained in

most of the study participants had been previously exposed to three or more cultures

n=49 (35.8%) or had had extensive exposure to multiple cultural groups more than five

times *n*=54 (39.4%) prior to the high-fidelity cultural simulation learning. Consequently, they had already developed their own worldview and gained knowledge about diverse cultural groups based on their prior cultural experience.

The findings in the IAPCC-SV instrument that most participants scored at the cultural competence level before the high-fidelity cultural simulation, may indicate that cultural awareness of these nursing students had been enhanced by prior cultural exposure and experience. Kohlbry (2016) emphasized that students have a particular mindset before their experience, and after the intervention they might realize that their worldview was limited which required them to reconsider whether or not they clearly understand the other person's culture. The mean of cultural competence level had increased to *M*=67.14 (*SD*=7.085) after the high-fidelity cultural simulation. Unexpected results occurred after the high- fidelity cultural simulation; that only 20 participants were at the cultural awareness level, 91 participants demonstrated cultural competence, and 26 participants revealed cultural proficiency (*n*=137).

The majority of the students were satisfied with the high-fidelity cultural simulation experience and improved self-confidence in learning after the simulation. An increased number of participants who improved their cultural competence even to the proficiency level after the simulation has supported the statement that high-fidelity cultural simulation is an effective method of teaching nursing students to become culturally-competent practitioners (*t* (136)=-6.372, *p*<.001). The study by Grossman et.al. (2012) was based on a pre-and post –test design, in which students increased their self-confidence in cultural assessment after the simulation.

Other research studies found similar results in relationship to effect of high-fidelity cultural simulation on development of the cultural competence in students. For instance, Grossman et. al. (2012) revealed a significant effect of cultural competence development after high-fidelity cultural simulation. The data in their study was analyzed using paired sample *t*- test, which revealed statistically-significant mean differences between pre-test and post-test scores for the transcultural self-efficacy instrument after the high-fidelity cultural simulation. A quantitative study conducted by Ndiwane, Koul, and Theroux (2014) found that a complex cultural simulated environment increased cultural knowledge in graduate students after cultural simulation. These researchers revealed that the students' scores on cultural knowledge improved significantly in the post-intervention cultural simulation. High-fidelity cultural simulation as an innovative teaching method demonstrates the importance of incorporating this type of pedagogy into nursing curriculums to facilitate further cultural competence development.

Research Question 2, Hypothesis 1. This research question focused on evaluating the relationship between the subscales of cultural competence scale. Hypothesis 1 for this research question proposed that participants who scored high on the cultural desire construct would also score high on the cultural awareness construct. Cultural desire consists of motivation of the individual to learn about other cultures outside of his or her own culture. Cultural awareness refers to an individual's ability to recognize other person's cultural preferences, values, and beliefs.

Cultural awareness and cultural desire constructs were calculated by using the IAPCC-SV instrument (Campinha-Bacote, 2007). Based on the Pearson's *r* correlation matrix, a correlation between results of cultural desire and cultural awareness constructs

demonstrated statistical significance at (r=.663, p<0.01) at one tail level. Baccalaureate nursing students who achieved the cultural desire construct correspondingly accomplished the cultural awareness construct. These results were congruent with Smit and Tremethick's (2013) qualitative study, in which an innovative cultural teaching project changed the students' cultural awareness, attitudes and further promoted cultural competence. Furthermore, Sargent, Sedlak, and Martsolf (2005) reported in their quantitative study that a majority of nursing students achieved cultural awareness by the fourth year in nursing school. These researchers used the IAPCC-SV instrument to measure cultural competence on different educational levels of nursing students.

Research Question 2 Hypothesis 2. The second research hypothesis for Research Question 2 was aimed at supporting the statement that participants who achieved the cultural desire construct would score high on the knowledge, skills, and encounters construct. The IAPCC-SV instrument was used to compute the value for each cultural competence subscale. Based on the Pearson's r correlation analysis, a statistically significant positive linear relationship was identified between cultural knowledge (r=.532, p<.001), cultural skills (r=.505, p<.001), and cultural encounters (r=.653, p<.001) relative to the cultural desire construct. The nursing students who achieved high scores on the cultural desire construct also scored high on the corresponding knowledge, skills and encounter subscales.

These results corresponded with the Chen, McAdams-Jones, Tay, and Packer quasi-experimental pretest-posttest design study (2012), in which cultural competence showed moderate to high effect size on cultural knowledge, skills, encounters, and desire relative to cultural competence. The experimental group in their study significantly

increased cultural knowledge after the cultural project, (Z=-2.51, p=.01). In a triangulated methodology research study Kohlbry (2016) found statistically significant results in cultural knowledge and skills, which contributed to the development of cultural competence in nursing students following an international cultural project. These studies results correspond with the findings of this study. The last level of the cultural competence is cultural desire and individuals who have high scores on cultural desire have high scores on cultural knowledge, skills, and encounters as predecessors of higher levels of cultural competence scale.

Research Question 3 Hypothesis 1 This research question focused on finding differences in cultural competency development based on the students' demographic characteristics of age, gender, and level of education. Hypothesis 1 for Research Question 3 postulated that there were differences between cultural competence development based on the students' demographic characteristics such as age, gender, and level of education. A factorial MANOVA implementation produced a combination of 2X2 research design frames to determine if there were significant differences for age and level of education in the interaction of these demographic characteristics on the five subscales of cultural competence development. A 2X2 design represents an experiment with independent variables. The first independent variable of age has two levels: traditional and non-traditional, and the second independent variable of education has two levels: four years of college degree and no four years of college degree. A cross-tabulation test determined that there was no interaction in cells between high school education and master's degree. Therefore, the educational variable had to be recoded into two levels: four years of college degree and no four years of college degrees.

Age. For this study, the age variable was coded to the traditional age for college students ranging from 18 to 22 years of age and non-traditional age ranging from 23 years of age and above. The educational level initially had been coded to high-school, two years of college, four years of college education, and master's degree. Cross-tabulation produced no cell interaction between high school and master's degree. Therefore, the education variable was re-coded into two levels only: four years of college degree and no four years of college degree. Subscales of *cultural awareness*, *knowledge, skills, encounters*, and *desire* had been calculated based on the IAPCC-SV instrument.

The results of the factorial MANOVA demonstrated statistical significance for age in all five subscales of cultural competence (λ=.823, F (5, 128)=5.499, p<0.001). Age and life experience with cultural encounters can contribute to cultural competence development. This finding corresponds with Kohlbry's (2016) triangulated methodology research study results in which age was correlated with the IAPCC-SV. Furthermore, Kohlbry (2016) emphasized in her study that the older the respondent the stronger the correlation and the process of cultural competence builds on the cultural encounters. The current study also found a statistically significant main effect of age on the cultural awareness and cultural encounters subscales. Furthermore, a univariate test demonstrated in this study that traditional age related to cultural competence development in subscale four – cultural encounters (F (1,132) =6.183, p=.014, η^2=.694) and in interaction between age and education in subscale three – cultural skills (F(1,132)=4.083, p=.045, η^2 =.518).

Profile plots produced significant interaction between cultural skills, cultural encounters, traditional, and non-traditional age groups. Essentially, the more exposure the person has had to cultural encounters, and the more cultural skills development the

person has developed throughout life span and education, the more chances the person has of becoming culturally-competent. This finding posits that with age comes more flexibility and acceptance towards the cultural beliefs of other people, including values, practices, and face- to-face cultural encounters. Nursing students are enthusiastic to grasp new information and are more flexible in the learning process, which is reflected in the significant correlation of age and the total score in the IAPCC-SV scale. Campinha-Bacote (2007) identified that extra cultural exposure and encounters contribute to a better influence on the cultural competence development and prevention of possible stereotyping. The findings of this study are congruent with Campinha-Bacote's (2007) model, in which successful encounters require healthcare professionals to engage in applying skills for self-awareness and recognizing that each individual brings a distinctive worldview to each clinical encounter.

Level of Education. It is interesting to note that the level of education only provided significant results between high school and two years of college education in relation to the cultural desire construct. Students who have high school and two years of college are motivated to learn more about their own and different cultures. These findings are partially-congruent with Sargent, Sedlack, and Martsolf's (2005) quantitative study results, which demonstrated that fourth - year nursing students are significantly more culturally-competent than first- year students. Another explanation for this is that students who have high school and two years of college education are more eager to learn and retain newly-gained information. They have a great desire for knowledge to improve their self-esteem and self-confidence and learn more about other cultures, particularly if they have peers or friends from the different cultural groups. Results of the current study

support the literature whereby cultural competence can be increased by including structured cultural content and innovative pedagogical strategies in nursing curriculums to facilitate development of cultural competence in all educational levels of baccalaureate nursing students.

