

Cross-Cultural Competency Adaptability of Dental Hygiene Educators
in Entry Level Dental Hygiene Programs

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Abstract

This study was conducted to discover the extent dental hygiene educators in 25 entry-level dental hygiene programs from the Upper Midwest demonstrate Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy as they relate to their level of education and multicultural experiences. An additional purpose was to examine dental hygiene educators in regard to personal cross-cultural experiences, formal cultural diversity education, usefulness of their education and preparation, and confidence to meet the Commission on Dental Accreditation (2007) Standard 2-19 which states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups* (p. 23).

The principal investigator mailed two questionnaires in Fall Semester 2008 to the directors of the dental hygiene programs to administer. The researcher-developed a 22 item questionnaire collected demographic and cultural experience information on the faculty. The second questionnaire was the Cross-Cultural Adaptability Inventory (CCAI) by Kelley and Meyers (1992) that measured four research-based dimensions of cultural adaptability.

The data analysis included descriptive and inferential statistics. Using Cronbach's alpha, reliability analysis of the four CCAI scales showed that some items reduced the internal consistency of the scales. These items were removed from the scales. The inferential statistics used oneway analyses of variance (ANOVA) with the

revised CCAI scales as dependent variables. The significance level was .05 for all inferential statistics. Statistically significant results were reported.

The respondents were overwhelmingly female, Caucasian, equally split between having a BA or MA as the highest terminal degree, began teaching as a second career after a significant period as a dental hygienist in clinical practice, and had taught predominantly in a single institution. Dental hygiene educators had limited experience in cross-cultural settings in their personal lives, limited formal multicultural education preparation, limited personal multicultural experiences during their education, and limited experiences teaching in multicultural settings.

The majority of the dental hygiene educators reported that their institution or department provided continuing education and professional development programs in cultural diversity. Overall, dental hygiene faculty who did participate in cultural diversity education had significantly higher scores on Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy with Flexibility and Openness having the highest scores.

This research concludes that there is a need to identify cultural diversity education curriculum guidelines that would increase the knowledge and understanding of minority and new immigrant populations; to develop oral health textbooks that address the ethnic and immigrant populations' specific health beliefs or cultural views based on family structure, religion, and medical beliefs; and to support dental hygiene educators' multicultural experiences to prepare future practitioners to provide cross-culturally sensitive health care.

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Chapter 1

Introduction

The Institute of Medicine Report (IOM) (1999) report responded to the U.S. Congress' request to investigate the "extent of racial and ethnic disparities in healthcare" (p. 30). To do so an IOM committee reviewed over 100 studies that measured healthcare services for various racial and minority groups and found that "racial and ethnic minority patients receive a lower quality and intensity of healthcare and diagnostic services across a wide range of procedures and disease areas" (p. 77). The committee concluded that racial and ethnic minority populations in the U.S. experience higher rates of chronic and infectious diseases, are significantly less likely to possess health insurance, and are more likely to experience language barriers as compared to white Americans.

While the IOM (1999) report began the evaluation of the nation's healthcare delivery system to address the question if there was, in fact, national healthcare disparities related to poverty, race, ethnicity, and sex other researchers pursued this same question. For example, Schulman et al. (1999) stated that race and sex played a part in provider (physician) bias during diagnosis and decision-making in regard to recommendations for cardiac catheterization. These authors concluded that the race and sex of a patient independently influenced how physicians managed chest pain. Common themes emerged throughout the literature that minority patients possess different health-seeking behaviors that may compound healthcare outcomes. Providing culturally competent instruction in healthcare education is critical to self-identify stereotypes and biases that may affect the clinical experience.

Oral Health in America: A Report of the Surgeon General (United States

Department of Health and Human Services [USDHHS], 2000b) connected oral health and systemic disease as a silent epidemic effecting poor children, racial and ethnic minority populations, and the elderly. The report identified two major themes. “Oral health is more than just healthy teeth” and “Oral health is integral to general health” (p. 17). Major factors that determine oral and general health include the environment, physical and socioeconomic factors, personal behaviors and life styles, access to care, and the national structure of health care. The overarching message resonating in the Surgeon General’s report is “The burden of oral disease and conditions is disproportionately borne by individuals with low socioeconomic status at each life stage and by those who are vulnerable because of poor general health” (p. 9).

Responding to the Surgeon General’s report (USDHHS, 2000b), a coalition of private and public organizations and individuals held five regional citizen town meetings and utilized the Internet for discussions to determine possible solutions to address the inequities found in community oral health care. Upon completion of a national survey of public concern, the coalition highlighted key themes to be included in designing oral health solutions. The solutions should 1) be science based, 2) be culturally sensitive, 3) integrate into overall health and well-being efforts, and 4) be routinely evaluated. The coalitions’ research was synthesized into an action document titled *A National Call to Action to Promote Oral Health* (USDHHS, 2003) which provided a framework for national policy makers, community health agencies, educational institutions, health professionals, and the media to identify, partner, and build working solutions to increase access to oral health care.

The American Dental Hygienists' Association (ADHA) defines a dental hygienist as

A preventive oral health professional who has graduated from an accredited dental hygiene program in an institution of higher education, licensed in dental hygiene that provides educational, clinical, research, administrative, and therapeutic services supporting total health through the promotion of optimal oral health. (ADHA, 2006)

ADHA further defines the roles of the dental hygienist as “activities including, but not limited to, those of clinician, educator, advocate, administrator/manager, and researcher, with public health being an integral component of all these roles” (ADHA, 2006).

The ADHA (2005) outlined innovative directions for dental hygiene as they relate to the public's oral health and the advancement of the profession of dental hygiene. It was recognized that dental hygienists share common beliefs that play an important role in reducing the nation's oral healthcare disparities as they relate to racial and ethnic differences. These beliefs include:

- 1) access to oral health care is a right of all people, 2) the oral and general health needs of the U.S. population are growing, and dental hygiene practice and education must evolve to meet them, 3) dental hygienists should be able to provide the care they have been educated to deliver, 4) dental hygiene is part of an overall health care delivery system, not simply an arm of dentistry, 5) dental hygiene must create an integrated model of oral health care delivery with other healthcare providers, and 6) dental hygiene needs to identify and remove the barriers that restrict the public's access to oral health care. (p. 9)

Dental Education Programs as Stakeholders

Galarneau (2002) defined health care as generally a measure of “community good”. In this context, the “meanings of health and health care are created, negotiated, and shared” (p. 38). Higher education has long served as a leader of change providing the primary research and transfer of scientific knowledge. Dental schools and allied dental programs also serve as community safety nets providing care for the underserved, educating the community workforce, and hosting postgraduate continuing education programs.

In 2001 the president of the American Dental Education Association (ADEA) (2003) appointed a commission of national experts to “explore the roles and responsibilities of academic dental institutions in improving the oral health status of Americans” (p. 3). The commission reviewed national oral health reports and provided a background for future ADEA policy recommendations with a “purpose of focusing academic dentistry on a common set of strategies to improve the oral health of all Americans, especially the underserved” (p. 3). The recommendations provided a systematic approach to academic dental institutions to improve the oral health status of all Americans by:

- 1) monitoring future oral health workforce needs, 2) improving the effectiveness of the oral health care delivery system, 3) preparing students to provide oral health services to diverse populations, 4) increasing the diversity of the oral health workforce, and 5) improving the effectiveness of allied dental professionals in reaching the underserved. (p. 1)

The commission summarized the roles and responsibilities of academic dental institutions to work collaboratively with professional dental associations, state regulatory agencies, political groups, policy makers, and other health professionals to define solutions to meet the oral health care needs of the underserved (ADEA, 2003). The commission concluded that ethnic and immigrant populations may possess specific health beliefs or cultural views based on family structure, religion, medical beliefs, and health practices that may have an impact in their healthcare. An understanding of cultural practices provides the healthcare provider with the knowledge that may impact cross-cultural care and patient's compliance with recommended or prescribed healthcare interventions.

Culture and Cultural Competence

Diversity is defined as having basic respect and accepting differences among people (Carter, Bishop, & Kravits, 2008). Diversity among people encompasses differences in race and ethnicity, age, sex, sexual orientation, and physical disabilities. Differences in cultural and religious beliefs, family and behaviors, education and socioeconomic status, and marital status complete the multicultural mosaic of the American culture. Culture is from the Latin word *cultura* which means to cultivate. Culture generally refers to patterns of human activity and the symbolic structures that give activities significance and importance resulting in a theoretical base for understanding and evaluating human activities. Cultural competence refers to the ability to understand and appreciate differences among people (Carter et al., 2008).

The National Center for Cultural Competence (NCCC) (2006) defined culture as an “intergrated pattern of human behavior, which includes, but is not limited to,

thought, communication, languages, beliefs, values, practices, customs, courtesies, rituals, manners of interacting, roles, relationships, and expected behaviors of a racial, ethnic, religious, social, or political group” (p. 24). Cross-cultural caring is described by Waxler-Morrison, Anderson, Richardson, and Chambers (2005) as a process by which the health provider is aware of cultural differences and willing to identify “mutually satisfactory ways to achieve compliance or effective treatment” (p. 4) to assist the patient in receiving a positive healthcare experience which may result in a more beneficial outcome in improving the patient’s oral health status.

Statement of the Problem

This study was conducted to discover and understand to what extent dental hygiene educators in entry-level dental hygiene programs from the Upper Midwest geographic area demonstrate Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy as they relate to their level of education and multicultural experiences. An additional purpose was to examine dental hygiene educators in regard to personal cross-cultural experiences, formal cultural diversity education, usefulness of their education and preparation, and confidence to meet the CODA (2007) Standard 2-19 which states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups* (p. 23).

Research Questions

This study assessed the cultural adaptability of didactic and clinical dental hygiene faculty to determine:

1. What is the relationship between dental hygiene educators’ Emotional Resilience

and their level of education and multicultural experiences?

2. What is the relationship between dental hygiene educators' Flexibility and Openness and their level of education and multicultural experiences?
3. What is the relationship between dental hygiene educators' Perceptual Acuity and their level of education and multicultural experiences?
4. What is the relationship between dental hygiene educators' Personal Autonomy and their level of education and multicultural experiences?
5. Is there a difference in cultural adaptability between dental hygiene educators who have completed cultural-diversity education and dental hygiene educators without cultural-diversity education?

Significance of Study

Dental hygiene programs are accredited by CODA (2007) and required to meet the Accreditation Standards for Dental Hygiene Programs including Standard 2-19. As the cultural diversity of the population increases significantly between 2007 and 2030, it becomes increasingly important that dental hygiene graduates be culturally adaptable. Thus, this study attempted to measure the cross-cultural adaptability of dental hygiene educators in the Upper Midwest, educators who will be preparing these graduates.

Kelley and Meyers (1992) defined cross-cultural adaptability as the skills to live and work in a multicultural environment demonstrating Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy. Utilizing the Cross-Cultural Adaptability Inventory (CCAI) serves to identify and promote growth among dental hygiene educators. During this discovery time, individuals can identify strengths as well as areas in need of improvement within the dental hygiene program.

Measuring cross-cultural adaptability identifies strengths and weaknesses within the dental hygiene department providing support for sustaining or improving skills to interact with people from other cultures. Findings from this study can be utilized to identify the need for a systematic plan to incorporate annual culturally-appropriate coursework in educational methods for dental hygiene faculty. As an organization, the college or university may need to allocate personnel and financial resources to develop culturally-competent postgraduate continuing education programs. This study also adds to the dental hygiene body of knowledge.

Chapter 2

Review of Literature

The purpose of this study was to discover and understand to what extent dental hygiene educators in entry-level dental hygiene programs from the Upper Midwest geographic area demonstrate Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy as they relate to their level of education and multicultural experiences. An additional purpose was to examine dental hygiene educators in regard to personal cross-cultural experiences, formal cultural diversity education, usefulness of their education and preparation, and confidence to meet the CODA (2007) Standard 2-19 which states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups* (p. 23).

The dental hygiene educators are the primary source of instruction of dental hygiene students. Incorporating cultural competency into oral health didactic and clinical education provides dental hygiene students with the opportunity to increase the delivery of cross-cultural care and increase access to care for diverse and special populations during rotations in community-clinic settings. Utilizing culturally appropriate assessments, the oral care provider develops patient-centered care plans while acknowledging patients' cultural heritage, beliefs, attitudes, and behaviors. The culturally aware oral health provider is aware of stereotypes and racial biases, develops an increased professional obligation to serve the public good, and utilizes cross-cultural strategies to improve the oral-health status of all Americans.

The Surgeon General's report (USDHHS, 2000b) and the Center for Disease Control and Prevention & National Health and Nutrition Examination Survey (NHANES, 2005) provided the framework to assess the oral health status of America whereas the *Minnesota Oral Health Data Book, Children and Youth* (Minnesota Department of Health and Human Services, 2006) provided a snapshot of Minnesota's oral health status. Barriers to oral health care consist of structural barriers, financial barriers, and cultural barriers. Although much has been written about increasing access to oral health care and improving oral health outcomes as they relate to structural and financial barriers, little attention has been given to cultural barriers.

Dental hygiene educators are key stakeholders in providing culturally-competent dental hygiene instruction. ADHA (2005) research on dental hygiene faculty knowledge, beliefs, and attitudes provided insight for possible educational barriers that may exist in advancing the access to oral health care and a cultural competency framework. Defining culture, cultural barriers, cultural competence, linguistic competence, and identifying models to provide culturally appropriate oral health care are key elements in the discovery of an effective oral health solution.

Oral Health Promotion: What We Know

Across the nation, the oral health workforce is educated in a variety of academic settings such as dental schools, universities, state and community colleges, technical colleges, and proprietary institutions accredited by the Commission on Dental Accreditation (CODA). Boyer (1990) described learning activities as scholarship which engages in the discovery of knowledge, the integration of knowledge by seeking

connections, and the application of the knowledge where the scholar is asked to utilize the knowledge in solving problems. Using Boyer's definition of scholarship, academic institutions provide various levels of oral health workforce education and serve as centers to address oral health disparities by supporting applied clinical (field) research. Transferring research knowledge to improve the general health and wellness in a regional or community population by utilizing student clinicians in educational and community clinics may result in increased access to care for the unserved and underserved in unserved areas. Changing healthcare providers' perceptions of healthcare delivery, overcoming barriers to direct care, building a scientific base that understands effective preventive community-based programs, and increasing oral health workforce flexibility built on private and public community partnerships respond directly to the Surgeon General's report (USDHHS, 2000a).

Much of the current literature is based on national trends, surveillance reports defining the oral health status of the nation, and a call for a national action plan. Oral health education across the nation is a logical place to seek an oral health solution. Dental education institutions have been actively engaged in providing direct patient care on campuses and in community outreach clinics for decades. Improving the oral health status of Americans involves: 1) reviewing the U.S. healthcare system, 2) detailing U.S. demographic changes, 3) describing health in America as it relates to poverty, 4) identifying barriers to care, 5) defining the determinants of oral health in the nation, and 6) improving America's oral health status by educating a culturally-competent workforce prepared to provide oral health care services to a diverse population. Academic institutions are key stakeholders in providing care to underserved populations

(ADEA, 2005). Researchers recommended examining dental hygiene faculty members' level of cultural adaptability and the ability of dental hygienists to work effectively in the delivery of community care to reduce health care disparities in the nation (Campinha-Bacote, 2002; Connolly, Darby, Tolle-Watts, & Thomson-Laakey, 2000).

Determinants of Health

Access to health care is defined by IOM (1993) as “the timely use of personal health services to achieve the best possible health outcome” (p. 4). This same report stressed that use of healthcare services and healthcare outcomes must both be included in determining if access to healthcare has been achieved. If differences are found over time, are they a result of removing or changing the structural, financial, or cultural barriers within the healthcare system resulting in measurable improvements in America's health status?

A determinant is defined as “any variable that directly or indirectly influences the frequency or occurrence and/or distribution of any give disease” (Stedman's Concise Medical Dictionary, 1994, p. 269). These determinants are objective measures that may explain the causes of the problem(s) and provide a theoretical framework to generate ideas as to why the problems are being experienced. Overtime, these healthcare determinants provide evidence to explain the direction and speed of change occurring in society. These measurements may then become the basis for social and political pressures on society to develop healthcare changes or reform. The following section identifies specific health determinants to be used as empirical evidence or markers that impact healthcare outcomes in general and measure access to oral health care specifically.

Demographic Changes in the United States

A major issue facing all healthcare providers is the changing face of the U.S. population. The U.S. is rapidly becoming a multicultural society. The U.S. Census Bureau (2008) projected a population of 310,233,000 by 2010. The non-Hispanic white population will represent 69.75% of the total population while the Hispanic population will represent 30.25% of the total population. The U.S. Census Bureau stated that Hispanics may be of any race. The U.S. Projected Population Census reported Hispanics to include Blacks or African Americans, American Indians and Alaska Natives, Asian and Native Hawaiians, and other Pacific Islanders. The Asian ethnic group is estimated to double in population from 5.3% to 9.2%. The Black or African American population is estimated to grow from 13.59% to 14.97% of the population. The American Indian and Alaska Native population is projected to remain stable at 1.62% to 1.96%. Finally, Native Hawaiians and other Pacific Islanders represent the smallest minority population with a change from .38% to .59% (Appendix A).

Income and Social Status

Socioeconomic status is generally defined by a person's income, occupation, and level of education. Today's U.S. society consists of a large middle class and smaller upper and lower socioeconomic classes. Annual income provides residents of the U.S. with dollars to purchase basic need items such as food, shelter, and other items that support the physiological needs of life.

The National Survey of America's Families framed a direct correlation between parent's income and education and children's health (Davidoff, Garrett, Makuc, & Schirmer, 2000). Survey results showed that 7.6% of families with incomes 200%

below the federal poverty level (FPL) reported that their children were in fair or poor health as did 11.3% of parents with an educational level less than high school.

Poverty

In the United States access to health care is affected by income. Poverty is defined in Webster New World College Dictionary (2008) as “the condition of being poor; indigence; and need”, “deficiency in necessary properties or desirable qualities, or a specific quality”, and “implies a lack of resources for reasonable comfortable living” (p. 1128). In the U.S. the measure of poverty that is commonly accepted across healthcare systems is defined by the U.S. Census Bureau as Poverty is defined as family unit size (from one person to nine or more people) and number of related children under 18 years of age. The U.S. Census Bureau (2008) reported that the official poverty rate in 2007 was 12.5% representing 37.3 million people, up from 36.5 million in 2006 (p. 12). National Center for Health Statistics (NCHS) (2008) reported that “children living in single parent households, particularly when the single parent is the mother, tend to be more financially disadvantaged and to have poorer physical and mental health than children living with two biological parents” (p. 24). In 2006, the poverty rate for children less than 18 years of age living with a single parent was 28% representing an increase from 12% in 1970 (NCHS, 2008).

NCHS (2008) reported “Prior to 1974, persons 65 years of age and over were more likely to live in poverty than people of other ages” (p. 26). Due to governmental programs such as Social Security, the poverty rates of older adults have declined. “In 2006, the poverty rate among older adults was the lowest since 1959.... with an

estimated 9.4% or 3.4 million persons age 65 years and over living in poverty” (NCHS, 2008, p. 26).

Comparing race and poverty rates in the United States, NCHS (2008) reported “at all ages, a higher percentage of Hispanic and black persons than non-Hispanic white persons were poor” (p. 28). The U.S. Census Bureau (2008) reported that “non-Hispanic whites accounted for 43.0% of people in poverty while representing 65.8% of the total population” (p. 12). During the same period, the rate of poverty for African Americans or Blacks was 24.5% or 9.2 million people, for Asians was a 10.2% or 1.3 million person, and for Hispanics was 21.5% or 9.9 million person (p. 12).

