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A Meta-Analysis of Cultural Competence Education in Professional Nurses and Nursing Students

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A Meta-Analysis of Cultural Competence Education in

Professional Nurses and Nursing Students

by

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Abstract

Cultural competence learning interventions have been suggested to positively improve knowledge, attitudes, and behaviors in both professional nurses and nursing students. A meta-analysis was used to examine the effectiveness of learning interventions designed to increase the cultural competence in professional nurses and nursing students. This is the first known meta-analysis of studies on cultural competence learning interventions in professional nurses and nursing students.

The meta-analysis was done using 13 research studies on cultural competence educational interventions from 1999 to 2010 that were published peer-reviewed literature found in electronic databases. Analyses were computed using a fixed-effect model and effect size data reported in terms of odds-ratio. The Comprehensive Meta-Analysis [Version 2] statistical software was used for the meta-analysis. Results of Orwin's fail-safe *N*, funnel plot and Duval and Tweedie's Trim and Fill revealed no evidence of publication bias. The meta-analysis demonstrated that seven of the 13 studies' individual educational interventions had a significant positive effect (odds-ratio = 4.2) on improving cultural competency of nursing students and professional nurses.

The study was able to determine from the meta-analysis literature that overall, learning interventions of cultural competence in nurses and nursing students significantly translates to a positive effect on the self-perceived cultural competency of nurses and nursing students in terms of knowledge, skills, attitudes, and self-efficacy regardless of

intervention type and contact time. However, there is insufficient empirical evidence to support the argument that education and training in cultural competence translates into culturally competent care or that it leads to improved client health outcomes, particularly in nurses and nursing students. The results of this study should be interpreted with caution. Limitations of the study and recommendations for future research are discussed.

Chapter 1: Background and Significance

Vulnerable groups in the United States (U.S.) today experience poorer health and healthcare than does the overall population. These health and healthcare inequities, or disparities, are national problems that have existed for decades and continue to persist in the twenty-first century (Institute of Medicine [IOM], 2003, 2004, 2006; U.S. Department of Health & Human Services [USDHHS], 2011b, 2011e). Certainly, these health-related disparities are a serious problem and concern for affected individuals. But in addition, the resulting social and economic liabilities created for the nation as a whole are extensive (USDHHS, 2011b, 2011e).

Disparate Populations

Based on a number of scientifically researched standards of care, *The 2010 National Healthcare Disparities Report* (2011) identified numerous disparities in health and healthcare among vulnerable populations, especially racial and ethnic minority groups. Among the disparities:

- Blacks had significantly higher rates of colorectal cancer diagnosed at advanced stages than did whites.

- The rate at which Hispanic and black adults with diabetes received recommended services and care was significantly lower than for non-Hispanic whites.

- The percentage of Asian adults age 65 and over who had ever received pneumococcal vaccination was significantly lower compared to whites.

- The percentage of American Indian and Alaskan Native hospice patients who received the correct amount of medication for pain was lower than that of whites.

- American Indian or Alaskan Native patients in community hospitals had significantly fewer admissions for uncontrolled diabetes than did white patients.

Thus, a person who is white is likely to have better health and better healthcare than one who is not. For racial and ethnic minorities, health-related disparities are undeniable (USDHHS, 2011a, 2011b, 2011d, 2011e).

In fact, not only is inadequate progress being made to eliminate many of these healthcare disparities, some are getting worse (USDHHS, 2011a, 2011b, 2011c, 2011e). For example, between 2002 and 2007:

- Blacks had significantly more admissions for uncontrolled diabetes than all other groups.

- The percentage of poor Hispanic adults diagnosed with diabetes who received HbA1c measurement in the calendar year decreased.

- The percentage of American Indian and Alaskan Native adults age 50 and over who received colorectal cancer screening decreased in comparison to the percentage for white adults in the same age group.

- The percentage of Hispanics who received appropriate timing of antibiotics for surgery decreased in comparison to that for whites.

Many of these health-related inequities are increasingly problematic. Therefore, ". . . urgent attention is warranted to ensure improvements in quality and progress on reducing disparities" (USDHHS, 2011b, p. 8).

Both the types of diverse populations and the numbers of individuals they represent continue to rise in the United States. Consequently, it is likely that an increasing number of health-related disparities will not only continue but have the potential to worsen.

This increasing population diversity can be seen in the results of the 2010 U.S. Census. According to those results, approximately 72 percent of the U.S. population is white alone; 13 percent black or African American alone; 1 percent American Indian and Alaska native alone; 5 percent Asian alone; less than 1 percent native Hawaiian and other Pacific Islander alone; 6 percent other unidentified race alone; and 3 percent two or more races. In addition, 16 percent of the nation's population is Hispanic or Latino of any race (U.S. Census Bureau, 2011).

A comparison with statistics from the 2000 Census shows clear evidence of the significant growth in populations still considered as minorities. As just two examples, the fastest-growing group, "Asian alone," expanded by more than 43 percent and the group identified as having Hispanic or Latino origins increased by 43 percent (U.S. Census Bureau, 2011).

The 2010 Census data does not include estimates of the 2050 population, but in 2009, when slightly different reporting categories were used, it was estimated that by 2050 less than 53 percent of the population will be white; 16 percent will be black; 25 percent will be Hispanic or Latino; 10 percent will be Asian and Pacific Islander; and about 1 percent will be American Indian, Eskimo, and Aleut (U.S. Census Bureau, 2009). These projections have not been negated by the 2010 statistics, which support the necessity of focusing on issues of disparity in the health of the nation.

Equally important to emphasize is the fact that minority groups vulnerable to health-related inequalities extend beyond race and ethnicity. Other minority groups that experience health and healthcare disparities can be identified by below-average socioeconomic status (SES), gender, literacy level, sexual orientation or gender identity, disability status, geography, and age (IOM, 2006, USDHHS, 2011d, 2011e). Examples of these disparities are readily available:

- Women in the lesbian, gay, bisexual, and transgender community receive routine preventive breast cancer and Pap smear screening less frequently than other women despite evidence showing their risk of developing breast and cervical cancer.

- Less than 40 percent of children ages 12–17 who had a major depressive episode in 2007 received treatment.

- Rural residents are more likely to have chronic health conditions than are their urban counterparts.

- Children from poor families were less likely to receive all recommended vaccines in 2007 than were children from high-income families.

More than ever, both an ethical and a social demand exist to eliminate these health-related disparities.

Health Determinants: The Bigger Picture

Health-related inequalities are not explained by vulnerable minority status alone. In fact, explanations of disparities are far more complex and result from interactions between different and powerful connections or determinants of health (USDHHS, 2011e). Generally, the determinants of health can be grouped into four general categories: social, behavioral, environmental, and biological (IOM, 2006; USDHHS, 2011c, 2011d, 2011e).

Several social factors that affect health include food security status, racism, housing, and health system access and quality. For example, safe and affordable housing can be inaccessible for families of low socioeconomic status. Unsafe conditions such as lead-poisoning, overcrowding, and structural features of a home that can cause injuries are more likely to result in health problems. Behavioral determinants that affect health include patterns of overweight and obesity and use of tobacco and alcohol. For example, binge alcohol use is more common in younger age groups, males, and American Indians and Alaskan Natives. Alcohol abuse can lead to unintended death and long-term chronic diseases. Environmental determinants involve polluted living conditions or workplace safety factors. Occupational injuries are more likely to lead to long-term disability in minorities due to inadequate pain management. Biological factors take account of family history of heart or kidney disease and inherited conditions such as hemophilia and cystic fibrosis. Genetic predisposition for early-onset hypertension has been identified in the African-American population. Thus, the potential to decrease and even eliminate health-related inequities by developing and implementing strategies based on social, behavioral, environmental, and biological health determinants seems obvious. In other words, the ideal is to prevent the health problems before they occur (IOM, 2006; USDHHS, 2011b, 2011c, 2011d, 2011e).

Health disparities do have economic consequences (USDHHS, 2011c, 2011e). The American Public Health Association [APHA] (2008) recognizes increased competition for resources, lost labor productivity, and greater spending burdens on all taxpayers. A report by Leveist, Gaskin, and Richard (2009) estimates that between 2003 and 2006 the combined costs of health inequalities and premature death in the United

States were $1.24 trillion. Similarly, Waidmann (2009) calculated that disparities experienced by African Americans, Hispanics and non-Hispanic whites cost the healthcare system $23.9 billion in 2009, with Medicare financing $15.6 billion and private health insurers covering $5.1 billion. In addition, Leveist and colleagues (2009) assert that if health inequalities had been eliminated, the indirect costs associated with illness and premature death could have been reduced by more than one trillion dollars between 2003 and 2006. Ultimately, persistent health disparities create a far-reaching economic and social yoke.

Results of research studies provide readily available data to support the persistence of health and healthcare disparities relating to minority groups (IOM, 2006; USDHHS, 2011b). An accurate and consistent measurement and reporting is necessary to identify health-related inequalities. What is important is that in many cases data have been incomplete due to inconsistent and lack of routine collection of additional determinants of health in conjunction with minorities (Truman et al. 2011; USDHHS, 2011e). Further complicating the health-related disparities issue is the lack of a clear definition of health and healthcare disparities. Carter-Pokras and Baquet (2002) identified 11 different definitions of health-related disparities used by different public and private agencies responsible for collecting and reporting disparity data. If health disparities information is "compromised due to misleading or unavailable data, there is a corresponding lost opportunity to focus on prevention, health care, research, and other efforts" (USDHHS, 2011e, p. 32). However, within the past few years a concerted effort has been mounted to standardize collection of information that should result in more

robust data to guide development of interventions and goals to eliminate health-related

inequalities (IOM, 2006; USDHHS, 2011c, 2011d, 2011e).

The problem of health-related inequalities in the context of a burgeoning diverse

mosaic generates a compelling need to close the gap and realize national health equities.

Decreasing or eliminating health and healthcare disparities is an imperative for the health

and well-being of everyone in the nation.

Cultural Competence: An Essential Goal

Given the complexity of health-related disparities, it seems obvious that no single

tactic alone can solve the problem. In fact, multifaceted objectives have been identified

through research and collaboration with local communities, public and private sectors,

governmental agencies, and other groups affected by health-related disparities (IOM,

2006; USDHHS, 2011b, 2011c, 2011d, 2011e). A summary of essential objectives

would include transforming the healthcare system to assure quality and accessibility,

increasing awareness of health disparities, strengthening current leadership and

developing future leaders, and promoting research (IOM, 2006; USDHHS, 2011c,

2011e). In addition, *cultural competence* in healthcare is considered an essential goal to

eliminate health-related disparities by these local communities, public and private sectors,

governmental agencies, and other groups affected by health-related disparities (IOM,

2006; USDHHS, 2001a, 2004, 2011c, 2011e). Regardless of the specific vulnerable

population experiencing inequities in health and healthcare, cultural competence is

considered an important objective in the quest to minimize and even eliminate health and

healthcare disparities in all diverse patient groups (IOM, 2003, 2006; USDHHS, 2011c,

2011d, 2011e).

The Office of Minority Health [OMH] (2005) maintains that managing health and healthcare from a cultural perspective is fundamental to erasing these disparities and improving minority health and healthcare. Depending on the context, culture can be defined and described in a variety of ways. The OMH (2005) describes culture in the context of how healthcare information is received and interpreted by individuals or groups, thus presenting healthcare as a cultural construct. For example, an individual's culture dictates what is regarded as a health problem, what the appropriate treatment is, and who should provide the treatment. Thus, the OMH (2005) defines culture as a function of thoughts, communications, actions, customs, and institutions of racial, ethnic, religious, or social groups, thus making cultural issues central to the delivery of healthcare treatment and preventive interventions (USDHHS, 2005). Leininger (2004) offers another description, indicating that culture is interconnected with being human and that it unrelentingly permeates all aspects of life, particularly health. In addition, Jeffreys (2006) takes it a step further in relating culture to health: "Culture is a factor that can make the greatest difference in promoting wellness, preventing illness, restoring health and enhancing quality of life for all individuals" (p. xiii).

Cultural competence is the process and ability of an individual or organization to function effectively within different cultural situations (Betancourt, Green & Carillo et al., 2003; Capell, Veenstra & Dean, 2007; Cross, Bazron, Dennis & Isaacs, 1989). Cultural competence combines a set of congruent behaviors with attitudes and knowledge that facilitate an individual or a system to work successfully in various cultural contexts other than their own culture. It stands to reason that cultural competence should result in positive health and healthcare outcomes in people of different cultures (Betancourt et al.,

2003; Capell et al., 2007; Cross et al., 1989).   Separately and as a whole, all of these descriptions express and support the premise that culture plays a fundamental role in health and healthcare.

Cultural competence in healthcare. The cultural competence in healthcare paradigm obliges healthcare organizations, institutions, and professionals to understand and respect cultural differences and tailor their care accordingly resulting in positive patient health outcomes. Consequently, the overarching concept of cultural competence in healthcare integrates three fundamental components: linguistic competence, workforce diversity, and workforce cultural competence (Baldwin, 2003; IOM, 2003, 2004, 2006; USDHHS, 2011b, 2011c, 2011e). Linguistic competence necessitates, at the minimum, communication in the patient's native tongue. Workforce diversity emphasizes the need to recruit and retain vulnerable minorities in the healthcare workforce. Cultural competence in the workforce requires the healthcare labor force to provide healthcare in the context of the patient's culture. Separately and combined, the three fundamental components should result in appreciable improvements in effective care, positive patient health outcomes, and decreased health-related disparities (IOM, 2003, 2004, 2006; USDHHS, 2011b, 2011c, 2011e).

To facilitate the realization of linguistic competency in healthcare at the organizational and institutional level, government agencies and professional organizations have issued standards, regulations, and guidelines. For example, the Office of Minority Health in 2001 issued standards for culturally and linguistically appropriate services (CLAS) in healthcare, mainly directed at organizations and institutions (USDHHS, 2001a, 2011c, 2011e). These standards mandate that healthcare

organizations provide language assistance services both verbally and written in the patient's preferred language at all points of patient contact. Dreher and McNaughton (2002) note that "The Joint Commission mandates language assistance and written notice of patients' rights and patient and family education that is guided by culture and language" (p. 182). Accordingly, achieving linguistic competency has translated into a few improvements. For example, communicating with a patient in his or her preferred language results in a decrease in "frequency of repeat appointments, extra time spent rectifying misdiagnoses, unnecessary emergency room visits, longer hospital stays, and canceled diagnostic or surgical procedures" (USDHHS, 2001b, p. xiii).

A racially and ethnically diverse workforce among health professionals is another component that is integral to the cultural competence in the healthcare paradigm. Likewise, to assist in the achievement of a diverse workforce, the CLAS standards direct that "health care organizations should implement strategies to recruit, retain, and promote at all levels of the organization a diverse staff and leadership that are representative of the demographic characteristics of the service area" (USDHHS, 2001a, p.8). In addition, educational institutions that prepare students for the health professions can "improve admissions policies and reduce barriers to underrepresented minority students" (IOM, 2004, p. 2). Consequently, increasing diversity in the healthcare workforce has improved some patient outcomes. According to the IOM (2004), there has been improvement in access to care for vulnerable minorities, increased patient satisfaction, and greater patient care choices.

Cultural competence of the individual healthcare professional is necessary to complement the cultural competence in the healthcare paradigm. However, achieving

cultural competence for individual healthcare professionals has proven to be complex and problematic (USDHHS, 2011c, 2011e). The healthcare provider is bound by the requisite organizational, institutional, and governmental standards, regulations and guidelines to achieve cultural competency. Moreover, the healthcare professional and student are expected or even required to engage in a variety of education and training programs designed to increase cultural competence that results in delivery of culturally competent care that ultimately improves patient health outcomes (IOM, 2003; USDHHS, 2011c, 2011e).

In the academic setting, cultural competence learning strategies for healthcare programs are designed to foster cultural awareness, sensitivity, knowledge and skills. These strategies are integrated throughout years of formal education and vary in terms of specific objectives, curricula, learning interventions and evaluations (Barzansky, Jonas, & Etzel, 2000; Betancourt & Green, 2010; IOM, 2003; Kligler et al., 2004; Lipson & Desantis, 2007; USDHHS, 2004). For the licensed professional healthcare provider in the clinical setting, learning strategies also vary and are designed to promote cultural awareness, sensitivity, knowledge and skills (IOM, 2003; USDHHS, 2004). Compared with the academic setting, these learning strategies for the healthcare professional are usually developed to be implemented over a shorter time period (2- 16 hours). However, unlike linguistic competence and workforce diversity, there is deficient empirical evidence to support the premise that cultural competence education and training decrease the health-related disparities gap (Gozu et al. 2007). Lie, Lee-Ray, Gomez, Bereknyei & Braddock (2011) systematically reviewed the published studies that determined whether learning strategies to improve the cultural competence of health professionals are

associated with improved patient outcomes. Patient outcome measures included patient satisfaction, self-care behaviors, patient trust, and, specifically for black patients, hemoglobin A1c (HbA1c) and low density lipoprotein (LDL) plasma levels. The results demonstrate that by and large, studies' qualities were weak and the overall effectiveness of educational programs was not clear. The many different learning strategies seen in cultural competence education makes it difficult to determine which learning strategy might best promote cultural competence in healthcare providers and consequently improve patient outcomes.

Despite the proliferation of government mandates, organizational guidelines, and educational and training programs designed to assist the healthcare professional in meeting the needs of an increasingly diverse patient population, achieving culturally competent care is still elusive (USDHHS, 2011c).

Cultural Competence and Nursing

Thus far the discussion of cultural competence in the context of healthcare has taken a fairly broad approach, considering the overall healthcare workforce. However, cultural competency is particularly germane to the nursing profession because nurses spend more time in direct patient care than do any other healthcare professionals (Han & Arnold, 2001; Rudy, Davidson, Daly, Clochesy, Sereika, & Baldisseri, 1998; Zupancic & Richardson, 2002). Nursing practice is patient-centered; therefore, providing culturally competent nursing care is fundamental if that care is to be appropriate and successful (Green-Hernandez, Quinn, Denman-Vitale, Falkenstern, & Judge-Ellis, 2004). It follows then that understanding the patient's culture will, or should, ultimately serve to direct nursing practice. As Dreher and MacNaughton (2002) note, "the manifestation,

acknowledgment, and management of even the most basic physiologic responses are firmly embedded in the cultural context of the patients" (p. 183).