Research Question 4. This question investigated the predictors of cultural competence development based on age, ethnicity, educational level, and native [first] language. A multiple regression analysis was conducted to determine which of the independent variables: age, ethnicity, educational level, and native language predict development of cultural competence in baccalaureate nursing students. The results of the multiple regression analysis did not find a statistically-significant model in which age, ethnicity, educational level, or native language predicts the level of cultural competence development, ($F\,(9,126) = 1.477$, $p=.163$, $R^2 = 0.095$). The regression model only accounted for 9.5% of the variance in cultural competence. Age for this study was not a significant predictor for cultural competence development.

Participants with Hispanic ethnicity ($t=2.422$, $\beta=.289$, $p<.05$), who completed two ($t=2.172$, $\beta=0.429$, $p<.05$) or four years ($t= 2.281$, $\beta=.458$, $p<.05$) of college education indicated that is the strongest predictor for being culturally-competent. These participants obtained the highest scores on cultural competence. The rest of the participants from other ethnic groups with master's degree level of education and having native language showed lower influence on developing cultural competence. These findings were congruent with Kohlbry's (2016) triangulated methodology research study, in which she found that Hispanics and African-American nursing students scored significantly higher on the cultural self-efficacy scale in relation to questions related to

comfort in performing cultural care. The results of the current study further indicated that the selected demographic variable of ethnicity can influence cultural competence development. A review of the literature regarding cultural exposure demonstrated that students who participated in cultural programs, international learning experiences, and high-fidelity cultural simulations, strengthened their current knowledge and skills in understanding cultural differences and the importance of cross-cultural communication (Werremeyer & Skoy, 2012; Godkin & Savageau, 2005; Ndiwane, Koul, & Theroux, 2014).

Significance of the Study

Development of cultural competence is an important element in providing culturally-sensitive care to minority cultural groups and underserved populations. Applying and appreciating cultural norms are more important than memorizing the facts about the culture. Nurses can make a significant difference in increasing the quality of life of diverse patients groups. The findings from this research study support important contributions to nursing education, practice, research, health and public policies in enhancing cultural competence.

Significance to Nursing

Investigation of cultural competence through the nursing lens engages nurses in holistic treatment approaches and patient-centered care. It brings meaning for nurses about patients' cultural practices. Furthermore, this creates a successful integration of these practices into culturally congruent nursing care. Participation in high-fidelity simulation experiences contributes or enhances the body of knowledge in the nursing profession. The evolving role of simulation is shifting from traditional learning to

experiential learning. Participants discover and construct knowledge and meaning through the complexity of simulation. Students can master complex scenarios in simulation many times and use simulation repeatedly for remediation and clinical practices (Billings and Halstead, 2012). Moreover, nursing graduates need to be better-educated and equipped to work in the complex global healthcare environment of diverse cultural populations.

Implications for Nursing Education

Nursing education has the obligation to educate students in ways that promote the development of cultural competence. Moreover, culturally-competent nurses have the potential to improve patient-centered care. An essential component of the nursing profession is to become culturally-competent. Currently, there are no specific teaching strategies which focus on the development of cultural competence. This study provides a new pedagogical strategy for the utilization of high-fidelity cultural simulation to teach concepts and facilitate the development of cultural competence among baccalaureate nursing students. High-fidelity cultural simulation supports a notion of being a powerful tool that serves not only in mastering the skills but also in developing strong clinical reasoning, complex holistic critical-thinking, and cultural competence.

This study empowers nurse educators to correct cultural incongruences of students in the laboratory before their cultural encounters in the clinical area. Curriculum development should incorporate high-fidelity cultural simulation into nursing programs, since this innovative pedagogical strategy has proven to be effective in the cultural competence development of baccalaureate nursing students. This researcher hopes that findings from this study will provide a deeper understanding of other people's culture and

help nursing students to decrease their biases, stereotypes, and discrimination habits towards patients from diverse cultural groups.

Implications for Nursing Practice

The findings from this study showed potential in assisting health care practitioners to deliver high-quality individualized and culturally-competent patient care with a major emphasis on the patient's beliefs, values, and practices within the cultural environment. Moreover, these findings indicate a valuable contribution in decreasing health care disparities and improving patients' satisfaction and treatment outcomes. The implications for practice are that high-fidelity cultural simulation is an effective method in raising the levels of cultural competence development among future nurses. The cultural awareness construct significantly correlated with the cultural desire construct. Furthermore, cultural *knowledge, skills, encounters,* and *desire* revealed a significant correlation contribute to cultural competence development in baccalaureate nursing students as future nurses.

These findings demonstrated that students have a need for obtaining cultural *awareness*, *knowledge, skills*, *encounters*, and *desire* throughout the nursing curriculum and for future professional development through continuous cultural education training. High-fidelity cultural simulation has impact on cultural *awareness*, *knowledge, skills*, *encounters*, and *desire* as antecedents of cultural competence development. Culturally-competent and sensitive nurses facilitate patients' care from the holistic standpoint and integrate an individualized approach for the patients' treatment modalities. This study may assist in prolonging lives for culturally underrepresented populations by educating healthcare professionals and nurses about other cultures. This study demonstrated that a

high-fidelity cultural simulation significantly enhances the ability of the health care practitioner to improve health care of minority populations.

Implications for Nursing Research

Examining the effects of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence in baccalaureate nursing students demonstrates the need for investigation of outcome-based culturally-congruent patient care. It contributed toward filling the gap that currently exists regarding the body of knowledge about cultural competence development among baccalaureate nursing students through high-fidelity cultural simulation. Research with high-fidelity cultural simulation concentrating on diverse cultural values, beliefs, and practices creates new evidence-based teaching guidelines for educators in assessing cultural competencies in nursing students. A new model of high-fidelity cultural simulation provides a new direction toward patient-centered care by expanding knowledge of technology and culture. In addition, this study provided the utilization and validation of Campinha-Bacote's model from a scientific perspective. Other researchers can further investigate Campinha-Bacote's model of cultural competence by studying different populations and using innovative cultural methods.

The results of this study help validate Campinha-Bacote's model of cultural competence (2007) whereby cultural competence operates further than simply knowing about the values, beliefs, and practices of minority ethnics groups. These groups deserve high-quality health care services that are culturally-sensitive to their specific ethnobiological and cultural needs. Engaging curricular reform with the integration of new technologies may lead educators to new research on the present study to improve the

cultural competence of the nursing students. Current study findings can bring scholarly activities into the domain of research in generating new ideas about the utilization of cultural high-fidelity simulation on cultural competence development. Grant funding from the governmental agencies and private donors to support research studies about new knowledge generation on culture, high-fidelity cultural simulation, and diverse minority groups would be beneficial in covering the costs of conducting these studies.

Implications for Health/Public Policy

Examining the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence in baccalaureate nursing students demonstrates the need for investigation of outcome-based culturally congruent patients' care. Cultural values, norms, and practices aim toward an individual's understanding and actions in response to health care (Purnell, 2002). Health care organizations should ensure that health care professionals across disciplines receive education and training about culturally- appropriate service delivery and care of diverse cultural groups. Governmental officials, policy makers, and stakeholders should implement new policies and procedures on culturally- sensitive care in the health arena for better improvement of patient- care outcomes. Nurses can initiate campaigns for advocating about diverse minority populations, influence policymakers, and governmental officials to allocate funds for opening new healthcare resources for minority cultural groups in order to reduce their healthcare disparity. The more underserved populations treated from a culturally-sensitive standpoint, the better compliance it produces with medical treatment regimens. This culturally-sensitive approach to each diverse patient will decrease morbidity, reduce mortality and improve the quality of human lives.

Strengths and Limitations of the Study

The findings of this study provided an understanding on how cultural competence develops in baccalaureate nursing students by using an innovative pedagogical strategy of high-fidelity cultural simulation. Students who underwent high-fidelity cultural simulation demonstrated self-confidence and satisfaction with learning. These findings can be employed in the colleges of nursing and health sciences to implement high-fidelity cultural simulations in preparation of culturally-competent health care professionals. The study contains strengths and limitations. These strengths and limitations are discussed below.

Strengths. These strengths of the study enriched research findings**:**

1. Data were collected over a three-month period with a total number of 141 participants who received instructions via cultural high-fidelity simulation. The actual sample size was determined by conducting a *priori* power analysis the significant effects.