Urban and Rural Communities

Both inner city and rural areas have lower access to health care. Annually, the NCHS at the CDC compiles and reports national trends in health statistics. These reports indicate that personal or family income is strongly related to most indicators of health status, healthcare access and use, and health-related behaviors (NCHS, 2001). Defining the country’s economic well-being is of special interest as it relates to populations living below the poverty level. NCHS (2008) reported that 13% of all Americans lived with incomes below the poverty level in 2006 (p. 26).

NCHS (2001) divided the U.S. population into five types of counties, three metropolitan and two nonmetropolitan counties. Metropolitan counties are described as large central metropolitan counties of one million or more population in the largest central part of the city. Large fringe metropolitan counties are the remaining counties in the metropolitan areas with one million or more population. Small counties in the metropolitan areas have a population of

less than one million people. Nonmetropolitan counties are described as a city of 10,000 or more population or without a city of 10,000 or more population. (p. 3)

Most of the U.S. counties are found in the nonmetropolitan areas whereas most Americans live in the metropolitan counties.

NCHS (2001) reported that “13% of the U.S. population was living in poverty in 1997” (p. 30). During 2001, the lowest concentrations (7-9%) of poor persons were located in fringe counties of large metropolitan areas. The largest centers of populations in poverty in the Northeast and Midwest were located in central counties of large metropolitan counties while populations in poverty were located in rural counties of the South and West (NCHS, 2001).

NCHS (2008) reported the “overall percentage of the U.S. population living in poverty declined to 12.3%” which represented the “first decline in poverty since 2002” (p. 26). During 2005-2006, poverty decreased for all ages with the largest decline found in people age 65 years and older due to increased benefits provided by government social security. “In 2006, 13 million children (17.4%) lived in poverty and another 16 million children (21.6%) were classified as near-poor with family incomes of 100% to 200% of the poverty level” (p. 26).

Health Status as it Relates to Poverty

There is no one single measure of health status. Harold Freeman (1998), president of the American Cancer Society, reported that “About one million Americans develop cancer and about 500,000 Americans die of cancer each year” (p. 266) and “disproportionate number of people who develop cancer and die of the disease are among the socioeconomically disadvantaged of all races” (p. 286). In 1989, “39 million

people in the country lived below the poverty level” (p. 272) while a “total of 37 million Americans had no health insurance” (p. 272).

Freeman (1989) challenged the professional health community with a paradigm that “poor Americans regardless of race have a five-year survival rate that is 10 to 15% lower, as well as a higher rate of cancer incidence, compared with other Americans” (p. 286). Ward et al. (2004) reported that health disparities in cancer incidence, mortality, and survival are directly related to “race/ethnicity and census data on poverty” (p. 78). Review of data from the National Cancer Institute’s *Surveillance, Epidemiology and End Results Program* (2003) concluded that the socioeconomic factors of poverty, inadequate education, and lack of health insurance when compared to biological factors were more important as they relate to cancer disparities in our nation. Freeman concluded that poverty is a key healthcare determinant in controlling the incidences and deaths related to cancer in the U.S.

The USDHHS (2009a) reported in *Summary Health Statistics for U.S. Children: National Health Interview Survey, 2007* that an estimated “41 million U.S. children enjoyed excellent health (56%) and another 20 million (27%) had very good health” (p. 6). During this same period, only “4 out of 10 children in poor families were in excellent health as compared with 6 out of 10 children in families that were not poor” (p. 6). USDHHS (2009a) concluded that “children with private health insurance (62%) were more likely to be in excellent health than children with Medicaid or other public coverage (46%)” (p. 6).

USDHHS (2009a) reported there were 48 million school-aged children (ages 5-17 years) in the U.S. Approximately 33% or 16 million children ages 5-17 years missed no school due to illness or injury. Children of single-mother families were twice as likely to miss school for 11 days or more as a result of illness or injury when compared with children of two-parent families. In 2007, 6.6 million children (9%) had no health insurance and 1.7 million children (2%) were unable to get medical care because the family could not afford it. USDHHS found that more children in the South and West were uninsured compared to children from the Midwest and Northeast (p. 6).

Oral Health Today

Former Surgeon General David Satcher (USDHHS, 2000b) stated that oral health and general health should not be treated as separate entities. The report stressed that “Oral health is more than just healthy teeth” and “Oral health is integral to general health” (p. 17). The CDC (2005) conducted a surveillance for dental caries, dental sealants, tooth retention, edentulism, and enamel fluorosis which reported in the NHANES report. NHANES is an ongoing survey of civilian, noninstitutionalized U.S. population aged two months and older in the *NHANES 1988-1994* and all ages during *NHANES 1999-2002* which measured the frequency of the most common oral diseases. *NHANES 1988-1994 and NHANES 1999-2002* (CDC, 2005) provided the nation’s most current data measuring demographics, health, and oral diseases. These national surveys were conducted by professionally-trained interviewers (USDHHS, 2000b). The participants were invited to a mobile examination center where the health assessments included oral examination by trained dentists.

Satcher's message (USDHHS, 2000b) connected overall health and oral health as a "silent epidemic" (p. 17) and drew a connection between systemic and oral diseases and total population health. The Surgeon General's report (USDHHS, 2000b) highlighted national data stating that generally there have been gains in oral health status for the general population. However, this gain in oral health is not evenly distributed across racial subpopulations. Hispanics, African Americans, American Indians, and Alaska Natives have the poorest oral health of all racial and ethnic groups in the U.S.

The CDC (2005) in the NHANES 1999-2002 stated that unmet dental needs were experienced by 4.3 million children ages 2-17 because their families could not afford dental care. Of special interest is that 21% of uninsured children had unmet dental needs as compared to 4% of the children with private dental insurance and 8% of the Medicaid children. Among non-Hispanic white children, 63% reported dental appointments within the last six months as compared to 46% of non-Hispanic black and 46% of Hispanic children. The report summarizes that 9% of the nation's children in single-mother families experienced unmet dental needs as compared to 6% of those in two-parent families.

Dental caries

NHANES 1999-2002 (CDC, 2005) stated that 41% of children ages 2-11 had caries experience on primary (baby) teeth representing no statistical reductions in prevalence and severity of dental caries in primary teeth since the 1988-1994 surveys. Of this population, 54.9% of the Mexican American children experienced dental caries as compared to 43.3% of African American children and 37.9% of non-Hispanic white

children. Children from families with incomes $\geq 200\%$ of the federal poverty level (FPL) had lower caries experience (30.7%) compared to 45.2% dental caries for children from families with incomes $\geq 100\%$ but less than $\leq 200\%$ of the FPL. Children with family incomes of $< 100\%$ of the FPL had a 55.3% caries experience. (p. 4)

NHANES 1999-2002 (CDC, 2005) reported that 21% of children aged 2-11 years experienced untreated primary tooth decay.

Non-Hispanic white children and children from families with incomes $\geq 200\%$ of the FPL had lower prevalence (18.3% and 13.2% respectively) of untreated tooth decay compared with non-Hispanic black (27.2%) and Mexican American children (31.6%) or those from lower income groups. Overall, no change was observed in the prevalence of untreated tooth decay in primary teeth among children from NHANES (2005). (p. 4)

The CDC in NHANES 1999-2002 (2005) reported that 91% of adults older than 19 years had experienced dental caries while adults aged 20-39 years experienced higher levels of untreated dental decay. The fewest caries were reported by dentate non-Hispanic white adults (18.4%) as compared to 35.9% of Mexican Americans and 41.3% African Americans aged 20-39 years. When comparing educational attainment in populations, untreated dental decay is documented in 40.9% of adults with less than a high school education as compared to 29.8% of adults with a high school education. Dentate adults with more than a high school education demonstrated a prevalence of 13.6% untreated dental decay. As the U.S. population continues to grow and age, it is

apparent that public health initiatives to prevent and control dental caries are required across the life span and all sociodemographic populations (CDC, 2005).

Tooth loss

Edentulous (tooth loss) is the final consequence of dental disease and generally mirrors a deficiency in access to oral health care or lack of preventive services. Darby and Walsh (2003) stated that the primary reason for tooth loss before age 35 years is dental caries while periodontal disease is responsible for tooth loss during the third to fifth decades of life. NHANES 1999-2002 (2005) reported that 24.93% of adults 60 years and older had all their teeth extracted compared to 31.08% edentulism in the NHANES 1988-1994 survey (approximately a 20% reduction). The NHANES 1999-2002 (2005) concluded that older adults are retaining more teeth and fewer are having all their teeth extracted.

A trend analysis of edentulism demonstrated that as urbanization decreases, edentulism increases. The NCHS (2001) generalized that this trend of total tooth loss is consistent with the urban to rural decrease in the number of dentists to population ratio. NCHS (2001) reported that edentulism was more common in lower socioeconomic level seniors than among seniors with higher incomes. In 1997-1998, 34% of low-income seniors in metropolitan counties had all their teeth extracted as compared to 47% of low-income seniors in rural areas (NCHS, 2001). Low-income seniors experience more extractions compared to seniors with higher incomes.

The NHANES 1999-2002 (CDC, 2005) found that 5.59% of Mexican Americans, 7.46% of non-Hispanic whites, and 9.47% of African Americans were edentulous. Low-income adults (< 100% of the FPL) demonstrated 14.55% edentulous

as compared to 11.56% edentulous for people with incomes (100% -199% of the FPL), and 4.81% \geq 200% of the FPL. Adults with an education level of less than high school were 13.5% less likely were more likely to be edentulous while those with a high school education were 9.05% less likely to be edentulous and those with a high school education demonstrated only a 3.54% edentulous status.

Access to Oral Health Care

The IOM Report (1993) defined access as “the timely use of personal health services to achieve the best possible health outcome” (p. 4). The 17-member committee of experts identified three primary barriers to health care: structural, financial, and personal/cultural. *Structural barriers* were defined as “impediments to medical care directly related to the number, type, concentration, location, or organizational configuration of health care providers” (p. 39). *Financial barriers* exist when patients are unable to pay for services, health care coverage is not accepted by care providers, or “reimbursement rates discourage physicians and medical facilities from treating patients with limited means” (p. 39). *Personal/cultural barriers* are manifested when individual interpretations influence healthcare decisions and outcomes.

Structural barriers

The geographic distribution of dentists follows the same national trend as the distribution of physicians. It is generally accepted that as urbanization decreases across our nation, access to oral care also decreases. In 1997-1998, only 57% of adults (ages 18-64 years) in the rural areas reported visiting a dentist as compared to 71% in the outlying counties of metropolitan areas (NCHS, 2001). NCHS (2001) reported in 1998 a supply of 61-62 dentists per 100,000 population in large metropolitan and fringe

counties compared to 29 dentists per 100,000 in the most rural settings where the population is less than 10,000 (p. 70). Regional trends also demonstrated that the highest number of dentists in the nation is located in the large, fringe metropolitan counties of the Northwest and West whereas the rural South is experiencing the lowest number of dentists (p. 70).

Although the aggregate number of dentists may actually increase over the next two decades, the increased number of dentists is not expected to keep pace with the U.S. population growth. ADEA (2003) reported that the ratio of 60.2 dentists to 100,000 population peaked in 1994 which represented a significant increase from a low of about 49 per 100,000 in 1960. ADEA (2003) estimated that by the year 2020 “the ratio of practitioners to population will decline to 54.2 active private practitioners per 100,000” (p. 7).

The Public Health Service Act gave the Secretary of Health and Human Services the authority to designate regions that are experiencing shortages in the supply of primary medical, dental, or mental health providers as Health Professional Shortage Areas (HPSAs). Under the health professional shortage guidelines, a shortage of dental professionals existed in a geographic area if any of the following conditions were demonstrated:

- 1) The area is a rational area for the delivery of dental services, 2) One of the following conditions prevails in the area: a) The area has a population to full-time-equivalent dentist ratio of at least 5,000:1, or b) The area has a population to full-time-equivalent dentist ratio of less than 5,000:1 but greater than 4,000:1 and has unusually high needs for dental services or insufficient capacity of

existing dental providers, and 3) Dental professionals in contiguous areas are over-utilized, excessively distant, or inaccessible to the population of the area under consideration. (USDHHS, 2009b, p. ¶ 1)

Examples of geographic areas include tribal reservations while institutional areas include rural or community health centers.

ADEA (2005) reported that there were 3,296 designated dental health profession shortage areas with 45.6 million people needing access to dental care. ADEA estimated that 9,000 additional dentists supported by an estimated additional 15,228 dental assistants and 11,016 dental hygienists would be needed to solve the dental health profession shortages.

Structural barriers relate to the type of the healthcare worker providing care to special populations, geographic distribution of provider (rural vs. urban), age of the healthcare provider, and future supply of workforce to meet the demand for care. However, access to care is not always solved by addressing structural barriers. For example, increasing the workforce and providing community clinics may not insure access to care issues due to issues related to financial barriers.

Financial barriers

It is generally accepted that ability to pay for medical or dental care is closely tied to having public or private healthcare insurance. Therefore, health insurance is generally accepted as a predictor of access to health care in the U.S. In 1965 under Title XIX of the Social Security Act, Medicaid was funded as a state and federal program to provide medical benefits to the uninsured citizens of America (Gluck & Morganstein, 2003). In 1997 under Title XXI, an optional State Children's Health

Insurance Program (SCHIP) was established to pay for dental services for all children through age 18. SCHIP participants cannot be charged for portions of care for well-child and well-baby visits, routine dental examinations, and preventive dental services (USDHHS, 2009a). Gluck and Morganstein (2003) reported that approximately half of the Medicaid beneficiaries were children. It was estimated that Medicaid provided services for 17% of all children, 30% of all elderly, and the 42.6% of the disabled population. Often dental providers do not accept assignment from Medicaid due to poor reimbursement rates and the uninsured often present at emergency rooms for advanced dental decay and pain control.

The National Health Interview Survey conducted by the CDC (USDHHS, 2009a) defined uninsured as a person who does not have private health insurance, Medicare, Medicaid, SCHIP, state-sponsored, or other government or military-sponsored health insurance. The CDC (2009) reported that

14.9% of population interviewed was uninsured compared to 1.47% in 2008.

During this period, 16.9% (44.4 million) under the age of 65 years were uninsured, 20.3% (38.4 million) aged 18-64 years of age were uninsured, and 8.2% (6.0 million) children under age 18 were uninsured.

(¶ 2)

Kenney, McFeeters, and Yee (2005) analyzed the 2002 National Survey of America's Families and reported that "low-income children with private insurance but no dental benefits were more likely than those without health insurance to receive preventive dental care" (p.1361). Access to regular preventive dental-care appointments for low-income children with private health insurance that did not include

dental coverage was similar to that of uninsured children (Kenney et al., 2005). The CDC (USDHHS, 2009b, ¶ 1) reported “One in four American children is born into poverty (annual income of \$17,000 or less for a family of four). Children and adolescents living in poverty suffer twice as much tooth decay as their more affluent peers, and their disease is more likely to go untreated”.

The CDC report provided summative statements on the nation’s oral health status as: 1) children from families without medical insurance were 2.5 times less likely than insured children to receive dental care, 2) children from families without dental insurance were three times more likely than insured children to have unmet dental needs, 3) for every child without medical insurance, there were 2.6 who lack dental insurance, and 4) fewer than one in five Medicaid-covered children had a preventive dental appointment. (USDHHS, 2009b, ¶ 1)

Maintaining the nation’s balance between private health insurance, Medicare, Medicaid, SCHIP, state-sponsored, government, or military-sponsored health plans provides the opportunity to increase access to oral health care. However, availability of insurance or public coverage does not insure enrollment. In summary, citizens eligible for public assistance may not be aware of programs, language barriers may contribute to misunderstandings, complicated paperwork may delay eligible members’ applications, and personal pride may detour enrollment. Addressing structural and financial barriers may not sufficiently address improving access to care. Currently, national attention is shifting to studying cultural barriers as they may relate to healthcare disparities.

Culture and Oral Health

Social justice in America is generally defined as all people regardless of race, ethnicity, sex, age, or sexual orientation participating in society's benefits and opportunities. The overarching questions in health care then become: 1) Are all American citizens able to access educational opportunities equally? and 2) Are healthcare professionals providing culturally-appropriate health care?

Cultural barriers

Prior to developing a discussion on cultural barriers, it is necessary to explore terms that are utilized in behavioral science regarding professional understanding and beliefs. Race generally refers to the method of classifying human beings based on physical characteristics such as skin color, height, hair color and texture, and facial and body characteristics (Darby & Walsh, 2003). Ethnicity describes the cultural and social traditions that one's heritage provides within the minority groups and is generally represented by customs, foods and diet, celebrations, language, and values as they relate to religion, work habits, time orientation, and healthcare practices. It is generally recognized that ethnic groups have a unique immigration history, social situations, and religious beliefs; generally there will be commonalities within the minority group.

Educational barriers

Currently, the nation's higher education enrollment of minority populations has stagnated in nursing, medicine, and dentistry. The Sullivan Commission (2004) reported that African American, Hispanic American, and American Indian students represent approximately 25% of the U.S. population, yet they represent only 9% of the U.S. nurses, 6% of the U.S. physicians, and 5% of the U.S. dentists (p. 2). The Sullivan

Commission, comprised of 16 health, business, higher education, legal experts, and national leaders concluded that “the health workforce of the future will resemble the population even less than it does today” (p. 2). Workforce diversity provides exposure to many ethnic and minority cultures through the healthcare system. The Sullivan Commission recommended that diversity of students in healthcare education programs be increased and the culture of healthcare education be changed.

Increasing the recruitment and retention of underrepresented minority students has also been recommended by the ADEA (2003). At the same time, a review of admission criteria, scholarships, and loan forgiveness programs, and dialogues with minority professional oral health associations are recommended to develop a pipeline between oral health education programs, licensed minority professionals, and minority students (ADEA, 2003). The recruitment and support of minority students would require a systematic investment in the future minority workforce to identify, support, and sustain minority population members that may be interested in oral health professional programs (ADEA, 2003). Ultimately, this would be the most effective educational initiative to reduce oral health disparities. Educational change requires time to design enrollment strategic plans that respond to the demographic and ethnic change by increasing minority population enrollment in oral health programs. Whereas, transitional change to increase culturally-sensitive oral health care can be implemented immediately by imbedding culturally-sensitive education in didactic and clinical curricula resulting in cross-cultural oral healthcare interventions designed to reduce and address oral healthcare disparities.

IOM (1993) stated that reducing a particular barrier to healthcare does not guarantee that services will be obtained by the unserved population. Traditionally, organizations tend to focus on structural and financial barriers in designing oral health solutions. It is critical to understand that structural, financial, and personal or cultural barriers interact in unique ways dependent on the social context of the minority population. Personal or cultural barriers manifest when individual and group interpretations influence healthcare decisions and outcomes.

Cultural barriers are defined as a systematic underutilization of available healthcare services by a population subgroup that has shared social characteristics such as educational levels or attitudes (IOM, 1993). Cultural barriers can be summarized as a group's implied or explicit rules of behavior. Cultural healthcare support for minority populations occurs when oral healthcare delivery takes into consideration that migrant farm workers, new immigrants and refugees, the homeless, and special care populations may need assistance with healthcare navigation through the use of interpreters and translators, outreach community healthcare workers, social workers, and culturally-sensitive practitioners.