In theory, nurses providing culturally competent nursing care have the potential to increase access, improve the quality of care, and improve patient satisfaction, leading to better health outcomes for culturally diverse groups (Ervin, Bickes & Schim, 2006; USDHHS, 2004; Waite & Calmaro, 2010). Nurses must be able to tailor delivery of culturally competent nursing care services in accordance with an individual patient's cultural values, behaviors, and needs in order to bring about positive health outcomes (Jones, 2005; Krainovich-Miller et al., 2008; Siantz & Meleis, 2007; USDHHS, 2004, 2005). For example, according to Green-Hernandez et al. (2004), cultural competency in nursing includes respecting the dignity and uniqueness of each patient, accepting the rights of an individual to participate in or refuse care, acknowledging personal bias, and preventing the interference of this bias in patient care. Therefore, professional nurses and nursing students must understand cultural issues and act with cultural sensitivity when dealing with clients (Green-Hernandez et al. 2004).

Cultural competence education and nursing. Now more than ever, there is a fervent call for nursing education and training that includes cultural, ethnic, and socially diverse concepts (American Academy of Nursing [AAN], 2008; IOM, 2010, National League for Nursing [NLN], 2005; USDHHS, 2011c, 2011e). In general, prior to the mid-1980s, nursing organizations did not actually address the need for cultural competency curricula. However, since that time national nursing organizations have made recommendations and developed standards for cultural competency learning strategies to be included in academic course content (American Association of Colleges of Nursing

[AACN], 2008; National League for Nursing Accreditation Committee [NLNAC] accreditation manual [NLNAC], 2011). The U.S. National Advisory Council on Nurse Education and Practice (2001c, 2008, 2010) has issued national reports on the nursing workforce to federal agencies and Congress regarding racial and ethnic diversity in which it addressed the significance of cultural competence in nursing education and continuing professional education. In addition, the Nurse Reinvestment Act of 2002 provided funding for nursing education to promote cultural competencies (AACN, 2005).

The recommendations and standards for cultural competence in nursing education and training in professional nurses and students are broad in nature. Currently, cultural competency learning strategies in nursing are based on three general concepts: cultural sensitivity/awareness, cultural knowledge, and cultural skills/behaviors (Cooper-Braithwaite, 2006; Hughes & Hood, 2007; Hunt & Swiggum, 2007; Jeffreys, 1999, 2000, 2006; Lipson & Desantis, 2007; Upvall & Bost, 2007). Types of cultural competence learning interventions for professional nurses and nursing students include didactics, simulated patients, community immersions, problem-based learning, videos, reflections, case-based discussions, and formal academic courses (Beach, Price, Gary & Robinson, 2005; Caffrey, Neander, Markle, & Stewart, 2005; Fahrenwald, Boysen, Fischer, & Maurer, 2001; Jones, 2005; Lee, Anderson, & Hill, 2006; Rutledge, Barham, Wiles, & Benjamin, 2008). The effectiveness of these interventions has also been evaluated utilizing Likert-like self-report metrics and qualitative measures including journals, focus groups and formal written papers (Krainovich-Miller et al., 2008; Majumdar, Browne, Roberts, & Carpio, 2004; Reeves & Fogg, 2006; Schim, Doorenbos, & Borse 2005, 2006). Generally, the literature supports the postulation that cultural competence

education has a positive impact on the knowledge, skills and attitudes of both professional nurses and nursing students (Amerson, 2010; Campbell-Heider, Rejman, Austin-Ketch, Sackett, 2006; Gozu et al., 2007; Grant & Letzring, 2003; Liu, Mao, & Barnes-Willis, 2008; Rutledge et al. 2008).

Although there is evidence that cultural competence learning interventions improve knowledge, attitudes, and behaviors in both professional nurses and nursing students, further research needs to be conducted to determine which learning interventions are most effective.

Problem Statement

Research needs to be conducted to determine the presence, direction and magnitude of any effects related to learning interventions that promote cultural competence in professional nurses and nursing students. Consequently, a meta-analysis of cultural competence learning interventions effects may yield data to determine the overall effect of cultural competence education and which learning interventions are most effective along with any moderating variables.

Research Questions

1. To what extent do cultural competence learning interventions increase cultural competence in professional nurses and nursing students?

2. To what extent is there variation in cultural competence learning interventions outcomes?

3. What moderating variables contribute to the effectiveness of cultural competence learning interventions?

Conceptual Framework for the Study

The framework chosen for this research study is Suh's model of cultural

competence (2004), shown in Figure 1. Based on an extensive literature review, it

appears to be the most comprehensive developed to date. The model includes definitions,

attributes, antecedents, and consequences related to cultural competence (Capell,

Veenstra, & Dean, 2007).
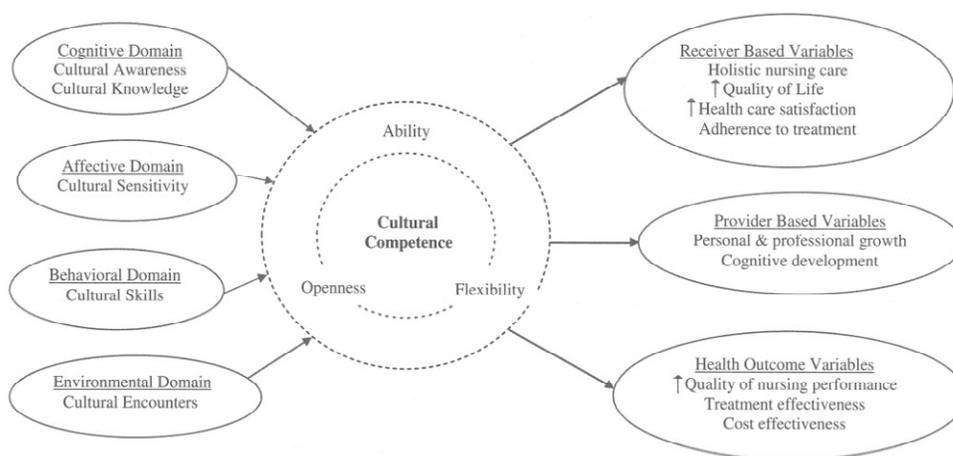
Figure 1. Suh's Model of Cultural Competence 2004

Suh's model of cultural competence was developed based on concept analysis of

cultural competence as viewed by the fields of nursing, medicine, psychology, education,

and social work. The model initially identifies three attributes of cultural competence:

ability, openness, and flexibility. These attributes are essential constructs generally

connected with the concept of cultural competence but separate from the concept's

antecedents and consequences. For example, the attribute of ability is evident in the

nurse's ability to effectively care for diverse clients. A culturally competent nurse has

the ability to "resolve cultural disparity between patients and healthcare professionals"

(Suh, 2004, p. 97).

Antecedents are integral components of a concept. Suh describes antecedents as "events or incidents that must precede the occurrence of the concept" (p. 97). Suh's model categorizes the antecedents based on cognitive, affective, behavioral, and environmental domains. An example within the affective domain is that of cultural sensitivity. Cultural sensitivity is "viewed as an intentional and affective perception of cultural diversity . . .it denotes respect for different cultures and an accepting attitude" (p. 98).

Consequences follow as a result of attributes and antecedents of cultural competence. These consequences are classified into receiver-based variables, provider-based variables, and health outcome variables. Receiver-based variables "include the patient's subjective experience when he or she receives culturally competent nursing care" (Suh, 2004, p. 98). Provider-based variables are explained as what is potentially gained by the healthcare provider when culturally competent nursing care is delivered, for example, cognitive development and personal and professional growth in communication and nursing practice (p. 98). The health outcome consequences of delivery of culturally competent care are identified as increased quality of care, provider-patient rapport, and treatment effectiveness and decreased health disparities.

Definitions of Terms

The following definitions are used within the context of this study:

- *Nursing student:* A nursing student in the process of being educated at the following levels of nursing education: associate degree (ADN) in nursing, bachelor of science in nursing (BSN) degree, or higher.

- *Professional nurse*: A licensed registered nurse educated at the associate degree in nursing (ADN), bachelor of science in nursing (BSN) degree, or higher.

- *Cultural competence:* Cultural competence reflects a continuous integration of optimal levels of knowledge, attitudes, and behaviors that are needed to provide care to patients of diverse groups so as to result in positive health and healthcare outcomes (Campinha-Bacote, 2003b; Gozu et al., 2007; Suh, 2004; USDHHS, 2005).

- *Cultural competence learning strategies:* The process by which cultural competence is conveyed to the professional nurse and nursing student learner. The process results in an increase of cultural competence knowledge, skills/behaviors and attitudes of the professional nurse and nursing student learner. Cultural competence learning strategies include learning objectives, curricula, information presentation, learning interventions and evaluation (Ekwensi, Moranski, & Townsend-Sweet, 2006).

- *Cultural competence learning interventions:* Specific methods or activities used to promote cultural competence in professional nurses and nursing students. Examples of cultural competence learning interventions are poster presentations, care planning, role-play, games, immersion, service-learning, reading, lecture and case studies.

Significance to Nursing

Cultural competence has been identified as an essential component of nursing practice. Potentially, culturally competent nurses can improve patient health and healthcare outcomes. However, becoming culturally competent and providing effective, evidence-based culturally competent nursing care that results in positive patient health outcomes continues to present challenges.

Meta-analysis is a rigorous statistical alternative to a narrative discussion of integrating data from multiple research studies (Rudner, Glass, Everett & Emery, 2002). The overall benefit is improved accuracy and statistical power as a result of merging the large sample sizes from the multiple studies on cultural competence. Results of meta-analysis will be more objective than a qualitative systematic literature review. In addition, requisite components of cultural competence in nursing are measures that evaluate curricular interventions. Psychometric evidence for these measures is important to assure that cultural competence is being adequately measured and that the instruments are sound. Thus, quality measures are essential components to achieving cultural competence among nurses and improving patient outcomes.

Utilization of valid and reliable research data will provide findings to direct nursing practice. Findings from this study will contribute to clinical knowledge in nursing by identifying appropriate utilization, strengths, weaknesses, and data interpretation of these multiple research studies. This project will contribute to the profession of nursing by expanding the understanding of cultural competence as it relates to nursing.

Chapter 2 contains a review of the cultural competence literature to support this study. The literature review is divided into two sections: (a) theories, models, and measures germane to cultural competence and nursing, and (b) cultural competence in disciplines that are closely related to nursing.

Chapter 2: Review of Literature

Research focused on cultural competence education in healthcare is described with increasing frequency in both the nursing and healthcare literature. Chapter 2 contains a review of the cultural competence literature to support this study. The literature review is divided into two sections: (a) theories, models, and measures germane to cultural competence and nursing, and (b) cultural competence in disciplines closely related to nursing.

Retrieval of Literature

Electronic databases were searched for literature dating from 1980 through 2011 using the specific terms of theories and models in conjunction with combinations of the following key terms and then merging the results: *theory, model, framework, cultural sensitivity, transcultural, cross-cultural, cultural awareness, measures, evaluation, cultural diversity, multicultural, cultural competence, nurses, nursing care, culturally congruent care,* and *healthcare.* Six databases were searched: CINAHL, ERIC, MEDLINE, PsycINFO, PubMed, and Sociological Abstracts. Inclusion criteria were all available theoretical literature and scientific research concerned with cultural competence. Excluded from this review were articles devoid of theories, models, and frameworks related to cultural competence.

Theory

Nursing theory and nursing practice are fundamentally interconnected. Nursing theories are used to describe, develop, disseminate, and use present knowledge in nursing and provide a framework for nurses to systematize their nursing actions (Chitty & Black, 2010). Theories direct nurses what to ask, what to observe, what to focus on, and what to think about (Chitty & Black, 2010). Therefore, a sound theory of cultural competence is necessary to define commonalities of the variables in a stated field of inquiry, guide nursing research and actions, predict practice outcomes, and predict client response (Chitty & Black, 2010).

Culture Care Diversity and Universality Theory. The theory of cultural competence in nursing originated with Madeleine Leininger in 1978. To date, it is the only nursing theory to explain culture in the context of nursing. Leininger developed the Culture Care Diversity and Universality Theory as an attempt to explain and understand the cultural forces that shape the nurse-client relationship. This middle-range theory coined the term *culturally congruent care* that may be considered a precursor to the term *cultural competence*. Culture care would contribute to the health and well-being of clients through the delivery of culturally congruent care (Suh, 2004). The theory's objective was to discover, document, interpret, and explain the predicted and multiple factors influencing and explaining care from a cultural holistic perspective. Some of the essential concepts of the theory include kinships, technology, and economics, while some of the constructs include social and religious values, beliefs, norms, and practices. Leininger (2001) has formulated several theoretical assumptions and definitions in her culture care theory to guide nurses in their discovery of culture care phenomena. For

example, a client who experiences nursing care that fails to be reasonably congruent

with his/her beliefs, values, norms, and practices will show signs of cultural conflict,

noncompliance, stress, and ethical or moral concern.

To visually demonstrate the essential concepts and constructs of the Culture Care

Diversity and Universality Theory, Leininger developed the Sunrise Model. Figure 2

presents the visual representation of the model. The Sunrise model was developed to

orient and present the related dimensions of her theory of culture care.
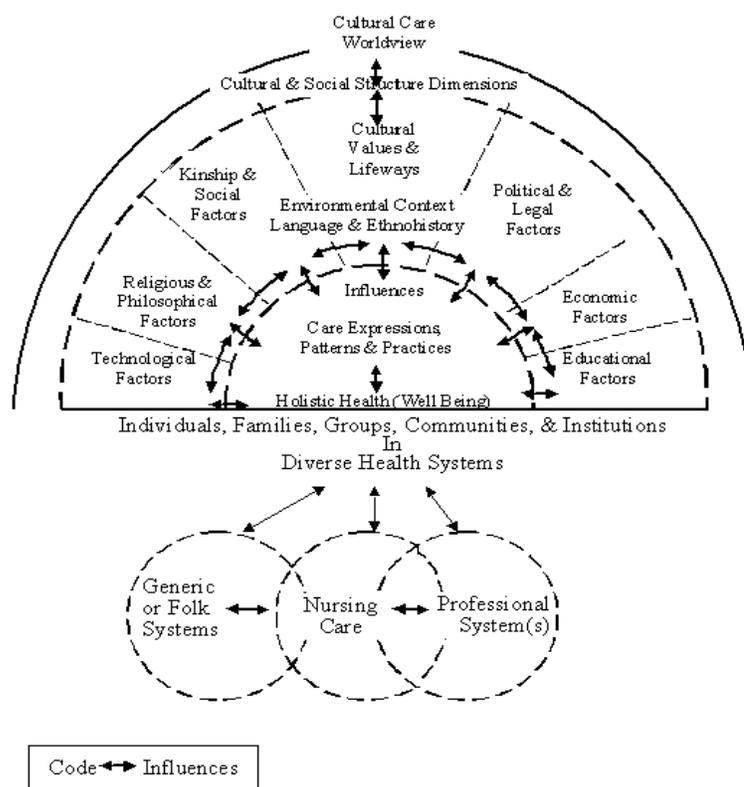
Figure 2. Leininger's Sunrise Model.

Theory makes it possible to identify, explain, and shape nursing practice. Nursing

education is the integral connection for sustaining and solidifying the nursing theory-

practice relationship. The task of delivering culturally competent education belongs to

nursing faculty (Rew, Becker, Cookston, Khousopour, & Martinez, 2003). Leininger's

theory provides a framework to develop new and validate current knowledge.

Models

Models are not intended to describe or predict all of the attributes or constructs of

cultural competence as are theories. However, the importance of cultural competence

nursing models is that these models demonstrate interrelated concepts that provide

direction for nursing practice, research, and education.

Cultural competence models: nurse behaviors. These cultural competence

models provide structure for metric and skill development to facilitate cultural

competence. They focus on cultural assessment, interviewing, and communication

frameworks that should result in culturally competent care and positive patient health

outcomes.

Transcultural concepts in nursing care. Andrews and Boyle (2002) created a

model for transcultural nursing practice integrating theories, models, and research

concepts from Leininger's Theory of Culture Care Diversity and Universality and the

natural and behavioral sciences applicable to nursing practice. The concept of cultural

competence is somewhat problematic for the authors within the framework. The authors

stress lack of agreement and precision in cultural terminology among nurse researchers.

For example, Camphina-Bacote (2003b) and Jeffreys (2006) use the term *cultural*

competence. The Office of Minority Health uses the term *cultural and linguistic*

competence, and Leininger (2001) uses the term *culturally congruent care*. Thus,

Andrews and Boyle shift the focus from cultural competence to emphasizing the

possibility of "mastering the knowledge and skills of a cultural assessment along with learning some of the cultural dimensions of care for diverse groups" (p. 16).

The framework does call attention to a comprehensive cultural assessment, *The Nursing Assessment Guide,* as the foundation for culturally competent nursing care (Andrews & Boyle, 2002). The *Nursing Assessment Guide* is valuable for relevant cultural data and information-gathering concerning clients. There are 12 domains necessary for a comprehensive cultural assessment, and the guide identifies necessary information to be collected in each one. The 12 domains are biocultural variations and cultural aspects of disease incidence, communication, cultural affiliation, cultural sanctions and restrictions, developmental considerations, economics, educational background, health-related beliefs and practices, kinship and social networks, nutrition, religion and spirituality, and values orientation. The guide can be used in the clinical setting to develop specific cultural assessment tools to meet the varied needs of nurse-client interactions. The guide can also be used in academia to develop learning strategy frameworks

Purnell Model for Cultural Competence. The Purnell Model for Cultural Competence was initially created from an organizing structure for student nurses to use as a clinical tool (Purnell, 2002). The model was subsequently conceptualized based on multiple theories and research. As in the *Nursing Assessment Guide*, there are 12 cultural domains (constructs) that relate and interact with one another: overview/heritage, communication, family roles/organization, workforce issues, biocultural ecology, high-risk behaviors, nutrition, pregnancy and childbirth practices, death rituals, spirituality, healthcare practice, and healthcare practitioner. Purnell (2002) maintains that a culturally

competent healthcare provider develops an awareness of his or her existence, sensations, thoughts, and environment without letting these factors have an undue effect on those for whom care is provided. Thus, cultural competence is the adaptation of care that is consistent with the culture of the client and is a conscious process and nonlinear. Much like Andrews and Boyle's comprehensive transcultural assessment, Purnell's model can serve as a framework in both the clinical and academic settings to guide appropriate patient cultural assessment.