2. Instruments used for this study were valid and reliable. In using the IAPCC-SV inventory, Fitzgerald, Cronin, & Campinha-Bacote (2009) reported moderate Cronbach's *alpha* value of 0.783. Clevenger (2011) found that IAPCC-SV instrument demonstrated validity in measuring cultural competence as evidenced by acceptable scoring in five cultural constructs: cultural *awareness*, *knowledge, skills*, *encounters,* and *desire*. Jeffries and Rizzolo (2006) confirmed the reliability of the Students Satisfaction and Self-Confidence in Learning instrument by means of Cronbach's *alpha* value of 0.94 for satisfaction, and 0.87 for self-confidence, respectively.

3. Availability of the high-fidelity simulation lab and laboratory personnel to assist with the research study.

4. Strong preparation of the cultural high-fidelity simulation scenario and presence of cultural artifacts during the simulation to enhance understanding of presented culture.

Limitations. The following can be considered limitations of this study:

1. One-group pre-test and post-test quasi-experimental research design was used in this study. There was no control group or randomization of participants.

2. The non-probability convenience sample was used.

3. Study participants were predominantly female nursing students. Furthermore, this may be a concern about the generalizability of the results to the larger population, with a more balanced gender distribution.

4. Data were collected over a three-month period by using nursing students from one medical surgical course. The scheduling of the lab was dependent on the students' clinical simulation hours and the availability of laboratory support personnel.

5. Some responses of the students might be biased, which affected the results. The pre-test before the cultural high-fidelity simulation might prepare the participants for the post-test and could create inaccurate and preferential responses on the post-test scores.

6. There were incongruences in reporting data in the instrument by four study participants. Several surveys were eliminated from the study due to non-random missing answers to the survey questions. Incompletely filled surveys produced the limitation of reporting the data information.

7. This study investigated the relationship between prior exposure to diverse cultures and the development of cultural competence. Many participants reported that they had prior exposure to three or more cultures and, therefore, might have already developed a degree of cultural competence.

8. Level of education was not well balanced in the sample. The majority of the participants had two and four years of college education. A very small number of participants had completed higher education in another field.

Recommendations for Future Study

This study contributes to the body of knowledge in relation to the utilization of high-fidelity cultural simulation in the development of cultural competence among baccalaureate nursing students. However, more research needs to be completed in determining effective ways to prepare highly- competent health care professionals. Many students remain biased toward other cultures and want to socialize and care about the individuals within their own cultural comfort. The cultural competence phenomenon needs to be further investigated using the broader population.

The current study is the first to investigate the effect of a cultural high-fidelity simulation on cultural competence development. An increase in post-test mean after the simulation and statistically significant results between the means of the pre-test and post-test could contribute to interventions, (t (136) =-6.372, $p<.001$). Future studies investigating the effects of high-fidelity cultural simulation would benefit from an experimental research design with a control group and randomization procedure to strengthen the amplitude of relationships among study variables.

This study did not evaluate the grade point average (GPA) as a predictor of cultural competence development. Further investigation on the influence of GPA on cultural competence development is warranted, particularly, to ascertain the knowledge in ethno pharmacology and specific cultural pathology. Moreover, future research would be beneficial in studying cultural competence in other health care professionals in interdisciplinary cultural courses. Future studies would also benefit from a longitudinal perspective. The participants would be followed up in the timely intervals of three months; six months, and in one year post cultural high-fidelity simulation. This way, it would further validate the effectiveness of high- fidelity cultural simulation and retention of cultural learning related to this innovative pedagogical method. This study can be replicated in addition to studying nursing students between different educational levels and comparing the post-cultural high-fidelity simulation results among junior, senior undergraduate and graduate nursing students in relation to cultural competence development.

The current study had a small number of male representation in the sample. This study should be replicated on a sample that represents both genders equally. Furthermore, the sample should contain minority nursing students from different cultural backgrounds. Use of stratified sampling and conducting a study in different geographic areas of the United States and internationally might achieve equal numbers of males and females in the sample. Other studies should be conducted to ascertain the different innovative pedagogical strategies on cultural competence development in nursing students pertaining to specific health care practices and beliefs of cultural groups. Further psychometric evaluation of IAPCC-SV instrumentation and extensive analysis of cultural competence

constructs in larger groups are vital elements to nursing science in assessing cultural competence among nursing students and other health care professionals. Study results contribute to the understanding of the cultural competence phenomenon and multidimensional approaches to the culturally diverse patients. It would be beneficial for future studies to use multiple cultural scenarios and incorporate cultural dynamics from other cultures for students' learning.

This can be accomplished through learning from the standardized patients, or through the cultural engagement trips to other countries where students holistically immerse into care of diverse populations. Since this study investigated the relationship between prior exposure to diverse cultures and the development of cultural competence, many participants reported that they had had prior exposure to three or more cultures. Hence, it would be beneficial to conduct statistical analysis as a MANCOVA with prior cultural exposure as a covariate. Another recommendation is to add a qualitative component to analyze the students' reflections and themes of deeper thinking about cultural competence. This could be beneficial in decreasing cultural incompetence, improving cultural knowledge, establishing trust with patients, and improving patients' care outcomes. Nursing education has an obligation to educate nursing students in a way that promotes the development of cultural competence (Kohlbry, 2016). Research on how high-fidelity cultural simulation is integrated into nursing curriculums would further expand the science and art of teaching. The findings from this study support recommendations to use innovative teaching strategies such as a high-fidelity cultural simulation in nursing education to prepare culturally-competent nurses.

Future research should take into consideration replication of this study by examining the cultural desire construct as the last construct before cultural competence develops. Sargent, Sedlak, and Martsolf (2005) reported in their quantitative study that students express disappointment and anxiety in not knowing individuals from another culture. Students also have a hard time expressing and reflecting on their true feelings and emotions about their fears of being unfamiliar with other cultures. A qualitative study with a focus on the critical factors of cultural desire of nursing students will help to determine what motivates the students to learn about cultures, different from their own. This study contributed to experiential evidence towards the development of cultural high-fidelity simulation as an innovative pedagogical method to facilitate cultural competence in baccalaureate nursing students. This researcher anticipates that future studies would include expansion on the results of this study to advance cultural high-fidelity simulation as a teaching strategy to facilitate further cultural competence development in nursing students for better improvement of patients' outcomes and quality of life in minority diverse cultural groups.

Conclusions

The purpose of this quantitative quasi-experimental study was: 1) to investigate the effect of high-fidelity cultural simulation as a pedagogical method on the development of cultural competence among baccalaureate nursing students; 2) to identify the relationships among the cultural competence constructs of cultural awareness, knowledge, skills, encounter and desire; and 3) to evaluate the effectiveness of high-fidelity simulation on the cultural competence development of nursing students. The study tested Campinha-Bacote's (2007) cultural competence model and its application to

the process of cultural competence development in baccalaureate nursing students. The study examined the effects of different independent variables such as age, ethnicity, level of education, and the native language as predictors of cultural competence development. Furthermore, the study explored the relationships among cultural competence subscales; examined differences in cultural competence development based on the students' demographic characteristics, and evaluated the effect of high-fidelity cultural simulation on cultural competence development in baccalaureate nursing students. High-fidelity cultural simulation was utilized in assessing cultural competence before and after the intervention.

The researcher anticipated that findings of this study would contribute to expanding the body of knowledge and reducing the scientific gap that exists in the usage of the innovative teaching strategy of cultural high-fidelity simulation. Data was collected over a three-month period in a nursing simulation laboratory environment. This research recruited a convenience sample of 141 participants, out of which only 137 participants were eligible to engage in the data analysis. Average age for the participants was between 18 and 22 years old. Demographic data of the sample demonstrated cultural diversity among the participants. Participants completed 20-items anonymous questionnaire comprised of the 20-tems of Campinha-Bacote (2007) cultural competence scale – Inventory for Assessing the Process of Cultural Competence among Health Care Professionals – Student Version (IAPCC-SV), 13-items of Students Satisfaction and Self-Confidence with Learning (SSSCL) Scale developed by the National League of Nursing and the researcher's designed 11- item demographic questionnaire.

Four research questions and three hypotheses were formulated and tested. Pre-test scores were compared with post-test scores after the high-fidelity cultural simulation exercise. The measures of cultural competence constructs: cultural *awareness*, *knowledge, skills, encounters,* and *desire* and demographic variables were identified. A variety of statistical techniques - descriptive statistics, factorial MANOVA, paired sample *t*-test, multiple regression, and correlation analysis were utilized. Findings of a paired-sample *t-t*est supported Research Hypothesis 1 that cultural competence mean post-test score was statistically significantly higher after being taught to the high-fidelity cultural simulations compared to their pre-test mean score.