Cultural competence

The following definition of cultural competence that was used to frame this research was adapted from the Health Resources and Services (HRSA), (USDHHS and HRSA 2007a):

Cultural competence is a set of attitudes, skills, behaviors, and policies that enable organizations and staff to work effectively in cross-cultural situations. It reflects the ability to acquire and use knowledge of the health-related beliefs,

attitudes, practices and communication patterns of clients and their families to improve services, strengthen programs, increase community participation, and close the gaps in health status among diverse population groups. Cultural competence also focuses its attention on population-specific issues including health-related beliefs and cultural values (the socioeconomic perspective), disease prevalence (the epidemiologic perspective), and treatment efficacy (the outcome perspective). (¶ 8)

Campinha-Bacote (2002) described 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 (family, individual or community)” (p. 1). Cross (1988) expanded the definition of cultural competence to include “set of congruent behaviors, attitudes and policies that come together in a system, agency or professional and enables that system, agency or professional to work effectively in a cross-cultural situation” (p. 1). Betancourt, Green, Carrillo, and Ananeh-Firempong (2003) further defined a culturally-competent healthcare system as one that “acknowledges and incorporates, at all levels, the importance of culture, assessment of cross-cultural relations, vigilance toward the dynamics that results from cultural differences, expansion of cultural knowledge, and adaptation of services to meet culturally unique needs” (p. 294).

The Minnesota Public Health Association (MPHA) (1996) stated that cultural competence is “the ability of individuals and systems to respond respectfully and effectively to people of all cultures, in a manner that affirms the worth and preserves the dignity of individuals, families and communities” (p. i). Cultural competence is

broadly recognized as providing health care to an individual including not only the racial, ethnic, and language variations within a culture but also an appreciation for the person's orientations (gender and sexual) and unique life experiences (violence, trauma, education, and historical lifestyles). Cultural competence can be summarized as professional- and organizational-level services that are delivered to diverse populations assuring that the care is culturally appropriate.

Culturally-competent care is dependent on the education of oral healthcare practitioners who possess awareness, knowledge, understanding, and skill to provide oral healthcare to a culturally diverse population. MPHA defined the culturally competent provider as:

1) having the knowledge to make an accurate health assessment which takes into consideration a patient's background and culture, 2) having the ability to convey the assessment to the patient, to recognize culture-based beliefs about health and to devise treatment plans which respect those beliefs, and 3) is willing to incorporate models of health and health care delivery from a variety of cultures into the biomedical framework. (p. 2).

This definition acknowledges that culture has an effect on the patient's health outcomes.

The MPHA convened an Immigrant Health Task Force in 1996 to address increasing accessibility to health care for immigrants and refugees who come to Minnesota. The purpose of the task force was to assist healthcare providers and consumers of health care with a report to: 1) promote access to quality care for refugees and immigrants, 2) collect resource information about relevant programs and services, and 3) encourage cooperation among healthcare agencies.

The MPHA (1996) task force finalized its work with the insightful reflection that “Cultural competence is a journey, not an endpoint” (p. 3). It is impossible for a healthcare provider to completely know and understand all health beliefs of a patient and that to begin to standardize a culture is in reality stereotyping. The task force identified *Six Steps Toward Cultural Competence* for healthcare workers, administrators, policy makers, educators, and the citizens to include:

- 1) involve immigrants and refugees in their own health care,
- 2) learn more about culture, starting with your own,
- 3) speak the language, or use a trained interpreter,
- 4) ask the right questions and look for answers,
- 5) pay attention to financial issues, and
- 6) find resources and form partnerships. (p. 4)

Healthcare providers play an important role in knowing, understanding, and advocating for the community minority and serve as a healthcare navigators.

Linguistic competence

NCCC (2006) defined linguistic competence as the personal ability “to communicate effectively and convey information in a manner that is easily understood by diverse audiences including persons with limited English proficiency, those who have low literacy skills or are not literate, and individuals with disabilities” (p. 23). The goal of providing linguistically-competent care is to assist and facilitate in health literacy.

USDHHS and HRSA (2007b) defined health literacy as “the degree to which individuals have the capacity to obtain, process, and understand the basic health information and services needed to make appropriate health care decisions” (§ 1). Healthy People 2010 (USDHHS, 2000a) added “improving health literacy” as an

objective due to the recognition by the USDHHS and HRSA that the prevalence of low health literacy has a relationship to healthcare use, outcomes, and resulting health disparities. Kirsch, Jungeblut, and Jenkins (1993) based the National Adult Literacy Survey found that approximately “90 million adults in the United States have inadequate or marginal literacy skills” (p. 1).

Written information is not the only way to communicate about health, but a great deal of health education and promotion are organized around the use of print materials, usually written at the 10th grade level and above. These materials are of little use to people who have limited literacy skills. The result is that a very large segment of the population is denied the full benefits of health information and services. (USDHHS and HRSA, 2007b, ¶ 36)

Communication with a diverse population presents the healthcare professional with a mosaic of cultural beliefs that impact the patients’ knowledge, attitudes, and values as related to health care (USDHHS, 2001). Patients’ health literacy is affected when oral health providers use long words, the patient has a low level of education, cultural differences occur in regard to healthcare beliefs, and the patient possesses Limited English Proficiency (LEP). USDHHS (2007a) concluded that patients with limited health literacy may experience challenges in finding oral healthcare providers, completing registration and medical history forms, and reporting accurate health histories. As a result of these communication challenges, the patient will not necessarily understand preventive oral health instructions or be unable to connect oral health risk behaviors such as high ingestion of sugar-based food and the process of dental disease (decay). Supporting the LEP patient with interpreters to provide medical

instructions in the primary language will assist in understanding prescriptive directions, diagnostic recommendations, scheduling appointments, and managing acute or chronic oral diseases (§ 2-5).

Because the proportion of minority populations will continue to be underrepresented in dental hygiene education, addressing provider cultural competency education is of increasing importance to reduce oral health disparities. Limited research has been conducted and published in dental hygiene to determine the level of the cultural adaptability of dental hygiene faculty in the U.S (Connolly et al., 2000; Holder-Ballard, 2006; Magee, Darby, Connolly, & Thomson, 2004). Connolly et al. recommended that cross-cultural adaptability research be conducted within a university in a rural or Midwestern settings to explore whether cross-culturally adaptable faculty can transfer this attribute to students and to evaluate if the impact of growing up in a more culturally-diverse environment increases cross-cultural adaptability.

Cultural Competence Theories

Theories or frameworks provide a relationship between specific ideas or concepts that are defined in professional context to predict an outcome or action. A healthcare theory or model provides a framework to teach, motivate, and change health outcomes. The theory or model provides a visual action plan where patients or the community engages in discovery of a possible solution to obtain primary care and maintain oral health status to reduce healthcare disparity. The implied concept of utilizing a culturally-competent framework in healthcare is to improve the healthcare provider's performance and abilities to provide quality care to diverse populations.

The purpose of using the early social, behavior, and cognitive theories was to help care providers understand and predict a patient's (client's) or group's behaviors as they relate to health status. The overarching assumption is that the clinician or therapist can modify or change the behaviors and design interventions that would improve health outcomes. Clinicians have struggled for years utilizing this early model to obtain improved health behaviors. What has not been included in health promotion theories is a way of knowing or understanding the patient in a society that is changing demographically and becoming multicultural. As the population changes, the social norms, values, beliefs, and behaviors reflect a diverse ethnicity. Appendix B has early examples of theories for health promotion. The remainder of this section discusses four nursing healthcare models that focus on cultural competency: Leininger (1997), Campinha-Bacota (2002), Purnell and Paulanka (2003), and Kim-Godwin, Clarke, & Barton (2001).

Cultural competency in nursing is defined as a dynamic model seeking to know cultural factors that influence patient and family behaviors as they relate to healthcare outcomes. Leininger (1997) established transcultural nursing in the 1950s as a formal area of inquiry and practice which has transformed nursing over the past 40 years providing culturally-appropriate care to people from diverse cultures. Leininger defined transcultural nursing as "the provision of competent care with a view to respecting specific values and folkways of given ethnic, racial or national identity" (p. 341). "It was a major challenge for me to establish a new way for nurses to understand cultural strangers and provide cultural-specific nursing care" (p. 341). Early resistance developed in nursing education to embracing transcultural nursing as a theoretical

framework or model in patient care planning as it was viewed as “unnecessary” and “irrelevant” (Leininger, 1997).

Sunrise Model

Leininger (1997) provided a care-centered framework to bridge the concepts of quality of life and community cultural patterns into a framework to address healthcare within a specific community (culture) as presented in a multidimensional construct. The Sunrise Model is a “systematic strategy to assist populations to identify community health concerns and generates ideas for community involvement” (p. 20) through assessment, planning, implementation (delivery), and evaluation of appropriate health care services (Ludwig-Beymer, Blankemeier, Casaa-Byots, & Sarez-Balcazar, 1996).

The strength of the Sunrise Model (Leininger, 1997) is that it provides a systematic strategy for assessing the cultural community in regard to cultural and social structural dimensions which include technological factors, religious and philosophical factors, kinship and social factors, cultural values, political and legal factors, economic factors, and educational factors. The results of the community assessment impact individuals, family members, the community, and institutions that deliver health care. The Sunrise Model provides the healthcare professional the opportunity to customize healthcare plans utilizing a culturally aware lens that can be readily adapted to other healthcare providers.

ASKED Model

Campinha-Bacota (2002) designed a cultural competence model as a process for delivering culturally-competent care that utilizes five dimensions: 1) cultural awareness, 2) cultural knowledge, 3) cultural skill, 4) cultural encounters, and 5) cultural desire.

Cultural awareness is the process of conducting self-examinations to understand one's own culture, discovering personal cultural biases, and becoming aware of racism in healthcare models. *Cultural knowledge* is demonstrated by understanding different cultures and ethnic groups and includes biological variations, diseases and health conditions, and variations in drug metabolism. *Cultural skill* is the ability to conduct a valid patient interview to collect relevant cultural and medical data during patient assessment. *Cultural encounters* are the actual interpersonal cultural exchanges with patients from various ethnic backgrounds resulting in a reduction of the healthcare professional's cultural bias or stereotyping. *Cultural desire* is the demand by the healthcare professional to "engage in the process of becoming culturally aware, culturally knowledgeable, culturally skillful, and seeking cultural encounters" (p. 2) rather than being required to have cross-cultural experiences. This framework is useful as an instructional model in healthcare education as it directs the student along a cultural discovery process during didactic and clinical education.

Campinha-Bacota's (2002) model utilized the core concepts of continuous learning and applying learning. The healthcare provider is striving to insure that appropriate cultural competence has been utilized during the process of care to a diverse population of patients. Campinha-Bacota encouraged the care provider to use an informal method of self-examination and reflection known as "**ASKED**".

Awareness: Am I aware of my biases and prejudices towards other cultural groups, as well as racism and other "isms" in healthcare?

Skill: Do I have the skill to conduct a cultural assessment in a sensitive manner?

Knowledge: Am I knowledgeable about the worldviews of different cultural and ethnic groups, as well as knowledge in the field of bicultural ecology?

Encounters: Do I seek out face-to-face and other types of interactions with individuals who are different from me?

Desire: Do I really “want to” become culturally competent? (p. 3)

Campinha-Bacote’s (2002) model also provided a valid and reliable formal cultural competence instrument, *Inventory for Assessing the Process of Cultural Competence Among Healthcare Professions – Revised*, to be utilized in cultural competence training and education programs. The formal instrument may be utilized for measuring individual, departmental, or organizational levels of cultural competence. The strength of this model is the blending of informal and formal measures of cultural competence education as they are related to direct care provided to the individual, family, and community.

The Purnell Model for Cultural Competence

Purnell and Paulanka (2003), professors at University of Delaware, designed a framework of transcultural nursing care to be used in educational and healthcare organizations to prepare students and staff in providing culturally sensitive and appropriate care at the individual, family and community levels. Purnell and Paulanka highlighted the impact of Western ethics that stress individualism, patient autonomy, justice, and truth telling in healthcare education. An example of Western ethics would be asking a question directly to the patient as compared to a collective society such as the Chinese or Japanese where the family is engaged in discussing the patient’s health and illness. The overarching challenge of healthcare professionals is to understand the

client's perspective of health when designing healthcare interventions. This particular theory "requires that health-care providers develop an open style of communication, be receptive to learning from multicultural clients, and demonstrate tolerance for ambiguities inherent in cultural norms" (Purnell & Paulanka, 2003, p. xxi).

The framework or theory is designed as a circle with four orbits. The outermost orbit represents the global society including such factors as "world communications and politics; conflicts and warfare; natural disasters and famines; international exchanges in education, business, commerce, and information technology; advances in the health sciences; space exploration; and the expanded opportunities for people to travel around the world and interact with diverse societies" (Purnell & Paulanka, 2003, p. 9). The next orbit represents the community which is a common set of interested identities, social structure, and symbols that connect a group of people geographically. A community generally shares the same religious and social concepts that dictate how members of the community react interpersonally. Orbit three represents family as two or more people who are emotionally connected, may live in "close proximity to each other", and share a common family structure that defines the individual's role within the family in regard to "age, generations, marital status, relocation or immigration, and socioeconomic status" (p. 10). The fourth orbit defines the person who is changing over time as a result of interaction with the family, community, and global society.

The Purnell Model for Cultural Competence is a comprehensive model that reflects the complexity of an individual which is influenced by a global society, community, family, and finally the individual domains which are divided into 12 pie-shaped wedges. These 12 domains provide an ethnocultural structural framework to be

utilized by healthcare providers to assess the patient's (client's) healthcare status and develop the healthcare plan, implementation, and evaluation. In the middle of the 12 domain pie-shaped wedges is a dark center which represents "unknown phenomena" (Purnell & Paulanka, 2003, p. 9) and may impact healthcare interventions. The 12 domains and major concepts are summarized as follows:

1. *Overview/heritage* includes concepts related to the country of origin, current residence, and the effects of the topography of the country of origin and current residence, economics, politics, reasons for emigration, educational status, and occupations. (p. 11)
2. *Communication* includes concepts related to the dominant language and dialects; contextual use of the language; paralinguistic variations such as voice volume, tone, and intonations; and the willingness to share thoughts and feelings. Nonverbal communications such as the use of eye contact, facial expressions, touch, body language, spatial distancing practices, and acceptable greetings; temporality in terms of past, present, or future worldview orientation; clock versus social time; and the use of names are important concepts. (p. 14)
3. *Family roles and organization* includes concepts related to the head of the household and gender roles; family roles, priorities, and developmental tasks of children and adolescents; child-rearing practices; and roles of the aged and extended family members. Social status and views toward alternative lifestyles such as single parenting, sexual orientation, childless marriages, and divorce are also included in this domain. (p. 18)

4. *Workforce issues* include concepts related to autonomy, acculturation, assimilation, gender roles, ethnic communication styles, individualism, and healthcare practices from the country of origin. (p. 21)
5. *Biocultural ecology* includes variations in ethnic and racial origins such as skin coloration and physical differences in body stature; genetic, hereditary, endemic, and topographical diseases; and differences in how the body metabolizes drugs. (p. 23)
6. *High-risk behaviors* include the use of tobacco, alcohol, and recreational drugs; lack of physical activity; nonuse of safety measures such as seatbelts and helmets; and high-risk sexual practices. (p. 26)
7. *Nutrition* includes having adequate food; the meaning of food; food choices, rituals, and taboos; and how food and food substances are used during illness and for health promotion and wellness. (p. 27)
8. *Pregnancy and childbearing practices* include fertility practices; methods for birth control; views toward pregnancy; and prescriptive, restrictive, and taboo practices related to pregnancy, birthing, and postpartum treatment. (p. 29-30)
9. *Death rituals* include how the individual and the culture view death, rituals and behaviors to prepare for death, and burial practices. Bereavement behaviors are also included in this domain. (p. 31)
10. *Spirituality* includes religious practices and the use of prayer, behaviors that give meaning to life, and individual sources of strength. (p. 32)
11. *Healthcare practice* includes the focus of health care such as acute or preventive; traditional, magic, religious and biomedical beliefs; individual responsibility for

health; self-medicating practices; and views toward mental illness, organ donation, and transplantation. Barriers to health care and one's response to pain and the sick role are included in this domain. (p. 33-34)

12. *Healthcare practitioner* concepts include the status, use, and perceptions of traditional, magic, religious, and allopathic biomedical healthcare providers. In addition, the gender of the healthcare provider may have significance. (p. 37)

The goal of these 12 domains is to become interactive and intra-active in knowing and understanding the various cultural aspects of patients. The domains serve as topic interview items providing cultural reasoning and understanding. The goal would be to remove ethnocentrism, the universal trait where human beings think, act, and believe that their way of knowing is the only right, correct, and appropriate reference point in decision making (Purnell & Paulanka, 2003). The healthcare provider would utilize this model to assess and analyze the cultural information that is obtained in the initial interview with the patient. The healthcare provider would then design healthcare interventions and treatments with respect to the patient's cultural values.

The Purnell Model (Purnell & Paulanka, 2003) is comprehensive and would require extensive training prior to implementation as a cultural health assessment tool. The model is in a template wheel identifying the 12 domains of the individual surrounded by the family, community, and the global society. The overarching advantage of this model is that the framework is useful for all healthcare providers and inter-relates the cultural characteristics to define the patient's motivators and ways of knowing as they relate to the individual, family, and group. The result is a respectful, trusted model of patient treatment planning to support healthcare outcomes. While this

model is an interactive assessment model, it does not measure the final health outcome(s).

Culturally Competent Community Care

The Cultural Competent Community Care (CCCC) (Kim-Godwin, Clarke, & Barton, 2001) model focuses on a design to predict health outcomes as a result of quantitative measures of individual health outcomes and qualitative methods of research to measure the population's satisfaction with the direct care, trust, and perceived health status. Kim-Godwin et al. recognized that current models of transcultural nursing utilized "frameworks and models describing the roles of nurses in certain settings and none attempted to explain the effect of culturally competent care on populations in community settings" (p. 919). This prompted Kim-Godwin et al. to design a community-based framework focused on providing culturally-competent healthcare outcomes. The CCCC framework utilizes three over-arching categories - cultural competence, healthcare system, and healthcare outcomes to demonstrate that healthcare is a "continuum from individual-focused health to whole community population-focused health and health care" (p. 919).