 Giger and Davidhizar Transcultural Assessment Model. Similar to the models created by Andrews and Boyle (2002) and Purnell (2002), Giger and Davidhizar's Transcultural Assessment Model was developed out of a need for a practical assessment tool for evaluating cultural variables and their effects on health and illness behaviors. This assessment model provides a structure and theoretical basis for culturally competent care (Giger & Davidhizar, 2008). Nurses must vary their approach to each client, taking into account each individual's unique cultural identity (Giger & Davidhizar, 2008). In this model, nursing assessment evaluates six unique cultural phenomena or dimensions: communication, space, social organization, time, environmental control, and biological variation. Giger and Davidhizar's model can also serve as an academic and clinical framework for developing cultural competence.

 Cultural Negotiation. Engebretson and Littleton (2001) developed the Cultural Negotiation model based on the epistemology of constructivism. According to the model, the client and nurse establish a relationship described as *cultural negotiation.* Culturally competent care is a result of working through the negotiated model.   This model is unique in that the construct of cultural competence is inextricably placed within

the context of the entire nursing process. Through the nursing process, nurse-client

interactions develop into a professional, therapeutic relationship. This model reworks the

nursing process to more deliberately depict the interdependence of client-nurse

interactions and the collaboration relationship between the nurse and client. The

researchers postulate that "the nursing process is situated in the context of the cultural

worlds of the nurse, client, and health care system and in the greater social context" (p.

226). For example, the *nursing assessment* in the traditional model is further refined to

exchange of expert knowledge in the negotiated model. The nurse and the client both

bring their *expert knowledge* (cultures, formal/informal education and knowledge) to the

interaction. The professional, therapeutic relationship develops from the negotiation and

information exchange. Thus, "the process of assessment is an exchange of expert

knowledge, with the patient as expert on him(her)self" (Engebretson, 2011, p.153).   The

major constructs of the model include: nursing process, nurse, client/family, and

healthcare system. The Cultural Negotiation model can also serve as an academic and

clinical framework for developing cultural competence learning strategies and clinical

tools.

Cultural competence models: nurse attitudes, knowledge and behaviors. The

following cultural competence models provide structure to facilitate development of

cultural competence learning strategies. These models identify and combine the affective,

cognitive and behavioral components of cultural competence.

A model for cultural competence. Burchum (2002) identified the essential

attributes/constructs and dimensions of cultural competence: cultural awareness, cultural

knowledge, cultural understanding, cultural sensitivity, cultural interaction, cultural skill,

and cultural proficiency. Burchum's model was developed through detailed concept analyses reviewing the nursing literature as well as the literature from the behavioral sciences, anthropology, education, and medicine. Cultural competence is represented as a nonlinear and continuous dynamic process. Cultural knowledge and skill development facilitate continuous increases in cultural awareness, knowledge, understanding, sensitivity, interaction, and skill. Burchum emphasizes that the attributes of cultural competence are common to most other models. However, depending on the model, the description or dimension of each attribute may be explained differently.

The Process of Cultural Competence in the Delivery of Healthcare Services. Camphina-Bacote (2010) developed a model of care that defines cultural competence as "the process in which the healthcare professional continually strives to achieve the ability and availability to effectively work within the cultural context of a client" (p.14).   The current model of cultural competence is the result of a process that has been ongoing since 1991. Like Burchum's model, Camphina-Bacote's model is a dynamic process and identifies five constructs or attributes of cultural competence: cultural awareness, cultural knowledge, cultural skill, cultural desire and cultural encounters. In contrast to Burchum, cultural encounters are the catalyst for increasing cultural awareness, knowledge, skill, and desire. Implicit in this model is the expectation of constant and continuous self-assessment of the five constructs by the healthcare provider.

Cultural Competence and Confidence. Analogous to the models of Burchum and Camphina-Bacote, Jeffreys (2006) describes cultural competence in terms of the cognitive, behavioral and affective dimensions. However, Jeffreys expands the cultural competence model and adds the concept of *transcultural self-efficacy* (TSE). The TSE

model is based on the Bandura's research in self-efficacy. In general, TSE is an individual's perceived confidence in performing or learning the cognitive, practical and affective dimensions of cultural competence (Jeffreys, 2006). Unlike the models of Burchum and Camphina-Bacote, the TSE model focuses on the *learning process* of the cognitive, behavioral and affective dimensions of cultural competence. Self-efficacy is considered indispensable to the construct of cultural competence. Implicit in this model is that "transcultural self-efficacy and cultural skill development can change over time as a result of education" (Jeffreys, 2006, p. 25).

These models present organizing frameworks for the nursing profession to consider the many facets of the cognitive, behavioral and affective components of cultural competence. In addition, the models can direct the development of original and effective learning strategies and facilitate both educational and clinical research.

Measures

Various measures have been designed to evaluate cultural competence in healthcare students and licensed healthcare personnel. The Excellence Initiatives outlined by the National League for Nursing ([NLN], 2011) call for research that supports selection of evaluation strategies that are evidenced-based and that facilitate learning (NLN, 2011). Measuring and understanding cultural competence is a fundamental step toward evaluating cultural competence learning strategies, achieving cultural competence among nurses and improving patient outcomes for an increasingly diverse population.

Nurse researchers have developed measures to evaluate knowledge, skills and attitudes related to cultural competence. The following section will describe six metrics used to evaluate cultural competence in professional nurses and nursing students (Gozu et

al. 2007). To date, all the measures are self-reported perceptions or behaviors using a

Likert-type format. In general, the metrics have limited reliability and validity data. The

measures presented include the Cultural Competence Assessment Instrument (CCA); the

Inventory for Assessing the Process of Cultural Competence among Healthcare

Professionals–Student Version (IAPCC-SV); the Transcultural Self-Efficacy Tool

(TSET); the Cultural Self-Efficacy Scale (CSES); the Caffrey Cultural Competence

Healthcare Scale (CCCHS); and the Cultural Awareness Scale (CAS).

Cultural Competence Assessment Instrument (CCA). The Cultural

Competence Assessment Instrument (CCA) was developed by Schim, Doorenbos, Miller,

and Benkert (2003). The instrument was designed to measure cultural diversity

experience, awareness and sensitivity, and cultural competence behaviors (Schim, Borse,

& Doorenbos, 2006). The measure's intended use is to evaluate cultural sensitivity in

healthcare professionals and provide evidence of cultural competence among healthcare

providers and staff (Schim et al., 2003). The CCA was developed based on a conceptual

model that describes cultural competence components of knowledge, attitude, and

behavior (Schim et al., 2003).

The measure is written in English, has 38 items, and takes respondents 30 minutes

to complete. Cultural diversity experience is a single question asking respondents to

count the number of interactions with various groups over the past 12 months; a higher

number indicates greater diversity experience.

There are two subscales of the CCA. Cultural awareness (knowledge) and

sensitivity (attitude) are combined and evaluated in the cultural awareness subscale

(CAS). The CAS uses a 5-point Likert-like response set that ranges from "strongly

agree" to "strongly disagree," with "no opinion" being a midpoint. The subscale for cultural competence behavior (CCB) has response categories that range from "always" to "never," with "not sure," being the midpoint. The items can be summed for each subscale; higher scores show higher levels of cultural knowledge, more positive cultural attitudes, and increased rates of cultural competence behaviors (Schim et al., 2006).

The cultural competence content areas measured include knowledge, attitude, and behavior (Schim et al., 2003). Demographic items on this scale include questions about age, prior cultural diversity training (with a *yes* or *no* response), race or ethnicity, and level of educational attainment or degree (Schim et al., 2006).

Schim et al. (2003) stated that content and face validity were supported with an expert panel review, subject feedback, and field-testing. In addition, construct validity was supported with a significant correlation to the Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals–Revised (Schim et al., 2003). Doorenbos, Schim, Bendkert, and Borse (2005) reported findings from a study using the CCA among hospice providers demonstrating construct validity. Construct validity was supported with principal axis factor analysis that showed two factors with item loadings over .40, which explained 56% of the variance. These researchers also reported findings of test-retest reliability of .85 (p = .002) over four months. Internal consistency reliability was .89 overall and .91 and .75 for the two subscales, CAS and CCB respectively. Schim et al. (2006) again reported internal consistency reliability for the CCA as over 0.80 (CAS subscale reliability was shown to be 0.72 and the CCB subscale reliability 0.88) and concluded that construct, content, face validity, and test-retest reliability had been established.

The CCA is intended to be used as a pre and post learning evaluation measure. The strength of this measure is the potential use to evaluate cultural competence for a variety of healthcare provider populations of different educational levels. The major limitations include: only one index to assess respondents' experiences with diverse groups; concepts within the questions may not be understood without formal instruction; and self-report evaluation format that may produce socially desirable answers. Table 1 includes sample items from the CCA.

Table 1

CCA Sample Items

Items
I act to remove obstacles for people of different cultures when clients and families identify such obstacles to me.
I welcome feedback from clients about how I relate to others with different cultures.
I avoid using generalizations to stereotype groups of people.
I find ways to adapt my services to client and family cultural preferences.
I recognize potential barriers to service that might be encountered by different people.

Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals–Student Version (IAPCC-SV). The Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals–Student Version (IAPCC-SV) was developed by Campinha-Bacote based on the Inventory for Assessing the Process of Cultural Competence-Revised (IAPCC-R) and The Process of Cultural Competence in the Delivery of Healthcare Services model (Camphina-Bacote, 2007). The Process of Cultural Competence in the Delivery of Healthcare Services model is explained in the preceding section. The Inventory for Assessing the Process of Cultural

Competence among Healthcare Professionals-Revised (IAPCC-R) is a pencil/paper tool used to assess levels of cultural competence in professional healthcare providers. The survey includes 25 items that measure desire, awareness, skill, knowledge, and encounters (five cultural constructs). The response format is four-point Likert-type scales with response categories of *strongly agree, agree, disagree,* and *strongly disagree.* Higher total scores reflect higher levels of cultural competence (Camphina-Bacote, 2011a).

The IAPCC-SV was designed to measure levels of cultural competence among students in health professions including nursing students, physician-assistant students, medical students and residents, dental students, pharmacy students, and physical therapy students (Camphina-Bacote, 2011b). The instrument is an English-only, paper and pencil or computer-based self-assessment. The IAPCC-SV has 20 items and takes 10–15 minutes to complete. Five cultural constructs are measured: desire, awareness, knowledge, skill, and encounters with four items in each of the five content areas. The response format is four-point Likert-type scales with response categories of *strongly agree, agree, disagree,* and *strongly disagree*. Scores range from 20–80 and indicate whether a student is operating at a level of cultural proficiency, cultural competence, cultural awareness, or cultural incompetence. Higher scores depict a higher level of cultural competence (Camphina-Bacote, 2011b).

The IAPCC-R and IAPPC-SV have been used frequently in research studies as well as evaluating pre- and post-learning interventions. Validity and reliability of both metric's scores have been repeatedly established (Camphina-Bacote, 2011a, b). The strengths of the IAPCC-SV are its extensive use and the reported reliability and validity

data. However, there are limitations of the metric that include: the questionable ability of the tool to adequately measure cultural competency with 20 items and a 4-point Likert-type scale, the self-report evaluation format, and the fact that concepts within the items may not be understood without a formal class. Table 2 includes sample items from the IAPCC-SV.

Table 2

IAPCC-SV Sample Items

Items
I believe that one must "want to" become culturally competent if cultural competence is to be achieved.
I believe that there are more differences within cultural groups than across cultural groups.
I have a passion for caring for clients from culturally/ethnically diverse groups.
I recognize the limits of my competence when interacting with culturally/ethnically diverse clients.
I am aware of at least 2 institutional barriers that prevent cultural/ethnic groups from seeking healthcare services.
I seek out education, consultation, and/or training experiences to enhance my understanding and effectiveness with culturally and ethnically diverse clients.
I am willing to learn from others as cultural informants.
I am aware of the cultural limitations of existing assessment tools that are used with ethnic groups.

Transcultural Self-Efficacy Tool (TSET). The Transcultural Self-Efficacy Tool (TSET) was developed by Jeffreys and Smodlaka (1999b). The metric was based on the TSE model explained in the preceding section. This instrument measures student transcultural self-efficacy perceptions related to the performing of general transcultural nursing skills in a diverse client population. The TSET was designed to be used as a diagnostic tool with healthcare professionals and healthcare students and to assess

changes in students regarding their levels of self-efficacy following related training (Jeffreys, 1999, 2000).

The measure consists of 83 items and takes 30 to 40 minutes to complete. The response format is a Likert-type scale ranging from 1 (not confident) to 10 (totally confident) (Jeffreys, 1999). The content areas evaluated include three subscales: cognitive, with 25 items; practical, 28 items; and affective, 30 items (Jeffreys, 1999).

Content validity was established for this instrument with a six-member expert panel review that included doctorally prepared nurses who were certified in transcultural nursing (Jeffreys, 1999, 2000). According to Jeffreys (1999), construct validity has been supported by studies that demonstrated the construct of transcultural self-efficacy was as conceptualized in the framework and a contrasted group approach was used to support scale sensitivity to differences between student groups. Jeffreys and Smodlaka (1999b) used the TSET with a group of 566 nursing students to support construct validation. The findings revealed that students with low, medium, and high self-efficacy scores were influenced by time in the nursing school, indicating that the scale measures changes over time and the influence of healthcare experience and education. The measure also demonstrated high levels of predictive validity.

Internal consistency reliability was supported with alpha coefficients for the total test ranging from .97 to .98 and coefficients for subscales ranging from .92 to .97 for pretest and posttest data sets (Jeffreys, 1999). Four studies showed that the TSET measured the transcultural self-efficacy construct with high degrees of accuracy. Test-retest with a two-week interval showed correlation coefficients ranging from .63 to .75 (Jeffreys, 2000).

The TSET can be used as a pre- and post-learning evaluation measure. The strength of this instrument is that it shows changes in students over time, which allows evaluation of program outcomes. It is also useful for schools of nursing to evaluate cultural competence in students and faculty. The limitations include: concepts within the items may not be understood without formal instruction; self-report evaluation format that may produce socially desirable answers; and the number of items (83) in the metric. Table 3 includes sample items from the TSET.

Table 3

TSET Sample Items

Items
You know and understand the ways cultural factors may influence nursing care in the following areas: pregnancy, aging, and illness prevention.
Among clients of different cultural backgrounds, you recognize the importance of home remedies and folk medicine.
Among clients of different cultural backgrounds, you recognize the meanings of space and touch and role of family during illness.

Cultural Self- Efficacy Scale (CSES). The Cultural Self-Efficacy Scale (CSES) was developed by Bernal and Froman (1987). The instrument was developed based on transcultural and anthropological literature findings representing concepts in cultural nursing care, cultural knowledge, cultural skills and Bandura's construct of self-efficacy. The CSES was designed to measure the level of confidence (self-efficacy) regarding the care of specific ethnic groups (Middle East/Arab; Hispanic; African American; Native American; and Asian Pacific Islander) (Hagman, 2004, 2006).

The self-report measure is available in English and Spanish versions and includes 30 statements developed from the transcultural nursing literature representing key

concepts, knowledge, and skills in transcultural nursing care. Scale items were grouped into three sections: 1) knowledge of cultural concepts, 2) knowledge of cultural patterns, and 3) skills in performing key transcultural nursing functions. The scale contains 16 behavioral statements for which respondents are asked to rate their feelings of self efficacy within a 5-point Likert-type rating scale ranging from 1 (very little confidence) to 5 (quite a lot of confidence). High ratings show high levels of confidence and comfort that should translate into an increased likelihood for culturally competent care of patients in these groups (Hagman, 2006, 2004).

Hagman (2006) reported that study findings with 1000 licensed RNs showed reliability across cultural concepts, with a Cronbach's alpha of .86. The reliability coefficient for nursing skills was .87, and reliability scores for life patterns for the five ethnic groups ranged from .97 to .99 (type of reliability not discussed). Coffman, Shellman, and Bernal (2004) investigated uses of the CSES in the literature and found that 26 studies led to the conclusion that the measure produces Cronbach's alpha coefficients ranging from .86 to .98. These researchers report that further utilization of this metric is needed using "consistent reporting practices and sufficient predictor variables to draw further conclusions regarding the scales psychometric properties" (p. 180). The intended use of the CSES is pre- and post-learning interventions. Table 4 includes sample items from the TSET.

Table 4

CSES Sample Items

Items
Indicate your confidence rating regarding (family organization, beliefs about health, beliefs towards modesty, etc.) for each of the following ethnic/racial groups: (African

American, Hispanic, Asian, Native American).
"I am skilled at . . . for each of the following ethnic/racial groups: (African American,
Hispanic, Asian, Native American)."
"I am comfortable with each of the following ethnic/racial groups: (African American,
Hispanic, Asian, Native American)."

Caffrey Cultural Competence Healthcare Scale (CCCHS). The Caffrey

Cultural Competence Healthcare Scale (CCCHS) was developed by Caffrey, Neander,

Markle, and Stewart (2005). This instrument was designed to measure self-perceived

knowledge, self-awareness, and comfort with skills of cultural competence. The model

used to construct items was a rating scale of self-perceived knowledge, self-awareness,

and comfort with skills of cultural competence (Caffrey et al.).