Hypothesis 1 for Research Question 2 was supported. The correlation analysis revealed that the construct of cultural awareness significantly correlated to the cultural desire construct. Hypothesis 2 for Research Question 2 was supported. The correlational analysis revealed a positive significant correlation in one tail between cultural knowledge, cultural skills, encounters, and cultural desire. Hypothesis 1 for Research question 3 was partially-supported for age related to cultural competence development in subscale four- cultural encounters and interaction between age and education in subscale three –cultural skills as evidenced by a factorial MANOVA only in these two subscales.

Multiple regression analysis did not yield a statistically significant model with the variables such as age, ethnicity, educational level, and native [first] language, individually or grouped predicting cultural competence for Research Question 4. Nevertheless, multiple regression analysis demonstrated that the highest scores on the cultural competence post-test were associated with Hispanic ethnicity, two years of college education and four years of college education. An unexpected finding occurred

whereby twenty-six participants progressed to the cultural proficiency level, and ninety-one participants demonstrated cultural competence after the high-fidelity cultural simulation exercise (*n*=137).

Study results contributed to the understanding of how cultural competence develops in baccalaureate nursing students. Moreover, an innovative pedagogical strategy of high-fidelity cultural simulation demonstrated a significant effect on cultural competence development in nursing students. Nurses have a great responsibility to be culturally sensitive and proactive in learning about diverse cultural groups. Nursing academia is charged with the responsibility to educate culturally-competent health care professionals. Graduating future nurses who are culturally-competent will improve nursing practice and patient-centered care outcomes (Kohlbry, 2016). Lobbying for culturally-sensitive care to the diverse cultural groups, nurses have a unique power in influencing production of the new policies and allocation of funds to the new health care resources, with the result of improving the level of preventing of health care disparities.

Future research should include replication of this study in national and international geographic locations. In addition, studying a broader population of nursing students and even nurses and faculty is recommended. Furthermore, consideration of using a stratified sample will achieve a more balanced distribution of males and females in the sample. Future research should also investigate the phenomenon of cultural competence development through high-fidelity cultural simulation from a qualitative perspective to help understand the meaning of cultural simulation experience. This could be achieved in post-cultural simulation debriefing procedure, small focused groups, individual interviews, and reflective journaling. Nursing is a science, an art, and

education. This study contributed to the body of knowledge towards development of effective interventions to promote cultural competence development in nursing students. When students are motivated and engaged in the cultural learning process, they become self-confident in knowledge and expand their worldviews that influence their future practice toward diverse cultural populations. Future studies should build on the findings of this research study to improve cultural competence among health care professionals by utilization of high-fidelity cultural simulation in nursing curricula and inter-professional education for further effort to reduce health care disparities and inequalities in the care of diverse populations.

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Appendix: A

BARRY UNIVERSITY

Approval documents from Barry University's Institutional Review Board and

Florida International University Institutional Review Board

Barry University

Division of Academic Affairs

Research with Human Subjects
Protocol Review

Date:	March 9, 2016
Protocol Number:	160306
Title:	Simulation as Pedagogical Method on the Development of Cultural Competence in Baccalaureate Nursing students
Meeting Date:	March 16, 2016
Name:	Ms. Tatayana Maltseva
Address:	1635 NW 144th Way Pembroke Pines, FL 33028
Sponsor:	Dr. Claudette Chin

Dear Ms. Maltseva:

On behalf of the Barry University Institutional Review Board (IRB), I have verified that the specific changes requested by the IRB have been made. Therefore, I have granted final approval for this study as exempt from further review.

As principal investigator of this protocol, it is your responsibility to make sure that this study is conducted as approved by the IRB. Any modifications to the protocol or consent form, initiated by you or by the sponsor, will require prior approval, which you may request by completing a protocol modification form.

It is a condition of this approval that you report promptly to the IRB any serious, unanticipated adverse events experienced by participants in the course of this research, whether or not they are directly related to the study protocol. These adverse events include, but may not be limited to, any experience that is fatal or immediately life-threatening, is permanently disabling, requires (or prolongs) inpatient hospitalization, or is a congenital anomaly cancer or overdose.

The approval granted expires on March 1, 2017. Should you wish to maintain this protocol in an active status beyond that date, you will need to provide the IRB with and IRB Application for Continuing Review (Progress Report) summarizing study results to date.
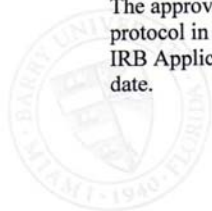
If you have questions about these procedures, or need any additional assistance from the IRB, please call the IRB point of contact, Mrs. Barbara Cook at (305)899-3020 or send an e-mail to **dfeldman@barry.edu** . Finally, please review your professional liability insurance to make sure your coverage includes the activities in this study.

Sincerely,

David M. Feldman, PhD
Chair, Institutional Review Board
Barry University
Department of Psychology
11300 NE 2nd Avenue
Miami Shores, FL 33161

Cc: Claudette Chin

Note: Note: The investigator will be solely responsible and strictly accountable for any deviation from or failure to follow the research protocol as approved and will hold Barry University harmless from all claims against it arising from said deviation or failure.

FIU | FLORIDA INTERNATIONAL UNIVERSITY

MEMORANDUM

Office of Research Integrity
Research Compliance, MARC 414

To: Tatayana Maltseva File
CC: Maria Melendez-Vargas, MIBA, IRB Coordinator

From: Date: April 25, 2016

Protocol Title:

"The Effect of High-Fidelity Cultural Simulation as a Pedagogical Method on the

Development of Cultural Competence in Baccalaureate Nursing Students"

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt under 46.101(b) (1) of the Common Rule via the **Exempt Review** process.

IRB Protocol Exemption #:　IRB-16-0147　　**IRB Exemption Date:**　04/25/16
TOPAZ Reference #:　　　104714

As a requirement of IRB Exemption you are required to:

1) Submit an Event Form and provide immediate notification of:
   - Any additions or changes in the procedures involving human subjects.
   - Every serious or unusual or unanticipated adverse event as well as problems with the rights or welfare of the human subjects.
2) Submit a Project Completion Report Form when the study is finished or discontinued.

Special Conditions:

For further information, you may visit the IRB website at http://research.fiu.edu/irb

MMV/em

Appendix: B

BARRY UNIVERSITY

Cover Letter to Participants

Approved by Barry University IRB a

Date : 3/9/2016

Signature a

Institutional Review Board
Protocol Form
11

You are invited to participate in a research study, entitled "The Effect of High-Fidelity Cultural Simulation as a Pedagogical Method on the Development of Cultural Competence in Baccalaureate Nursing Students." The study is being conducted by Tatayana Maltseva (doctoral student), in the College of Nursing and Health Sciences at Barry University Miami Shores, Florida.

The purpose of this quasi-experimental quantitative study is to: 1) investigate the effect of cultural simulation as a pedagogical method on the development of cultural competence in baccalaureate nursing students; 2) identify the relationships between the cultural competence constructs- cultural awareness, cultural knowledge, cultural skills, cultural encounter, and cultural desire; and 3) evaluate effectiveness of high fidelity simulation on cultural competence development among nursing students.

The participants must be able to provide informed consent for this study which involves human subjects. There are no known risks associated with participating in this study. There are no known direct benefits associated with this study. The information collected in this study is completely anonymous. Data and files from this study will be stored in a locked cabinet of the researcher's home office for a minimum of five years upon completion of the study. Your participation in this study is voluntary and will not have any effect on your clinical laboratory grade or future course placements. The total length of time commitment for the participants is approximately 1hour and 30 minutes. The primary investigator (PI) will participate in a cultural simulation.

The participants must be at least eighteen years of age or older, speak, read and write English, enrolled in a BSN nursing program in fundamental in nursing or medical-surgical courses in addition to being exposed to several simulation practices not related to cultural competence.

If you have any questions about the study or study procedures, please, feel free to contact the researcher at [redacted] or tatayana.maltseva@yahoo.com The faculty sponsor is Dr. Claudette R. Chin, PhD, ARNP. Her email is cchin@barry.edu, phone number is [redacted]. The IRB point of contact is Barbara Cook. Her email address is bcook@barry.edu, phone number is [redacted] I thank you for your participation.
Sincerely,

Tatayana Maltseva
(Doctoral student, College of Nursing and Health Sciences, Barry University)

Appendix: C

BARRY UNIVERSITY

Research Study Flyer

1. Are you a nursing student enrolled in foundation or medical-surgical nursing courses?

2. Are you interested to learn more about cultural simulation?

3. Have you ever being exposed to different cultures?

If you answered YES to these questions, I would like to invite you to call or e-mail me. I am looking for nursing students who are willing to participate in a research study and help me examine the effect of high-fidelity cultural simulation scenarios on the development of cultural competence. The study will require the completion of three tools and participation in high-fidelity cultural exercise. I look forward to your call or e-mail. Thank you!

