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THE CULTURAL ADAPTABILITY OF DENTAL HYGIENE, MEDICAL LABORATORY SCIENCES, NURSING AND PHYSICAL THERAPY FACULTY

by

Irene Mary Connolly
B.S. June 1980, Old Dominion University

A Thesis submitted to the Faculty of Old Dominion University in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE
DENTAL HYGIENE

OLD DOMINION UNIVERSITY
May 1996

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ABSTRACT

THE CULTURAL ADAPTABILITY OF DENTAL HYGIENE, MEDICAL LABORATORY SCIENCES, NURSING, AND PHYSICAL THERAPY FACULTY

Irene Mary Connolly
Old Dominion University
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The purpose of this study was to determine the cultural adaptability of full time faculty in the College of Health Sciences, Old Dominion University, Norfolk, Virginia. The sample consisted of 40 health science faculty representing dental hygiene, medical laboratory sciences, nursing and physical therapy. The principal investigator personally administered the Cross-Cultural Adaptability Inventory (CCAI), a 50 item instrument, which contains questions to measure the construct cultural adaptability and its four dimensions: emotional resilience, flexibility/openness, perceptual acuity and personal autonomy. The CCAI is not targeted to one particular culture, but rather is designed to be culture general.

Analysis of variance revealed no statistically significant difference, at the 0.05 level, in the overall CCAI scores among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty. Analysis of CCAI scores among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty, using analysis of variance revealed no statistically difference, at the 0.05 level, in emotional resilience, perceptual...
acuity and personal autonomy. In the dimension flexibility/openness, a significant difference was exhibited between the physical therapy and medical laboratory sciences faculty.

Overall, all four faculty groups exhibited higher average CCAI scores than the CCAI norm group which consisted of individuals with cross-cultural experience and training. Results suggest that the majority of the health science faculty possess qualities necessary to be cross-culturally adaptable. These qualities provide a strong foundation for the development of additional competence in cross-cultural healthcare and for preparing practitioners who can provide culturally sensitive healthcare.
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CHAPTER I
INTRODUCTION

By the year 2000 and beyond the population of the United States, which has been predominately of white European descent, will be truly multiracial and multicultural. The United States population includes 29,930,524 African Americans, each with a heritage from one of the 58 countries on the African continent, 21,900,089 Hispanics, with three major places of origin; 7,226,986 Asian/Pacific Islanders, with 23 different countries of origin; and 2,015,143 Native Americans (American Indian, Eskimo or Aleut) from more than 500 federally recognized tribes (USDC, 1992). American businesses and the military have recognized the need to become culturally diverse in order to accommodate diversity in both the workforce and their clients. The issue of diversity in healthcare is beginning to be explored in allied health.

Culture plays an important role in healthcare because beliefs and values concerning wellness, disease and illness are culturally determined. The constructs of culture, health and disease are so interrelated that Lewis-Fernandez and Kleinman (1994) suggested that lack of cultural sensitivity can lead to invalid diagnosis. Healthcare educators have a major responsibility to prepare culturally sensitive healthcare practitioners for a world of increasingly interdependent cultures and people.
Although literature exists advocating the integration of cultural information and experience into the health science curricula (Wilkerson, 1992), few faculty or institutions of higher education are actualizing this concept. Inability to recognize cultural differences related to healthcare can lead to treatment failure, frustrations for both providers and clients, and client attrition from the healthcare system.

One strategy for enabling faculty and students to become culturally diverse is to recruit minority faculty and students; however, minority populations have long been underrepresented in the health professions (DeVore, 1995). In the 1960's as a result of the civil rights movement, many programs were initiated to improve minority access to the health professions, yet, more than 25 years later, minorities are still underrepresented in both health science programs and the workforce relative to their representation in the United States population (U.S.Dept.of Health and Human Services,1991). Therefore, alternatives need to be considered (Huntley and Minneman, 1994) such as including cultural sensitivity in the health sciences curriculum to improve the cross-cultural adaptability of healthcare practitioners. Success of a multicultural program depends on the faculty reinforcing the concept of cultural diversity (Kalkwarf, 1995). In order to reinforce cultural sensitivity in students, the faculty themselves must have an
understanding of different cultures and possess cross-cultural skills. Prior to making any curricular changes, the cultural adaptability of faculty needs to be measured; therefore, the cultural adaptability of the faculty within the College of Health Sciences, Old Dominion University, Norfolk, Virginia was determined.