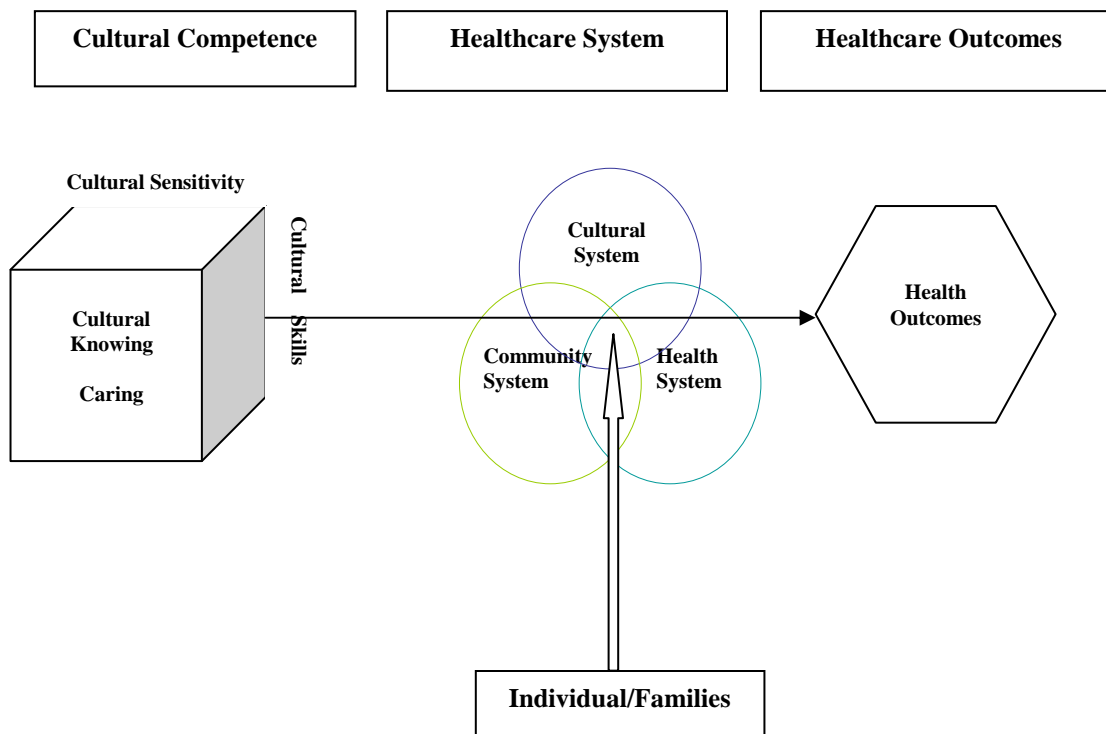


Figure 1. *A model for the delivery of culturally competent community care.*
 Source: Kim-Godwin, Clarke, & Barton, 2001, p. 920

The category cultural competence includes the dimensions from previous transcultural nursing models of cultural sensitivity, cultural knowledge, and cultural skills. “Cultural sensitivity in the CCCC model refers to attitudes, perceptions, and values that show heightened awareness of the provider’s own culture and that of the population being served” (p. 922). Cultural knowledge generally refers to the “cognitive understanding of community culture including specific beliefs and behaviors” (p. 922). Cultural skills are the ability to conduct culturally appropriate assessments in the community to determine culturally-appropriate care.

Kim-Godwin et al. (2001) stated that “human caring is the most basic and universal component of health care and cultural competence” (p. 921). The authors concluded that “caring as a concept remains elusive, and there is no universal definition

of the concept” (p. 921). To achieve successful community programs, it is recommended that protocols be developed that measure cultural sensitivity, cultural knowledge, cultural skill, and interpersonal caring.

The category health care system includes the dimensions of community system, cultural system, and health system. *Community system* is generally understood as a local geographic area such as a neighborhood or collection of people who share similar beliefs, values, and concerns. An example of community would be a specific subset of the population such as Head Start families, migrant farm workers in a rural setting, elders, or a defined medically compromised subset such HIV or cerebral palsy populations. *Cultural system* is generally understood to be specific values and folkways of a given ethnic, racial or national identity (Leininger, 1997) and is shaped by members’ thinking, beliefs, action, and communication which then affects the health status of the group (Kim-Godwin et al., 2001). *Health system* is defined in the CCCC model as the “culturally diverse clients’ health beliefs, practices and health status which are influenced by the patient’s personal factors such as demographics (age, gender, education, income and marital status), lifestyles and the degree of the patient’s acculturation” (Kim-Godwin et al., 2001, p. 921).

The category health outcomes included the health status of the community as a result of the care that is provided by the culturally-competent healthcare provider or organization. Reducing healthcare disparities relies on all three domains to provide a working solution to increase overall community health. The hypothesis of this model is that when community-health nurses (healthcare providers) are culturally competent there is a predicted positive impact on the community’s health. The CCCC model

defines the culturally-competent nurse as one who is “able to resolve issues” due to lack of agreement between the community system, the cultural system, and the health system.

Social Constructivism Theory

Social constructivism theory provided the basis for the demographic section of this study. This theory is based on the premise that individuals gain understanding of the world in which they live and work (Creswell, 2003). Thus, social constructive researchers seek to observe and understand the subjects in relationship to their world view. Crotty (as cited in Creswell, 2003) identified the following assumptions regarding social constructivism:

1) meanings are constructed by human beings as they engage within the world they are interpreting, 2) humans engage with their world and make sense of it based on their historical and social perspective, i.e., we are all born into a world of meaning bestowed upon us by our culture, and 3) the basic generation of meaning is always social, arising in and from interaction with a human community. (p. 9)

Cross-Cultural Adaptability Inventory

Kelley and Meyers (1992) designed the Cross-Cultural Adaptability Inventory (CCAI) as a training instrument “to provide information to an individual about his or her potential for cross-cultural effectiveness (p. 2). The CCAI is a 50-item inventory that measures four research-based dimensions of cultural adaptability: Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy

1. *Emotional Resilience* (18 items) measures the ability of a person to work in indeterminate situations and be able to handle the stress in a constructive and healthy manner. Emotionally resilient people are able to take risks, like new experiences, and can cope with ambiguity.
2. *Flexibility and Openness* (15 items) measures the skills of a person to work with people of other cultures who possess ways of knowing and understanding that may be in contrast to the health care provider's own culture. Health care professionals that are flexible and open are comfortable with a variety of people and are tolerant, nonjudgmental, and openly communicate across cultures.
3. *Perceptual Acuity* (10 items) measures interpersonal communication with those from different cultures. The culturally competent health care provider is able to perceive the verbal and non-verbal clues provided by the patient/client.
4. *Personal Autonomy* (7 items) measures the health care provider's sense of self. A health care provider demonstrating personal autonomy has a strong sense of self, understands their beliefs, and is self-directed. (p. 14)

The CCAI is a personal inventory designed to guide individuals, groups, and organizations to identify strengths and weaknesses in cultural preparedness to interact with others. A review of dental hygiene literature yielded three published articles in cross-cultural research by Connolly et al. (2000), Holder-Ballard (2006), and Magee et al. (2004).

Connolly et al. (2000) administered the CCAI to measure cross-cultural adaptability of 40 health science faculty from dental hygiene, medical laboratory

science, nursing, and physical therapy at an urban regional university in Southeastern Virginia. The result of the research was that there was no statistically “significant difference in cultural adaptability between the various educators from dental hygiene, medical laboratory sciences, nursing and physical therapy” (p. 108). Connolly et al. reported the four health science faculty groups possess similar levels of cross-cultural adaptability and concluded that “increasing pluralistic qualities of the changing demographics of the U.S. suggest that faculty must be more than slightly above average to teach cultural sensitivity to future practitioner” (p. 114). The authors recommended:

- 1) A replication of this study using full-time health science faculty members within a university in a rural or Midwestern setting and compare the results with this study, 2) Further exploration to determine whether a cross-culturally adaptable faculty can impart this attribute on students by administering the CCAI to entering and exiting students, or by comparing the exiting students with those in an institution not exposed to cultural adaptability training, and 3) A study comparing the cross-cultural adaptability of the student body and health science faculty to see if students, growing up in a more cultural diverse environment, are more cross-culturally adaptable than faculty. (p. 114)

Magee et al. (2004) used the CCAI inventory to compare the preparation of dental hygiene students attending culturally-diverse dental hygiene programs to four non culturally diverse dental hygiene programs. The results showed that dental hygiene students with cross-cultural experiences scored higher than the nondiverse students in regard to Emotional Resilience but lower in Flexibility and Openness and Perceptual and Acuity. Magee et al. concluded that dental hygiene curriculum should incorporate

“cross-cultural competence educational strategies and peer and patient encounters to enable students to develop competency in providing cross-cultural health care” (p. 22).

Holder-Ballard (2006) administered the CCAI to dental hygiene students (n=62) and the dental hygiene faculty (n=16) at a baccalaureate program located in the southeast U.S. The purpose of the study was to first compare the cross-cultural adaptability of first-year and second-year dental hygiene students to the dental hygiene faculty; and secondly, to evaluate the influence of the demographic variables age, marital and family status, place of residence and growing up in an ethnically diverse community on cross-cultural adaptability. The results of the pre and post-test found no statistically significant difference in the CCAI composite scores of the dental hygiene students. Holder-Ballard concluded that the most significant difference in the CCAI score appeared to be in the demographic factor of marital and family status.

The CCAI represents a self-assessment instrument to measure cultural awareness and sensitivity of healthcare educators, students, and providers. A limitation of this theoretical framework is that cultural competence moves beyond the oral care providers possessing knowledge of various cultures and demonstrating cultural adaptability. The oral healthcare providers of the future will be required to deliver healthcare services that are culturally appropriate, demonstrate respect for patients whose cultural beliefs and values may oppose or differ from the clinical recommendations, and assist the patient in obtaining positive health outcomes. Culturally-competent care requires the healthcare professions, the patient or client, and the local community to support successful community health outcomes.

Chapter 3

Methodology

Using a quantitative nonexperimental design, this study sought to discover and understand to what extent dental hygiene educators in entry-level dental hygiene programs from the Upper Midwest geographic area demonstrate Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy as they relate to their level of education and multicultural experiences. An additional purpose was to examine dental hygiene educators in regard to personal cross-cultural experiences, formal cultural diversity education, usefulness of their education and preparation, and confidence to meet the CODA (2007) Standard 2-19 which states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups* (p. 23).

This chapter describes the sample, data collection instruments, data collection, profile of respondents, data treatment, and data analysis.

Sample

The participants were all faculty in the 25 entry-level dental hygiene programs in colleges or universities in the Upper Midwest. The Upper Midwest programs included Iowa with 5, Minnesota with 10, North and South Dakota with 1 each, and Wisconsin with 8. Of the 25 programs, 3 were baccalaureate programs at public colleges, 20 were associate programs at public colleges, and 2 were associate programs at private colleges.

In February 2008, the researcher contacted the program directors of these dental hygiene programs to describe the project, to determine their willingness to participate,

and to determine the number of faculty in each program. Eighteen of 25 program directors responded to the electronic mail request. A telephone call was made one week later to all nonresponding program directors. Information was obtained from the remaining seven program directors. The third column of Appendix C shows the number of faculty in each program.

Data Collection Instruments

Two data collection instruments were used. One data collection instrument collected demographic and cultural experience information on the faculty, was developed by the researcher, and had 22 items. The demographic items included age, sex, racial or ethnic background, educational level, years teaching, years employed at current institution, marital status, and racial or ethnic background of spouse and children. The cultural experience items included courses taken, cross-cultural work, and teaching experiences. Appendix D has a copy of this questionnaire.

The second data collection instrument was the Cross-Cultural Adaptability Inventory (CCAI) by Kelley and Meyers (1992). The CCAI is a 50-item data collection instrument that measures four research-based dimensions of cultural adaptability: 1) Emotional Resilience, 2) Flexibility and Openness, 3) Perceptual Acuity, and 4) Personal Autonomy. Respondents used a 6-point scale to record their answers (6=Definitely True, 5=True, 4=Tends to Be True, 3=Tends to Be Not True, 2=Not True, and 1=Definitely Not True).

1. *Emotional Resilience*: 18 items measure the ability of a person to work in indeterminate situations while being able to handle the stress in a constructive and

healthy manner. Emotionally-resilient people are able to take risks, like new experiences, and can cope with ambiguity. (p. 14)

2. *Flexibility and Openness*: 15 items measure the skills of a person to work with people of other cultures who possess ways of knowing and understanding that may be in contrast to the individual's own culture. People who are flexible and open are tolerant, nonjudgmental, comfortable with a variety of people, and communicate well across cultures. (p. 16)
3. *Perceptual Acuity*: 10 items measure how well an individual can communicate with those from different cultures. The culturally-competent individual is perceptive to the verbal and nonverbal cues provided by others. (p. 17)
4. *Personal Autonomy*: 7 items measure the extent to which an individual can interact with others in unfamiliar settings. In a cross-cultural setting, the individual has a strong sense of self, understands one's own beliefs, and is self-directed. (p. 18)

Reliability and validity testing of the CCAI were conducted prior to publication in 1992 by Kelley and Meyers. Statistical reliability establishes the extent to which items in each scale are correlated to other items in the scale. Kelley and Meyers utilized Cronbach's alpha to determine the internal consistency of each CCAI scale. For the CCAI scales, their alpha scores were Emotional Resilience (.82), Flexibility and Openness (.80), Perceptual Acuity (.78), Personal Autonomy (.68), and total score (.90). These scores indicate there is a high level of internal consistency. Respondents who scored high on one item tended to score high on other items in the same scale whereas those respondents who scored low on one item tended to score low on other items in the same scale.

Validity refers to how accurately the instrument measures what it is intended to measure within a particular group of participants. Kelley and Meyers' (1992) statistical analysis reported that the CCAI can be measured relative to three types of validity: face validity, content validity, and construct validity. Kelley and Meyers defined face validity as the instrument measuring what it is intended to measure, content validity as the extent to which the instrument covers the research subject matter, and construct validity as the extent that the instrument measures a theoretical construct or trait (p. 32). The design of the CCAI provides the opportunity to identify discriminate validity as the instrument has been designed to detect differences among groups who have other known differences such as sex, age, and educational level (p. 33). The validity information provided by this instrument can be used in identifying cross-cultural information within individuals and between groups to be utilized for cross-cultural training.

Pretesting of the demographic data collection instrument was completed to identify possible areas requiring changes to improve readability (Creswell, 2003). Creswell recommended the researcher include the pretesting comments and recommendations in the demographic data collection instrument. Pretesting of the demographic data collection instrument was conducted during early fall semester 2008 using a convenience sample of eight of the 10 Minnesota State University, Mankato (MSU) dental hygiene faculty. No changes were made to the instrument. IRB approval was sought from the University of Minnesota on April 9, 2008, and granted April 21, 2008.

Study number: 0804E30981

Data Collection

Data collection instruments were mailed Fall Semester 2008 to the program directors at the 25 Upper Midwest entry-level dental hygiene programs with a cover letter to thank them in advance for distributing the data collection instruments and materials. A total of 176 faculty members received a cover letter, instructions for completing the data collection instruments, informed consent form, the CCAI data collection instrument, the demographic data collection instrument, and a stamped self-addressed return envelope. The cover letter described the research project, requested the faculty member's participation, and estimated that the data collection instruments would take approximately 30 minutes to complete (Appendix E has the cover letter).

According to Salant and Dillman (1994), achieving a high response rate is dependent on utilizing a five-step process. Step 1: The first mailing was a short advance notice to all program directors with a sample of the data collection instruments. Step 2: A cover letter, instructions for completing the data collection instruments, informed consent form, the CCAI data collection instrument, the demographic data collection instrument, and a stamped, self-addressed return envelope were mailed one week following the advance notice. Step 3: A follow-up electronic message was sent to all program directors 4 to 8 days after the CCAI and demographic data collection instruments were sent. Step 4: A personal telephone call was made to all nonrespondents identifying the purpose of the research, asking if they had received the CCAI data collection instruments or would they need another copy of the data collection instruments mailed to them, and stressing the importance of their participation in the data collection. Step 5: Directors who reported not receiving the

data collection instruments were sent a second mailing including: a cover letter, instructions for completing the data collection instruments, informed consent form, the CCAI data collection instrument, the demographic data collection instrument, and a stamped, self-addressed return envelope.

By January 17, 2009, 19 of the 25 programs had responded. The directors of the nonresponding programs were contacted and urged to respond. Some requested another set of materials to be sent. Data collection terminated on February 2, 2009, with 21 of 25 programs responding which yielded 141 of 176 faculty (80.1%). The column 3 of Appendix C has the number of respondents from each program. The researcher entered the data into a Statistical Package for the Social Sciences (SPSS) file for analysis.

Profile of Respondents

The frequency and percentage of respondents from the 21 entry-level dental hygiene programs in the Upper Midwest that responded are shown in Table 3.1: four of five programs from Iowa, seven of 10 programs from Minnesota, and each program in North Dakota, South Dakota, and Wisconsin. All 21 programs were public institutions with three offering baccalaureate degrees and 18 offering associate degrees. Of the four nonresponding programs, all were associate programs with two being public institutions and two being private institutions. Over three fourths of the respondents were from Minnesota and Wisconsin.

Table 3.1

Frequency and Percentage of Respondents by State

State	Frequency	Percent	Valid Percent	Cumulative Percent
Minnesota	56	39.7	39.7	39.7
Iowa	14	9.9	9.9	49.6
North Dakota	5	3.5	3.5	53.2
South Dakota	11	7.8	7.8	61.0
Wisconsin	55	39.0	39.0	100.0
Total	141	100.0	100.0	

The respondents were overwhelmingly female, Caucasian, and had a wide range of ages, a variety of college degrees, a wide range of years of experience teaching dental hygiene, and a wide range of years teaching at their current institution. The respondents were 92.9% (n=131) female and 6.4% (n=9) male and were 93.6% (n=132) Caucasian. Because the age distribution was skewed, the age intervals were regrouped as 20-39, 40-49, and 50 and older for the analysis. Table 3.2 shows the age distribution of the respondents. The distribution of faculty by the highest level of education is shown in Table 3.3. To equalize the cell sizes, the educational levels were regrouped as associate and baccalaureate degrees and masters' degree or higher. Appendix F for complete comparison of the normative population to the dental hygienists in this study.

Table 3.2

Frequency and Percentage of Respondents by Age

Age Interval	Frequency	Percent	Valid Percent	Cumulative Percent
20-29	5	3.5	3.6	3.6
30-39	17	12.1	12.2	15.8
40-49	48	34.0	34.5	50.4
50-61	66	46.8	47.5	97.8
62 or over	3	2.1	2.2	100.0
Total	139	98.6	100.0	
Missing	2	1.4		
Total	141	100		

Table 3.3

Frequency and Percentage by Highest Level of Education

Level of Education	Frequency	Percent	Valid Percent	Cumulative Percent
Associate	5	3.5	3.6	3.6
Baccalaureate	66	46.8	47.5	51.1
Masters	57	40.4	41.0	92.1
Doctorate	10	7.1	7.2	99.3
Other	1	.7	.7	100.0
Total	139	98.6	100.0	
Missing	2	1.4		
Total	141	100.0		

The distribution of the dental hygiene faculty by years teaching dental hygiene and years teaching at their current institution in 10-year intervals are shown in Tables 3.4 and 3.5. Approximately 50% of the faculty has fewer than 11 years of teaching experience and less than 11 years at their current institution. The average number of years teaching dental hygiene is 13.26, whereas the average numbers of years at the current institution is 11.64. Interesting footnote, 74% (104 of 141) of the faculty have been at their current institution their entire teaching career. The Pearson Product Moment correction between years teaching dental hygiene and years teaching at current institution was .89 with $p = .000$.

Table 3.4

Frequency and Percentage of Respondents for the Years Teaching Dental Hygiene

Years Teaching Dental Hygiene	Frequency	Percent	Valid Percent	Cumulative Percent
1-10 years	70	49.6	50.7	50.7
11-20 years	37	26.2	26.8	77.5
21-30 years	20	14.2	14.5	92.0
31-40 years	11	7.8	8.0	100.0
Total	138	97.9	100.0	
Missing	3	2.1		
Total	141	100.0		

Table 3.5

Frequency and Percentage of Respondents by Years Teaching at Current Institution

Years Teaching at Current Institution	Frequency	Percent	Valid Percent	Cumulative Percent
1-10 years	78	55.3	56.5	56.5
11-20 years	40	28.4	29.0	85.5
21-30 years	13	9.2	9.4	94.9
31-40 years	7	5.0	5.1	100.0
Total	138	97.9	100.0	
Missing	3	2.1		
Total	141	100.0		

Nearly all the dental hygiene faculty were married to a person of the same racial or ethnic background and their families were of the same racial and ethnic background. Of the 141 respondents, 120 (85.1%) had a spouse of the same race, 13 (9.2%) had a spouse of a different race, and four (2.8%) were not married. Four respondents did not provide a marital status and four did not indicate the race or ethnicity of their spouse. Of the 141 respondents, 114 (80.9%) had children of the same race, 8 (5.7%) had children of a different race, and 19 had no children or did not answer the question. In 17 families, the dental hygienist, spouse, and children were of different races.