There are 28 items with self-rating on a Likert-type scale ranging from 1 (not

comfortable or not knowledgeable or not aware) to 5 (very comfortable). The time

required for completion was not noted. The overall score averages the 28 items. The

content and category areas measured in the measure include: knowledge about healthcare

beliefs and practices of a cultural group other than one's own; knowledge of and comfort

with the cultural assessment process; comfort with one's ability to work with a translator,

clients' family members, or folk healers; knowledge of another cultural groups' practices

around death and dying, organ donation, and pregnancy and childbirth; awareness of

one's own limitations related to cultural competence; willingness and ability to work as a

team member with or supervise diverse staff; and awareness of national policies affecting

culturally diverse populations and perceived ability to advocate on their behalf (Caffrey

et al., 2005).

Study findings demonstrated Cronbach's alpha of .93 on the pretest with 44

students and .97 on the posttest with 32 students. Of the 28 items, 22 showed significant

improvement with Cronbach's alpha of .94 on pretest with 14 students and .90 on posttest with 14 students. Thus, the scale shows ability and sensitivity in evaluating improvements in students. Findings were consistent with another study by Wells, who also used the scale to evaluate students in 2000 (as cited in Caffrey et al.).

The intended use of the CCCHS is with pre- and post-learning interventions. The strength of the CCCHS is its ability to show student improvements over time; a limitation is the lack of ability to show the relation of findings to actual or simulated experience. Table 5 includes sample items from the CCCHS.

Table 5

CCCHS Sample Items

Items
How much contact have you had with health care workers from a culture other than your own?
How comfortable are you in interacting socially with members of a cultural group other than your own?
How knowledgeable are you about the healthcare beliefs of a cultural group other than your own?
How comfortable are you in doing a comprehensive cultural assessment on a client from a cultural group other than your own?

Cultural Awareness Scale (CAS). The Cultural Awareness Scale (CAS) was developed by Rew, Becker, Cookston, Khosropour, and Martinez (2003). This instrument was designed to measure cultural knowledge of healthcare professionals and to determine an institution's ways of addressing cultural diversity. The instrument was developed based on a review of the literature on cultural awareness, cultural competence, cultural sensitivity, nursing clinical practice, and nursing education (Rew et al.).

Five key categories identified reflected the multidimensional nature of cultural awareness: general educational experiences; awareness of attitudes; classroom and clinical instruction; research issues; and clinical practice (Rew et al., 2003). The initial scale included 37 items on a 7-point Likert-type scale ranging from "strongly disagree" to "strongly agree".

Reliability estimates showed internal consistency findings for the five key categories identified: general educational experiences (.83); awareness of attitudes (.66); classroom and clinical instruction (.81); research issues (.88); and clinical practice (.88). A total scale reliability estimate of .91 was also found. Average item scores and Cronbach's alpha reliabilities for the five key categories identified: general educational experiences (.85); awareness of attitudes (.79); classroom and clinical instruction (.94); research issues (.71); and clinical practice (.77). A total scale reliability estimate of .82 was also found.

A study of 72 student nurses showed a reliability coefficient of .91. The instrument was then presented to a panel of experts in nursing and culture and a content validity index of .88 was calculated. The total number of items for the scale was then reduced to 36. This 36-item scale was then given to 118 nursing students After factor analysis it was deemed to support construct validity; Cronbach's alpha was reported as 0.82 (Rew et al. ,2003).

Krainovich-Miller et al. (2008) reported findings from a pilot study that was designed to measure nursing students' level of cultural awareness using the CAS. The Cronbach's alpha for the CAS total instrument was shown to be 0.86, with subscale scores ranging from 0.68 to 0.90. The strength of the scale is its ability to measure a

nursing student's level of cultural awareness; the weakness is its inability to show how specific program components led to outcomes. Table 6 includes sample items from the CAS.

Table 6

CAS Sample Items

Items
I think my beliefs and attitudes are influenced by my culture.
I am less patient with individuals of certain cultural backgrounds.
I feel more comfortable working with patients of all ethnic groups.
I think the cultural values of the nursing instructors influence their behaviors in the clinical setting.

Summary of measures. The measures reviewed purport to measure cultural competency in professional nurses and nursing students. Appropriate selection of a cultural competence metric depends on the intended use as well as the population being assessed. The CCCHS is intended for use in evaluating nursing students once they complete a baccalaureate nursing program, while the CCA provides evidence of cultural competence among healthcare providers and staff.

It should be noted that these metrics are based on different cultural competence models, frameworks, and theories. However, many of the frameworks and theories do share similar concepts and constructs. Both the TSET and IAPCC-SV consider cultural competence a process and identify cultural awareness, knowledge, skills, and encounters as essential components. The concept of self-efficacy, a critical component of cultural competence is identified with the CSES and TSET. The metrics also claim to evaluate cultural competence as a function of cultural knowledge, cultural attitude, and cultural

behavior. Definitions of these concepts also share many similarities but there is no consensus among researchers as to the essential defining characteristics of knowledge, attitude, and behavior of cultural competence.

Another important concern is the loss of objectivity due to the self-report nature of the tools, especially in the context of evaluation of skills or behaviors (Kuman-Tan, Beagan, Loppie, McLeod & Frank, 2007). Self-report evaluation format may produce socially desirable answers. Gozu et al. (2007) note that "a high rating of confidence in oneself may be based on arrogance or lack of awareness of one's limitations rather than on actual ability" (p. 187). More importantly, it is unclear as to whether attitudes may or may not result in culturally competent behavior. Gozu et al. (2007) point out that the behaviors being measured may be correlates of cultural competence as opposed to actual indicators. This brings into question whether cultural competence is being adequately measured (Harper, 2008; Lie et al. 2011).

Robust evaluation metrics that result in valid and reliable data are central to assessing effectiveness of learning strategies. The existing cultural competence measures are useful as catalysts to continue metric development with an increased emphasis on objectively evaluating professional nurse and nursing student behavior. These measures should include client evaluations that would indicate effects of culturally competent care.

Other Disciplines

Cultural competence nursing theories, models, concepts, constructs and framework have been developed in conjunction with disciplines associated with nursing. Medicine, psychology, and social work have all been affected by the changing demographics of American society. These disciplines have experienced the same

increased emphasis on the importance of cultural competence as an essential component

for improving delivery of services and care to diverse individuals and groups.

Medicine. Historically, medicine has focused on cultural competence since the

1960s (Suh, 2004). However, cultural competence in medicine is still in its infancy, and

the field has yet to adequately define cultural competence (Genao, Bussey-Jones, Brady,

Branch & Corbie-Smith, 2003). Like nursing, medicine struggles with defining,

educating for, and implementing cultural competence within the profession. According

to Suh (2004), little attention has been given to patients' cultural, social, or individual

attributes due to the overwhelming focus on physical processes such as pathology,

biochemistry, and physiology of a disease.

Within the past two decades, likely due to the identified potential for cultural and

ethnic friction between physicians and patients, along with national mandated guidelines

for medical school training programs, cultural competence has gained higher priority

(Genao et al., 2003; IOM, 2003; Smith, Betancourt, Wynia, Bussey-Jones, Stone &

Bowles, 2007). Medicine now focuses on elucidating key teaching principles, learning

strategies to engage clinicians in the area of education, and development of frameworks

for evaluation of its impact on healthcare outcomes (Betancourt & Green, 2010; IOM

2003).

Psychology. The literature of psychology has identified culture concepts for

more than 50 years (Bennett & Finger, 2000). By the mid-1990s the discipline of

psychology was aggressively calling for psychologists to become culturally competent

(Yali & Revenson, 2004). Psychology struggles with defining the concept of cultural

competence. Like nursing and medicine, psychology defines cultural competence in the

affective, cognitive, and behavioral domains of the healthcare provider (Suh, 2004). In

addition, the psychology literature reflects a growing trend of linking models of cultural

competence with models and theories from other disciplines. For example, theories of

constructivism, behaviorism, and social learning theories have been cited in the recent

psychology literature related to cultural competence (Fouad &Arrodondo, 2006).

The American Psychological Association (2002) developed *The Guidelines on

Multicultural Education, Training, Research, Practice, and Organizational Change for

Psychologists.* These guidelines reflect both the changes in society at large and emerging

data about the different needs of particular individuals and groups historically

marginalized by psychology based on their ethnic/racial heritage and social group

identity or membership (American Psychological Association, 2002).

Social work. Cultural competence in social work reflects that of nursing,

medicine, and psychology. Social work's scope of practice overlaps that of mental health

care, nursing, and medical care (Suh, 2004). In general, cultural competence is

considered as a process that integrates affective, cognitive, and behavioral domains in the

social worker (Boyle & Springer, 2001). Philosophically, cultural competence is

approached within a social justice perspective that addresses the roles of social power,

context, diversity (e.g., ethnicity, class, age, gender, disability, and sexual orientation),

the multiple dimensions of social relationships and empowerment (Rothman, 2007).

Cultural competence is defined as processes that promote effective interactions with

individuals of all cultures based on curiosity and respect about difference related to

language, class, ethnicity (race), and religion (Rothman). This perspective affirms the

dignity of individuals, families, and communities and informs practice with individuals,

families, groups, communities, and organizations in roles that include direct service

providers, administrators, and change agents (National Association of Social Workers

Standards for Cultural Competence in Social Work Practice, 2001; Rothman).

Summary

A universally agreed-upon, clear model, theory, measure, or definition of

culturally competence in nursing or other related disciplines remains elusive. Some nurse

researchers use the term *cultural competenc*e with trepidation, citing the unclear/varied

definitions, while others forge definitions based on theory and research. Nonetheless,

most of the models, frameworks, and theories that are the basis for current cultural

research in healthcare fields do share common factors essential to the concept of cultural

competence. These essential concepts common to all definitions include cultural

awareness, cultural knowledge, and cultural skills of the healthcare provider.

Chapter 3 explains in detail the design and method for this research study and

provides an overview of meta-analysis. In addition, the chapter delineates the systematic

proposed search, coding, and statistical analysis for the meta-analysis used in this study.

Chapter 3: Design and Method

Evidence-based learning strategies for cultural competence necessitate the utilization of research findings to guide nursing practice. There are a variety of methods available to evaluate the effectiveness of an intervention and to identify the moderators that influence its effectiveness. A meta-analytic approach is one such evaluation method. The push to provide effective and evidence-based learning strategies has increased the importance of investigating cultural competence using a meta-analytic approach. This study utilized meta-analytical design to examine the effectiveness of learning interventions designed to increase cultural competence in professional nurses and nursing students and the moderating variables that contribute to their effectiveness.

A meta-analysis is a statistical analysis of a large collection of analysis results for the purpose of integrating the findings (Borenstein, Hedges, Higgins, & Rothstein, 2009; Glass, 1976). DeCoster (2004) notes that the basic purpose of meta-analysis is to provide the same methodological rigor to a literature review that is required of experimental research. More specifically, a stringently guided meta-analysis can identify relevant research studies using a defined method and protocol, statistically test study heterogeneity, investigate moderator variables, and statistically summarize results to obtain an overall estimate of size of the treatment effect (Borenstein et al., 2009). By identifying the presence of an effect size for different individual study outcomes, it is then possible to identify the direction of the effect (positive or negative) and the

magnitude of that effect on research participants. In addition, moderating variables might be identified that can perhaps explain the size of the effect. The results from this meta-analysis may lead to identification, development and implementation of effective learning strategies for cultural competence in professional nurses and nursing students.

This chapter explains the systematic proposed search, coding, and statistical analysis for the meta-analysis to be used in this study. There are many research studies on cultural competence learning strategies in nurses. These studies mainly vary by learning interventions and evaluation measures, thus complicating the ability to interpret important variables that contribute to an effective learning strategy. The benefit of a meta-analysis is its capacity to combine the results of various studies and statistically analyze various intervention components. This meta-analysis was designed to yield answers to the main research questions.

Overview of Meta-Analysis

Before the specific methodology to be used in this study is outlined, it is necessary to present an overview of a meta-analysis (Borenstein et al., 2009; Cooper & Hedges, 1994; Lipsey & Wilson, 2001). A meta-analysis is a systematic review of literature to date to address the direction and magnitude of a given effect of a treatment. An effect size refers to the direction and magnitude of the effect or the strength of the intervention (Borenstein et al., 2009). In other words, it indicates whether a particular treatment or intervention has a positive or negative effect and the strength of the resulting outcome. Meta-analysis combines quantitative results from independent primary studies that share a similar focus. The research provides information about the studied

populations, interventions used, and evaluation measures. A meta-analysis combines the effect sizes from a number of identified studies to give an overall mean effect size.

Ensuring scientific integrity, transparency, and replicability is central to any scientific inquiry including meta-analyses (Kerlinger & Lee, 2000). Therefore, the meta-analysis for this study followed the structured methodology identified by Durlak and Lipsey (1991). The steps are as follows: (1) formulate specific research questions, (2) search the literature systematically and sort the articles for inclusion, (3) code the studies, (4) calculate the index of effect sizes in the studies, (5) select the appropriate statistical test and conduct the analysis, and (6) report conclusions and findings of the study. Using Durlak and Lipsey's framework as the guide, the following sections provide additional detail regarding the steps required to complete this study.

Formulate Specific Research Questions

An essential component of any scientific inquiry is to formulate research questions a priori to ensure that the study will have specifically identified parameters. The research questions are as follows:

1. To what extent do cultural competence learning interventions increase cultural competence in professional nurses and nursing students?

2. To what extent is there variation in cultural competence learning interventions outcomes?

3. What moderating variables contribute to the effectiveness of cultural competence learning interventions?

Literature Search

A clearly defined search process was used to identify potential studies for inclusion in the analysis. To identify potential articles, a literature search of major electronic databases was conducted using the search terms *cultural competence* and *(train* or interven* or treat* or educ* or program* or measure*).* The asterisk is a Boolean truncation symbol that captures various versions of the root word, e.g., *training, trainer, trained,* etc. The electronic databases searched included: CINAHL, ERIC, MEDLINE, PsychINFO, and Social Work Abstracts.

The initial search strategy was broad to retrieve a wide range of the professional literature on cultural competence. Following this search, more specific limiters were applied to the search strategy, and only studies using some form of comparison and yielding adequate statistical information were included. By performing a broad literature search of cultural competence studies followed by a more restricted search, a well-represented sample of published literature on cultural competence educational interventions was generated.

Articles for inclusion were peer-reviewed published literature found in electronic databases, as published peer-reviewed studies are more likely to be robust. However, in a meta-analysis, the exclusion of unpublished reports has the potential to introduce a *file drawer* bias and artificially inflate the overall effect size (Rothstein, Sutton, & Borenstein, 2005). Epstein (2004) suggests that studies yielding a positive result are more likely to be published in peer-reviewed journals while those yielding less-significant results are more likely to end up in the researcher's file drawer (Epstein). Once the studies were identified, they were then evaluated based on inclusion criteria to

be incorporated in the meta-analysis. Initially, abstracts of all articles found in the initial

search were reviewed. Articles eliminated in this phase included those that were only

theoretical in content or did not describe educating or training professional nurses or

nursing students. The remaining articles were then evaluated for quantitative data. The

templates used for searching and screening the research studies (Search-Pre-Screen

Template and Screen Template) are provided in Appendices A & B. Electronic databases

were searched for literature dating from January 1985 through May 2011.   A précis of

the process is presented in the following section.

Study Selection

There are no universally prescribed rules for selecting studies for inclusion in a

meta-analysis (Borenstein et al., 2009). Rules were developed to identify studies that

suited the goals of this study during the search. In a meta-analysis, the study selection

and inclusion criteria are a large part of the research and deserve special attention

(Petticrew & Roberts, 2006). As with the sampling strategies in primary research, the

sampling frame and the decisions as to whether to include or exclude subjects can bias

and skew the results (Butters, 2010). The strategy for considering the most appropriate

research articles was based on the literature on meta-analytical methodology by

Borenstein et al., 2009; Cooper & Hedges, 1994; Durlak & Lipsey, 1991; Lipsey &

Wilson, 2001; Littell, Corcoran, & Pillai, 2008; and Petticrew & Roberts.

Inclusion Criteria

This meta-analysis utilized the study inclusion criteria proposed by Lipsey and

Wilson (2001), which delineate seven eligibility parameters for the inclusion of a

research article in a meta-analysis. The criteria are as follows: (a) distinguishing features

of a qualifying study, (b) research respondents, (c) dependent and independent variables, (d) research designs, (e) cultural and linguistic range, (f) time frame, and (g) publication type. Specific details of the study inclusion criteria for this meta-analysis are described below.

Distinguishing features. The studies that were eligible for inclusion in this study used cultural competence learning strategies. A cultural competence learning strategy was defined as the process by which cultural competence is conveyed to the professional nurse and nursing student learner. The process is intended to result in an increase of cultural competence knowledge, skills/behaviors and attitudes of the professional nurse and nursing student learner. Cultural competence learning strategies include learning objectives, curricula, information presentation, learning interventions and evaluation (Ekwensi, Moranski, & Townsend-Sweet, 2006).

Research respondents. The research participants were professional nurses or nursing students. Studies with fewer than five participants in any treatment condition were excluded.

Dependent variable. The literature review revealed numerous and diverse types of measures used to evaluate cultural competence. However, only studies that used a cultural competence measure to generate quantitative results were included. The primary studies needed to report a quantifiable cultural competence score that indicates either a group difference or intervention response score. The scores were then standardized to create an effect size. The effect size is the dependent variable.

Independent variable. Cultural competence learning strategies differ. The various types of cultural competence learning interventions were the principal independent variables of interest in this study.

Independent moderator variables. A literature search substantiated that there are a variety of learning strategies to increase cultural competence in professional nurses and nursing students. A specific cultural competence learning intervention may result in a different quantifiable cultural competence score under different conditions. These varied conditions are considered moderator variables. Independent moderator variables considered in this study included: characteristics of learning interventions, professional nurse and nursing student characteristics, study quality and measures of cultural competence.

Learning intervention moderators. These moderators included the dosage (e.g., weekly, total hours of education), setting (work, home, school, on-line) of the learning intervention and whether the cultural competence intervention was independent or part of a larger learning strategy. Examples of specific intervention include: immersion, role play, movie, etc..

Professional nurse and nursing student moderators. The characteristics of age, gender, ethnicity, and nursing education of the professional nurse and nursing students were considered potential moderators.