Statement of the Problem

The purpose of this study was to determine the cultural adaptability of health science faculty. The specific research questions were:

1. What is the overall cultural adaptability of health science faculty?

2. What is the cultural adaptability of the health science faculty in terms of the subdimensions of emotional resilience, flexibility/openness, perceptual acuity and personal autonomy?

3. Is there a difference in the cultural adaptability of dental hygiene, nursing, medical laboratory science, and physical therapy faculty?

4. Is there a difference among dental hygiene, nursing, medical laboratory sciences and physical therapy faculty on the subdimensions of cultural adaptability; emotional resilience, flexibility\openness, perceptual acuity and personal autonomy.

Significance of the Problem

American society is a unique conglomerate of many
nationalities. From 1981 to 1989, immigration to the United States was at least four times greater from Asia and North America than from Europe, with the largest North American influx coming from Mexico, Cuba and Central America (Statistical Abstract of the United States, 1992). The Bureau of the Census projections for all regions of the nation predicts the white population to be the slowest growing and the Asian population to be the fastest growing among the racial groups. The Hispanic population is projected to comprise about one third of the growth in the nation's population; Hispanic is considered an ethnic group not a race (Current Population Reports-Population Projections for States, by Age, Race and Hispanic Origin 1993 to 2020). _Healthy People 2000_ singles out African Americans, American Indians/Alaska Natives and Pacific Islanders as being the most in need of healthcare because they have a higher risk for disease, disability and premature death than the rest of the population._

If projected demographic trends continue, many healthcare professionals will find themselves living and practicing with culturally different clients or practicing abroad. The Pew Health Professions Commission identified the need for future health providers who can adapt to culturally different clients and provide culturally sensitive healthcare (O'Neil, 1993). As healthcare reforms increase, the barriers to care, such as lack of insurance and high
healthcare costs, may decrease and minority segments of the population will seek healthcare. The need for healthcare professionals who possess knowledge and experience in cross-cultural healthcare and who can adapt to culturally different clients will increase.

The United States is becoming global in healthcare delivery, reaching out to third world countries. Louie (1985) wrote that universities and colleges have a responsibility to prepare students to live and work in a world of increasingly interdependent cultures with different value systems. Healthcare providers need to be culturally sensitive, able to adapt to culturally different clients and able to educate clients taking culture into account. The inability of healthcare practitioners to adapt to diverse cultures serves as a barrier to care for many minorities. Discrepancies in healthcare beliefs, attitudes and behaviors between clients and providers can lead to treatment failure and frustration on both sides and can cause clients to drop out of the healthcare system (Jackson, 1993).

America has often been described as a "melting pot" based on the assumption that cultural differences are minimized and the majority culture adopted. The melting pot theory has not materialized; in reality, ethnic groups prefer to maintain their uniqueness, contributing their diversity to society (Fuller & Schaller-Ayers, 1990). This diversity phenomenon, which exists within our nation, is
better described as pluralism which preserves cultural diversity. Culture is a major determinant of a person's beliefs, values, perceptions and behavior; it provides important information for assessing client needs (Henkle & Kennerly, 1990). Many advocate integrating cultural information and experience into curricula so future healthcare professionals can develop the skills necessary to provide culturally sensitive healthcare. Such skills when developed will benefit healthcare providers by increasing their comfort level in caring for culturally diverse clients. The end result might facilitate access to healthcare for the underserved.

To apply principles of diversity to the teaching and learning environment, the faculty themselves must be culturally adaptable either through education or experience. To teach cross-cultural concepts within a curriculum or program, faculty must impart a sense of comfort and knowledge of the subject and serve as role models for students to emulate. Although a large number of healthcare providers communicate with people of other ethnic and national backgrounds, the numbers who can interact with them without misunderstandings is disproportionately small (Sikkema & Niyekawa, 1987). Healthcare students and providers must understand the culture and socialization process of their clients to understand their behavior patterns and to provide care effectively.
Definition of Terms

Terms significant to this study were defined as follows:

1. **Adaptable.** Being able to adjust oneself to new or changed circumstances.