My contact information:

Tatayana Maltseva, MSN, ARNP, PMNHP-BC

Doctoral student at Barry University

█████████ E-mail: tatayana.maltseva@yahoo.com

The Faculty Sponsor is Dr. Claudette R.Chin, PhD, ARNP. Her email is cchin@barry.edu, phone number is ████████. The IRB point of contact is Barbara Cook bcook@barry.edu, phone number is ████████. The total time to participate in the study is approximately 1hr and 30 minutes.

Appendix: D

BARRY UNIVERSITY

Approval Document from the Administrator to Conduct the Study

FIU | Nicole Wertheim College of Nursing & Health Sciences
FLORIDA INTERNATIONAL UNIVERSITY

May 23, 2016

This letter grants the permission to Tatayana Maltseva to conduct the research study, titled *"The Effect of High-Fidelity Cultural Simulation as a Pedagogical Method on the Development of Cultural Competence in Baccalaureate Nursing Students"* at the Nicole Wertheim College of Nursing and Health Sciences at Florida International University. The study had been approved by Barry University and Florida International University Institutional Review Boards and deemed it Exempt under 46.101(b) (1) of the Common Rule via the Exempt Review process. FIU IRB Protocol Exemption # IRB-16-0147.

Dr. Maria Olenick, PhD, FNP, RN
Chair of Undergraduate Nursing program
Nicole Wertheim College of Nursing and Health Sciences
Florida International University
111200 SW 8 Street
Miami, FL 33199
305-348-7757

Appendix: E

BARRY UNIVERSITY

Demographic Survey

Please, answer the following items by filling in response or circling the answer. Thank you for your participation.

1. What is your age? _____
2. What is your gender? Select one   Female □   Male □
3. What is your ethnicity?   _____

4. What is your native country?_____
5. What is the highest level of education you achieved? Select one.

High School	□
2 years of College	□
4 years of College	□
Master Degree	□
Doctoral Degree	□

6. What is your current GPA?_____
7. What is your religious preference? _____
8. What is your occupation?   _____
9. Is English your first language? Yes   No
    If no what is your first language? _____

10. What cultural group do you belong to?_____
    For example, Filipino-Americans, German-Americans, etc.

11. What is your exposure to other cultures? How would you rate it? Select one.

    □ No exposure
    □ Minimal exposure to 1 or 2 cultures
    □ Multiple exposure to 3 or 4 cultures
    □ Extensive exposure to multiple cultural groups more than 5 cultures.

Appendix: F
BARRY UNIVERSITY
Student Satisfaction and Self-Confidence in Learning

Instructions: This questionnaire is a series of statements about your personal attitudes about the instruction you receive during your simulation activity. Each item represents a statement about your attitude toward your satisfaction with learning and self-confidence in obtaining the instruction you need. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the numbers that best describe your attitude or beliefs. Please be truthful and describe your attitude as it really is, not what you would like for it to be. This is anonymous with the results being compiled as a group, not individually.

Mark:
  1 = STRONGLY DISAGREE with the statement
  2 = DISAGREE with the statement
  3 = UNDECIDED - you neither agree or disagree with the statement
  4 = AGREE with the statement
  5 = STRONGLY AGREE with the statement

Satisfaction with Current Learning	SD	D	UN	A	SA
1. The teaching methods used in this simulation were helpful and effective.	1	2	3	4	5
2. The simulation provided me with a variety of learning materials and activities to promote my learning the medical surgical curriculum.	1	2	3	4	5
3. I enjoyed how my instructor taught the simulation.	1	2	3	4	5
4. The teaching materials used in this simulation were motivating and helped me to learn.	1	2	3	4	5
5. The way my instructor(s) taught the simulation was suitable to the way I learn.	1	2	3	4	5
Self-confidence in Learning	**SD**	**D**	**UN**	**A**	**SA**
6. I am confident that I am mastering the content of the simulation activity that my instructors presented to me.	1	2	3	4	5
7. I am confident that this simulation covered critical content necessary for the mastery of medical surgical curriculum.	1	2	3	4	5
8. I am confident that I am developing the skills and obtaining the required knowledge from this simulation to perform necessary tasks in a clinical setting	1	2	3	4	5
9. My instructors used helpful resources to teach the simulation.	1	2	3	4	5
10. It is my responsibility as the student to learn what I need to know from this simulation activity.	1	2	3	4	5
I know how to get help when I do not understand the concepts covered in the simulation. 11.	1	2	3	4	5
12. I know how to use simulation activities to learn critical aspects of these skills.	1	2	3	4	5
13. It is the instructor's responsibility to tell me what I need to learn of the simulation activity content during class time.	1	2	3	4	5

Appendix: G

BARRY UNIVERSITY

Permission to Use Inventory for Assessing the Process of Cultural Competence

among Healthcare Professionals-Student Version (IAPCC-SV)

J. Campinha-Bacote,
PhD, MAR, PMHCNS-BC, CTN-A, FAAN

Transcultural Healthcare Consultant

☎ 513-469-1664
🖷 513-469-1764
meddir@aol.com

www.transculturalcare.net

11108 Huntwicke Place
Cincinnati, Ohio 45241

Date: January 24, 2016

To: Ms. Tatayana Maltseva
From: Dr. Josepha Campinha-Bacote
         President, Transcultural C.A.R.E. Associates

RE: Contractual Agreement for Limited Use of the IAPCC-SV

This letter grants permission to Ms. Tatayana Maltseva to use my tool, *Inventory for Assessing the Process f Cultural Competence Among Healthcare Professionals-Student Version (IAPCC-SV)* to assess the level of cultural competence of 150 nursing students in the pre/post test study entitled, "The Effect of High-Fidelity Cultural Simulation as a Pedagogical Method on the Development of Cultural Competence in Baccalaureate Nursing Students." I have received a total of $2,400 for 300 tools in this pre/post test study.

TIME FRAME: Permission to use the IAPCC-SV is time-limited to be used from February 20, 2016 through February 20, 2017. Upon **February 21, 2017 all unused tools must be destroyed.**

ONSITE ADMINISTRATION: This onsite permission only grants administration of the IAPCC-SV via an onsite pencil and paper administration in which Ms. Tatayana Maltseva hand-distributes the tool to each participant and then personally hand collects the tool immediately following its completion. Ms. Tatayana Maltseva agrees that the IAPCC-SV cannot be administered in an offsite format such as in on an online course, internal or external mailings, or via an Internet website offering.

RESTRICTIONS OF COPYING: Ms. Tatayana Maltseva **agrees that the IAPCC-SV and any of its 20 items cannot be copied or reproduced for any other reason.** This includes, but not limited to, being copied in formal or informal publications, research papers, **dissertation**/doctoral projects, in any academic papers, as handouts for presentations, in any presentation, in any PowerPoint or Poster presentations, or in any hard copy or electronic formats. The IAPCC-SV is only to be used for the above purpose of administering in this above study to 150 participants.

PUBLICATIONS: Ms. Tatayana Maltseva that any publications (formal or informal) or presentations of the findings of the study using my tool will be shared with me.

GOVERNING LAW: All parties acknowledge that this Contractual Agreement for Limited Use of the IAPCC-SV is a valid contract. This contract shall be governed and construed under the laws of the

State of Ohio, except as governed by Federal law. Jurisdiction and venue of any dispute or court action arising from or related to this contract shall lie exclusively in or be transferred to Hamilton County Municipal Court, Hamilton County Court of Common Pleas, or the Federal Court situated in the County of Hamilton, Ohio.

ATTORNEY'S FEES AND COSTS: In any action to enforce any provision of this Agreement, the prevailing party will be awarded reasonable attorney's fees and costs.

Signature _____ Date 1/24/16

Josepha Campinha-Bacote, PhD   January 24, 2016

Signature _____ Date 2/4/2016

Ms. Tatayana Maltseva

Clinical, Administrative, Research & Educational Consultation in Transcultural Health Care

J. Campinha-Bacote,
PhD, MAR, PMHCNS-BC, CTN-A, FAAN

Transcultural Healthcare Consultant

Date: January 24, 2016
To: Ms. Tatayana Maltseva
From: Dr. Josepha Campinha-Bacote
President, Transcultural C.A.R.E. Associates
RE: **Contractual Agreement for Limited Use of the IAPCC-SV**

This letter grants permission to Ms. Tatayana Maltseva to use my tool, *"Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals-Student Version (IAPCC-SV)* to submit one copy for IRB Committee approval. I have received payment of $8 for one tool to be used in this hand-delivered submission to the IRB Committee.