Study quality moderator. Another moderator variable in meta-analysis is the quality of the research studies to be used. Meta-analysis uses primary studies as the unit of analysis to answer research questions. Therefore, the quality of data generated and interpretation of results in this study depended greatly on the quality of the research

conducted in each of the identified studies to be included in the meta-analysis.

According to Lipsey & Wilson (2001), sound decision-making on selecting quality

primary studies is essential in understanding and interpreting the influence of a study on

the overall effect size. Research studies included in this analysis were evaluated for

quality and rigor using a study quality rating template developed for this study provided

in Appendix D. This template was developed using the Cochrane Handbook for

Systematic Reviews of Interventions guidelines regarding the five major types of bias in

intervention studies: selection bias, performance bias, attrition bias, detection bias, and

reporting bias (Higgins & Green, 2011). This study quality rating template generated

rating categories of low, moderate, and high and provided a relative evaluation of the

studies' quality.

Measures moderator. The soundness of cultural competence measures were also

essential for the quality of the data to be generated in this study. The data from the

cultural competence measures used in the research studies must be valid and reliable in

order to accurately interpret the meta-analysis data. Psychometric evidence for these

measures was important to assure that cultural competence was being adequately

measured. Therefore, metrics to evaluate cultural competence in professional nurses and

nursing students was also considered a moderator variable.

Research design. The study designs evaluated for this meta-analysis were pre-

post and intervention vs. control. Any research studies that did not report quantitative

results were excluded from the meta-analysis.

Cultural and linguistic range. Cultural competence research studies available in

English were included in the meta-analysis. Research studies published in other

languages were not included as the resources necessary to translate studies were prohibitive for this study.

Time frame. The concept of cultural competence was first identified in the literature in the mid to late 1980s. Therefore the specified electronic databases (CINAHL, ERIC, MEDLINE, PsychINFO, and Social Work Abstracts) were searched for all studies from January 1985 through March 2011.

Publication type. Only published peer-reviewed research was included in the final analyses. All applicable research studies were identified through a systematic search of online academic databases.

Coding studies. The researcher coded all the articles selected for inclusion in this study. For the purposes of this study, a coding template was developed to acquire statistical data in addition to study characteristics, learning strategy characteristics, and study participant variables. The coding template is provided in Appendix C.

Statistical Procedures

This section describes the statistical procedures used in this meta-analysis to include the index of effect used to calculate the effect size, the statistical analysis including tests of significance, and the frame and model used for the analysis.

Effect size statistic. The construct of cultural competence is defined and evaluated in many ways. Consequently, different measures of cultural competence were used in the 13 research studies using various levels of measurement. Effect size makes meta-analysis possible since it standardizes results across studies (Borenstein et al., 2009). Once standardized, results can be compared across studies. Effect size is essential for meta-analysis and there are many different types of effect size measures

(standardized mean difference, odds-ratio, risk ratio, proportion, etc.) and each is best

suited for different meta-analytical research situations (Lipsey & Wilson, 2001). The

decision to report odds-ratio effect size for this study was made after searching, screening

and coding the research articles. There is not a universally accepted construct of cultural

competence and consequently, the measures to evaluate cultural competence have been

developed utilizing different factors with varied definitions. It was considered prudent

then to regard research participants in the identified studies as either culturally competent

or not culturally competent as a result of the learning intervention. Thus cultural

competence was treated as a dichotomous variable for this meta-analysis. Consequently,

odds-ratio effect size was deemed the most appropriate effect size statistic to report for

this meta-analysis. Odds-ratio is one type of effect size best used with dichotomous levels

of measurement. Odds-ratio effect size weights studies according to the standard error of

the effect, also referred to as inverse variance weighting (Lipsey & Wilson, 2001).

Cohen identifies odds-ratio effect sizes of 1.50, 2.50, and 4.30 as small, medium and

large respectively (Cohen, 1988).

Statistical analysis. This study described the basic characteristics of the

empirical studies of cultural competence learning strategies. In addition, it addressed

three areas with respect to cultural competence learning interventions that are commonly

explored by meta-analysis: 1) investigating the combined effect size to assess an overall

treatment effect of cultural competence learning interventions, 2) understanding the

variance of the overall effect size, and 3) identifying moderators that contribute to or

predict the variability (Johnson, Mullen, & Salas, 1995). By utilizing the meta-analytical

approach, assessing the overall effect, analyzing the variability in effect sizes, and then investigating the moderators, this study answered the proposed research questions.

Model for meta-analysi*s*. The decision to utilize a fixed-effect model for this study was made after searching, screening, coding and evaluating the quality of the research articles. A fixed-model effect was used for this meta-analysis to estimate the combined effect. Fixed-models are best used when making explicit comparisons of one intervention against another. This model assumes that all variables that might influence effect sizes are the same in all the studies and reflect a random error inherent in the individual studies (Borenstein et al., 2009). Given the homogeneity of the population of interest (professional nurses and nursing students) a fixed-model was deemed most appropriate. In addition, a fixed model is more balanced in assigning weights to studies and it allows for the analysis of more diverse studies and outcomes; the study characteristics will partly account for differences in the magnitude of the effect between studies (Borenstein et al., 2009). Grounded in these assumptions of the models for analysis, the fixed- model effects was used for this meta-analysis.

Frame for analysis. Data analysis was conducted using the Comprehensive Meta-Analysis (CMA) 2.0 statistical software (Borenstein, Hedges, Higgins & Rothstein, 2005). The data entry was completed by a statistical assistant. This study included research that reports both significant and non-significant results.

Publication bias. Publication bias is considered a type of sampling bias. In meta-analysis, publication bias poses a significant problem. Many meta-analyses utilize only published literature. This can be problematic, since published literature is more likely to have positive results than research that reports non-significant results, thereby inflating

the overall effect (Epstein, 2004). However, there are tests to statistically assess for publication bias.

Publication bias was evaluated using three statistical tests. 1) Orwin's Fail-safe N was used to estimate the number of additional studies that might be needed to make the p-value insignificant, 2) plotting effect size by the standard error of the studies on a funnel plot, and 3) Duval and Tweedie's Trim and Fill which identifies unbalance in the distribution of effects.

This concludes the description of the methodology used to generate data for this meta-analysis of cultural competence education. The following chapter will present the results of the search strategy, the quantitative results of the meta-analysis, moderator analysis, and exploration of the data and the assessment of publication bias.

Chapter 4: Results

The purpose of this meta-analysis research study was to determine the presence, direction and magnitude of any effects related to educational interventions to improve cultural competence in professional nurses and nursing students. Ultimately, it was anticipated that this meta-analysis would yield data to determine which learning intervention was most effective as well as identify any influence of moderating variables on outcomes of cultural competence learning interventions. In particular, this analysis sought to address the following specific research questions:

1. To what extent do cultural competence learning interventions increase cultural competence in professional nurses and nursing students?

2. To what extent is there variation in cultural competence learning interventions outcomes?

3. What moderating variables contribute to the effectiveness of cultural competence learning interventions?

The meta-analysis was conducted utilizing reported results from published research studies designed to improve cultural competence in professional nurses and nursing students. The detailed methods for this study were described in Chapter 3.

Literature Search and Review Process

The initial broad search methods via electronic databases yielded 1545 potential articles on cultural competence education. The abstracts of the articles were screened and 174 studies were identified that manipulated cultural competence, included professional

nurses or nursing students and were not qualitative. Of the 174 studies, 35 articles were identified that met the additional criteria of study design, quantitative data results and adequate sample sizes. The 35 articles were then evaluated for quality. Of the 35 articles only 13 met the quality ratings of low or moderate. Subsequently, there were 23 articles rejected due to a zero quality rating. After thorough evaluation of the research studies, a total of 13 studies met all inclusion criteria and were included in this meta-analysis research study. Figure 3 summarizes the literature search and review processes. Appendices A through D include the templates used.

```
┌─────────────────────────────────────┐
│  Records identified through database │
│              searching               │
│             (n = 1545)               │
└─────────────────────────────────────┘
                  │
                  ▼
┌─────────────────────────────────────┐
│   Records after duplicates removed   │
│             (n = 1535)               │
└─────────────────────────────────────┘
                  │
                  ▼
┌──────────────────────┐       ┌──────────────────────┐
│  Records screened    │──────▶│  Records excluded     │
│     (n = 174)        │       │     (n =139)          │
└──────────────────────┘       └──────────────────────┘
                  │
                  ▼
┌──────────────────────┐       ┌──────────────────────┐
│ Full-text articles   │──────▶│ Full-text articles    │
│ assessed for         │       │ excluded,             │
│ eligibility          │       │ with reasons          │
│     (n = 35)         │       │     (n = 22  )        │
└──────────────────────┘       └──────────────────────┘
                  │
                  ▼
┌──────────────────────┐
│  Studies included in  │
│ quantitative synthesis│
│ (meta-analysis)       │
│     (n =  13)         │
└──────────────────────┘
```
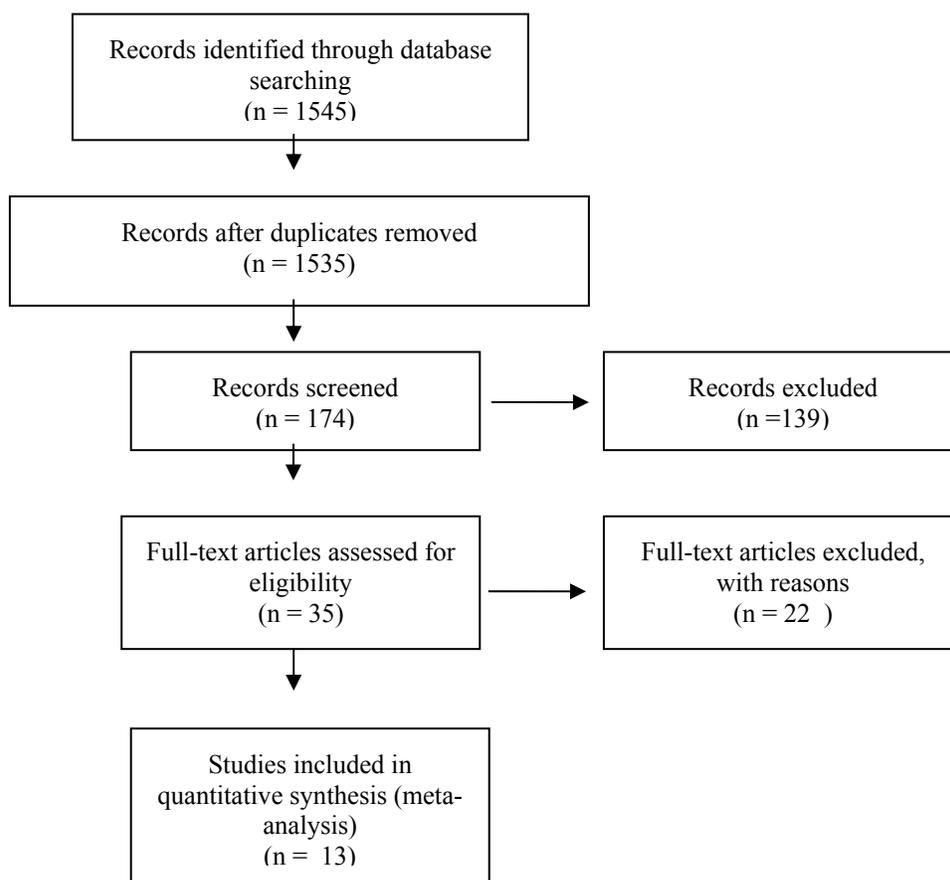
Figure 3. Flow Chart of Literature Search and Review Process

Descriptive data of the 13 research studies included in the analyses for this research study are summarized in Table 7 and Table 8. The studies were conducted from

1999 to 2010. Five of the studies were a pre-post research design. While four studies used pre-post design with a comparison group, Berlin, Nilsson and Törnkvist (2010) and Smith (2001) utilized pre-post design with intervention and control groups. There were two studies which implemented repeated measures (Cooper-Brathwaite, 2006; Campbell-Heider, Rejman, Austin-Ketch & Sackett, 2006) and one study used a longitudinal design (Jeffreys & Smodlaka, 1999a). The total number of participants for all studies was $N=$ 923.

The education level of participants for the identified research studies included either professional nurses or students enrolled in baccalaureate, master and/or doctoral nursing programs. There was only one study (Musolino, Babtiz, Burkhalter, Thompson, Harris, Ward, & Chase-Cantarini, 2009) that did not exclusively target professional nurses or nursing students. Instead, this study was intended for healthcare students that included a group of nursing students.

The curricular content in all of the research studies incorporated either one or more of the general concepts of cultural competence. General concepts of cultural competence included cultural sensitivity, cultural awareness, cultural knowledge, cultural skills and self-efficacy. While it remained unclear if eight of the studies contained education on a specific culture, there were four studies (Amerson, 2010; Hughes & Hood, 2007; Salman, McCabe, Easter, Callahan & Fitzpatrick, 2007; Caffrey, Neander, Markle, & Stewart, 2005) which included cultural competence learning strategies focused on a specific culture. One study (Amerson, 2010) integrated a language learning intervention into the curriculum. The specific ethnic cultures considered in some of the studies were

African Americans, Latinos, Native Americans and Asians. In addition, elders and parental cultures were included.

The 13 studies varied in terms of contact time. Interventions for professional nurses ranged from a single 8.5-hour didactic session (Smith, 2001) to three days of didactics followed by a 4-week clinical experience (Berlin et al., 2010). Research studies conducted by Hughes and Hood (2007), Campbell-Heider et al. (2006), Caffrey et al. (2004), Hunter & Krantz (2010) and Jeffreys and Smodlaka (1999) integrated the use of interventions within the nursing students' academic curriculum. Of particular interest, there were no studies that implemented the exact same curricula or curricular methods.

Research studies. Before analyzing the 13 research studies through meta-analysis, it is important to first understand the objectives, curricula, interventions, and outcomes in each study. Table 9 summarizes the measures and framework used to evaluate cultural competence in each study. The following sections are divided according to the themes of: service-learning and immersion, professional nurses, intervention-control and academic nursing curriculum.

Service-learning and immersion. Amerson (2010) recruited baccalaureate nursing students (N=60) enrolled in a community health nursing course to evaluate self-perceived cultural competence following the completion of service-learning projects with local and international communities. The learning strategies were based on models and frameworks developed by Jacoby (1996), O'Grady (2000), Camphina-Bacote (2002) and Jeffrey's (2000) (as cited in Amerson). Interventions included care planning, reflection, lecture and international and national service-learning experiences. These interventions

were intended to help nursing students become aware of the issues faced by patients in relation to culture and healthcare and to teach culturally appropriate care.

The Transcultural Self-Efficacy Tool (TSET) (Jeffreys, 2000) was used to evaluate self-perceived cultural competence of the baccalaureate nursing students. Although the results did not demonstrate a statistically significant effect, the use of service-learning in this study did increase provider knowledge, skill, attitude, and self-efficacy in terms of cultural competence.

Nokes et al. (2005) used a pre-post design for the 14 participants enrolled in their study. These participants included baccalaureate, master's and doctoral nursing students. Like Amerson (2010), this research study used service-learning as an intervention to increase cultural competence. In addition to evaluating cultural competence, this study also evaluated critical thinking and civic engagement of participants as a result of the service-learning intervention.

Learning strategies were developed based on numerous different models. Interventions included journaling, web-based interactive programs, seminars and service-learning. Camphina-Bacote's (2002), IAPCC-R was utilized to evaluate cultural competence of participants in a retrospective post-test designed study. However, the results of this research study showed that the post-test scores were worse than the pre-test scores indicating that that the intervention did not increase cultural competence among participants.

Caffrey et al. (2004) utilized a pre-post test comparison research design to examine the effect of integrating cultural content (ICC) in an undergraduate nursing curriculum on students' self-perceived cultural competence, and to determine whether a

5-week clinical immersion in international nursing (ICC Plus) had any additional effect on a subgroup of students' self-perceived cultural competence. The learning strategies were based on constructs of cultural competence outlined by Wells (2000) and St. Clair and McKenry (1999) (as cited in Caffrey, et al.). However, the interventions for the ICC were not clear. The Caffrey Cultural Competence in Healthcare Scale (CCCHS) was used to measure intervention outcomes. The CCCHS was developed based on the cultural competencies expected from students on completion of a baccalaureate nursing program. Cultural competence was measured through self-perceived knowledge, skill, and self-awareness of cultural competence. The 32 participants enrolled in this study showed an increase in cultural competence for the group that utilized the ICC program but there was a bigger effect demonstrated for participants who underwent ICC Plus.

 Professional nurses. Napholz (1999) utilized a pre-post test comparison research design to ascertain if the addition of an innovative cultural sensitivity intervention into a junior-level clinical nursing course facilitated greater self-perceived cultural competency skills when compared with the traditional method of incorporating cultural diversity. Models or frameworks used for the curriculum or study were not clear. The Ethnic Competency Skills Assessment Inventory (ECSA) was used to collect the responses of 65 baccalaureate nursing students. According to Napholz (1999), the ECSA purports to measure self-perceived cultural competency skills when providing nursing care with culturally different clients. It was determined through this research study that there was an increase in skills of participants when dealing with culturally diverse clients following the addition of the innovative cultural sensitivity intervention.

Salman et al. (2007) also utilized a pre-post test research design in evaluating the impact of a Family-Centered Geriatric Care Program on professional nurses' cultural awareness and cultural competence. The learning strategies were based on multiple models of ethnogeriatrics and was well outlined; however, specific learning interventions were not discussed. In addition it was not clear which specific ethnicities were incorporated into the curriculum. A total of 199 professional nurses were evaluated using the Cultural Awareness Scale (CAS) (Rew et al.,2003) and the Inventory for Assessing the Process of Cultural Competence Among HealthCare Professionals-Revised (IAPCC-R) (Campinha-Bacote, 2002). It was determined through this research study that the ethnogeriatric training program was an effective means for preparing nurses to deliver culturally sensitive care to elders, specifically in terms of knowledge, attitudes, and skills.