The respondents had limited multicultural experiences. Only 43.9% (n=61) of the respondents taught in multicultural settings while 55.3% (n=78) had not taught in multicultural a multicultural setting. Although only 10.6% (n=15) had no multicultural experiences in their coursework, 66.7% (n=94) had multicultural experiences in only one course, and 21.3% (n=30) had multicultural experiences in 2 or more courses. Additionally, 50.4% (n=71) had no reported personal multicultural experiences, while

27.2% (n=39) had two or more personal multicultural experiences. Appendix G has Tables G1, G2, and G3 showing the frequency distribution for these items.

Data Treatment

CCAI utilizes 50 items to measure four dimensions: Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy. Kelly and Meyers (1992) stated that “the CCAI was not developed to predict success or failure in cross-cultural interactions” (p. 2) but rather to help individuals in assessing their “readiness to interact with people from other cultures” (p. 2), and to assist individuals “in seeking further training to acquire the skills they need to be cross-culturally effective” (p. 2). Items 10, 14, 19, 22, 23, 27, 32, 34, and 37 are negatively worded so their scores are reversed. The reversed items are indicated with an R in the following descriptions. Each item is assigned to one scale.

The reliability procedure in SPSS was used to determine the reliability of each scale as measured by Cronbach’s alpha. A higher Cronbach’s alpha (the closer to 1.0) means the items are more internally consistent. Reliability analysis of the four scales (dependent variables) showed that some items reduced the internal consistency of the scales. These items were removed from the scales. The reliability procedure output shows the Cronbach’s alpha value and what alpha would be if each item were deleted from the scale. For three of the four scales, it was clear that the reliability would be improved if specific items were deleted.

The initial Cronbach’s alpha for the Emotional Resilience scale was .79 with no items eliminated. The items retained for data analysis yielded a final alpha of .84

shown in Table 3.6. Appendix G has Tables G4, G5, and G6 showing Cronbach's alpha as specific items were deleted.

Table 3.6

Retained and Deleted Items in Emotional Resilience Scale

Item #	Variable
1	I have ways to deal with the stresses of new situations.
4	I feel confident in my ability to cope with life, no matter where I am.
7	I can laugh at myself when I make a cultural faux pas (mistake). ^a
10R	When I am working with people of a different cultural background, it is important to me to receive their approval. ^a
13	I like to try new things.
16	If I had to hire several job candidates from a background different from my own, I feel confident that I could make a good judgment.
18	I could live anywhere and enjoy life. ^a
21	I make friends easily. ^a
23R	I don't enjoy trying new foods. ^a
26	Even if I failed in a new living situation, I could still like myself.
29	I like new experiences.
31	I rarely get discouraged, even when I work with people who are very different from me.
34R	It is difficult for me to approach unfamiliar situations with a positive attitude.
36	I can cope well with whatever difficult feelings I might experience in a new culture.
39	I can function in situations where things are not clear.
42	I can trust my ability to communicate accurately in new situations.
45	I can accept my imperfections, regardless of how others view them.
48	I can live with the stress of encountering new circumstances or people.

Note. Original coefficient alpha = .79

Revised coefficient alpha = .84

Kelly and Meyers alpha = .82

^a Deleted Items in Emotional Resilience Scale

The initial Cronbach's alpha for the Flexibility and Openness scale was .74 with no items eliminated. The items retained for data analysis yielded a final Cronbach's alpha of .81 shown in Table 3.7. Appendix G has Table G7, G8, and G9 showing Cronbach's Alpha as specific items were deleted.

Table 3.7

Retained and Deleted Items in Flexibility and Openness Scale

Item #	Variable
2	I believe that I could live a fulfilling life in another culture.
5	I can enjoy relating to all kinds of people.
8	I like being with all kinds of people.
11	I liked a number of people who don't share my particular interests.
14R	If I had to adapt to a slower pace of life, I would become impatient. ^a
19R	Impressing people different from me is more important than being myself with them.
22R	When I am around people who are different from me, I feel lonely.
27R	I am not good at understanding people when they are different from me.
30	I enjoy spending time alone, even in unfamiliar surroundings. ^a
32R	People who know me would describe me as a person who is intolerant of others' differences. ^a
37R	When I meet people who are different from me, I tend to feel judgmental about their differences.
40	When I meet people who are difference from me, I am interested in learning more about them.
43	I enjoy talking with people who think differently than I think.
46	I am the kind of person who gives people who are different from me the benefit of the doubt.
49	When I meet people who are different from me, I expect to like them.

Note. Original coefficient alpha = .74

Revised coefficient alpha = .81

Kelly and Meyers alpha = .80

^a Deleted Items in Flexibility and Openness Scale

The initial Cronbach's alpha for the Perceptual Acuity scale was .770 with no items eliminated. The analysis showed that deleting item 9 would raise Cronbach's alpha for the scale to .775. This was done and Cronbach's alpha decreased to .768. Appendix G has Table G10 and G11 showing Cronbach's Alpha as specific items were deleted. The reason is not clear, so item 9 was retained in the scale. All items were used in the analysis yielding a final alpha of .77 shown in Table 3.8.

Table 3.8

Items in Perceptual Acuity Scale

Item #	Variable
3	I try to understand people's thoughts and feelings when I talk to them.
9	I have a realistic perception of how others see me.
15	I am the kind of person who gives people who are different from me the benefit of the doubt.
20	I can perceive how people are feeling, even if they are different from me.
24	I believe that all cultures have something worthwhile to offer.
28	I pay attention to how people's cultural differences affect their perceptions of me.
33	I consider the impact my actions have on others.
38	When I am with people who are different from me, I interpret their behavior in the context of their culture.
44	When I am in a new or strange environment, I keep an open mind.
50	In talking with people from other cultures, I pay attention to body language.

Note. Original coefficient alpha = .77
Kelly and Meyers alpha = .78

The initial Cronbach's Alpha for the Personal Autonomy scale was .57 with no items eliminated. The items that were used in the analysis yielded a final alpha of .62 shown in Table 3.9. Appendix G has Table G12 and G13 showing Cronbach's Alpha as specific items were deleted.

Table 3.9

Retained and Deleted Items in Personal Autonomy Scale

Item #	Variable
6	I believe that I can accomplish what I set out to do, even in unfamiliar settings.
12	I believe that all people, of whatever race, are equally valuable.
17	If my ideas conflicted with those of others who are different from me, I would follow my ideas rather than theirs. ^a
25	I feel free to maintain my personal values, even among those who do not share them.
35	I prefer to decide from my own values, even when those around me have different values.
41	My personal value system is based on my own beliefs, not on conformity to other people's standards.
47	I expect that others will respect me, regardless of their cultural background.

Note. Original coefficient alpha = .576

Revised coefficient alpha = .62

Kelly and Meyers alpha = .68

^a Deleted Items in Personal Autonomy Scale

After completing the reliability analysis and deleting the items that lowered Cronbach's alpha, the average score for each scale was computed for each respondent. Table 3.10 shows several descriptive statistics for each scale. The average score for each scale is between "Somewhat True" (4) and "True" (5). As a group, the respondents exhibit each of the traits and are close to "True".

Table 3.10

Minimum, Maximum, Mean (M) Scores and Standard Deviation (SD) for the Cross-Cultural Adaptability Scales

	N	Minimum	Maximum	M	SD
Emotional Resilience	139	2.69	5.92	4.67	.49
Flexibility and Openness	136	3.00	5.75	4.73	.51
Perceptual Acuity	138	3.20	5.70	4.75	.45
Personal Autonomy	140	3.16	6.00	4.98	.45

Data Analysis

The data analysis included descriptive and inferential statistics. For the institutional, faculty, and cultural items, frequencies and percentages were computed for each item and shown in Table 3.1 to 3.5 and Appendix G. The inferential statistics used *t*-tests and oneway analyses of variance (ANOVA). The independent variables were number of multicultural teaching experiences; recoded educational level; recoded faculty age; multi-racial characteristics; aware department is required to meet Standard 2-19; participated in cultural diversity education at institution; and recoded sources of cultural diversity in coursework, personal cultural activities, “usefulness of cultural diversity education at your institution”, and “level of preparation and confidence to address Standard 2-19 in your curriculum”. The dependent variables were the revised CCAI scale scores. The significance level was .05 for all inferential statistics. Only the results that were statistically significant are reported.

Chapter 4

Results

This study was conducted to discover and understand to what extent dental hygiene educators in entry-level dental hygiene programs from the Upper Midwest geographic area demonstrate Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy as they relate to their level of education and multicultural experiences. An additional purpose was to examine dental hygiene educators in regard to personal cross-cultural experiences, formal cultural diversity education, usefulness of their education, and preparation, and confidence to meet CODA 2-19 which states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups* (p. 23).

This chapter reports the results of the data analysis that were designed to answer the research questions:

1. What is the relationship between dental hygiene educators' Emotional Resilience and their level of education and multicultural experiences?
2. What is the relationship between dental hygiene educators' Flexibility and Openness and their level of education and multicultural experiences?
3. What is the relationship between dental hygiene educators' Perceptual Acuity and their level of education and multicultural experiences?
4. What is the relationship between dental hygiene educators' Personal Autonomy and their level of education and multicultural experiences?

5. Is there a difference in cultural adaptability between dental hygiene educators who have completed cultural-diversity education and dental hygiene educators without cultural-diversity education?

Overview

Table 4.1 shows that most respondents' were aware that their department was required to meet Standard 2-19 (Question 17), whereas 9.9% (n=14) were not aware, and four did not answer the question. Responses to additional questions revealed that 73.8% (n=104) reported that their institution or department provided continuing education and professional development programs in cultural diversity (Question 18), whereas 8.5% (n=12) reported no cultural diversity education, 13.5% (n=19) reported they did not know if cultural diversity education was offered, and six did not answer the question. Of the 141 respondents, 73.0% (n=103) participated in cultural diversity education offered by their institution or department (Question 19), whereas 23.4% (n=33) had not participated, and five did not answer the question.

Table 4.1

Faculty Aware of Requirement to Meet Standard 2-19

Response	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	123	87.2	89.8	89.8
No	14	9.9	10.2	100.0
Total	137	97.2	100.0	
Missing	4	2.8		
Total	141	100.0	100.0	

The dental hygiene educators used a 5-point scale to rate the usefulness of their cultural diversity education, their preparedness, and their confidence to address Standard 2-19 in their dental hygiene courses. Because of the skewed response pattern regarding the usefulness of the cultural diversity training (Question 20), the responses “Neutral”, “Not Useful”, and “Not Applicable” were combined into a category called “Less Useful”. Although 73.0% (n=103) of the dental hygiene educators participated in cultural diversity education offered by their department or institution, only 63.1% (n=89) rated their preparation as “Somewhat Useful” or “Very Useful”.

The responses regarding how the dental hygiene educators rated their cultural diversity preparation (Question 21) resulted in a skewed pattern. The responses “Neutral”, “Unprepared”, and “Not Applicable” were combined into a category called “Less Well Prepared”. While 63.1% (n=89) of the respondents rated their preparation as “Somewhat Useful” or “Very Useful”, 68.8% (n=97) of the respondents rated themselves as “Somewhat Prepared” or “Very Prepared”.

The responses regarding how the dental hygiene educators rated their confidence to address Standard 2-19 in their dental hygiene courses (Question 22) resulted in a skewed pattern. The responses “Neutral”, “Not Confident”, and “Not Applicable” were combined into a category called “Not Confident”. The majority of the dental hygiene educators, 73.7% (n=104), ranked themselves as “Confident” or “Very Confident” to address Standard 2-19. Appendix G has Table G14, G15, and G16 for the frequency distribution for these items.

Emotional Resilience in Cross-Cultural Work

The first research question addressed the relationship between dental hygiene educators' Emotional Resilience and their level of education and multicultural experiences. Kelley and Meyers (1992) described the Emotional Resilience scale as a "measure of the ability of a person to work in indeterminate situations while being able to handle the stress in a constructive and healthy manner" (p. 14). Respondents used a 6-point scale to record their answers (6=Definitely True, 5=True, 4=Tends to Be True, 3=Tends to Be Not True, 2=Not True, and 1=Definitely Not True). The respondents who were aware of Standard 2-19 did not have statistically significantly higher Emotional Resilience scores than respondents who were not aware of Standard 2-19.

The oneway ANOVA results for Emotional Resilience by the level of preparedness of the respondents to address Standard 2-19 in their dental hygiene courses are shown in Table 4.2. The mean Emotional Resilience score increased as the level of preparedness increased. Both the Scheffé and Bonferroni post-hoc tests indicated that the Emotional Resilience score of the "Less Well Prepared" group was statistically significantly lower than the score of the "Very Prepared" group ($\alpha = .00$). The post-hoc results are found in Appendix G, Table G17.

Table 4.2

Oneway ANOVA of Emotional Resilience by Level of Preparedness to Address Standard 2-19

Preparation Level	N	Mean	Std. Dev.	Std. Error
Less Well Prepared	31	4.47	.33	.06
Somewhat Prepared	57	4.67	.44	.05
Very Prepared	39	4.83	.50	.08
Total	127	4.67	.45	.04

$f(2, 124) = 5.75, p < .01$

The oneway ANOVA results for Emotional Resilience by the level of confidence of the respondents to address Standard 2-19 in their dental hygiene courses are shown in Table 4.3. The mean Emotional Resilience score increased as the level of confidence increased. Both the Scheffé and Bonferroni post-hoc tests indicated that the Emotional Resilience score of the “Less Confident” group was statistically significantly lower than the score of the “Very Confident” group ($\alpha = .01$). The post-hoc results are found in Appendix G, Table G18.

Table 4.3

Oneway ANOVA of Emotional Resilience by Level of Confidence to Address Standard 2-19

Confidence Level	N	Mean	Std. Dev.	Std. Error
Less Confident	25	4.51	.50	.10
Somewhat Confident	57	4.63	.35	.04
Very Confident	45	4.84	.49	.07
Total	127	4.68	.45	.04

$f(2, 124) = 5.36, p < .01$

Summary of Analysis of Research Question 1

The mean Emotional Resilience scores increased as the level of preparedness and level of confidence increased. Perhaps not surprisingly, those who reported that they were “Very Prepared” (Question 21) and “Very Confident” (Question 22) to handle Standard 2-19 scored the highest on the Emotional Resilience scale.

Flexibility and Openness in Cross-Cultural Work

The second research question addressed the relationship between dental hygiene educators’ Flexibility and Openness and their level of education and multicultural experiences. Kelley and Meyers (1992) defined Flexibility and Openness as a “scale that measures the skills of a person to work with people of other cultures who possess ways of knowing and understanding that may be in contrast to the individual’s own culture” (p. 16). The *t*-test results for the Flexibility and Openness scores for those who were aware and unaware of the Standard 2-19 requirement are shown in Table 4.4. For both groups, the scores were between “True” (5) and “Tends to Be True” (4). The respondents who were aware of Standard 2-19 had the statistically significantly higher mean closer to “True”.

Table 4.4

t-test of Flexibility and Openness by Aware of Standard 2-19

Aware	N	Mean	Std. Dev.	<i>t</i> -value	<i>df</i>	Sig.
Aware	118	4.75	.48	2.60	130	.01
Unaware	14	4.38	.64			

The oneway ANOVA results for Flexibility and Openness by the respondents' assessment of the usefulness of their preparation to address Standard 2-19 in their dental hygiene courses are shown in Table 4.5. The mean Flexibility and Openness scores for those who felt their preparation was "Less Useful" or "Very Useful" were nearly identical. Both the Scheffé and Bonferroni post-hoc tests indicated that the "Somewhat Useful" group score was statistically significantly lower than the "Very Useful" group score ($\alpha = .01$). The post-hoc results are found in Appendix G, Table G19.

Table 4.5

Oneway ANOVA of Flexibility and Openness by Level of Usefulness of Preparation to Address Standard 2-19

Usefulness Level	N	Mean	Std. Dev.	Std. Error
Less Useful	19	4.91	.58	.13
Somewhat Useful	50	4.61	.45	.06
Very Useful	35	4.92	.47	.07
Total	104	4.77	.50	.04

$$f(2, 101) = 5.31, p < .01$$

The oneway ANOVA results for Flexibility and Openness by the respondents' assessment of their level of preparedness to address Standard 2-19 in their dental hygiene courses are shown in Table 4.6. The mean Flexibility and Openness scores increased as the level of preparedness increased. Both the Scheffé and Bonferroni post-hoc tests indicated that the "Less Well Prepared" group was statistically significantly lower than the "Very Prepared" group ($\alpha = .00$). The post-hoc results are found in Appendix G, Table G20.

Table 4.6

Oneway ANOVA of Flexibility and Openness by Level of Preparedness to Address Standard 2-19

Preparation Level	N	Mean	Std. Dev.	Std. Error
Less Well Prepared	30	4.47	.47	.08
Somewhat Prepared	55	4.74	.41	.05
Very Prepared	39	4.90	.61	.09
Total	124	4.73	.51	.04

$f(2, 121) = 6.46, p < .01$

The oneway ANOVA results for Flexibility and Openness by the respondents' level of confidence in their ability to address Standard 2-19 in their dental hygiene courses are shown in Table 4.7. The mean Flexibility and Openness scores increased as the level of confidence increased. Both the Scheffé and Bonferroni post-hoc tests indicated that the "Less Confident" group was statistically significantly lower than the "Somewhat Confident" group ($\alpha = .01$) and the "Very Confident" group ($\alpha = .00$). The post-hoc results are found in Appendix G, Table G21.

Table 4.7

Oneway ANOVA of Flexibility and Openness by Level of Confidence to Address Standard 2-19

Confidence	N	Mean	Std. Dev.	Std. Error
Less Confident	25	4.41	.48	.09
Somewhat Confident	54	4.75	.40	.05
Very Confident	45	4.88	.57	.08
Total	124	4.73	.51	.04

$f(2, 121) = 7.46, p < .01$

Summary of Analysis of Research Question 2

The mean Flexibility and Openness scores increased as the level of preparedness and level of confidence increased. Dental hygiene educators who responded that they were aware of Standard 2-19 had statistically significantly higher Flexibility and Openness scores. Perhaps not surprisingly, those who reported that they were “Very Prepared” (Question 21) and “Very Confident” (Question 22) to handle Standard 2-19 scored statistically significantly higher on the Flexibility and Openness scale than the “Less Well Prepared” and “Less Confident”.

Perceptual Acuity in Cross-Cultural Work

The third research question addressed the relationship between dental hygiene educators’ Perceptual Acuity and their level of education and multicultural experiences? Kelley and Meyer (1992) described people with Perceptual Acuity as “those who are able to communicate with people from other cultures and are perceptive to verbal and nonverbal cues provided by others” (p. 17). In the analysis only the level of preparedness and level of confidence to address Standard 2-19 showed significant differences. The *t*-test results for respondents who were aware of Standard 2-19 did not have statistically significantly higher Perceptual Acuity scores than respondents who were not aware of Standard 2-19.

The oneway ANOVA results for Perceptual Acuity by level of preparedness to address Standard 2-19 are shown in Table 4.8. The mean Perceptual Acuity score of those who were “Less Well Prepared” to address Standard 2-19 was lower than the other groups. Both the Scheffé and Bonferroni post-hoc tests showed that the “Less Well Prepared” group was statistically significantly lower than the “Somewhat

Prepared” group ($\alpha = .00$) and the “Very Prepared” group ($\alpha = .00$). The post-hoc results are found in Appendix G, Table G22.