TIME FRAME: Permission to copy/use the IAPCC-SV is granted for a one-time use only during the month of either January 2016 or February 2016. If Ms. Tatayana Maltseva receives approval from the IRB Committee, she will have to submit another formal letter of request for permission to use the IAPCC-SV in her proposed study and submit payment for the cost of additional tools.

ADMINISTRATION: This permission only grants submitting the IAPCC-SV to the IRB Committee and therefore does not grant any form of administration of the IAPCC-SV to any individuals/participants.

RESTRICTIONS OF COPYING: Ms. Tatayana Maltseva agrees that the IAPCC-SV and any of its 20 items **cannot be copied or reproduced for any other reason. This includes, but not limited to,** being copied in formal or informal publications, in her **doctoral paper/project, dissertation or thesis,** in any academic paper, handouts for presentations, in any PowerPoint or Poster presentations or in any hard copy or electronic formats. The IAPCC-SV is only to be used for the above purpose of submitting it in a proposal to be reviewed by the above IRB Committee.

GOVERNING LAW: All parties acknowledge that this Contractual Agreement for Limited Use of the IAPCC-SV is a valid contract. This contract shall be governed and construed under the laws of the State of Ohio, except as governed by Federal law. Jurisdiction and venue of any dispute or court action arising from or related to this contract shall lie exclusively in or be transferred to Hamilton County Municipal Court, Hamilton County Court of Common Pleas, or the Federal Court situated in the County of Hamilton, Ohio.

ATTORNEY'S FEES AND COSTS: In any action to enforce any provision of this Agreement, the prevailing party will be awarded reasonable attorney's fees and costs.

Josepha Campinha-Bacote   Date

T. Maltseva   2/4/2016
Ms. Tatayana Maltseva   Date

☎ 513-469-1664
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11108 Huntwicke Place
Cincinnati, Ohio 45241

TRANSCULTURAL C.A.R.E.

Clinical, Administrative, Research
& Educational Consultation
in Transcultural Health Care

J. Campinha-Bacote,
PhD, MAR, PMHCNS-BC, CTN-A, FAAN

Transcultural Healthcare Consultant

Date: August 13, 2015
To: Ms. Tatayana Maltseva
From: Dr. Josepha Campinha-Bacote
President, Transcultural C.A.R.E. Associates

RE: **Contractual Agreement for Limited Use of Campinha-Bacote's Model of Cultural Competence in Dissertation**

This letter grants one-time permission to Ms. Tatayana Maltseva to copy my 2010 model of cultural competence as it appears on my website at http://transculturalcare.net/the-process-of-cultural-competence-in-the-delivery-of-healthcare-services/.

TIME FRAME: Permission to use my model is a one-time use in September 2015 when she submits it in her dissertation to her professor.

RESTRICTIONS OF COPYING: This permission only grants the copying/ reprinting of my model in Ms. Tatayana Maltseva's dissertation. She agrees that my model cannot be copied for any other reason outside of this dissertation. This includes, but not limited to, being copied in another formal or informal publication, a journal article, in another academic paper, handouts for presentations, nor for any PowerPoint or Poster presentations or in any hard copy or electronic formats.

As part of this permission agreement, it is required that Ms. Tatayana Maltseva will use the following citation when citing my model:

The Process of Cultural Competence in the
Delivery of Healthcare Services
Copyrighted by Campinha-Bacote 2010
Reprinted with Permission from
Transcultural C.A.R.E. Associates

GOVERNING LAW: All parties acknowledge that this Contractual Agreement for Limited Use of Campinha-Bacote's Model of Cultural Competence is a valid contract. This contract shall be governed and construed under the laws of the State of Ohio, except as governed by Federal law. Jurisdiction and venue of any dispute or court action arising from or related to this contract shall lie exclusively in or be transferred to Hamilton County Municipal Court, Hamilton County Court of Common Pleas, or the Federal Court situated in the County of Hamilton, Ohio.

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🖨 513-469-1764
meddir@aol.com

www.transculturalcare.net

11108 Huntwicke Place
Cincinnati, Ohio 45241

ATTORNEY'S FEES AND COSTS: In any action to enforce any provision of this Agreement, the prevailing party will be awarded reasonable attorney's fees and costs.

Josepha Campinha-Bacote   Date   8/13/15

T. Maltseva
Ms. Tatayana Maltseva   Date   8/24/15

Appendix: H

BARRY UNIVERSITY

Permission to use National League of Nursing (NLN) instruments

http://www.nln.org/

The NLN's copyrighted surveys and research instruments are an important part of its research activities.

Permission for non-commercial use of surveys and research instruments (includes, theses, dissertations, and DNP projects) is granted free of charge. Available instruments may be downloaded and used by individual researchers for non-commercial use only with the retention of the NLN copyright statement. The researcher does not need to contact the NLN for specific permission. In granting permission for non-commercial use, it is understood that the following caveats will be respected by the researcher:

1. It is the sole responsibility of the researcher to determine whether the NLN research instrument is appropriate to her or his particular study.
2. Modifications to a survey/instrument may affect the reliability and/or validity of results. Any modifications made to a survey/instrument are the sole responsibility of the researcher.
3. When published or printed, any research findings produced using an NLN survey/instrument must be properly cited. If the content of the NLN survey/instrument was modified in any way, this must also be clearly indicated in the text, footnotes and endnotes of all materials where findings are published or printed.

Permission for commercial use of NLN surveys and research instruments must be obtained from the NLN. Commercial use includes publishing in journals, books, or inclusion in any product that is sold. Please submit a written request to copyrightpermission@nln.org. In most instances, requests for permission are reviewed within 4 weeks of their receipt.

Appendix: I

BARRY UNIVERSITY

Third Party Approved Confidentiality Form

Third Party Confidentiality Form

Confidentiality Agreement

As a member of the research team investigating *"The Effect of High-Fidelity Cultural Simulation as a Pedagogical Method on the Development of Cultural Competence in Baccalaureate Nursing Students."* I understand that I will have access to confidential information about study participants. By signing this statement, I am indicating my understanding of my obligation to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study participants are completely confidential.
- I agree not to divulge, publish, or otherwise make known to unauthorized persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.
- I understand that all information about study participants obtained or accessed by me in the course of my work is confidential. I agree not to divulge or otherwise make known to unauthorized persons any of this information unless specifically authorized to do so by office protocol or by a supervisor acting in response to applicable protocol or court order, or otherwise, as required by law.
- I understand that I am not to read information and records concerning study participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only to the extent and for the purpose of performing my assigned duties on this research project.
- I understand that a breach of confidentiality may be grounds for disciplinary action, and may include termination of employment.
- I agree to notify my supervisor immediately should I become aware of an actual breach of confidentiality or situation which could potentially result in a breach, whether this be on my part or on the part of another person.

_____ 5/23/2016 JOEL HERNANDEZ
Signature   Date   Printed Name

_____ 5/23/2016 T. Maltz

Appendix: J

BARRY UNIVERSITY

Hypotheses Chart

	Research Hypothesis	Instrument	Statistical Test	Results
RQ1 What effect does high-fidelity cultural simulation teaching have on the development of cultural competence in baccalaureate nursing students?	**H1** Participants' cultural competence post-test scores will be statistically significantly higher after being taught to the cultural high-fidelity simulations compared to their pre-test scores.	Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals –Student Version (IAPCC-SV)	Paired sample t-test	A paired-sample t-test was performed to compare the mean total scores of IAPCCSV before (M=64.38, SD=6.062) the cultural high-fidelity simulation and after (M=67.14, SD=7.085) the simulation. There was a statistically significant difference in the mean between pre-test and post-test total scores related

				to cultural high-fidelity simulation (*t* (136) =-6.372, *p*<.001). Hypothesis 1 for research question 1 was supported and indicated that participants' cultural competence post-test scores were statistically significantly higher after being taught to the cultural high fidelity simulations compared to their pre-test scores.
RQ2 What kinds of relationships exist among the subscales	**H1** Participants who score high on the cultural desire construct will score high	Inventory for Assessing the Process of Cultural Competence	Pearson *r* correlation coefficient	Pearson *r* Correlation coefficient revealed that cultural awareness (*r*=.663,