2. **Culture.** Shared patterns of behaviors and beliefs of a social, ethnic, or national group, or a "basic road map" for comprehending the world, defining social norms of individual and interpersonal behaviors (Strauss, 1990). The values, beliefs, norms, and practices of a particular group that are learned and shared and that guide thinking, decisions, and actions in a patterned way (Leininger, 1988).

3. **Cultural adaptability.** Being able to adjust to situations when the client and or environment is culturally different from oneself. In terms of healthcare it refers to the ability of a healthcare provider to assess the cultural determinants of health and illness within a client, empathize with the client, and provide quality care for the client taking into consideration their beliefs, behaviors, attitudes, and feelings. Cultural adaptability within the health science faculty will be measured using the Cross-Cultural Adaptability Inventory (Kelly & Meyers, 1992) (see Appendix A).


5. **Culturally diverse clients.** Persons receiving healthcare services from culturally different allied health
professionals.

6. Cultural Value. The highly desirable or preferred way of acting or knowing something that is often sustained by a culture over a period of time and governs one's action or decisions.

7. Cultural Sensitivity. An individual's recognition of and response to persons, situations and events which are culturally different from one's self.

8. Health Science Faculty. The full time faculty who teach within the Old Dominion University College of Health Sciences' in dental hygiene, medical laboratory sciences, nursing and physical therapy.

Assumptions

The following assumptions were made for this study:

1. The health science faculty at Old Dominion University have a higher degree of cultural sensitivity than faculty at other institutions because they frequently encounter culturally diverse students and clients and because the university has conducted limited sensitivity training for faculty.

2. The educational experiences of the health science faculty may have given them opportunities to travel and experience cultural diversity first hand.

3. Faculty are truthful in answering the Cross-Cultural Adaptability Inventory because responses are confidential and anonymous. Because the CCAI is a self-scoring
instrument, faculty should be interested in obtaining their true scores for self-assessment and improvement.

4. Faculty, knowing the importance of research, will be cooperative and complete the Cross-Cultural Adaptability Inventory.

Limitations
The validity and reliability of the study is limited by the following factors:

1. The health science faculty serving as subjects are from the same university and are not representative of all health science faculty in the United States; therefore, generalization of findings is limited to the health science faculty who are similar to those at Old Dominion University.

2. The items on the Cross-Cultural Adaptability Inventory may be answered ideologically rather than how the respondent actually behaves in a culturally diverse environment. In an effort to decrease this threat to external validity, the scores were kept anonymous.

Hypothesis
The following hypotheses were tested:

There is no statistically significant difference, at the .05 level, in the overall cultural adaptability among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty, as measured on the Cross-Cultural Adaptability Inventory.

There is no statistically significant difference, at
the .05 level, in the emotional resilience dimension among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty, as measured by the emotional resilience subscore on the Cross-Cultural Adaptability Inventory.

There is no statistically significant difference, at the .05 level, in the flexibility/openness dimension among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty, as measured by the flexibility/openness subscore on the Cross-Cultural Adaptability Inventory.

There is no statistically significant difference, at the .05 level, in the perceptual acuity dimension among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty, as measured by the perceptual acuity subscore on the Cross-Cultural Adaptability Inventory.

There is no statistically significant difference, at the .05 level, in the personal autonomy dimension among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty, as measured by the personal autonomy subscore on the Cross-Cultural Adaptability Inventory.

Methodology
The Cross-Cultural Adaptability Inventory (CCAI) by Kelley and Meyers (1992) was used to measure the cultural
adaptability of the health science faculty at Old Dominion University, Norfolk, Virginia. This 50 item inventory was administered by the researcher. It takes approximately 30 minutes to complete the CCAI inventory, self-score the responses and plot the scores on the four dimensions of the interpretation profile. The outcome is a composite list of all traits and skills associated with one's ability to adapt to other cultures effectively. Differences among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty on the variable cultural adaptability and its four dimensions were analyzed using descriptive statistics and analysis of variance procedures. The hypotheses were tested at the .05 level of significance.
CHAPTER II
REVIEW OF THE LITERATURE

This section describes the constructs of cultural adaptability and cultural sensitivity and the need to develop cultural awareness in health science faculty and curricula. Moreover, this review addresses cultural adaptability, adaptability of immigrants in the United States, the need for cultural awareness for diagnosis, minority faculty in the health sciences, minorities practicing in the health science field, need for cultural awareness in general education and the health sciences and some curricula that successfully include cultural diversity issues. Both the theory of cultural care diversity and universality and the human needs theory are linked to guide cultural awareness.