Table 4.8

Oneway ANOVA of Perceptual Acuity by Level of Preparedness to Address Standard 2-19

Preparation Level	N	Mean	Std. Dev.	Std. Error
Less Well Prepared	30	4.47	.47	.08
Somewhat Prepared	58	4.84	.35	.04
Very Prepared	38	4.83	.45	.07
Total	126	4.75	.44	.03

$f(2, 123) = 8.63, p < .01$

The oneway ANOVA results for Perceptual Acuity by level of confidence to address Standard 2-19 are shown in Table 4.9. The mean Perceptual Acuity scores increased as the level of confidence increased to address Standard 2-19 in their dental hygiene courses. Both the Scheffé and Bonferroni post-hoc tests showed that the “Less Confident” group was statistically significantly lower than the “Somewhat Confident” group ($\alpha = .04$) and the “Very Confident” group ($\alpha = .00$). The post-hoc results are found in Appendix G, Table G23.

Table 4.9

Oneway ANOVA of Perceptual Acuity by Level of Confidence to Address Standard 2-19

Confidence Level	N	Mean	Std. Dev.	Std. Error
Less Confident	24	4.52	.55	.11
Somewhat Confident	57	4.78	.36	.04
Very Confident	45	4.86	.43	.06
Total	126	4.76	.44	.03

$f(2, 123) = 5.00, p < .01$

Summary of Analysis of Research Question 3

The mean Perceptual Acuity scores increased as the level of preparedness and level of confidence increased. Dental hygiene educators who reported that they were “Somewhat Prepared” and “Very Prepared” (Question 21) and “Somewhat Confident” and “Very Confident” (Question 22) to handle Standard 2-19 scored statistically significantly higher on the Perceptual Acuity scale.

Personal Autonomy in Cross-Cultural Work

The fourth research question addressed to the relationship between dental hygiene educators’ Personal Autonomy and their level of education and multicultural experiences? Kelley and Meyers (1992) defined Personal Autonomy as “being able to interact with others in unfamiliar settings” (p. 18). Generally, a person with high Personal Autonomy is in control of their environment, goals, and actions. Personal experiences with other cultures (Question 7) included experiences regarding parents or respondent immigrating to the United States, being a host family for an international student, studying aboard, attending a multicultural school or multicultural classes, and

being in the military. In the analysis, only the number of personal experiences with other cultures was significant. The respondents who were aware of Standard 2-19 did not have statistically significantly higher Personal Autonomy scores than respondents who were not aware of Standard 2-19. The respondents had no significant difference in Personal Autonomy scores based on level of usefulness, level of preparation, or level of confidence.

The oneway ANOVA results for the levels of Personal Autonomy by number of personal cultural experiences are shown in Table 4.10. The mean Perceptual Autonomy score of those respondents with two or more personal cultural experiences was the highest. Both the Scheffé and Bonferroni post-hoc tests showed no two pairs were statistically significantly different because of a small size of the statistical association and a large difference in the group sizes. The post-hoc results are found in Appendix G, Table G24.

Table 4.10

Oneway ANOVA of Personal Autonomy by Number of Personal Cultural Experiences to Address Standard 2-19

# of Experiences	N	Mean	Std. Dev.	Std. Error
No experiences	71	4.92	.50	.05
1 experience	28	4.90	.45	.08
> 1 experiences	39	5.13	.35	.05
Total	138	4.97	.46	.03

$f(2, 135) = 3.14, p < .04$

Effects of Cultural Diversity Education

The fifth research question addressed the difference in cultural adaptability between dental hygiene educators who have completed cultural diversity education and dental hygiene educators without cultural diversity education. The mean Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy scores for those who did and did not participate in cultural diversity education are shown in Table 4.11. For Perceptual Acuity and Personal Autonomy, the means are close while the Emotional Resilience means are one point apart. The Flexibility and Openness means differed by three points and are statistically significantly different with a t -value of 2.22 and $\alpha = .02$. Dental hygiene educators who participated in cultural diversity education had a significantly higher mean for Flexibility and Openness but limited change occurred in the areas of Emotional Resilience, Perceptual Acuity, and Personal Autonomy. The result of this study supports the value of cultural diversity education for dental hygiene educators as it increases the ability of a person to work with people of other cultures who possess ways of knowing and understanding that may be in contrast to the individual's own culture.

Table 4.11

t-test of Cultural Adaptability of Dental Hygiene Educators Who Have Completed Cultural-Diversity Education

Scale	Participation In Cultural Diversity Education	N	Mean	Std. Dev.	Std. Error	<i>t</i> -value	<i>df</i>	Sig.
Emotional Resilience	Yes	102	4.53	.391	.03	.71	132	.47
	No	32	4.47	.491	.86			
Flexibility/ Openness	Yes	99	4.65	.456	.04	2.22	129	.02
	No	32	4.44	.456	.08			
Perceptual Acuity	Yes	101	4.76	.448	.04	.25	131	.80
	No	32	4.73	.443	.07			
Personal Autonomy	Yes	102	4.79	.417	.04	.66	133	.50
	No	33	4.74	.485	.08			

Chapter 5

Discussion and Conclusions

Much has been written about increasing access to oral health care and improving oral health outcomes as they relate to structural and financial barriers with little attention given to culturally-competent dental hygiene education (ADEA, 2005; CDC, 2005; IOM, 1993; MPHA, 1996; NCCC, 2006). ADHA (2005) research on dental hygiene faculty knowledge, beliefs, and attitudes provided insight for possible educational barriers that may exist in advancing the access to oral health care and a cultural-competency framework.

Cultural competence requires that dental hygienists move beyond simply possessing knowledge of various cultures and being comfortable in situations where people from other cultures are present. Recent increases in immigration mean that future dental hygienists will need to deliver dental services that are culturally appropriate and to demonstrate respect for patients whose cultural beliefs and values may conflict with normative clinical recommendations. At the same time, they will still need to assist the patient in obtaining positive dental outcomes.

The CODA Standard 2-19 states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups* (p. 23). This accreditation standard is a requirement of all dental hygiene programs. The underlying purpose of this educational standard is to increase cultural awareness and sensitivity of healthcare educators, students, and future healthcare providers.

From the review of the literature, the following five research questions were developed:

1. What is the relationship between dental hygiene educators' Emotional Resilience and their level of education and multicultural experiences?
2. What is the relationship between dental hygiene educators' Flexibility and Openness and their level of education and multicultural experiences?
3. What is the relationship between dental hygiene educators' Perceptual Acuity and their level of education and multicultural experiences?
4. What is the relationship between dental hygiene educators' Personal Autonomy and their level of education and multicultural experiences?
5. Is there a difference in cultural adaptability between dental hygiene educators who have completed cultural-diversity education and dental hygiene educators without cultural-diversity education?

Summary of Findings

This study examined the degree to which dental hygiene educators' demonstrated cultural competence using the Cross-Cultural Adaptability Inventory (CCAI) developed by Kelley and Meyers (1992) to measure competence through four scales: Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy. Emotional Resilience measures "the ability of a person to work in indeterminate situations while being able to handle the stress in a constructive and healthy manner" (p. 14). Flexibility and Openness "measures the skills of a person to work with people of other cultures who possess ways of knowing and understanding that may be in contrast to the individual's own culture" (p. 16). Perceptual Acuity measures the ability "to communicate with people from other cultures and are perceptive of verbal and nonverbal cues provided by others" (p. 17). Personal Autonomy measures the ability

“to interact with others in unfamiliar settings” (p. 18).

The results of the survey showed that 104 of the dental hygiene educators reported their institution or department provided continuing education and professional development programs in cultural diversity. This study suggested that professional development may be somewhat useful in addressing Standard 2-19 in dental hygiene courses. Overall, dental hygiene educators who participated in cultural-diversity education had a higher mean in Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy. Only Flexibility and Openness had a significantly higher mean for cultural-diversity education participants.

Finding #1: The results showed that as the respondents' level of cultural-diversity preparation increased, Emotional Resilience increased. As the respondents' level of confidence increased to address Standard 2-19 in the dental hygiene courses, Emotional Resilience also increased.

The majority of the dental hygiene educators who responded were proficient clinical dental hygienists who entered dental hygiene education as a second career. Because they are not overly concerned with making mistakes as illustrated by question in the Emotional Resilience scale, they are able to regulate their emotions and maintain emotional equilibrium in new and changing environments, and they are able to deal with setback and difficult feelings that are a normal part of cross-cultural experiences.

Connolly et al. (2000) and Magee et al. (2004) found that dental hygiene is characterized by less racial and ethnic diversity than other health professions. The demographic composition of dental hygienists will not change in the short term. Thus, the findings suggest that increasing interactions with a culturally-diverse population and

effective cultural-diversity education may provide some basis for increasing cultural competence while efforts to recruit a more diverse group of professionals holds promise.

Finding #2: The results showed that as the respondents' level of cultural-diversity preparation increased, Flexibility and Openness increased. As the respondents' level of confidence increased to address Standard 2-19 in the dental hygiene courses, Flexibility and Openness also increased.

Dental hygiene educators may have scored higher on Flexibility and Openness because most entered dental hygiene education as a second career after a significant period as a clinical dental hygienist. An underlying assumption would be that during the years as a clinical dental hygienist, they developed the skills to feel comfortable with all types of people. A large part of the day-to-day interactions with patients requires clinicians to enjoy interacting, learning, and conversing with a wide variety of people. These direct patient interactions may have provided opportunities for future dental hygiene educators to develop communications skills which may or may not actually be based on cross-cultural knowledge and skills.

Connolly et al. (2000) found that health science faculty who had experienced studying and working among culturally-diverse populations scored the highest on the dimension of Flexibility and Openness. Magee et al. (2004) supported the importance of direct interactions with individuals from other cultures to develop cross-cultural competencies needed to work in healthcare settings. These findings suggested that educational and personal opportunities that provide direct interactions with culturally-diverse populations may increase confidence and comfort when working with

multicultural populations and may result in increased tolerance and understanding.

Finding #3: The results showed that as the respondents' level of cultural-diversity preparation increased, Perceptual Acuity increased. As the respondents' level of confidence increased to address Standard 2-19 in the dental hygiene courses, Perceptual Acuity also increased.

The results supported that dental hygiene educators are sensitive to the feelings of others and to the effect they have on others. Patient assessment depends on good communication skills utilizing both verbal and nonverbal messages. Developing strong interpersonal relationships and trust are the cornerstones of building a dental practice. It is reasonable to expect that as clinical dental hygienists become dental hygiene educators these skills are then transferred to working with students in a multicultural setting and assisting students to develop skills to work with people who are different from the primary culture.

Connolly et al. (2000) reported that health science faculty was more sensitive to verbal and nonverbal behaviors due to direct client care experiences. Magee et al. (2004) suggested that increasing student multicultural experiences may decrease difficulty communicating with other cultures due to unfamiliar values, customs, nonverbal cues, and language. These findings suggested that educational and direct multicultural client care opportunities that provide direct interactions with culturally-diverse populations may increase verbal and nonverbal communications that may result in improved interpersonal relations.

Finding #4: The results showed that dental hygiene faculty levels of Personal Autonomy increased with two or more personal cultural experiences. Dental hygiene educators

who demonstrate Personal Autonomy have a strong sense of self, are generally in control of their environment, are aware of their personal power, and use it in nonmanipulative ways. Individuals with Personal Autonomy are not overly dependent on cues from the environment for their identity. Results from this study showed that the dental hygiene educators with two or more personal experiences had significantly higher Personal Autonomy scores.

Personal cultural experiences included the respondent or parent immigrating to the United States, being a host family for an international student, studying abroad, attending multicultural school or classes, or being in the military. In the analysis, only the number of personal experiences with other cultures was significant for Personal Autonomy.

Connolly et al. (2000) and Magee et al. (2004) reported that culturally-diverse and nonculturally-diverse students and faculty were self-directed and not dependent on cues from their environment to give them a sense of identity. Connolly et al. (2000) summarized that health science faculty tended to be independent people who are reinforced by the autonomy they have in their faculty roles. Magee et al. (2004) concluded that dental hygiene students are encouraged to work and think independently, making evidence-based decisions while having independence reinforced throughout their clinical education. These findings supported including clinical and personal cultural experiences, evidenced-based decision-making and professional development activities in clinical education to support the maturation of self-directed dental hygiene professionals.

Finding #5: The results showed that 103 of 141 (73.0%) respondents participated in cultural diversity education with 104 faculty reporting that they were “Confident” or “Very Confident” to address Standard 2-19. Unfortunately, only a little more than half (n=89) of the faculty participating in cultural diversity education reported the preparation as somewhat or very useful. Approximately one fourth (n=31) of the dental hygiene faculty with limited exposure to cultural-diversity education ranked themselves as “Poorly Prepared” to address Standard 2-19. The results supported the importance of providing cultural-diversity education for dental hygiene educators.

Connolly et al. (2000) reported the four health science faculty groups exhibited higher average CCAI scores than the CCAI norm group. The authors did not specifically measure faculty participation in cultural-diversity education but concluded that cultural sensitivity increased when faculty lived or worked in an environment that was culturally different from their primary culture. The authors recommended incorporating culturally-sensitive health care into existing curricula and to further explore whether a cross-culturally adaptable faculty can transfer this knowledge to students.

Magee et al. (2004) compared dental hygiene students attending culturally-diverse dental hygiene programs and nonculturally-diverse programs. The results showed that whether dental hygiene students attended culturally-diverse or non culturally-diverse programs, their overall CCAI scores were lower than the CCAI norm groups. The authors concluded that the dental hygiene curriculum should incorporate cross-cultural competency educational strategies and peer and patient encounters to enable students to develop competency in providing cross-cultural healthcare.

Finding #6: The majority of dental hygiene educators in the Upper Midwest were middle aged, overwhelmingly white, began teaching as a second career after a significant period as a dental hygienist in clinical practice, and have taught in a single institution. The next decade will begin to present many changes in the landscape of dental hygiene educators. Experienced dental hygiene educators will retire which will create employment opportunities for new dental hygiene educators. Challenges for dental hygiene program directors will be the recruitment of dental hygiene educators with advanced degrees who represent the minority populations.

Implications for Professional Development

Cross-cultural experiences can leave individuals feeling frustrated, confused, and perhaps lonely during personal interactions with another culture. To increase Emotional Resilience, it is important to assist the individual to positively deal with stressful feelings. This research supports institutions or departments developing and providing programs in cultural-diversity education. Of special interest is that approximately one fourth of the dental hygiene educators had not participated or did not know if their institution offered cultural diversity education. Designing a format for regular cultural-diversity education is recommended to provide knowledge and skills for new educators, returning educators, and adjunct educators as part of annual calibration meetings and professional development courses.

A person with high Flexibility and Openness enjoys different ways of thinking and behaving in the new cultural setting. Regular culturally-diverse education programs may provide dental hygiene educators with cultural knowledge to understand and enjoy different ways of thinking and behaving that are typically encountered in the cross-

cultural experience. Differences are a large part of the cross-cultural experience.

Incorporating regular cultural-diversity education topics in educational methods courses for healthcare professionals as part of educational programming would provide knowledge to understand differences in ways of thinking and behaving. Identifying or developing guidelines for a cultural-diverse curriculum would provide accurate and current information regarding cross-cultural diversity to prepare healthcare professionals to provide effective care for a diverse population. Currently, dental hygiene does not have a cultural-diversity textbook. Dental hygiene educators who wish to include cultural-diversity content in their courses are required to use supplemental reading and textbooks from parallel professions.

An anticipated paradigm shift would be that dental hygienists would discover that one culture is not better than another culture; they are just different. A dental hygiene curriculum that includes cultural-diversity education as a competency standard in professional healthcare education prepares healthcare professionals to provide cross-cultural care to a person, family, community, and global society.

Dental hygiene educators who demonstrate Perceptual Acuity are empathic, highly accurate communicators, and pay attention to both verbal and nonverbal cues to understand the intended message. Developing cross-cultural communication educational programs that focus on communication skills that assist in accurately interpreting cross-cultural cues is critical to developing Perceptual Acuity. Institutions or departments that develop and provide didactic coursework that recognizes the challenges of cross-cultural communication such as confusing and unfamiliar languages, values, assumptions, and customs would be of specific value to dental

hygiene educators.

Dental hygiene educators may have a strong sense of Personal Autonomy because as a clinician and educator, they are in control of their environment and are responsible to judge their own actions. Both positions require the individual to be self-directed, set their own goals, and make their own decisions. To increase Personal Autonomy that is appropriate in cross-cultural settings, it is important to provide residential or campus cultural diversity educational programs for dental hygiene educators with opportunities to work in unfamiliar settings. Residential opportunities on campus are available through partnerships with international student organizations, ethnic studies programs, study abroad opportunities, gay and lesbian campus organizations, and various other campus organizations for faculty and students. University campuses many also offer centers for excellence, teaching, and service learning centers to assist in faculty development.

When working in a new culture or setting that is unfamiliar, an individual who demonstrates Personal Autonomy does not feel like an outsider in the new culture or become defensive to maintain their own identity. Rather, these individuals are able to feel at home in the new culture as they can tolerate fluctuations and change. These individuals do not lose their original identity in the new setting but respect and value the new cultural system. People with high Personal Autonomy set their own goals, make their own decisions, and are the final judge of their own actions. This study demonstrates that personal cultural experiences are critical to the development of Personal Autonomy.

The Need for Culturally Diverse Experiences

Providing cross-cultural experiences with a culturally-diverse population along with effective cultural-diversity education may provide some basis for increasing cultural competence. Encouraging dental hygiene educators to work in multicultural community settings as part of their teaching assignment would provide the opportunity to utilize the knowledge and skills to develop increased Emotional Resilience. Community-field experiences would increase the dental hygiene educator's exposure to new cultures. The anticipated results would be to provide dental hygiene educators with cross-cultural experiences that would increase confidence to work in ambiguous situations, provide for opportunities to rebound from negative and unpleasant feelings, react positively to new experiences, maintain emotional equilibrium in the new environment, and develop skills to deal with changes or setbacks that may result in negative feelings.

Because differences exist within all cultures, simply participating in didactic cultural-diversity education does not assure that the dominant culture would be able to implement culturally-appropriate care. Utilizing the general and specific cross-cultural information gained in the didactic courses, the healthcare professional can then develop health-related goals, plans, interventions, and health outcomes that are culturally competent. When working in a new culture or setting that is unfamiliar, the goal of the cross-cultural experience would be for dental hygiene educators to demonstrate new ways of thinking and behaving in the new cultural setting.

Dental hygiene educators may live in geographic areas that do not have a diverse population. Encouraging faculty to join The International Federation of Dental

Hygienists (IFDH) would promote and support the exchange of knowledge and information about the profession of dental hygiene around the world in their common cause of promoting oral health. Membership in IFDH would provide access to the international research agenda and related publications in the *International Journal of Dental Hygiene*. IFDH also convenes an international convention every three years providing opportunities for postgraduate education, research and presentations, and networking.

Connecting educators nationally and internationally with other dental hygiene programs would provide rich cross-cultural knowledge and experiences to provide a foundation for beginning to understand people from other cultures. The educators could identify the common course and develop modules or units utilizing common readings from textbooks or journal articles. The students would initially have to spend time getting to know each other through a series of guided questions posed by the joint faculty. As the students begin to identify with each other, social norming would begin to occur.

The next step would be to have the students interact with the course content while the faculty serve as discussion facilitators. As confidence in the course content develops and group trust matures, the students will begin to share values, beliefs, attitudes, and cultural views. This type of coursework would provide rich academic discussions regarding the differences and similarities of various cultures to find meaningful ways to build bridges of understanding and communication rather than barriers and negative perceptions.