Cooper-Braithwaite (2006) utilized a repeated measures research design to examine the effectiveness of an instructional course to increase public health nurses' level of cultural competence. Camphina-Bacote's (2002) model was used for both curriculum design and framework for the study. Intervention components were not clearly explained. Seventy-six public health nurses were recruited to respond to a demographic questionnaire, the Inventory for Assessing the Process of Cultural Competence- Revised (IAPCC-R), and open-ended questions to examine whether there was an improvement in their knowledge, skills, and attitudes in terms of cultural competency. In this research study, it was determined that there was an overall increase in public health nurses' level of cultural competence as a result of the educational intervention.

Intervention-control. Berlin et al. (2010) implemented a randomized pre-post test design study with intervention and control groups to explore the extent to which specific education affected how nurses (N=51) rated their own cultural competence, difficulties and concerns. The curriculum was based on Camphina-Bacote's (2002) model to include cultural awareness, cultural knowledge, cultural skill, cultural encounters and cultural desire. The Clinical Cultural Competence Training Questionnaire (CCCTQ-PRE) and the Clinical Cultural Competence Training Evaluation Questionnaire (CCCTEQ-POST) were utilized for pre and post intervention evaluation. These two metrics are translated versions of IAPCC-R to Swedish with some modifications. These measures were used to evaluate the impact of clinical experience, case studies, lectures and reflective practice groups on cultural competence of professional nurses. This study was unique in that the curriculum was designed to include a clinical experience component for professional nurses. To date all studies with a clinical experience component in the cultural competence curriculum had been implemented with nursing students. The results of the research study determined that overall the intervention group had significant increases in provider knowledge, skills, attitudes, and desire in terms of cultural competence as compared to the control group.

Smith (2001) used a treatment-control group and a repeated measures research design to examine whether professional nurses who participated in a culture school had improved levels of cultural competence to a greater extent than professional nurses who attended nursing informatics classes. A total of 48 participants were exposed to the intervention program while 46 participants were exposed to informatics classes. The findings showed that there was an increase in knowledge, confidence of knowledge, and

confidence of skill in cultural competency for participants who were exposed to the cultural school compared to nurses exposed to informatics classes.

Academic nursing curriculum. Hunter and Krantz (2010) developed a graduate course on cultural diversity, based in constructivist theory and structured on the Process of Cultural Competence in the Delivery of Healthcare Services model (p. 1). The course was presented in classroom and online. The study used a quasi-experimental, pretest-posttest control group (N=76) design using the IAPCC-R for evaluation of cultural competence. Interventions included a student developed cultural assessment tool, autobiography and client interviews. The researchers reported significant findings ($p < 0.001$) in cultural competence scores for all learners with both classroom and online formats.

Musolino et al. (2009) used a pre-post test research design to analyze the learning outcomes of the Cultural Competency and Mutual Respect in Healthcare Program (CCMR). The framework for the curriculum was based on Camphina-Bacote's (2002) cultural competence model. The curriculum design consisted of relationships and cross-cultural conflicts, disparity of care, solutions to cultural clashes and cross-cultural communication. Interventions included video case studies, lecture, and cross-cultural vignettes. This study did not exclusively target nursing students. Participants included healthcare students (nursing, pharmacy, medicine, occupational therapy, physical therapy) at various levels of academic healthcare education. A total of 94 baccalaureate nursing students were initially recruited for the intervention with a greater than 50% attrition rate. The CCMR intervention of four 2-hour sessions was delivered to nursing students over two semesters, while the other healthcare students received the

interventions within one semester. It was determined through this research study that the nursing students' cultural competence got worse as a result of participation in the learning intervention.

Hughes and Hood (2007) recruited 218 junior level baccalaureate nursing students to assess the impact of a transcultural nursing curriculum on their attitudes and behavioral changes. The curriculum incorporated many theoretical frameworks and models. However, the study framework was not clear. Interventions included role-play, service-learning, lecture, case studies, care planning, and poster presentations. The Cross-Cultural Evaluation Tool by Freeman (as cited in Hughes & Hood) was utilized to evaluate changes in behaviors and attitudes of nursing students. This measure determined how well the students make culturally sensitive choices (Hughes & Hood, 2007). Through this pre-post test designed study, it was determined that there was an increase in the cross-cultural interaction score of nursing students after undergoing the program. Thus, this implies that nursing students become more culturally competent after completing the program.

Campbell-Heider et al. (2006) executed a repeated measures design to evaluate the effects of a curriculum specifically designed to educate nurse practitioner students (N=11) to be clinically and culturally competent. Multiple frameworks and models were used for curriculum development. Interventions were presented in general concepts to include immersion, lecture, cultural rounds and seminars. Three separate measures (Cross-Cultural World-Mindedness, Xenophilia Scale and a culture quiz) were used to evaluate students' cultural skills and attitudes. According to the researchers, the results

of the measures showed that there was an increase in knowledge but not in tolerance or open-mindedness of nurse practitioner students in terms of cultural competency.

The purpose of Jeffreys and Smodlaka' study (1999a) was to evaluate the confidence of nursing students (N=51) for performing transcultural nursing skills with culturally diverse clients and to evaluate changes in perceptions following a two-year educational experience that integrated cultural aspects of care. Jeffreys and Smodlaka utilized Bandura's model of self-efficacy and their own model of cultural competence as both study and curriculum framework. A descriptive longitudinal study was conducted using the Transcultural Self–Efficacy Tool (TSET) to evaluate students. The results showed that there was an overall increase in scores of participants for the three subscales of cognitive, practical, and affective cultural competence after completing the program.

Quality of the studies. The 13 studies included in this analysis were evaluated for quality using the study quality rating template (Appendix D). Study quality was identified as a potential moderator variable for this study. This template was developed by the researcher using the Cochrane guidelines regarding the five types of bias in intervention studies: attrition bias, reporting bias, selection bias, performance bias and detection bias (Higgins & Green, 2011). The quality rating template provided rating categories of low, moderate, and high based on a continuous rating of 0-20. Coding of this variable was based on the total points awarded to the study; high quality = 12-20 points, moderate quality = 7-11 points, or low quality < 7 points. All 13 studies were rated as either low or moderate quality. There were no high quality studies utilized in this meta-analysis.

Overall attrition rates were adequate for participants in 12 studies which was less than or equal to 30%, while the study by Musolino et al. (2009) was the only study with a greater than 50% attrition rate. Adequate reporting of the data from the studies was also a concern. All studies provided data to calculate effect size but only four of the studies provided data for all the assessed variables in the study.

In addition, selection bias was a concern with nine studies. Berlin et al. (2010), Smith (2001), Cooper-Braithwaite (2006) evaluated the group assignments for pre-intervention equivalence and reported more than three significant indicators of sample demographics. The remaining studies either did not test for or have equivalent groups or reported inadequate sample demographics.

Performance bias was assessed utilizing three criteria, evaluating the studies for blinding of the participants, researchers, coders and fidelity to both standardized delivery of educational intervention and adherence to educational intervention. All 13 studies demonstrated performance bias based on all three criteria. Finally, the 13 studies demonstrated detection bias in terms of outcome measurement. Measurement outcomes in all 13 studies were self-report without any independent observer or evaluation.

Measures in the included studies. Outcome measures varied considerably among the studies and all metrics were self-report format. Table 9 summarizes the measures and frameworks of the studies and curricula. Eight of the studies used measures that have frequently reported psychometric data in the literature (Amerson, 2010; Copper-Braithwaite, 2006; Hunter & Krantz, 2010; Jeffreys & Smodlaka, 1999; Musolino et al., 2009; Nokes et al., 2009; Salman et al., 2007; Smith, 2001;). Two studies used Transcultural Self-Efficacy Tool (TSET) (Amerson, 2010; Jeffreys &

Smodlaka, 1999) and five studies utilized Inventory for the Process of Cultural

Competence-Revised (IAPCC-R) (Cooper-Braithwaite, 2006; Hunter & Krantz, 2010;

Musolino et al., 2009; Nokes et al., 2005; Salman et al., 2007). The seven studies that

utilized TSET and IAPCC-R also reported psychometric data generated by their studies.

The remaining studies all used different measures to evaluate cultural competence with

varying reports of psychometrics of the measures.

Salman et al. (2007) and Campbell-Heider et al. (2004) used more than one

measure to evaluate cultural competence. For example, Campbell-Heider utilized three

measures within the study to evaluate cultural competence. Of the three measures, the

"cultural quiz" reported no psychometric data. While psychometric data were reported

for the XS and CCWM measures, it was not clear if the data were for the current research

or was previously identified in the literature. In addition, Campbell-Heider et al. (2004)

noted that perhaps the measures used were not appropriate for measuring cultural

competence.

Measures used by Berlin et al. (2010) were developed based on the IAPCC-R and

translated into Swedish, while Napholz (1999) and Hughes and Hood (2007) used

measures not routinely used in healthcare research with minimal psychometrics available.

Napholz did not report psychometric data for the measure used within the study but did

provide psychometrics for previous studies.

Table 7

Description of 13 Studies Evaluating Interventions to Improve Cultural Competence in Professional Nurses and Nursing Students

Author/Year	Study Design	Training Level	Curricular Content	Specific Culture	Contact Time	Specific Curricular Interventions
Amerson, 2010	Pre-Post; Comparison	B-NS	GC, SC, L	Latino	Semester long community health course & 1-week in Guatemala	Care planning, reflection, international & national service-learning experience, lecture
Berlin et al., 2010	Pre-Post; Treatment-Control	PN	GC	unclear	3 days & 4 weeks of clinical experience	Clinical experience, case studies, lectures, reflective practice groups
Hunter & Krantz, 2010	Pre-Post	M, NP	GC	no	Semester long course on cultural competence	Interview clients, develop own assessment tool, write own autobiography
Musolino et al., 2009	Pre-Post	B-NS, O	GC	unclear	4 – 2 hour modules over 2 academic semesters	Video case studies, lecture, cross-cultural vignettes
Hughes & Hood, 2007	Pre-Post	B-NS	GC, SC	African American, Latino, Native American, Asian-Pacific	Integrated throughout baccalaureate curriculum	Role-play, service-learning, lecture, case studies, care planning, poster presentations
Salman et al., 2007	Pre-Post	PN	GC, SC	Elders	Unclear; (1-cultural workshop 5-ethnogeriatric sessions)	Not discussed
Campbell-Heider et al., 2006	Repeated Measures	NP	GC	unclear	Integrated in academic curriculum	Immersion, lecture, cultural rounds, seminars

Cooper-Braithwaite, 2006	Repeated Measures	PN	GC	unclear	5 consecutive 2-hours sessions one week apart followed a month later by a single one hour session.	Games, simulation, role-play, lecture, discussion, reflection, care planning,
Nokes et al., 2005	Pre-Post	B-NS, M, D	GC	unclear	1 – 6-hour classroom intro seminar, 7-hour internet interactive program, 2-hour summary seminar	Journaling, web-based, seminar, national service-learning
Caffrey et al., 2005	Pre-Post, Comparison	B-NS	GC	Hispanic	Integrated in baccalaureate curriculum & 5-week immersion	Case studies, immersion
Smith, 2001	Pre-Post; Treatment-Control	PN	GC	unclear	1 – 8.5 hour session	Not discussed
Napholz, 1999	Pre-Post, Comparison	B-NS	GC	unclear	Semester long nursing course; 2 – 3 hour sessions clinical sessions	Care planning, cultural self-assessment, lecture, weekly anecdotal records
Jeffreys & Smodlaka, 1999a	Longitudinal	A-NS	GC	unclear	Integrated throughout associate degree nursing curriculum	Reading assignments, discussions, test questions, care planning, written assignments, clinical evaluations, clinical experiences, conferences

Note: A-NS= associate nursing students, B-NS = baccalaureate nursing student, PN=professional nurses, NP=nurse practitioner student, =master's student, D=doctoral student, O=allied health students; GC=general concepts, SC=specific culture, L=language

Table 8

Summary of 13 Studies Evaluating Interventions to Improve Cultural Competence in Professional Nurses and Nursing Students

Dates	1999-2010	Number	Studies
Setting			
US		10	Amerson; Caffrey et al.;Campbell-Heider et al.; Hughes & Hood; Hunter & Krantz; Jeffreys & Smodlaka; Musolino et al.; Napholz; Salman et al.; Smith
Non-US		2	Berlin et al.; Cooper-Braithwaite
Not reported		1	Nokes et al.
Learners			
Professional Nurses		4	Berlin et al.; Cooper-Braithwaite; Smith; Salman et al.,
Nursing Students:			
Associate degree		1	Jeffreys & Smodlaka
Baccalaureate degree		6	Amerson; Caffrey et al.; Hughes & Hood; Musolino et al.; Napholz; Nokes et al.,
Master's		3	Nokes et al., Campbell-Heider et al.; Hunter & Krantz;
Doctoral		1	Nokes et al.
Participant Characteristics			
Nursing Students			
None reported		4	Campbell-Heider et al.; Hughes & Hood; Hunter & Krantz; Napholz,
Age		4	Amerson; Caffrey et al.; Jeffreys & Smodlaka; Nokes et al.
Gender		4	Amerson; Caffrey et al.; Jeffreys & Smodlaka; Nokes et al.
Ethnicity		5	Amerson; Caffrey et al.; Jeffreys & Smodlaka; Musolino et al.; Nokes et al.
First language		2	Amerson; Jeffreys & Smodlaka
Professional Nurses			
None reported		0	
Age		2	Cooper-Braithwaite; Smith
Gender		1	Smith
Ethnicity		3	Berlin et al.; Salman et al.; Smith
First language		2	Berlin et al.; Cooper-Braithwaite
Nursing education		2	Cooper-Braithwaite; Smith
Years as professional nurse		2	Cooper-Braithwaite; Smith
Practice setting		2	Cooper-Braithwaite; Smith
Previous CC training		1	Berlin et al.
Learning style		1	Cooper-Braithwaite
Curricular Content*			
General concepts		13	
Specific cultures		4	Amerson; Caffrey et al.; Hughes & Hood; Salman et al.
Language		1	Amerson

Sample Size		
N= 5-50	3	Caffrey et al.; Campbell-Heider et al.; Nokes et al.,
N= 51- 99	8	Amerson; Berlin et al.; Cooper-Braithwaite; Hunter & Krantz; Jeffreys & Smodlaka; Musolino et al.; Napholz; Smith
N> 100	2	Hughes & Hood; Salman et al.
Study Quality		
Low	8	Campbell-Heider et al.; Hughes & Hood; Hunter & Krantz; Jeffreys & Smodlaka; Musolino et al.; Napholz; Salman et al.; Nokes et al.,
Moderate	5	Amerson; Berlin et al.; Caffrey et al.; Cooper-Braithwaite; Smith
High	0	

Table 9

Measures and Frameworks to Evaluate Cultural Competence

Study name	Measure*	Study/Learning Strategy Framework
Amerson, 2010	TSET	*Study*: Jeffreys(2000), Camphina-Bacote (2002), O'Grady (2000), Jacoby, (1996)
		Learning strategy: Jeffreys(2000), Camphina-Bacote (2002), O'Grady (2000), Jacoby, (1996)
Berlin et al., 2010	CCCTQ-PRE, CCCTEQ-POST	*Study*: Camphina-Bacote (2002)
		Learning strategy: Camphina-Bacote (2002)
Hunter & Krantz, 2010	IAPCC-R	*Study*: Constructivist learning theory; Camphina-Bacote (2002)
		Learning strategy: Constructivist learning theory; Camphina-Bacote (2002)
Musolino et al., 2009	IAPCC-R	*Study*: unclear
		Learning strategy: unclear
Hughes & Hood, 2007	CCET	*Study*: unclear
		Learning strategy: multiple
Salman et al., 2007	CAS, IAPCC-R	*Study*: unclear

		Learning strategy: unclear
Campbell-Heider et al., 2006	CQ, XS, CCWM	*Study*: unclear
		Learning strategy:Benner (1999)
Cooper-Braithwaite, 2006	IAPCC-R	*Study*: Camphina-Bacote (2002)
		Learning strategy: Camphina-Bacote (2002)
Nokes et al., 2005	IAPCC-R	*Study*: unclear
		Learning strategy: multiple
Caffrey et al., 2004	CCCHS	*Study*: unclear
		Learning strategy: Wells (2000), St. Clair & McKenry(1999)
Smith, 2001	CSES	*Study:* Giger & Davidhizar (1995)
		Learning strategy: Giger & Davidhizar (1995)
Napholz, 1999	ECSA	*Study*: unclear
		Learning strategy: unclear
Jeffreys & Smodlaka, 1999a	TSET	*Study*: Bandura (1986), Jeffreys & Smodlaka (1996,1998,1999)
		Learning strategy: Bandura (1986), Jeffreys & Smodlaka (1996,1998,1999)

*Note: CAS=Cultural Awareness Scale, CCCHS=Caffrey Cultural Competence in Healthcare Scale, CCCTEQ-POST= Clinical Cultural Competence Training Evaluation Questionnaire-post, CCCTQ-PRE=Clinical Cultural Competence Training Questionnaire-pre, CCET=Cross-Cultural Evaluation Tool, CCTDI=California Critical Thinking Disposition Inventory, CCWM=Cross-Cultural World-Mindedness, CE=Civic Engagement, CQ=Culture Quiz, CSES=Cultural Self-Efficacy Scale, ECSA=Ethnic Competency Skills Assessment Inventory, IAPCC-R=Inventory for Assessing the Process of Cultural Competence- Revised, TSET=Transcultural Self–Efficacy Tool, XS=Xenophilia Scale

The next section will describe the results of the meta-analysis. The section discusses

meta-analysis results in a logical sequence: publication bias, meta-analysis and moderator

variables.

Meta-Analysis

      Publication bias. Prior to conducting the meta-analysis, it was important to test

whether there was publication bias involved in the included research studies. Publication

bias is the tendency for positive and significant results of research to be published

compared to studies with results that are negative or inconclusive (Borenstein et al.,

2009). Considerable publication bias can influence results of any meta-analysis by over

estimating effect size (Borenstein et al., 2009). Publication bias was assessed using three

methods: 1) funnel plot, 2) Duval and Tweedie's Trim and Fill and

3) Orwin's Fail-safe *N*.