The Constructs of Cross-Cultural Adaptability

Steady immigration and ethnic diversity in the United States has stimulated research in cross-cultural adaptation. Serious research began at the turn of the century in anthropology and sociology focusing on cultural groups rather than individuals (Kim & Gudykunst, 1987). More recently studies in psychology, psychiatry, communication and other related disciplines have focused on cross-cultural adaptation of the individual.

For years both monocultural and ethnocentric perspectives have been recognized by the scientific
community as approaches in understanding differences between cultures. From a monocultural perspective, there are no differences in cultures; from an ethnocentric perspective one's own culture is the privileged culture. Recently, both monocultural and ethnocentric perspectives have been criticized and a new paradigm approach has been embraced. Pearce & Kang (1987) claim that the answers to four key questions help to understand the "travelers tales" of the differences between cultures:

1. Are there actually differences among cultures in forms of communications?

2. If so, how should the differences in forms of communication among cultures be described?

3. Do these differences have to occur? What is the "necessity of these differences?"

4. What differences do these differences make? What are the implications of these forms of communication?

The perspective that the new paradigm provides facilitates the understanding of communication within different cultures. In answer to the questions, there are significant differences among cultures in the meanings and motives of the communication act. The differences among cultures, although difficult to describe, lie on the intention of the communication act rather than the act itself. To answer the third question, communication will differ among cultures because cultures differ. Cultural differences in the forms of communication are the means by which cultures perpetuate their individuality. This
communication is necessary because it is how cultures are expressed and given meaning.

After synthesizing existing conceptualizations pertaining to the cultural adaptation process, Yoshikawa (1987) designed a five _stage_ model of _cross-cultural_ adaptation. In the first stage, "Contact", one's original world views persists. For some, this stage is new and exciting, for others the lack of familiarity is threatening. In the next stage, "Disintegration", which also can be termed cultural shock, one experiences conflict between the world views of the first and second culture. In third stage "Reintegration", one attempts to find a solution through stereotyping, generalization, and judgmental attitudes. At this point, individuals may switch back and forth between the first and second stages. They are not ready to accept cultural similarities or differences until the fourth stage, "Autonomy", in which one becomes increasingly flexible. In this autonomous stage, some individuals develop and identify with the "third culture". The fifth and final stage is termed the "Double-Swing". In this stage, one is independent and simultaneously interdependent, thus capable of bringing new ways to explore the paradox of human diversity and unity (Alder, 1975). In this transitional stage, one does not focus on the original culture or the second culture, but instead is able to experience the dynamic and dialogical interaction between them.
The "Double Swing" stage encompasses five perceptual patterns. The "ethnocentric" perception experiences the other in one's own image. With "sympathetic" perception, one perceives the other's world from one's own perspective, projecting feelings that may not coincide with the other's. Sympathetic perception is a reaction to the other's perspective, whereas the enthnocentric disregards the existence of the other's perspective. "Empathic" perception puts oneself in the other's shoes, enabling one to see things from the other's perspective. The fourth type of perception, the "mirror-reflecting" perception, allows one to view the world from the other's perspective. The fifth type of perception is called "metacontextual", which enables one to perceive the concrete process and context in which two individuals interact. One's capacity for openness, sensitivity, and responsiveness to the world increases as one enters the final stage of cross-cultural adaptation.

This "Double-Swing" stage is different from onesided openness because it is based on "existential trust" which is a trust in life, committing oneself to the changing of being (Friedman, 1974). The stages of cross-cultural adaptation won't necessarily follow a straight, linear progression, nor is the fifth stage necessarily the final stage to perfecting cross-cultural adaptation. In the advanced stage, a considerable amount of perceptual maturity, openness and balance is achieved.
Kelley and Meyers, who designed the Cross-Cultural Adaptability Inventory, have defined the constructs of cultural adaptability according to the four dimensions of emotional resilience, flexibility/openness, perceptual acuity and personal autonomy. These dimensions are based upon the works of individuals with specialized knowledge in the area of cross-cultural adaptability (Hammer, Gudykunst & Wiseman, 1978; Hannigan, 1990). These dimensions have been cited in other research as well (Sikkema & Niyekawa, 1987).