Utilization of a curriculum that provides accurate and current information

regarding cross-cultural diversity, participation in organizations such the IFDH, development of learning communities nationally and internationally in current dental hygiene programs, and development cross-cultural field experiences in a variety of community settings would support preparation that is useful for dental hygiene educators. Cultural-diversity education according to this research that increases faculty preparation and is useful supports increased Flexibility and Openness of dental hygiene educators.

When working in a new culture or setting, an individual who demonstrates Perceptual Acuity is particularly attentive to and accurately observes various occurrences in the new environment. These individuals are able to successfully communicate across cultural differences. A person with high Perceptual Acuity enjoys interacting with people from a variety of cultures and geographic areas.

Development of cultural-diverse case studies would provide coursework with a variety of possible cultural examples where verbal and nonverbal signals are identified. Based on the case scenarios, the undergraduate, postgraduate, and continuing education participants would discover alternative health-related goals, plans, interventions, and health outcomes that are mutually acceptable to the client and the healthcare provider. Possible interactive cross-cultural venues could utilize simulation cases that are online or actual clinical simulation laboratories. The simulation cases could be varied according the values, beliefs, attitudes, and cultural views of diverse populations. Each case scenario would provide the participants with opportunities to become familiar with cultural encounters that are designed to increase cross-cultural awareness. Finally, field experiences in a variety of community-based cross-cultural venues would provide

participants with the opportunity to apply knowledge and skills through direct cultural encounters.

Development of specific didactic and active-learning methods that include cultural-diversity case studies, interactive cross-cultural venues such as simulation cases or actual clinic laboratory simulations, and community field-based experiences would provide faculty with the opportunity to learn new ideas, experiences, and situations which would be of direct teaching benefit to dental hygiene students. Cultural diversity preparation and personal cultural experiences are critical according to this research for increased Perceptual Acuity of dental hygiene educators.

To increase Personal Autonomy that is appropriate in cross-cultural settings, it is important to provide participants with opportunities to work in unfamiliar settings. The campus-based opportunities and services are identical to those described under implications for cross-cultural education (see p. 98). External opportunities are generally available through community partners such as Head Start agencies, community clinics, senior citizen and refugee organizations, disability group homes, nursing homes, and various nonprofit or religious organizations. Each of these settings provides the participant with unfamiliar settings to explore and measure the extent to which the participant respects others and their value systems, and how pressured the participant feels to change in a cross-cultural environment.

Identifying residential and external partnerships that include working with diverse cultures that represent special needs, minority, elderly, and alternative gender populations provides real life interactive cross-cultural experiences to supplement traditional didactic and laboratory simulation coursework provided within the dental

hygiene curriculum. Developing a strong sense of Personal Autonomy does not mean the person loses his/her individual identity but rather becomes comfortable within any culture and can maintain a sense of control of his/her own environment. Culturally-diverse experiences are key elements in the development of the faculty according to this research to provide for increased Personal Autonomy of dental hygiene educators.

Limitations

The CCAI was used in this research as a stand-alone assessment. The CCAI was designed as a self-assessment tool that should not be used as a stand-alone measure of cross-cultural adaptability. The CCAI is most effective when used as part of an educational event to develop self-understanding in the area of cross-cultural adaptability and as a starting point for further awareness and cross-cultural education. This instrument would be of direct benefit if given as part of a cultural-diversity program where the CCAI Action-Planning Guide would be utilized to identify personal strengths and weaknesses in the four factors, provide a focus for skill development, support cross-cultural team building, and result in a framework for analyzing cross-cultural growth.

The CCAI does not measure cross-cultural knowledge and skills and was not used to measure change as a result of knowledge gained from the cultural diversity education as part of this research. The CCAI provided subjective data based on dental hygiene educators' answers about their potential for cross-cultural effectiveness. Another limitation of the CCAI is that there is no measurement of readiness to change for effective interaction in a cross-cultural setting. The answers to the inventory were a reflective measurement only as a result of personal encounters, multicultural experiences, and self-perceptions. The study assumed that participating in cross-

cultural diversity education offered by the institution or department or faculty with personal encounters or multicultural experiences resulted in a transfer of knowledge and skills to dental hygiene students. It is recommended that future researchers in this topic area identify alternative survey instruments.

A final limitation is that this study was conducted in the Upper Midwest where many dental hygiene programs have limited multicultural students and faculty. Finally, note should be taken that three fourths of the faculty who participated in the survey have been at their current institution for their entire teaching career. Given the limited movement of dental hygiene faculty and the rural settings of the various dental hygiene programs, the results may not be generalizable to other dental hygiene programs in areas with larger multicultural populations.

Recommendations for Future Research

Cultural competence moves beyond oral care providers possessing knowledge of various cultures and demonstrating cultural adaptability. The current research establishes baselines to measure progress, if any, in 5, 10, and 15 years. Health and dental care professionals will be required to deliver services that are culturally appropriate, demonstrate respect for patients whose cultural beliefs and values may oppose or differ from the clinical recommendations, and assist the patient in obtaining positive oral health outcomes.

Current research on culturally-competent education for the profession of dental hygiene has been limited to the use of the CCAI. The CCAI is primarily a self-assessment instrument to measure cultural awareness and sensitivity of healthcare educators, students, and providers. To reduce oral health disparities, researchers should

identify and test a theoretical framework in cultural competence to support a dental hygiene oral healthcare assessment, diagnosis, intervention, and results to measure improvement in oral healthcare outcomes.

Future research is needed to identify effective cross-cultural diversity education models that can be utilized to develop guidelines for a competency-based curriculum for healthcare professionals. At this time, dental hygienists are taught patient assessment based on a disease model to develop specific treatment recommendations. Little time and value is given within dental hygiene curricula to discover and develop cross-culturally appropriate care plans. Looking to parallel professions and beginning a meaningful search for a theoretical framework for teaching cross-cultural oral health strategies are recommended to prepare future dental hygiene professionals.

Identifying a cultural diversity education curriculum to increase the knowledge and understanding about minority and new immigrant populations possessing specific health beliefs or cultural views based on family structure, religion, medical beliefs, and practices would be of benefit to healthcare educators and professionals. The goal of curriculum guidelines would be to provide specific knowledge and skills that would be useful for healthcare providers to understand cultural practices which may impact cross-cultural care and compliance with recommendations or prescribed healthcare interventions. Consideration for both traditional lecture and face-to-face coursework in addition to developing online delivery models would increase access to a quality cross-cultural diversity curriculum regardless of geographic location for undergraduate, postgraduate, and continuing education practicing healthcare professionals.

Future research is needed to review the curriculum of dental hygiene programs to measure to what extent are cross-cultural and global health courses included in the curriculum to prepare the dental hygiene educators. Currently, the highest levels of oral health are not available to the majority of the people of the world. Living and teaching in regional isolation results in a myopic self-actualization that there is limited oral disease. Dental hygiene educators are the leaders who make a difference in providing oral health solutions to a more global society. Discovering what is currently included in dental hygiene programs and making pedagogical recommendations that will support a society that is ever changing due to international migration is essential for a healthy tomorrow.

Finally, research to identify educational healthcare units that utilize an interdisciplinary, multicultural competency approach to delivering healthcare interventions are needed. No longer does our nation have the economic luxury to teach in discipline specific silos. It is time to discover the leaders in interdisciplinary education in the health professions of medicine, dentistry, pharmacy, nursing, dental hygiene, occupational therapy, physical therapy, speech therapy, and other health-related professions. Uniting the healthcare professionals during undergraduate and graduate education to educate cross-cultural and globally-aware professionals is critical.

Conclusion

The results of study showed that a majority of dental hygiene educators across the Upper Midwest were overwhelmingly female and Caucasian, equally split between having a baccalaureate or master degree, began teaching as a second career after a significant period as a dental hygienist in clinical practice, and had taught

predominantly in a single institution. Dental hygiene educators had limited experience in cross-cultural settings in their personal life, limited formal multicultural education preparation, limited personal multicultural experiences during their education, and limited experiences teaching in multicultural settings.

The majority of the dental hygiene educators reported that their institution or department provided continuing education and professional development programs in cultural diversity. Overall, dental hygiene faculty who did participate in cultural diversity education had a higher mean in Emotional Resilience, Flexibility and Openness, Perceptual Acuity, and Personal Autonomy with the most improvement in Flexibility and Openness to address Standard 2-19 in their dental hygiene courses.

This research concludes that there is a need to identify cultural diversity education curriculum guidelines that would increase the knowledge and understanding of minority and new immigrant populations; to develop oral health textbooks that address the ethnic and immigrant populations' specific health beliefs or cultural views based on family structure, religion, and medical beliefs; and to support dental hygiene educators' multicultural experiences to prepare future practitioners to provide cross-culturally sensitive health care.

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Appendix A

*Projections of the Population by Race and Hispanic Origin
for the United States: 2008 to 2050*

(Resident population as of July 1. Numbers in thousands)						
Race and Hispanic Origin ¹	2008	2010	2020	2030	2040	2050
Total Population	304,228	310,233	341,387	373,504	405,655	439,010
One race	299,076	304,734	333,913	363,621	392,875	422,828
White	242,803	246,630	266,275	286,109	305,247	324,800
Black	39,031	39,909	44,389	48,728	52,868	56,944
AIAN	3,076	3,188	3,759	4,313	4,875	5,462
Asian	13,599	14,415	18,756	23,586	28,836	34,399
NHPI	564	592	734	885	1,048	1,222
Two or more races	5,151	5,499	7,474	9,883	12,781	16,183
Non-Hispanic White alone	199,804	200,853	205,255	207,217	206,065	203,347
Hispanic	46,697	49,726	66,365	85,931	108,223	132,792
<i>Race alone or in combination:²</i>						
White	247,261	251,400	272,835	294,881	316,707	339,441
Black	41,098	42,163	47,748	53,519	59,454	65,703
AIAN	4,855	5,025	5,907	6,770	7,654	8,592
Asian	15,519	16,472	21,586	27,352	33,722	40,586
NHPI	1,118	1,176	1,480	1,814	2,181	2,577

1 Hispanics may be of any race.
2 'In combination' means in combination with one or more other races. The sum of the five race groups adds to more than the total population because individuals may report more than one race.

Abbreviations: Black = Black or African American; AIAN = American Indian and Alaska Native; NHPI = Native Hawaiian and Other Pacific Islander.

Source: Population Division, U.S. Census Bureau

Release Date: August 14, 2008

<http://www.censU.S.gov/population/www/projections/tablesandcharts.html>

Appendix B

Early Theories for Health Promotion

Theory	Author	Major Concepts
Social Learning Theory	Rotter, 1954 Sears, 1965 Mishel, 1968, 1973, 1979 Aker, 1979 Bandura and Walters, 1963 Bandura, 1977	Identification, reinforcement, feedback, and reward.
Health Belief Model	Rosenstock, 1966, 1974 Becker and Maiman, 1975 Becker et al., 1974	Behavior determined by psychological readiness to take action (perceived susceptibility to, severity of condition).
Readiness to Change Model	Prochaska & DiClemente, 1979	Four distinct stages to acquiring and sustaining health promotion/disease prevention: Pre-contemplation, contemplation, action, and maintenance.
Social Cognitive Theory	Bandura, 1963	Behavioral changes are a result of control over one's behavior to make change to improve health status.
Anderson Behavioral Model	Anderson, 1995	Interactions of four determinants of health: 1) environment; 2) population characteristics: predisposing characteristics, enabling resources, need for care; 3) health behaviors; and 4) outcomes (perceived and evaluated health status) and consumer satisfaction.

Note. Table created by author.

Appendix C

Survey Respondents by State

State	College	# Faculty	# Returned	Code
Iowa				
1	Des Moines Area Community College	3	3	A
2	Hawkeye Community College – Waterloo	3		B
3	Iowa Central Community College - Fort Dodge	3	3	C
4	Iowa Western Community College - Council Bluffs	7	6	D
5	Kirkwood Community College - Cedar Rapids	2	2	E
Minnesota				
6	Argosy Univesity – Eagan	3		F
7	Century College - White Bear Lake	7		G
8	Herzing College – Minneapolis	7		H
9	Lake Superior College – Duluth	5	5	I
10	Minnesota State University, Mankato	15	15	J
11	Minnesota State Community & Tech College - Moorhead	5	3	K
12	Normandale Communtiy College - Bloomington	11	6	L
13	Rochester Community & Technical College	6	6	M
14	St. Cloud Technical College	4	4	N
15	University of Minnesota – Minneapolis	19	17	O
North Dakota				
16	North Dakota State College of Sciences - Wahpeton	5	5	P
South Dakota				
17	University of South Dakota – Vermillion	11	11	Q
Wisconsin				
18	Chippewa Valley Technical College - Eau Claire	4	4	R
19	Fox Valley Technical College – Appleton	4	1	S
20	Madison Area Technical College – Madison	8	8	T
21	Milwaukee Area Technical College	11	11	U
22	Northcentral Technical College - Wausau	14	12	V
23	Northeast Wisconsin Technical College - Green Bay	2	2	W
24	Waukesha County Technical College - Pawaykee	13	13	X
25	Western Wisconsin Technical College - LaCrosse	4	4	Y
Total		176	141	

Appendix D

Survey Instrument Part II: Demographic and Program Data

Survey Instrument Part II: Demographic and Program Data

Culture is from the Latin word *cultura* which means to cultivate. Culture generally refers to patterns of human activity and the symbolic structures that give activities significance and importance resulting in a theoretical base for understanding and evaluating human activities. Cultural competence refers to the ability to understand and appreciate differences among people (Carter, 2006).

The Commission on Dental Hygiene Accreditation (CODA) Standard 2-19 states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups*. The purpose of this study is to explore the relationship of cultural adaptability, socioeconomic factors, and cultural competency education/training of dental hygiene faculty to assist their program to meet this accreditation standard.

To put your answers from Part I: Cross-Cultural Adaptability Inventory (CCAI) by Kelley and Myers in context, please complete following demographic and program information which will be held in strict confidence.

Directions: Please fill in the blanks and/or place a check mark to answer the following questions. All information will be held in strict confidence.

1. How many years have **you** been employed as a dental hygiene educator?
_____ (round to the closest year)

2. How many years have **you** been employed at your current institution?
_____ (round to the closest year)

3. Which of the following describes **your** employment at your current institution?
 - ___ Full time
 - ___ Part time (number of hours per week) _____
 - ___ Adjunct clinical faculty **only** (number of hours per week)

 - ___ Adjunct lecture faculty **only** (number of hours per week)

 - ___ **Combined** Adjunct clinical and lecture faculty (number of hours per week)

4. Which of the following best describes **your** teaching experiences as a dental hygiene faculty member? (Please check all that apply.)
- Predominantly white dental hygiene students ($\geq 80\%$ white student population in class)
 - Multicultural dental hygiene students ($\leq 50\%$ white student population in class)
 - Teach with predominantly white dental hygiene faculty
 - Teach with dental hygiene faculty who are from other cultures
 - Supervise dental hygiene students in community clinics serving a multicultural population
 - Employed as clinical dental hygienist in community clinics serving a multicultural population
 - Other _____
5. In which of the following ways did you learn about cultural diversity in your dental hygiene coursework? (Please check all that apply.)
- Course required as a pre-requisite course prior to regular dental hygiene curriculum.
 - Content covered within regular dental hygiene didactic (classroom) curriculum.
 - Separate course required within regular dental hygiene curriculum.
 - Separate course optional within regular dental hygiene curriculum.
 - Content covered during the practicum/clinical experiences.
 - No specific cross-cultural didactic education required for graduation.
 - Other: _____
6. Which of the following best describes **your personal** experiences with other cultures? (Please check all that apply.)
- My parents immigrated to the U.S. when I was a child/adolescent
 - My parents immigrated to the U.S. and I am a first generation American citizen
 - I immigrated to the U.S. as a college student
 - I studied abroad as high school student
 - I studied abroad as college student
 - My family was a host family for an international high school student(s)
 - My family was a host family for an international college student(s)
 - I attended predominantly white high school
 - I attended multicultural high school
 - I attended predominantly white college classes
 - I attended multicultural college classes
 - My family was in the military
 - I was in the military

- Other _____
 None
7. Please identify any residential living experiences that exposed you to a culture that was quite dissimilar from the one in which you grew up whether these were in the U.S. or another country. (Please check all that apply and describe.)
- Lived in another culture less than 3 months _____
 Lived in another culture 4-6 months _____
 Lived in another culture 7-11 months _____
 Lived in another culture 1-2 years _____
 Lived in another culture 3-5 years _____
 Lived in another culture 6-9 years _____
 Lived over 10 years _____
 Other _____
 None _____
8. Which of the following best describes the **highest level** of education **you** have completed (Select one only):
- Associate of Science/Associate of Arts/Associate of Applied Arts
 Baccalaureate of Science/Baccalaureate of Arts
 Master of Science/Master of Arts
 Ed.D/PhD/D.D.S.
 Other: _____
9. Which of the following best describes your citizenship? (Check all that apply.)
- U.S. Citizen
 Canadian Citizen
 Other _____
10. Which of the following best describes your age?
- 20 - 29 years of age
 30 - 39 years of age
 40 - 49 years of age
 50 - 61 years of age
 62 years or over

11. Which of the following best describes your racial or ethnic background?
- White (not of Hispanic origin)
 - Black or African American (not of Hispanic origin)
 - Hispanic (persons of Mexican, Puerto Rican, Cuban, Central/South America or other Spanish origin)
 - American Indian or Alaskan Native
 - Other (Please specify) _____
12. Are you currently or have you ever been married, and/or living in a committed relationship?
- Yes
 - No (If no, skip to question 14)
13. Was/is your spouse/partner of the same ethnic or cultural background as you?
- Yes
 - No
14. Do you have children (biological and/or adopted)?
- Yes
 - No (If no, skip to question 16)
15. Which of the following best describes your children?
- Same racial or ethnic background as I am
 - Different racial or ethnic background from me (including mixed race)
16. Have you taken a foreign language as part of your education? (Check all that apply.)
- high school
 - community education
 - undergraduate education (college level)
 - graduate education
 - Not applicable; I have had no relevant preparation foreign languages
17. I am aware my department is required to meet The Commission on Dental Hygiene Accreditation (CODA), Standard 2-19 which states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse populations.*
- Yes
 - No

18. Does your institution and/or department provide continuing education/professional development programs in cultural diversity?
- Yes
 No
 Unknown
19. Have you participated in cultural diversity education/training at your institution and/or department?
- Yes
 No
20. Overall, how useful was your cultural diversity education/training at your institution and/or department in preparing you to address Standard 2-19 in your dental hygiene curriculum/courses as a dental hygiene educator? (Check One)
- Very useful
 Somewhat useful
 Neutral
 Not useful
 Not applicable; I have had no relevant preparation in courses or continuing education
21. Overall, how would you rank your preparation to address Standard 2-19 in your dental hygiene curriculum/courses as a dental hygiene educator? (Check One)
- Very prepared
 Somewhat prepared
 Neutral
 Unprepared
 Not applicable; I have had no relevant preparation in courses or continuing education
22. Overall, how would you rank your confidence to address Standard 2-19 in your dental hygiene curriculum/courses as a dental hygiene educator? (Check One)
- Very confident
 Somewhat confident
 Neutral
 Not confident
 Not applicable; I have had no relevant preparation in courses or continuing education

Appendix E

Survey Cover Letter

Month, Date, 2008

Name
Street Address
City, State, zip

Dear {Name},

The Commission on Dental Hygiene Accreditation (CODA), Standard 2-21 states *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse populations*. As part of my dissertation work to complete my PhD at the University of Minnesota, your department is invited to participate in my research study titled: Cross-Cultural Adaptability of Dental Hygiene Educators in Entry-Level Dental Hygiene Programs. This study will explore the relationship between the cultural adaptability, socioeconomic data, and cultural competency education of dental hygiene faculty that influence the development of cross-cultural education.