      The results of the funnel plot and Duval and Tweedies' Trim and Fill

investigating the possibility of publication bias are presented in Figure 4. The funnel plot

graphs study size (standard error) on the Y-axis as a function of effect size (odds-ratio)

on the X-axis. Large studies are at the top of the graph and group near the mean effect

size. Smaller studies appear toward the bottom of the graph, and (since there is more

sampling variation in effect size estimates in the smaller studies) will be dispersed across

a range of values (Borenstein et al., 2009). The majority (11) of the plots in Figure 4 are

clustered symmetrically toward the top of the plot around the combined effect size. In

the absence of publication bias it would be expected that the studies are distributed

symmetrically about the combined effect size (Borenstein et al.). There are two studies

toward the bottom of the funnel plot. If publication bias was present then the bottom of

the plot would show a higher concentration of studies (smaller sample sizes) on one side

of the mean than on the other (Borenstein et al.). This would reflect the fact that smaller

studies (which appear toward the bottom) are more likely to be published if they have

larger than average effects, which makes them more likely to meet the criterion for

statistical significance (Borenstein et al.). This funnel plot provided supporting evidence

that publication bias was not a concern in the included studies considered in this research.

Duval and Tweedie's Trim and Fill builds on the funnel plot. The Trim and Fill

imputes missing studies and provides an estimate of effect size after the possible

publication bias has been taken into account (Bornstein et al., 2005). In this study, the

Trim and Fill method looked for missing studies based on a fixed effect model to the left
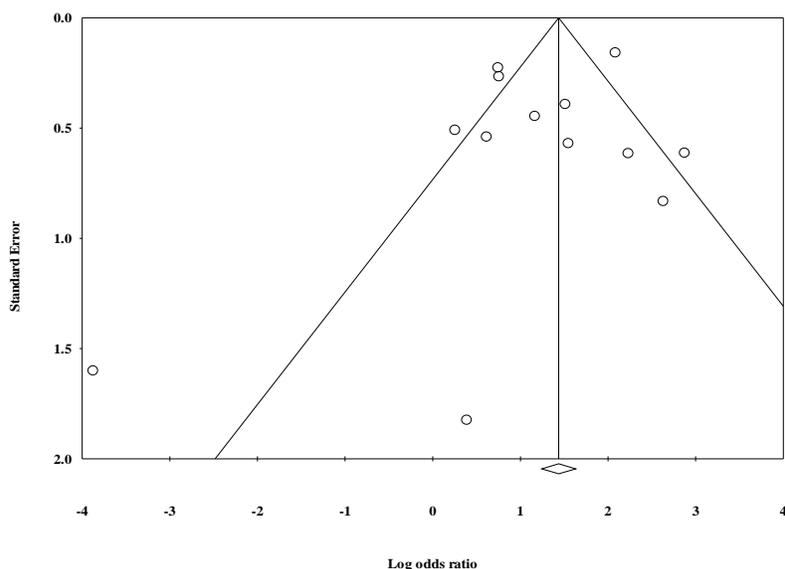
Figure 4. Funnel Plot of Standard Error by Log Odds-Ratio.

side of the mean effect. Using these parameters the method suggested that no studies

were missing, resulting in no studies trimmed or deleted from the analysis.

Under the fixed effect model the point estimate and 95% confidence interval for the

combined studies is 4.208 (3.469, 5.104). Thus, trim and fill complements the funnel plot

for evaluating publication bias.

To further assure the meta-analysis was free of publication bias, Orwin's fail-safe *N* was calculated. The results of the calculations are shown in Table 10. Orwin's fail-safe *N* looks for missing studies in a meta-analysis (Borenstein et al., 2009). Through this analysis, it was determined that Orwin's fail-safe *N* is 392, assuming a mean odds-ratio of 1.0 in the missing studies, with a "trivial" effect defined as an odds-ratio of 1.00. There would need to be over 392 additional studies with a mean odds-ratio of 1.0 added to the meta-analysis before the overall effect would become 'trivial' making the meta-analysis insignificant. This meta-analysis was only able to identify 13 eligible studies for inclusion on cultural competence learning interventions in nursing students and professional nurses; it is unlikely that nearly 392 studies were missed.

Table 10

Orwin's Fail-safe N

Element	Values
Odds-ratio in observed studies	4.208
Criterion for a 'trivial' odds-ratio	1.00
Mean odds-ratio in missing studies	1.00
Number missing studies need to bring odds-ratio under 1.00	392

Meta-analysis. The aim of meta-analysis is to reach a conclusion about the magnitude of the effect of an intervention in a population (Borenstein et al., 2009). Effect size was reported in terms of odds-ratio and Table 11 summarizes the meta-analysis results. Using the fixed effect model for the meta-analysis, the combined effect size for this study is 4.208. This means that the estimated odds that cultural competence learning interventions increase cultural competence is 4.208 times the estimated odds that no learning intervention would increase cultural competence. The associated $p = 0.000$ ($p \leq 0.05$) and $Z = 14.584$ ($z \pm 1.96$) suggest moderate evidence to support that

4.208 effect size did not occur by chance. The magnitude of the effect is the main focus

in a meta-analysis and a *p*-value is not considered interchangeable with effect size. A *p*-

value in meta-analysis is often misinterpreted and findings should be reported with

caution (Borenstein et al., 2009). According to Borenstein et al. "because we work with

the effect size directly we avoid the problem of interpreting non-significant *p*-values to

indicate the absence of effect (or of interpreting significant *p*-values to indicate a large

effect)" (p. 300). A statistically significant *p*-value is used only to determine the

probability that the effect exists and not the importance of the effect. In addition, the

calculated confidence interval (3.469-5.104) then demonstrates that there is a 95%

probability that the mean effect of professional nurses and nursing students participating

in a cultural competence learning interventions would fall between the estimated

population mean of 3.469 and 5.104. Therefore, while the actual effect size of cultural

competence learning interventions may be smaller than reported, it is unlikely to be one.

The individual odds-ratio results in table 11 show a total of six individual studies that

demonstrated large effect size (ES > 4.30) with p-values ≤ 0.05 (Amerson, 2010; Berlin

et al., 2010; Hughes & Hood, 2007; Caffrey et al., 2004; Smith, 2001; Jeffreys &

Smodlaka, 1999). Four studies demonstrated a small (1.50) to moderate (2.50) effect size

(Cooper-Braithwaite, 2006; Hunter & Krantz, 2010; Napholz, 1999; Salman et al, 2007),

while the studies by Musolino et al. (2009), Campbell-Heider et al. (2006) and Nokes et

al. (2005) demonstrated trivial to no effect as a result of their learning interventions.

Table 11

Meta-Analysis Results

Study name	Odds-ratio	Lower limit	Upper limit	Z-Value	p-Value
Amerson, 2010	17.709	5.326	58.884	4.688	0.000
Berlin et al., 2010	4.700	1.540	14.344	2.719	0.007
Hunter & Krantz, 2010	2.107	1.353	3.279	3.301	0.001
Mussolino et al., 2009	1.290	0.475	3.499	0.500	0.617
Hughes & Hood, 2007	8.042	5.897	10.968	13.169	0.000
Salman et al., 2007	2.130	1.268	3.578	2.856	0.004
Campbell-Heider et al., 2006	1.476	0.041	52.703	0.213	0.831
Cooper-Braithwaite, 2006	3.209	1.339	7.691	2.614	0.009
Nokes et al., 2005	0.021	0.001	0.478	-2.421	0.015
Caffrey et al., 2004	13.877	2.717	70.884	3.161	0.002
Smith, 2001	4.539	2.104	9.790	3.857	0.000
Napholz, 1999	1.849	0.642	5.325	1.139	0.255
Jeffreys & Smodlaka, 1999	9.317	2.792	31.084	3.630	0.000
Fixed Model	**4.208**	**3.469**	**5.104**	**14.584**	**0.000**
Random Model	**3.592**	**2.118**	**6.094**	**4.743**	**0.000**

Figure 5 represents a forest plot of the effects of learning interventions on cultural competence. The forest plot visually displays confidence intervals of the observed effect. Each study corresponds with a horizontal line and represents the 95% confidence interval of the effect observed in a specific study. A vertical line representing no effect is also plotted. If the confidence intervals for individual studies overlap the vertical line (odds-ratio = 1), it supports that at the 95% level of confidence their effect sizes do not differ from no effect for the individual study. The same applies for the combined measure of effect: if the diamond overlaps the line of no effect, then the overall combined effect result cannot be said to differ from no effect at the 95% level of confidence. The studies by Amerson (2010), Caffrey et al. (2004) and Jeffreys and Smodlaka (1999) show wide confidence intervals which may indicate inadequate precision in these studies. Inadequate

precision may be a result of small sample size and/or independent group study design. However, the confidence intervals do not include an odds-ratio of one suggesting that the learning interventions do have an effect. The studies by Campbell-Heider et al. (2006), Mussolino (2009) and Napholz (1999) show wide confidence intervals that includes an odds-ratio of one. This may suggest that there is insufficient or no evidence that the learning intervention has an effect.

Study name   **Odds ratio and 95% CI**

Amerson, 2010
Berlin et al., 2010
Hunter & Krantz, 2010
Mussolino et al., 2009
Hughes & Hood, 2007
Salman et al., 2007
Campbell-Heider et al., 2006
Cooper-Braithwaite, 2005
Nokes et al., 2005
Caffrey et al., 2004
Smith, 2001
Napholz, 1999
Jeffreys & Smodlaka, 1999a

        0.01   0.1   1   10   100

Figure 5. Forest Plot of Effects of Learning Interventions on Cultural Competence

Overall the meta-analysis results imply that cultural competence education increases cultural competence scores in professional nurses and nursing students in 10 of the 13 studies. It can be concluded that the educational interventions have a significant positive effect on cultural competence scores in professional nurses and nursing students. Moreover, regardless of the intervention type and contact time, this research study concludes that cultural competence education increases cultural competence scores. The

combined effect size reflects a large magnitude of the association between the independent variable of learning interventions and the dependent variable of effect size. In other words, cultural competence learning interventions have a large impact on improving cultural competence in professional nurses and nursing students. However, the results should be interpreted with caution. Further analyses should be conducted when additional studies are available.

Effect size heterogeneity. Meta-analysis also attempts to identify variances of the overall *true* effect size that is the effect size of the population. If variance of effect size is low between studies, then the overall effect size may be a good estimate of the *true* effect of the intervention in context of all the included studies. Thus, the Q statistic is used to test heterogeneity *within* a group of effect sizes. A significant Q statistic suggests a probability that the individual effect sizes are not homogeneous and the overall effect cannot be interpreted as representative of the effect of all cultural competence learning interventions for nursing students and professional nurses. Table 12 summarizes the test for heterogeneity. The meta-analysis revealed significant heterogeneity in the true effect size, $Q(12, k=13) = 61.41$, $p = 0.000$ and $I^2 = 80.461$ of the included studies. If significant heterogeneity exists further moderator analyses should be calculated. If heterogeneity results are insignificant then the combined effect can be accepted as representative of the included studies (Borenstein et al., 2009). Thus further moderator analysis is needed to account for the variation.

Table 12

Test for Heterogeneity

	Fixed Effect			Random Effects			Q value	I² value
	Point Estimate	Lower Limit	Upper Limit	Point Estimate	Lower Limit	Upper Limit		
Values	4.208	3.469	5.104	3.592	2.118	6.094	61.41	80.461

Moderator variables. A specific cultural competence learning intervention may result in different quantifiable cultural competence scores under different conditions. These varied conditions or characteristics are considered moderator variables. In a meta-analytical study it is recommended that these independent moderator variables are analyzed (Borenstein et al., 2009; Higgins & Green, 2011). A moderator analysis involves directly testing "the influences of variables or moderators on the mean effect" (Littell et al., 2008, p. 120). A moderator analysis can also be used to explore possible sources of heterogeneity when study effects are combined. However, a likelihood of a type I error increases from testing a number of variables and can be analogous to fishing for results. This may yield a significant *p*-value when there is no real difference. The analysis of multiple moderators within an individual study also has the potential to violate the assumption of independence. In addition, when conducting a moderator analysis, ten studies for each moderator are recommended to be included in the analysis (Littell et al.). This study did not meet the criteria of the minimum number of required studies to perform a moderator analysis as only 13 studies were used in this meta-analysis. Given the inconsistent reporting and inadequately described moderator variables (characteristics of learning interventions, professional nurse and nursing student characteristics, study quality and measures of cultural competence) within the 13 studies (Tables 7 & 8), moderator analyses was not deemed appropriate.

Summary of Findings

A meta-analysis was conducted to examine the individual and combined presence, direction and magnitude of effect of cultural competence learning interventions on professional nurses and nursing students. A total of 13 studies were included in this research study and reveal a moderate positive combined effect of learning interventions on increasing cultural competence. The studies in the analysis did not indicate publication bias. Tests of heterogeneity of the effects reveal significant differences in effect among programs. Ten of the 13 studies demonstrated statistically significant small to large effects of cultural competence learning interventions on improving the cultural competence of nursing students and professional nurses. The eligible studies had small sample sizes, moderate to low study quality, no replicated studies and a paucity of descriptive information on moderator variables. Thus, moderator analysis could not be undertaken to identify if one learning intervention was better at improving cultural competence than another.

The following section will discuss the implications of the study results. In addition, recommendation for future research will be identified.

Chapter 5: Discussion

Cultural competence learning interventions have been suggested to positively improve knowledge, attitudes, and behaviors in both professional nurses and nursing students. A meta-analysis was used to examine the effectiveness of learning interventions designed to increase the cultural competence in professional nurses and nursing students. More explicitly, the meta-analysis was to determine the presence, direction and magnitude of an effect related to educational interventions to improve cultural competence in professional nurses and nursing students. In addition, it was anticipated that this meta-analysis would yield objective data to determine which learning intervention was most effective while considering moderating variables. This chapter will discuss the findings involving cultural competence learning interventions in professional nurses and nursing students, examine the limitations of the study and provide recommendations for future research and practice.

Summary of Results

The meta-analysis was done using 13 research studies on cultural competence educational interventions from 1999 to 2010 that were published peer-reviewed literature found in electronic databases. Analyses were computed using a fixed-effect model and effect size data reported in terms of odds-ratio. The Comprehensive Meta-Analysis [Version 2] statistical software was used for the meta-analysis. Results of Orwin's fail-safe N, funnel plot and Duval and Tweedie's Trim and Fill revealed no evidence of publication bias. The meta-analysis demonstrated that seven of the 13 studies' individual

educational interventions had a significant positive effect on improving cultural competency of nursing students and professional nurses. In addition, a moderate positive combined effect of the 13 studies implied a variety of cultural competence learning interventions result in improving cultural competence in professional nurses and nursing students. Stated another way, cultural competence learning interventions are significantly more effective than no treatment at all. However, a simple statement that cultural competence learning interventions increase cultural competence in professional nurses and nursing students is not fully supported by the meta-analysis and the results of this study should be interpreted with caution.

Meta-Analysis Model

Generally, there are two models distinguished in meta-analysis: fixed-effect model and random-effects model. This meta-analysis was based on the fixed-effect model. This model assumes that all factors that could influence the effect size are the same in all the studies. Fixed models are best used when making explicit comparisons of one intervention against another (Borenstein et al., 2009). The focus of this meta-analysis compared the cultural competence scores (dependent variable) among the different learning interventions (independent variable). The fixed-effect model assumes that all variables that might influence effect sizes are the same in all the studies and reflect a random error inherent in the individual studies (Borenstein et al., 2009). Given the homogeneity of the population of interest (professional nurses and nursing students) a fixed model was deemed most appropriate. In addition, a fixed model is more balanced in assigning weights to studies and it allows for the analysis of more diverse studies and outcomes; the study characteristics will partly account for differences in the magnitude of

the effect between studies (Borenstein et al., 2009). The studies by Hughes and Hood (2007) and Salman et al. (2007) were rated as low quality studies but both had large sample sizes (218 and 197 respectively). More weight was assigned to these studies when calculating effect size and perhaps falsely inflated the cumulative effect. Despite the individual studies' deficiencies and grounded in these assumptions of the models for analysis, the fixed- model effects was used for this meta-analysis.

In contrast, using a random-effects model to analyze the data assumes that random samples were drawn from a larger population (Borenstein et al., 2009). Unlike the fixed model, the random model assumes that the mean effects vary (allows for covariates), are normally distributed and not one true effect. The random-effects model weights individual studies by both within-group variance and between-group variance. Thus, the variance terms of the dependent variable is important and provides information about the larger population. Random-effects modeling focus more on the influence of and controlling for the moderator variables and not the specific differences in the independent variables (Borenstein et al., 2009).

The inferences that can be made are the main difference between the two models (Borenstein et al., 2009). A fixed-effect analysis can only make an inference about the actual participants in the studies, thereby limiting generalizability, while a random-effects analysis allows inference about the population (Borenstein et al.). A fixed-effect model was applied as generalizing results to the population was not considered prudent due to the weak quality of studies in this meta-analysis. The analysis included a small number of studies (13) of low to moderate quality and varied learning strategies that were inadequately described and utilized a variety of evaluation metrics. Findings from this

study should not be generalized to the population of professional nurses and nursing students. However, results of fixed-effect model versus random-effects model did not significantly change effect size in this study. In fact, applying the random-effects model demonstrated effect size results of OR = 3.592 while the fixed-effect models demonstrated OR= 4.208. Therefore, the answer to the first research question of "To what extent does cultural competence education increase cultural competence in professional nurse and nursing students?" is clear. There is a positive effect of cultural competence learning interventions on the cultural competence of professional nurses and nursing students.

Cultural Competence Construct

The lack of consensus on a definition and the failure thus far to agree on a model of cultural competence are obstacles to developing, implementing, and evaluating the effectiveness of learning interventions to achieve cultural competence. It is not unusual that the term *cultural competence* is used interchangeably with *cultural sensitivity, cultural awarenes*s, *cultural proficiency, and cultural congruency* (Burchum, 2002; Suh, 2004). Effective learning methods and their subsequent evaluation cannot be achieved without clear and precise explanation of the cultural competence construct (Betancourt et al., 2003, 2010; Capell et al., 2007). As evidenced by the results of this study and the literature review, a universally agreed upon distinct construct of cultural competence does not exist, although many of the existing models and frameworks of cultural competence do share some common domains and factors. Further refinement of the construct is necessary.