of cultural competence scale?	on the cultural awareness construct.	Among Healthcare Professionals –Student Version (IAPCC-SV)		*p<.001) was positively and statistically significantly correlated to students' cultural desire construct, (*r*=.663, *p<.001). Hypothesis one for research question 2 was supported. Actual correlational matrix had been generated for all five subscales.
RQ2 What kinds of relationships exist among the subscales of cultural	**H2** Participants who achieve the cultural desire construct will score high on the cultural knowledge,	Inventory for Assessing the Process of Cultural Competence Among Healthcare	Pearson *r* correlation coefficient	Statistical analysis revealed that cultural desire construct was positively and statistically significantly

competence scale?	skills, and cultural encounters construct.	Professionals–Student Version (IAPCC-SV)		correlated with the participants' cultural awareness ($r=.663$, $p<.001$), cultural knowledge ($r=.532$, $p<.001$), cultural skills ($r=.505$, $p<.001$) and cultural encounters ($r=.653$, $p<.001$). Hypothesis 2 for research question 2 was supported.
RQ3 Are there significant differences in cultural competency development based on the students'	**H1** There are differences on the students' cultural competence development based on the students' demographic	Demographic Questionnaire Inventory for Assessing the Process of Cultural Competence Among	Factorial Multivariate Analysis of Variance (MANOVA)	A 2X2 Factorial MANOVA design with Wilks' Lambda statistic in multivariate tests indicated significant group differences only for the age variable

demographic characteristics (e.g. age, gender, level of education)?	characteristics (e.g. age, gender, level of education)	Healthcare Professionals –Student Version (IAPCC-SV)		with respect to the dependent variables of cultural competence, (λ=.823, F(5, 128)=5.499, p<0.001). Univariate analysis of variance (ANOVA) was conducted on each dependent variable of cultural competence subscales as a follow up test to MANOVA. The results indicated that age demonstrated statistical significance on cultural encounters

				subscale, (F (1,132) =6.183, p=.014, η^2=.694). Interaction effect between traditional age and education variables produced statistical significance on cultural skills of cultural competence development subscale, (F (1,132) =4.083, p=.045, η^2 =0.518). Education did not produce statistically significant results. Profile plots produced significant interaction between cultural skills,

				cultural encounters, traditional, and non-traditional age group.
RQ4 Which of the following individual or combined demographic characteristics (e.g. gender, age, ethnicity, educational level, and native [first] language), individually or grouped, are predictors of the level of cultural competence?	No research hypothesis for this question	Demographic Questionnaire Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals –Student Version (IAPCC-SV) Students Satisfaction and Self-	Multiple Regression Analysis	Multiple regression analysis was conducted to identify which independent variables age, ethnicity, educational level, and native language were individually or collectively significant predictors of cultural competence development. Research question four was not supported because the linear

| | | Confidence with Learning Tool (NLN) | | combination of the four predictors revealed no significant regression model, ($F(9,126) = 1.477$, $p = .163$, $R^2 = 0.095$). Multiple regression analysis revealed that the highest scores on the IAPCC-SV post-test were associated with Hispanic ethnicity ($t = 2.422$, $\beta = .289$, $p < .05$), two years of college education ($t = 2.172$, $\beta = 0.429$, $p < .05$) and four years of college education |

				$(t= 2.281, \beta=.458, p<.05).$

Appendix: K

BARRY UNIVERSITY

Cultural Simulation Intervention

Simulation Case Name: Postoperative Hemicolectomy-Preventing Respiratory

Complications

Date: Fundamental/Medical Surgical Courses File Name: Haitian-American

Discipline: Nursing   **Student Level: Fundamental or**
Medical/Surgical

Expected Simulation Run Time: 20-30 min   **Guided Reflection Time: 30 min**

Location: BBC   **Location for Reflection:**
Computer lab

Admission Date: X/X/20XX was 2 days from **Today's Date**.	**Surgeries/Procedures & Dates**: Hemicolectomy on XX/2016
Brief Description of Client	Nursing Diagnoses: For Faculty only
Name: J. P.	Ineffective breathing pattern related to pain; Acute pain related to surgery; Impaired physical Mobility related to discomfort, decreased strength and endurance and reluctance to initiate activity
Gender: F Age: 45 Culture: Haitian-American	
DOB: 4/9/XX	
Weight: 157lbs Height: _5'4''___	
Religion: Christian	**Psychomotor Skills Required Prior to Simulation-For faculty only**
Major Support: Family members; Private Insurance, non-US Citizen	1. Therapeutic communication skills, Implements direct communication to Multidisciplinary team members (SBAR); Effective use of Interpreter.
Phone: 305-XXX-XXX	
Allergies: PCN (hives)	2. Evaluate head to toe patient assessment (pain, respiratory and abdominal) information including vital signs.
Immunizations: does not want the flu vaccine, unsure if she has received Pneumo vaccine. Has had Tetanus, MMR, Hepatitis, +PPD chest x-ray negative.	

| Attending Physician/Nurse Practitioner:

 S.W, ARNP

 Past Medical History: Mrs. J.P. is a 45 year old married woman with a history of controlled hypertension.

 History of Present illness: Mrs. Prius presented to the Emergency Department 3 days ago with complaints of nausea, vomiting and severe abdominal pain. She was admitted to the hospital for emergency surgery for bowel perforation

 Social History: Works full time as a nursing assistant in a nursing home. She is married with 5 children. She smokes a pack of cigarettes a day. She walks two miles per day on her way to and from errands. She has been living in the US for 3 yrs; she was born in Haiti and depends on her family members that are fluent in English to help her complete her English documents.

 Primary Medical Diagnosis: Bowel Perforation.

 (admitting) | 3. Implements patient safety measures: Identifies patient, confidentiality-HIPPA, hand washing and gloving procedures.

 4. Demonstrates correct use of incentive spirometer

 Cognitive Activities Required prior to Simulation [i.e. independent reading (R), video review (V), computer simulations (CS), lecture (L)]

 1. Dr. Purnell lecture (L) and readings (R) in particular Haitian-American health care beliefs and practices, nutrition, family, home remedies, etc.
 Brief Summary of Scenario: For Faculty only

 This case presents a Haitian American postoperative patient. The student will be expected to perform a respiratory assessment, assess pain level, identify the need for incentive spirometer, and provide patient education on preventing respiratory complications. In addition the student will be expected to provide culturally competent care including appropriate education materials that incorporates the Haitian American culture. |

Simulation Learning Objectives

1. Implements safety measures such as correct patient identification, medical asepsis and confidentiality measures.

2. Performs and evaluates assessments consistent with the patient health care situation.

3. Incorporates positive attitudes towards cultural differences in care, assimilating religious customs such as praying and holding the bible.

4. Modifies care to accommodate Haitian-American culture promoting strategies that enhance trust and communication; analysis the homeopathic OTC used for respiratory health.

5. Utilizes linguistic appropriate patient education pamphlet that explains scientifically reasons for post-operative complications and strategies to prevent them.

6. Effectively works with interpreters to improve communication with patients.

7. Selects appropriate post-op care for respiratory promotion.

Fidelity (choose all that apply to this simulation)

Setting/Environment	Medications and Fluids
o **ER** o **Med-Surg** o **Peds** o **ICU** o **OR / PACU** o **Women's Center** o **Behavioral Health** o **Home Health** o **Pre-Hospital** o **Other** _____ **Simulator Manikin/s Needed: High Fidelity Sim Man** **Props: Bible and Creole Patient Education post-op complications and intervention.** **Equipment attached to manikin:** o **IV tubing with primary line _____D51/2NS_____ fluids running at _____80_____ cc/hr** o **Secondary IV line __ running at _cc/hr** o **IV pump** o **Foley catheter _____cc output** o **PCA pump running** o **IVPB with ___ running at ___ cc/hr** o **02 _____** o **Monitor attached** o **ID band _____** o **OtherDynamap for _vital signs/PO2___** **Equipment available in room** o **Bedpan/Urinal** o **Foley kit** o **Straight Catheter Kit** o **Incentive Spirometer**	o **IV Fluids:** o **Oral Meds: see MAR** o **IVPB:** o **IV Push:** o **IM or SC:** **Diagnostics Available** o **Labs** o **X-rays (Images)** o **12-Lead EKG all WNL** o **Other_____** **Documentation Forms** o **Physician /Nurse Practitioner Orders** o **Admit Orders** o **Flow sheet** o **Medication Administration Record** o **Kardex** o **Graphic Record** o **Shift Assessment** o **Triage Forms** o **Code Record** o **Anesthesia / PACU Record** o **Standing (Protocol) Orders** o **Transfer Orders** o **Other_____** **Recommended Mode for Simulation (i.e. manual, programmed, etc.)**