As chair of your department, **Thank You** in advance for assisting me in administering this survey. Please distribute the following items to each of your full-time and part-time dental hygiene faculty: 1) Informed consent form, 2) Part I The Cross-Cultural Adaptability Inventory, 3) Part II Questionnaire Instrument/ and 4) stamped, self-addressed envelope. It is estimated that the survey will take approximately 30 minutes to complete.

Upon completion, please instruct your faculty to return the informed consent form, Part I and Part II of the survey in the stamped, self-addressed envelope to Lynnette M. Engeswick, PhD Candidate, 3 Morris Hall, Department of Dental Hygiene, Minnesota State University, Mankato, 56001

The records of this study will be kept private. If any report is published, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

This research study is being conducted as part of a doctoral thesis and dissertation within the Graduate Department of Educational Policy and Administration at the University of Minnesota. I am happy to answer any questions that you may have regarding my dissertation research. Please email me at lynette.engeswick@mnsu.edu or call my office at 507-389-5848.

Thank you very much for your support in this research project.

Sincerely,

Lynnette M. Engeswick, RDH, MS
PhD Candidate

Appendix F

*Comparison of Demographic Characteristics of
Normative Population and Dental Hygiene Population*

Characteristics	Normative Population (N=653)		Dental Hygiene Population (N=141)	
	N	Percent	N	Percent
Gender				
Female	244	37.4	131	92.9
Male	408	62.5	9	6.4
Age				
<20	195	29.9		
20-29	256	39.2	5	3.5
30-39	100	15.3	17	12.1
40-49	61	9.3	48	34.0
≥50	39	6.0	69	48.9
Educational Level				
High School	73	11.2		
Some College	233	35.7		
College Graduate	33	5.1	71	50.3
Associate			5	3.5
Bachelor			66	46.8
Graduate Work	193	29.6	68	48.2
Masters			57	40.4
Doctoral			11	7.8
Not Specified	121	18.5		

Appendix G*Supporting Data and Results*

Table G1

Number of Respondents Who Taught in Multicultural Settings

# of Respondents with Multicultural Exp.	Frequency	Percent	Valid Percent	Cumulative Percent
0 multicultural	78	55.3	56.1	56.1
1 multicultural	44	31.2	31.7	87.8
2 multicultural	17	12.1	12.2	100.0
Total	139	98.6	100.0	
Missing	2	1.4		
Total	141	100.0		

Table G2

Exposure to Multicultural Experiences in Coursework

# Multicultural Exp. In Coursework	Frequency	Percent	Valid Percent	Cumulative Percent
No experience	15	10.6	10.8	10.8
1 experience	94	66.7	67.6	78.4
2 or more experiences	30	21.3	21.6	100.0
Total	139	98.6	100.0	
Missing	2	1.4		
Total	141	100.0		

Table G3

Revised Distribution of Multicultural Personal Experience Less White Experience

Revised Multicultural Personal Experiences	Frequency	Percent	Valid Percent	Cumulative Percent
No experience	71	50.4	51.1	51.1
1 experience	29	20.6	20.9	71.9
2 or more experiences	39	27.7	28.1	100.0
Total	139	98.6	100.0	
Missing	2	1.4		
Total	141	100.0		

Table G4

Original Cronbach's Alpha for Emotional Resilience Reliability Statistics for Dental Hygiene Faculty

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q01	76.53	52.149	.548	.780
Q04	76.60	50.923	.616	.775
Q07	76.77	55.193	.159	.806
Q10R	78.93	60.763	-.199	.823
Q13	76.41	51.591	.514	.781
Q16	76.68	52.247	.502	.782
Q18	77.52	51.788	.341	.794
Q21	76.81	54.172	.298	.795
Q23R	76.71	54.065	.193	.806
Q26	76.37	52.816	.483	.784
Q29	76.43	51.131	.582	.777
Q31	77.37	52.439	.432	.786
Q34R	76.96	52.172	.398	.788
Q36	77.14	53.588	.501	.785
Q39	77.58	52.883	.367	.790
Q42	76.80	52.263	.494	.783
Q45	77.09	52.578	.423	.787
Q48	76.61	52.978	.549	.782

Reliability Statistics

Cronbach's Alpha	N of Items
.799	18

Table G5

Revised Cronbach's Alpha for Emotional Resilience Reliability Statistics for Dental Hygiene Faculty with Q7, Q10R, and Q 23 Removed

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q01	64.47	45.222	.581	.825
Q04	64.53	44.193	.636	.821
Q13	64.35	44.967	.518	.828
Q16	64.62	45.948	.472	.831
Q18	65.45	45.061	.348	.842
Q21	64.74	47.454	.294	.841
Q26	64.31	46.201	.480	.831
Q29	64.37	44.712	.570	.825
Q31	65.31	45.404	.467	.831
Q34R	64.89	45.619	.392	.836
Q36	65.08	46.537	.543	.829
Q39	65.52	46.251	.363	.838
Q42	64.73	45.487	.509	.829
Q45	65.03	45.840	.431	.833
Q48	64.55	46.003	.586	.826

Reliability Statistics

Cronbach's Alpha	N of Items
.841	15

Table G6

Revised Cronbach's Alpha for Emotional Resilience Reliability Statistics for Dental Hygiene Faculty with Q18 and Q21 Removed

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q01	55.81	35.008	.597	.828
Q04	55.88	34.166	.644	.824
Q13	55.69	35.172	.490	.835
Q16	55.96	35.861	.462	.836
Q26	55.65	35.909	.490	.835
Q29	55.71	34.757	.562	.830
Q31	56.65	35.170	.478	.835
Q34R	56.24	35.385	.398	.843
Q36	56.42	36.376	.534	.833
Q39	56.86	36.220	.344	.846
Q42	56.08	35.276	.519	.833
Q45	56.37	35.439	.453	.837
Q48	55.89	35.662	.609	.829

Reliability Statistics

Cronbach's Alpha	N of Items
.845	13

Table G7

Original Cronbach's Alpha for Flexibility and Openness Reliability Statistics for Dental Hygiene Faculty

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q02	64.82	41.450	.424	.719
Q05	63.88	43.186	.532	.716
Q08	63.95	43.294	.482	.718
Q11	64.60	44.317	.370	.727
Q14R	65.92	47.067	.004	.772
Q19R	64.61	42.891	.338	.729
Q22R	64.76	41.696	.509	.712
Q27R	64.64	43.373	.403	.723
Q30	64.76	44.507	.180	.748
Q32R	64.41	44.763	.092	.769
Q37R	64.54	40.250	.622	.700
Q40	63.97	43.140	.450	.720
Q43	64.49	41.600	.498	.713
Q46	64.30	43.131	.459	.719
Q49	64.61	44.788	.317	.731

Reliability Statistics

Cronbach's Alpha	N of Items
.742	15

Table G8

Revised Cronbach's Alpha for Flexibility and Openness Reliability Statistics for Dental Hygiene Faculty with Q14R, Q30, and 32R Removed

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q02	52.43	32.662	.381	.815
Q05	51.49	33.333	.585	.797
Q08	51.56	33.241	.553	.798
Q11	52.21	34.298	.419	.808
Q19R	52.22	33.803	.305	.821
Q22R	52.37	32.190	.530	.799
Q27R	52.25	33.759	.416	.809
Q37R	52.15	30.512	.687	.783
Q40	51.58	33.193	.504	.801
Q43	52.10	32.241	.504	.801
Q46	51.91	33.340	.497	.802
Q49	52.22	34.840	.351	.813

Reliability Statistics

Cronbach's Alpha	N of Items
.818	12

Table G9

Flexibility and Openness Reliability Statistics for Dental Hygiene Faculty with Q19R Removed But Remained in Scale Because the Alpha Change Was .003.

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q02	47.88	28.134	.373	.822
Q05	46.94	28.515	.613	.798
Q08	47.01	28.496	.570	.801
Q11	47.65	29.517	.430	.812
Q22R	47.82	27.899	.501	.806
Q27R	47.70	29.383	.384	.816
Q37R	47.60	26.450	.646	.791
Q40	47.03	28.325	.535	.803
Q43	47.55	27.553	.518	.804
Q46	47.36	28.588	.512	.805
Q49	47.67	29.927	.372	.817

Reliability Statistics

Cronbach's Alpha	N of Items
.821	11

Table G10

Original Cronbach's Alpha for Perceptual Acuity Reliability Statistics for Dental Hygiene Faculty

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q03	42.23	17.245	.521	.742
Q09	43.00	18.496	.225	.775
Q15	42.73	16.329	.522	.738
Q20	43.29	17.580	.371	.758
Q24	41.86	18.358	.365	.760
Q28	43.51	16.544	.355	.766
Q33	42.44	15.796	.563	.731
Q38	43.43	16.057	.482	.744
Q44	42.74	17.099	.470	.746
Q50	42.59	15.936	.520	.738

Reliability Statistics

Cronbach's Alpha	N of Items
.770	10

Table G11

Revised Cronbach's Alpha for Perceptual Acuity Reliability Statistics for Dental Hygiene Faculty with Q9 Removed but Remained Because the Alpha Value Decreased

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q03	37.71	15.540	.491	.743
Q15	38.22	14.779	.475	.742
Q20	38.76	15.664	.368	.758
Q24	37.33	16.440	.368	.758
Q28	39.01	14.753	.331	.771
Q33	37.91	14.065	.554	.729
Q38	38.90	14.004	.523	.734
Q44	38.21	15.181	.479	.743
Q50	38.06	14.148	.518	.735

Reliability Statistics

Cronbach's Alpha	N of Items
.768	9

Table G12

Original Cronbach's Alpha for Personal Autonomy Reliability Statistics for Dental Hygiene Faculty

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q06	28.67	7.397	.256	.552
Q12	27.83	8.260	.148	.579
Q17	29.85	7.463	.123	.612
Q25	28.19	6.955	.462	.489
Q35	29.04	6.151	.377	.503
Q41	28.65	6.157	.487	.458
Q47	28.88	7.204	.277	.544

Reliability Statistics

Cronbach's Alpha	N of Items
.576	7

Table G13

Revised Cronbach's Alpha for Personal Autonomy Reliability Statistics for Dental Hygiene Faculty with Q17 Removed

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Q06	25.03	5.798	.339	.582
Q12	24.19	6.660	.236	.615
Q25	24.56	5.630	.487	.533
Q35	25.40	5.235	.303	.609
Q41	25.01	4.784	.542	.489
Q47	25.24	5.955	.260	.613

Reliability Statistics

Cronbach's Alpha	N of Items
.621	6

Table G14

Distribution of the Usefulness of Cultural Diversity Training

Usefulness of Cultural Diversity Training	Frequency	Percent	Valid Percent	Cumulative Percent
Not Useful	19	13.5	17.6	17.6
Somewhat Useful	53	37.6	49.1	66.7
Very Useful	36	25.5	33.3	100.0
Total	108	76.6	100.0	
Missing	33	23.4		
Total	141	100.0		

Table G15

Distribution of the Cultural Preparation to Address Standard 2-19

Cultural Preparation to Address Standard 2-19	Frequency	Percent	Valid Percent	Cumulative Percent
Less Well Prepared	32	22.7	24.8	24.8
Somewhat Prepared	58	41.1	45.0	69.8
Very Prepared	39	27.7	30.2	100.0
Total	129	91.5	100.0	
Missing	12	8.5		
Total	141	100.0		

Table G16

Distribution of the Confidence to Address Standard 2-19

Confidence to Address Standard 2-19	Frequency	Percent	Valid Percent	Cumulative Percent
Not Confident	25	17.7	19.4	19.4
Somewhat Confident	58	41.1	45.0	64.3
Very Confident	46	32.6	35.7	100.0
Total	129	91.5	100.0	
Missing	12	8.5		
Total	141	100.0		

Table G17

Post Hoc Analysis of Emotional Resilience by Level of Preparedness to Address Standard 2-19

	(I) Rank Preparation Recode	(J) Rank Preparation Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	Less Well Prepared	Somewhat Prepared Very Prepared	-.195856 -.359356*	.098216 .105899	.141 .004
	Somewhat Prepared	Less Well Prepared Very Prepared	.195856 -.163500	.098216 .091458	.141 .206
	Very Prepared	Less Well Prepared Somewhat Prepared	.359356* .163500	.105899 .091458	.004 .206
Bonferroni	Less Well Prepared	Somewhat Prepared Very Prepared	-.195856 -.359356*	.098216 .105899	.145 .003
	Somewhat Prepared	Less Well Prepared Very Prepared	.195856 -.163500	.098216 .091458	.145 .229
	Very Prepared	Somewhat Prepared Very Prepared	.359356* .163500	.105899 .091458	.003 .229

*The mean difference is significant at the .05 level.

Table G18

Post Hoc Analysis of Emotional Resilience by Level of Confidence to Address Standard 2-19

	(I) Rank Confidence Recode	(J) Rank Confidence Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	Less Confident	Somewhat Confident	-.121781	.105267	.514
		Very Confident	-.334017*	.109463	.011
	Somewhat Confident	Less Confident	.121781	.105267	.514
		Very Confident	-.212236	.087508	.057
	Very Confident	Less Confident	.334017*	.109463	.011
		Somewhat Confident	.212236	.087508	.057
Bonferroni	Less Confident	Somewhat Confident	-.121781	.105267	.749
		Very Confident	-.334017*	.109463	.008
	Somewhat Confident	Less Confident	.121781	.105267	.749
		Very Confident	-.212236	.087508	.050
	Very Confident	Somewhat Confident	.334017*	.109463	.008
		Very Confident	.212236	.087508	.050

*The mean difference is significant at the .05 level.

Table G19

Post Hoc Analysis of Flexibility and Openness by Level of Usefulness of Preparation to Address Standard 2-19

	I) Useful Cultural Education Recode	(J) Useful Cultural Education Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	Less Useful	Somewhat Useful	.301667	.130344	.074
		Very Useful	-.011905	.137821	.996
	Somewhat Useful	Less Useful	-.301667	.130344	.074
		Very Useful	-.313571*	.106591	.016
	Very Useful	Less Useful	.011905	.137821	.996
		Somewhat Useful	.313571*	.106591	.016
Bonferroni	Less Useful	Somewhat Useful	.301667	.130344	.068
		Very Useful	-.011905	.137821	1.000
	Somewhat Useful	Less Useful	-.301667	.130344	.068
		Very Useful	-.313571*	.106591	.012
	Very Useful	Somewhat Useful	.011905	.137821	1.000
		Very Useful	.313571*	.106591	.012

*The mean difference is significant at the .05 level.

Table G20

Post Hoc Analysis of Flexibility and Openness by Level of Preparedness to Address Standard 2-19

	(I) Rank Preparation Recode	(J) Rank Preparation Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	Less Well Prepared	Somewhat Prepared	-.270455	.112972	.061
		Very Prepared	-.433120*	.120875	.002
	Somewhat Prepared	Less Well Prepared	.270455	.112972	.061
		Very Prepared	-.162665	.104197	.299
	Very Prepared	Less Well Prepared	.433120*	.120875	.002
		Somewhat Prepared	.162665	.104197	.299
Bonferroni	Less Well Prepared	Somewhat Prepared	-.270455	.112972	.055
		Very Prepared	-.433120*	.120875	.001
	Somewhat Prepared	Less Well Prepared	.270455	.112972	.055
		Very Prepared	-.162665	.104197	.363
	Very Prepared	Somewhat Prepared	.433120*	.120875	.001
		Very Prepared	.162665	.104197	.363

*The mean difference is significant at the .05 level.

Table G21

Post Hoc Analysis of Flexibility and Openness by Level of Confidence to Address Standard 2-19

	(I) Rank Confidence Recode	(J) Rank Confidence Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	Less Confident	Somewhat Confident	-.341049*	.118808	.019
		Very Confident	-.470370*	.122510	.001
	Somewhat Confident	Less Confident	.341049*	.118808	.019
		Very Confident	-.129321	.099132	.430
	Very Confident	Less Confident	.470370*	.122510	.001
		Somewhat Confident	.129321	.099132	.430
Bonferroni	Less Confident	Somewhat Confident	-.341049*	.118808	.015
		Very Confident	-.470370*	.122510	.001
	Somewhat Confident	Less Confident	.341049*	.118808	.015
		Very Confident	-.129321	.099132	.584
	Very Confident	Somewhat Confident	.470370*	.122510	.001
		Very Confident	.129321	.099132	.584

*The mean difference is significant at the .05 level.

Table G22

Post Hoc Analysis of Perceptual Acuity by Level of Preparedness to Address Standard 2-19

	(I) Rank Preparation Recode	(J) Rank Preparation Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	Less Prepared	Somewhat Prepared	-.364713*	.093672	.001
		Very Prepared	-.357544*	.101729	.003
	Somewhat Prepared	Less Prepared	.364713*	.093672	.001
		Very Prepared	.007169	.086931	.997
	Very Prepared	Less Prepared	.357544*	.101729	.003
		Somewhat Prepared	-.007169	.086931	.997
Bonferroni	Less Prepared	Somewhat Prepared	-.364713*	.093672	.000
		Very Prepared	-.357544*	.101729	.002
	Somewhat Prepared	Less Prepared	.364713*	.093672	.000
		Very Prepared	.007169	.086931	1.000
	Very Prepared	Somewhat Prepared	.357544*	.101729	.002
		Very Prepared	-.007169	.086931	1.000

*The mean difference is significant at the .05 level.

Table G23

Post Hoc Analysis of Perceptual Acuity by Level of Confidence to Address Standard 2-19

	(I) Rank Confidence Recode	(J) Rank Confidence Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	Less Confident	Somewhat Confident	-.262719*	.104786	.047
		Very Confident	-.339444*	.108847	.009
	Somewhat Confident	Less Confident	.262719*	.104786	.047
		Very Confident	-.076725	.085874	.672
	Very Confident	Less Confident	.339444*	.108847	.009
		Somewhat Confident	.076725	.085874	.672
Bonferroni	Less Confident	Somewhat Confident	-.262719*	.104786	.040
		Very Confident	-.339444*	.108847	.007
	Somewhat Confident	Less Confident	.262719*	.104786	.040
		Very Confident	-.076725	.085874	1.000
	Very Confident	Somewhat Confident	.339444*	.108847	.007
		Very Confident	.076725	.085874	1.000

*The mean difference is significant at the .05 level.

Table G24

Post Hoc Analysis of Personal Autonomy by Number of Personal Cultural Experiences to Address Standard 2-19

	(I) Multicultural personal experience less white experience Recode	(J) Multicultural personal experience less white experience Recode	Mean Difference (I-J)	Std. Error	Sig.
Scheffe	No experience	1 experience	.017773	.101472	.985
		2 or more experiences	-.209943	.090630	.072
	1 experience	No experience	-.017773	.101472	.985
		2 or more experiences	-.227717	.112633	.134
	2 or more experiences	No experience	.209943	.090630	.072
		1 experience	.227717	.112633	.134
Bonferroni	No experience	1 experience	.017773	.101472	1.000
		2 or more experiences	-.209943	.090630	.066
	1 experience	No experience	-.017773	.101472	1.000
		2 or more experiences	-.227717	.112633	.136
	2 or more experiences	No experience	.209943	.090630	.066
		1 experience	.227717	.112633	.136

*The mean difference is significant at the .05 level.