Many of the current models and frameworks explain and measure the *cultural competence* construct only in context of a healthcare provider's outcomes, attitudes, knowledge and behaviors. To this end, cultural competence learning interventions and subsequent evaluations are directed towards improving healthcare provider's attitudes, knowledge and behaviors. Health and healthcare disparities exist unequivocally and cultural competence is considered part of the solution to close the disparity gap. In addition, there is a socially mandated interconnection between healthcare provider, especially the nurse and patient, and the client. It seems to reason then that the construct of *cultural competence* should extend beyond healthcare provider factors to include patient-related factors as well. Strengthening and broadening the construct will facilitate development of sound learning interventions directed towards cultural competence that will result in robust measures across the construct. The realization of the benefits to client health and healthcare from cultural competency education in nursing may be a result of deficiency in development of the construct. Insufficient empirical evidence exists to support the argument that education and training in cultural competence translates into culturally competent care or that it leads to improved client health outcomes (Gozu et al., 2007; Harper, 2008; Lie et al., 2011).

Moderator Variables

The second research question asks "To what extent is there variation in cultural competence education outcomes?" In fact, significant variation exists in the outcomes of cultural competence learning strategies ($I_2 = 80.461$). This suggests that the overall effect size is not reflective of all cultural competence learning interventions. This leads to exploration of the moderator variables. This study expected to explore the influence

of moderator variables that accounted for any variance in the effect size (dependent variable). The independent moderator analysis of characteristics of learning interventions, professional nurse and nursing student characteristics, study quality and measures of cultural competence would elucidate what makes cultural competence education effective. However, there were numerous hurdles that interfered with successful moderator analysis resulting in a different answer than anticipated to the third research question, "What moderating variables contribute to the effectiveness of cultural competence education?" Overall, there was a lack of sufficient detailed descriptions of characteristics of educational strategies and professional nurse and nursing student characteristics along with the number and quality of studies to allow for statistical quantitative meta-analysis of theses moderator variables. However, qualitative analysis of the moderator variables revealed important implications.

Study quality. Research studies included in this analysis were evaluated for quality in context selection bias, performance bias, attrition bias, detection bias, and reporting bias (Higgins & Green, 2011). As such, study quality was categorized as low, moderate, or high. The process was explained in chapter 3 and results in chapter 4. All studies were low to moderate quality. In addition, more than half of the studies that qualified for inclusion had little or no validity and reliability reports on the measured scores. Most of the eligible studies faced threats to external validity that included: lack of detailed descriptions of the learning interventions (performance bias), lack of detailed characteristics of the participants and multiple objectives of the study. The analysis included a small number of studies (13) of moderate to low quality, varied curricula and methodology that generally was inadequately described and utilized a variety of

evaluation metrics. Findings from this study should not be generalized to the population of professional nurses and nursing students. Moderate to high quality studies need to be generated for more meaningful meta-analysis. The quality of the results of a meta-analysis is inextricably linked to the quality of the included studies. Therefore, if previous studies are inadequate then meta-analysis results must be interpreted cautiously. Third, there were 13 studies that were eligible for inclusion in the meta-analysis. However, most studies were graded as weak (low to moderate quality) in terms of small sample sizes and no two studies replicating the same learning intervention. If the primary studies were conducted poorly or have significant methodological flaws, then the findings of the primary research and any subsequent analysis of the research is suspect (Butters, 2010). Quality of a study is correlated to the effect size. Inadequate studies may report larger effect sizes. Therefore, the effect sizes for this study may be over estimated.

Learning interventions and participant characteristics. The moderator variable of learning interventions was of particular interest in this study. This meta-analysis was expected to identify which specific learning strategies may increase cultural competence more than others. In general, the combined effect result suggests that cultural competence can be promoted equally using many different interventions. General learning strategies were reported in some studies as well as general learning interventions. In addition, the studies did not consistently report learning outcomes. Learning interventions included role-play, games, care planning, service learning, immersion, and poster presentations. However, learning strategies (curricula, learning methods, evaluation metrics) were not adequately described in detail in the individual

studies to distinguish one learning intervention as better than another at improving

cultural competence than another.

Likewise, participant characteristics were inadequately described. The study

conducted by Smith (2001) was the only included study that reported detailed

information on the participants. There were some studies that either reported general

participant characteristics (Hughes & Hood, 2007) or no characteristics (Campbell-

Heider et al. 2006; Hunter & Krantz, 2010; Napholz, 1999).

Cultural Competence Evaluation Metrics

The metrics used to evaluate cultural competence varied across studies. This

finding raises interesting questions about how cultural competence is measured and the

construct of cultural competence. As a consequence of an imprecise construct, any

metrics developed ultimately generate suspect data (Butters, 2010). As a result, strong

metrics to evaluate learning interventions for cultural competence education are lacking.

All measures utilized in the individual studies are self-report. Only a few eligible studies

for this research used measures with reported validity and reliability information. The

use of subjective self-report measures may prevent convincing research conclusions. On

the other hand, the self-report instruments may reflect less bias and more direct cultural

competence learning strategy effects. A self-report paper and pencil test may not have the

same performance issues as an observed evaluation and the participant may feel more

comfortable to report affective, cognitive and behavioral changes in cultural competence

(Butters, 2010). The variety of measures with minimal associated psychometrics and self-

report format is cause for concern when interpreting the meta-analysis findings. It is

likely that effect size may be artificially inflated due to the weakness of the metrics.

The different evaluation instruments further prevented evaluation of effects of moderator variables. There may also exist a difference between evaluation of cultural competence learning interventions that use self-report outcome measures and more objective measures that might rely on observers to rate cultural competence. The lack of a robust dependent variable suggests that the way cultural competence is measured is important. Self-reported outcomes could be the effects of *social desirability bias* (Rubin, 2008). This effect could be an *artifact,* or an uncontrolled bias in the studies that can limit the confidence of results (David, 2008). The desire to appear socially desirable could also impact the outcomes as participants select more cultural competent responses on the self-report measures.

Limitations of this Study

The most significant limitation to the present study is the weakness of the individual studies included in the meta-analysis. In addition to concerns already discussed, other limitations exist. First, only studies that were published, peer-reviewed and searchable in electronic data bases were considered for this study. Even though publication bias was not supported by the meta-analysis, literature searches by hand and dissertations were excluded. However, it remains that published studies as well as those found in electronic data bases are more likely to report positive results of cultural competence training and some research may have been overlooked. In addition, the majority of the identified research was published in English and done in the United States and Canada. The concept of cultural competence may be developed and evaluated differently in other countries. The validity of the study is also limited to learning interventions discussed in literature in the years ranging from 1999-2011 across 13

studies. This means that the findings from the data analysis cannot represent the totality of learning interventions that may date back before 1999.

Recommendations for Future Research

Future cultural competence learning intervention research should focus on improving designs and increasing quality and rigor of future studies. For example, most of the studies in this meta-analysis did not provide enough detailed description of curricula, participants, interventions (resources, faculty, cost, time, etc.) and all measures were self-report. In addition, future studies should describe any concomitant cultural competence interventions being instituted at the organizational level during the study.

Curricula specifics are essential to allow for replication of studies. Replication of studies by other researchers is necessary to demonstrate that study results were not aberrations or due to an error caused by the original researcher. The more the same results can be generated through study replication, the more confidence can be placed in the research conclusions. In addition, further improvement of the cultural competence construct is necessary. Perhaps, a consensus conference including public and private national nursing organizations, nurse researchers, educators and those providing service who are experts in cultural competence might explore the feasibility of identifying an accepted definition of cultural competence.

Future meta-analyses should consider analyzing the studies in both fixed and random models as subtleties of moderator variables may be revealed as well as different moderators may emerge. Participant information was also inadequately described in most studies which compromised research quality. Besides professional nurse and nursing student demographics, description of participants should include: past cultural

competence education or training, culture background and baseline skills, attitudes and knowledge. Detailed description of learning strategies and participants within studies may reveal if specific characteristics of curricula, objectives, evaluation metrics, learning interventions and participants moderate the relation between the learning intervention and cultural competence. Adequate sample size within studies is also necessary for improving study quality. Sample size affects the results of any research. If the number of participants within the individual studies or the number of studies included in the meta-analysis is too small then the inferences drawn will not be valid. A larger sample size can confidently represent a more general theme or practice.

Thus, for future studies on cultural competence education, it is recommended that the sample size be increased within studies to ensure representation of participants. Collaboration between educational institutions may be an option to increase sample size.

Future research should also be directed towards development of more objective measures. For example, independent, objective rater metrics and patient healthcare outcome measures should be developed in addition to self-report evaluations. Future nurse researchers interested in cultural competence education can design more rigorous studies to improve study quality, address power and sample size. Better designed quality studies with adequate power may generate different results.

This study has expanded nursing knowledge by quantitatively revealing the paucity of quality empirical studies and quantitatively supporting the need for further research in cultural competence education. Although this study got different answers to the study questions than was expected, it is significant in that it provides a clear direction

for research to improve cultural competence education in professional nurses and nursing students.

In addition to providing statistical evidence to support the positive effects of learning interventions of cultural education to cultural competence on nursing students and nurses, this study also developed a procedure, set of rules to filter research studies, as well as several criteria for selecting research studies for meta-analysis. The assessment of publication bias of the literature selected, using the researcher developed procedure, showed that the researcher developed procedure is very effective in that no significant publication bias was found, as well as no additional literature was required for the meta-analysis of the selected literature to meet the confidence level. As the developed procedure has proven to be effective, this may be used in future studies to collect the literature for meta-analysis in any discipline.

The study was able to determine from the meta-analysis literature that overall, learning interventions of cultural competence in nurses and nursing students significantly translates to a positive effect on the self-perceived cultural competency of nurses and nursing students in terms of knowledge, skills, attitudes, and self-efficacy regardless of intervention type and contact time. However, there is insufficient empirical evidence to support the argument that education and training in cultural competence translates into culturally competent care or that it leads to improved client health outcomes, particularly in nurses and nursing students.

The overall benefit to increasing nursing knowledge is that this study extended research that was empirical and had quantitative results. This is an important finding for the discipline of nursing as well as health and healthcare of minority groups. Regardless

of the specific vulnerable population experiencing poor health and healthcare, cultural competence is considered an important objective in the quest to minimize and even eliminate health and healthcare disparities in all diverse patient groups (IOM, 2003, 2006; USDHHS, 2011c, 2011d, 2011e). Given these additional limitations, it is recommended that future analysis include published peer-reviewed articles that have not been part of the literature selection criteria including learning interventions for healthcare and nursing students not covered in this study's selected literature. As there are many common practices in the different healthcare services which nursing is a part of, it is recommended that future studies take into account other disciplines so as to be able to support the intervention for learning of cultural education to other disciplines introducing a more general or more specific strategy depending on the findings.

Conclusion

This is the first known meta-analysis of studies on cultural competence learning interventions in professional nurses and nursing students. The findings suggest that cultural competence learning interventions have a positive effect on increasing self-report cultural competence in professional nurses and nursing students. The limitations of this meta-analysis were probably its most noteworthy contribution to the discipline of nursing and future research efforts. In addition, the method developed for screening literature in this study was also a noteworthy contribution. Developing, identifying and implementing educational strategies to improve cultural competence are essential for professional nurses and nursing students. This has implications for the discipline of nursing which extend beyond the nursing student, professional nurse, nurse educator and nurse researcher and includes potential benefits in terms of client health and healthcare

outcomes. For health disparities to be eliminated, care must be client centered and

effective cultural competence education for professional nurses and nursing students must

be better understood.

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* Studies included in meta-analysis

Appendices

APPENDIX A
SEARCH PRE-SCREEN TEMPLATE

Search terms: cultural competenc*and nurs* and (train* or interven* or treat* or educ*
or program* or measure*).
Limiters: human, English language, peer-reviewed, January 1985- May 31, 2011
Date of Search: 05/31/2011

SEARCH:
    1. Databases to search:
        a. PsycINFO
        b. MEDLINE
        c. CINAHL
        d. ERIC
        e. Social Work Abstracts
    2. Method
        a. Organize articles by database

PRE-SCREEN RESEARCH STUDY:
    1. At the abstract level:
        a. Cultural competence manipulated?
            i. If yes, get the full text
            ii. If no, reject
    2. If it manipulated cultural competence
        a. Included professional nurses or nursing students?
            i. If yes, go to step 3
            ii. If no, reject
    3. Review full text for: study reports adequate data for statistical
      analysis.
        a. Results section include: frequency, M ,SD, t-value, chi^2, etc.
            i. If yes, keep the article
       ii. If no, reject
            iii. If in doubt, keep for now and decide later
ARTICLES:
    1. Save all citations
    2. Maintain electronic copy of article
    3. Print and organize by publication date
    4. Track # of articles found/eliminated at each step.

APPENDIX B
SCREEN TEMPLATE

1. ***Screen I***: (abstract)
   a. Screen abstracts of found articles for preliminary inclusion criteria:

       i. Research design: Study must be: a pre-post design,
         comparison groups, or treatment vs. control
       ii. Must be a cultural competence intervention study
       iii. Qualitative studies excluded
       iv. Study must have at least 5 subjects in each treatment group
       v. Research subjects must include professional nurses/nursing students
       vi.If in doubt about design, study data, or population, keep study
         for further investigation.

   b. Identify articles (kept at this step) by name of author(s), publication
       date & database.

2. ***Screen II***: (full text screen)
   a. Read full text of articles from first screen.
   b. Focus on method section to verify Screen I criteria.
   c. Dependent variable must be cultural competence measure.

       i. Ensure there are at least 5 subjects in each treatment group
       ii. Must report quantitative data
       iii. Quantitative statistics reported: means, SD, frequencies etc.
       iv. Need enough raw data to calculate group differences OR statistical
         tests reported.

   d. List articles kept through this screening step.
   e. Code identified articles using:

       i. coding template
       ii study quality rating template

APPENDIX C
CODING TEMPLATE

Cultural Competence Education Information

1. Name of Author(s) _____

2. Date (year) of Publication _____

3. Program dosage   Rx group 1 Rx group 2 Control
     a. number of weeks start to finish _____ _____   _____
     b. number of sessions total   _____ _____   _____
     c. total contact hours   _____ _____   _____
     d. unable to determine   _____ _____   _____

4.

Education interventions to increase cultural competence	Rx 1	Rx2	Control
Role-play			
Video			
Immersion			
Service –learning			
Independent reading materials			
Simulation			
Lecture			
On-line			
Teleconferencing			
Webinars			
Other			

Operational definitions of cultural competence:

_____

_____

5. Cultural Competence Measure :
     a. IAPCC-R
     b. TSET
     c.
     d.
     e.

Participant Information

1. Reported mean age in years:

      Rx Group 1   Rx group 2   Control Group

      a. Young adult 19-29   a. Young Adult 19-29 a. Young Adult 19-29

      b. Adult >29-<60   b. Adult >29-<60   b. Adult >29-<60

      c. Senior 61+   c. Senior 61+   c. Senior 61+

      No age reported

2. Setting of program

      a. 4-yr college/university, pre-licensure

      b. 2-yr college, pre-licensure

      c. post-licensure

      d. other

3. Gender

	Tx 1	Tx 2	Control
a. male	Y	Y	Y
b. female	Y	Y	Y
c. mixed gender	Y	Y	Y
d. If provided (#,%male/female)	__/__	__/__	__/__

4. Race/Ethnicity
(Circle one or more, #, % if provided)

	Control	Treatment	Combined
a. White/Caucasian(non-hispanic/non-latino)	_____	_____	_____
b. Hispanic/Latino	_____	_____	_____
c. African American	_____	_____	_____
d. Asian	_____	_____	_____
e. Native American	_____	_____	_____
f. Pacific islander	_____	_____	_____
g. Other	_____	_____	_____
h. Not reported	_____	_____	_____

5. Effect Sizes

Outcome Name & Description	Effect Size Value	Number of participants in study (Treatment groups & control)	Notes: table that data reported, page number, other ID info

6. Psychometrics for measure:

      Current study:

      Previous reports:

ADDITIONAL INFORMATION:

APPENDIX D

STUDY QUALITY RATING TEMPLATE

Name, first author _____

Year published _____

Title of article _____

Selection Bias

    Group Assignment:

        3 = True randomization

        2 = Matched group or case control

        1 = Pre-treatment equivalence

        0 = No randomization, nonequivalent

    Indicators of population demographics

        1 = Reported 5 or more

        0 = Reported 3 or fewer

Performance Bias

    Fidelity in cultural competence learning intervention delivery/manualization of program

        1 = CCI standardized: manual, specific training

        0 = No evidence of standardized delivery/training

    Fidelity/adherence to cultural competence learning intervention

        2 = Assessed: High Fidelity or *Supervision*

        1 = Assessed: Moderate fidelity

        0 = No mention of fidelity or supervision

    Blinding

        2 = Participants and researchers

        1= Participants/researchers/coders blinded

        0 = No blinding of participants/researchers/coders

Attrition Bias

    Attrition assessed?

        1 = yes

        0 = no

    Completion rate of participants

        2 = >85%

        1 = 70% to 84.9%

0 = Less than 69.9%, unknown

Specific measures taken to minimize loss of subjects from study
1= Yes
0 = No, unknown

Detection Bias

Measurement of Outcomes: Informant
2 = Blind or independent observer
1 = Participant
0 = Participant only (self report only)

Cultural competence metric (published validity/reliability data)
2 = Commonly accepted metric
0 = Proprietary or researcher created metric

Reporting Bias

Standard index (to calculate effect size)
2 = Means, SD, # participants(percent,frequency)
1 = exact statistic reported: t-test, F-test
0 = p-values only

Data for all assessed dependent variables reported?
1 = Yes
0 = No

Total Score: /20

Overall Study Quality:

High(12-20 points)   Moderate (7-11 points)   Low (<7 points)