**Emotional Resilience**

Hannigan (1990) in his review of the literature cited the ability to deal with psychological stress high on the list of attributes for intercultural effectiveness. In fact, an overseas candidate is described as one who can snap back rapidly from discouragement and frustrations. One of the factors to be considered when selecting people for international work is resourcefulness and buoyancy (Hammer, Gudykunst & Wiseman, 1978). Emotional resilience measures the ability to "fit in" a new culture (Searle and Ward, 1990).

**Flexibility/Openness**

The ability to deal with different communication styles is referred to as flexibility (Hannigan, 1990). Psychologists seem to agree that nonauthoritarian personalities who are open-minded and flexible will make better adjustments to different cultures than the
authoritarian type who cannot accept views different from his own (Sikkema & Niyekawa, 1987).

Perceptual Acuity

An important trait in intercultural relationships is to have an accurate sense of another's thoughts, feelings and experiences. Cultural empathy is not merely a matter of getting along with different people, but it has to do with perceptiveness and receptiveness (Hannigan, 1990).

Personal Autonomy

The first step toward understanding another culture is becoming aware of one's own cultural habits and values so they will not interfere with the learning of another's cultural differences (Sikkema and Nijekawa, 1987). Viewing one's own culture relativisticly has been cited in the literature as paramount in cross-cultural interactions (Hannigan, 1990).

Cross-cultural adaptation with its varied facets and dimensions, is influenced by economic conditions, perception, attitude, behavior, linguistic proficiency and cultural identity. These factors have diverse elements within themselves making the constructs of cultural adaptability complex and a challenge to understand and measure.

Adaptation of Immigrants in the United States

When describing the adhesive sociocultural adaptation of Korean immigrants in the United States, Hurh and Kim
(1994) define adaptation "as the process in which immigrants modify their attitudinal and behavioral patterns in order to maintain and improve their life conditions compatible with the new environment." According to Hurh and Kim (1994), the term "adhesive" refers to certain aspects of the new culture and social relations that are added to the immigrants' own culture and social networks, without modifying a significant part of the old. While acculturation, which refers to the immigrants' changing their cultural pattern, may be achieved, assimilation of non-white immigrants is not usually achieved. Immigrants are not socially accepted by the dominant group. Consequently, involuntary ethnic segregation by the immigrants occurs. Involuntary ethnic segregation is done to satisfy primary group needs, to lower their frustration and dissatisfaction, and to evoke a false sense of success. While Hurh and Kern (1994) did not address adaptation of white Americans to other cultures, their work is important because it emphasizes the barriers immigrants face attempting to adapt to American society, and explains the strong cultural ties some groups have generations after arriving in the United States. Hurh and Kim (1994) theorized that third generation immigrants expect social assimilation more than previous generations, but are more aware of its limited possibilities than past generations.

Americans view cross-cultural adaptation as "becoming a part of" the new cultural system. It is thought that
individuals immigrating to the United State lose their sense of belonging to the old culture and consider themselves part of the new. Old ways lose ground and are replaced by new ways. Contrary to this belief, when describing the intercultural learning among Iranians in the United States, Hoffman (1990) found that in spite of high levels of behavioral and instrumental integration manifested in Iranians, there was no real feelings of participation in the American system, or a sense of being an American. Even though some learned to be more aggressive and open with their feelings, it did not cross over into the inner self or effect one's sense of cultural identity. It is a basic assumption among Americans that adaptation entails changes in self-identity; in reality, Iranians adopt behaviors thought to be advantageous to success in American society. They are learning the skills for survival. Iranians experience very little identity conflict while learning to assimilate. Thus, no matter how much a person appears to have adapted, these changes infrequently occur in their inner self. Hoffman's study suggests that it may be difficult to train Americans in behavioral flexibility since it is less easy for them to separate behavior from inner sense of self, personality or identity.

Cultural Sensitivity in Communications

Interethnic relations and communications generate unceasing academic interest and public debate. According to
Kim (1986), interethnic sensitivity is a significant social issue which requires systematic research to understand the ways individuals with different ethnic backgrounds interact and relate to each other. Effective communications and relationships across ethnic boundaries is a goal that needs to be attained. Although the fields of sociology and psychology have answered questions on interethnic relations from a disciplinary perspective, psychological studies focus on cognitive and attitudinal orientations toward in-group and out-group members. Understanding the differences between the communicators' values, norms, language, and verbal and non-verbal characteristics of ethnic cultures, will help one understand potential communication barriers and the ways individuals are successful or unsuccessful dealing with such differences.