o **Fluids** o **IV start kit** o **IV tubing** o **IVPB Tubing** o **IV Pump** o **Feeding Pump** o **Pressure Bag** o **02 delivery device (type)** o **Crash cart with airway devices and emergency medications** o **Defibrillator/Pacer** o **Suction** o **Other_____**	**Programmed vital signs, hypoactive abdominal sounds all 4 quadrants, Crackles all fields bilaterally and manual voice.**
Roles / Guidelines for Roles o **Primary Nurse** o **Secondary Nurse** o **Clinical Instructor** o **Family Member #1-Husband** o **Family Member #2-Daughter** o **Family Member #3-Daughter** o **Recorder** o **Physician / Advanced Practice Nurse** o **Respiratory Therapy** o **Anesthesia** o **Pharmacy** o **Lab** o **Imaging** o **Social Services** o **Clergy** o **Unlicensed Assistive Personnel** o **Code Team** o **Other-** **_Interpreter_____** **Important Information Related to Roles**	**Student Information Needed Prior to Scenario:** o **Has been oriented to simulator and equipment** o **Understands guidelines /expectations for scenario Brief overview objectives.** o **Has accomplished all pre-simulation requirements** o **All participants understand their assigned roles, provided with their skit** o **Has been given time frame expectations** o **Other _Informed Culture of patient_____** **Report Students Will Receive Before Simulation** The following report is given to primary and secondary nurses prior to beginning the simulation, no other information is given to the students.

For Faculty only	Time: 10 minutes prior to Simulation beginning
1/2. Primary student nurse and Secondary student nurses- receive report prior to entering patient room, students are provided with sim name tags, 10 minutes prior to simulation beginning they are verbally given report, they write report on their own, they are provided with MAR and MD/NP orders orders and they are given 5 minutes to look up any information regarding report/Meds/game plan. Will be given 60 second lead time before beginning scenario. 3. CNA Assists nurses with VS, drink. 4. Hospital Interpreter- Offers Spanish/English translation services for the patient and health care providers. 5. Family Members-One family members (husband) sitting at bedside. Tries to interpret for patient , reminds patient he will bring from home the **Luile fraude moru (cod liver oil) which is used to maintain good health in the lungs; if asked the cod liver oil is taken 1 tablespoon every morning, it is found OTC (over the counter)** (hand this information to the participants using the skit cards provided) **Significant Lab Values- none**	Mrs. J.P. is a 45 year old female who had an emergency hemicolectomy for a perforated colon 3 days ago. He has a midline abdominal incision. He has a right forearm peripheral IV with D51/2 NS infusing at 80ml/hour. IVPB of Ancef was started at 06:45a.m. and she has received her hydrochlorothiazide tablets. Her nasogastric tube and Foley catheter were removed last evening. She is tolerating full liquids and voiding without difficulty. She was medicated with 2 Percocet tablets for pain at 6:00a.m... The pain was rated as a "6" on a pain scale prior to medicating. Mrs. J.P. speaks English, but understands best in Creole language, she is Christian. **Clinical signs immediately visible:** - **Alert and responsive** - **Expressing pain** - **Appears uncomfortable** - **Praying and holding Bible** - **Husband at bed side**

Scenario Progression Outline

Timing (approximate)	Manikin Actions	Expected Interventions	May Use the Following Cues
	Alert, responsive, in hospital bed with compression stocking (HOB	**Wash hands, introduces self, identify the patient**	**Role member cue: Patient**

Phase 1	<30%) in a med-	(ID band & ask pt.	Cue: If student
5-10 minutes	surg floor, Praying and holding her bible, moaning, shallow respirations RR-22 Crackling breath sounds upper and lower bilaterally, HR90, B/P145/82, SPo2-97%, dressing with slight frank blood in the center of dressing- to mid-abdomen intact; hypoactive BS all quadrants, abdomen tender to touch. IV in right forearm with D51/2 NS @80ml/hr (IV pump), IVPB Ancef running, Incentive Spirometer at bedside.	Nurse assesses V.S. (delegates to CNA) analyzes the decrease in SPo2 and shallow respirations, complete respiratory assessment and then assess NP/MD orders- places O2 at 2L and or raises HOB (>45).	does not introduce self patient ask "Who are you in understandable English.
Roles:			
1.Primary Nurse			If student does not inquire about the patient's religion/health belief the patient states:
2.Secondary Nurse			
3. Certified Nursing assistant			"I have not been good, My Loa continues to punish me"
4.Husband			
5. Interpreter			**Husband states:**
		Nurse assess religious beliefs (positively responds to bible) as it relates to disease process of the Haitian-American patient: Inquires health beliefs "Tell me about Loa"	" You are good Jocelyn, Loa knows that"
		Assesses which language the patient would feel comfortable in during	Role member cue:

10-20 min.		instruction and communication. Provides patient with Creole post op patient education pamphlets. Ascertains and addresses the patient and family (regards the family's input as long as Hippa/confidentiality-privacy rules is maintained.	Cue: patient continues to moan and prays a bit louder:" oh I continue to get worse now I can not breath right because I am being punished"
			Patient moans "AHH" as she tries to "cough", "cough" (shallow coughs)
			Husband states" my wife is in pain when she coughs"
			Patient further states:
			"Where is my Luile fraude moru (cod liver oil) I must take some to help my branches work right"
		Nurse assesses her pain-PQRST	(bronchioles)
		Assesses her abdomen/wound. Assesses VS and PO2(delegates to CNA)	Patient continues to "cough" " cough" and states, in creole: "J' ai dule"
			("I am in pain")

		Assesses which language the patient would feel comfortable in during instruction and communication. Calls for Interpreter services.	**Husband states** **"she does not understand why she is coughing and in pain"**
		Nurse should assess MD/NP/PA orders for pain management orders	**If nurse wants to give pain medication, patient states "How is are pain pills going to help my cough, nothing could really help me because Loa is punishing me".**
		Nurse effectively uses interpreter services using bilingual nursing staff or professional interpreters and offers this to patient and family. Explains to the patient the written document (Creole pamphlet patient education "post operative complications and interventions") has the right medical information regarding how to avoid respiratory complications after surgery.	
Phase 2 **20-40min**		**Nurse delegates to CNA provides the patient with something to drink as asked; makes sure**	**Husband states:**

		that the drink is without ice and room temperature or preferably hot (this is a cultural belief in the hot to promote the healing process).	"May I give her something to drink?"
1.Primary Nurse 2.Secondary Nurse 3. Certified Nursing assistant 4.Husband 5. Interpreter	The patient continues to moan, c/o of pain to her surgical wound: Pain level is a 6, pain is sharp in nature comes and goes it is located abdominal surgical area, the pain is improved with pain medication; she had something for pain a while ago cannot remember when but it did relieve her pain to a 2 scale 0-10. Praying makes her feel better because patient feels she is being punished by her Loa.		

Phase 3 **40-60 minutes** **1.Primary Nurse** **2.Secondary Nurse** **3. Certified Nursing assistant** **4.Husband** **5. Interpreter**	**Patient is speaking to her family to bring her** **Luile fraude moru from home, continues to cough and moan and hold her bible.**	**Nurse Inquires further regarding patient respiratory homeopathic Tx: "Luile fraude moru" management** **Nurse inquires to find the generic English name for Luile fraude moru** **Effectively works with interpreter to communicate with patient how they can assimilate in her care the use of Luile fraude moru, along with MD/NP orders.** **(as long as no contraindications with other Tx).**	**Role member cue: patient states:** **"Did you bring my Luile fraude moru from home I really need it to feel and breath better"** **Family member replies "I did bring it from home it is here by your bed, so you can start taking it"** **Patient states; "nurse I want to take my Luile Fraude Moru that my husband brought from home"** **Family member cues student if student does not begin**

		Student provides instruction through translator to assure comprehension the proper use of splinting with pillow, deep breathing, and incentive spirometer use to prevent post op respiratory complications.	**demonstrations of Tx to prevent post- op respiratory complication; "What is that" points to incentive spirometer; what else can help my wife breathe better?"**
		Calls NP/MD team member using SBAR communicates assessments and needs of patient.	
		Nurse does not interrupt patient while she is praying, shows positive attitude toward this religious belief. Assist patient to reach her bible as needed.	**Patient states" I am going to pray that Loa helps heals me"**

Appendix: L

BARRY UNIVERSITY

SAMPLE VITA

Tatayana Maltseva

1994	BSN, Florida International University, North Miami, FL
1995-2000	Staff nurse, Mount Sinai Hospital, Miami Beach, FL
2000	MSN, Florida International University, North Miami, FL
2001-Present	Nursing faculty, Florida International University