When individuals from different cultures interact, misunderstandings usually occur because one expects the other to behave differently from the way he or she actually behaves, or one uses different standards to evaluate his or her behavior. In analyzing the communication and attributional differences between Hispanic and Anglo-American teachers and pupils, Albert (1986) studied the attribute of shame. This attribute was chosen because of its importance in the socialization of Hispanic children. The research, in naturalistic settings, included interviews, structured and unstructured questionnaires and observations.
Preliminary analyses revealed four times as many significant differences overall as would be expected by chance. There were five significant differences for the Hispanic-Anglo factor, six differences occurring between Hispanic pupils and American teachers, and two significant interactions. Data suggest that shame is an important component of Hispanic interpersonal orientation and that shame does not hold the same importance to Anglos. The collectivistic culture of the Hispanics compared to the individualistic Anglo culture may facilitate this attribution although this concept needs further investigation. Hispanics, one of the largest ethnic groups in the United States school system, have the highest dropout rate. These findings could sensitize teachers to the attributions made by Hispanic children and initiate different reactions in certain situations.

Hannigan (1990) found that intercultural communication skills are frequently mentioned in the literature as an important factor in the success of the individual who studies or works with different cultures. After gender, cultural diversity is the second most frequently noted change in the work force (Epting, Glover & Boyd, 1994). It is predicted that 42 percent of the labor force will come from the minority population. This change results in several management issues which must be addressed, communications being the first on the list.
When discussing the importance of effective communication in the business arena, Ivancevich and Matteson (1993) recognized that while language may be a barrier in cross-cultural communication, ethnocentrism is a greater barrier. Business people who familiarize themselves with significant cultural differences that affect the communication process are most successful dealing with culturally diverse clients. This familiarization is usually done by studying, observing and consulting with those who have greater knowledge or experience with the specific culture coupled with a conscious effort to put aside ethnocentric tendencies. While acceptance of customs and perspectives different from their own is not necessary, awareness is required to facilitate communications. More important than familiarization and awareness of different cultures is "knowing that they do not know". Even after extensive exposure to a culture, there are nuances in the communication process to which one is unaware. Rather than assume understanding, it is suggested that one assume that communication is incomplete until proven otherwise.

**Need for Cultural Awareness in Healthcare**

From a historical perspective, concern for the healthcare of culturally diverse groups began in the early 19th century. Linda Richards was the first US nurse to engage in international nursing in Japan. Nurses such as Lillian Wald and Lavinia Dock attended to the healthcare
needs of European immigrants in New York tenement houses in the early 1900s. In 1970, Madeleine Leininger began her work noting the philosophical and theoretical similarities between nursing and anthropology.

Numerous professional organizations have contributed to the improvement of healthcare for culturally diverse clients. The role of professional organizations in recognizing the importance of cultural diversity in healthcare began when the American Anthropological Association established the Council on Nursing and Anthropology. Today this Council exists as an independent organization with about 350 members. The Transcultural Nursing Society has a current membership of approximately 300.

The lack of knowledge about clients' cultural beliefs hampered nursing students' ability to give optimum nursing care and motivated Lassiter (1995) to write a book describing specific cultural groups in the United States covering communication, chief complaint, child rearing, socialization patterns, religious beliefs and practices, dietary patterns, beliefs about death and dying and physical assessment. One must realize that these are generalizations about common patterns shared by a group and care should be taken not to stereotype.

Some generalizations from Lassiter's (1995) book follow:
The holistic philosophy of health, perceiving mind and body as inseparable and the total person in interaction with the environment, is practiced by African Americans. Illness is believed to occur when there is disharmony or conflict in a person's life. Chinese Americans also embrace the holistic approach believing yin (cold) and yang (hot) to be contrasting yet complimentary aspects of the universe. Yin a female negative energy, passive and unassertive, stores the vital strength of life, while yang a male positive energy is active, excited and assertive. An imbalance of yin and yang within a human body results in dysfunction or disease. Yin conditions such as cancer and pregnancy are treated with yang (hot) foods, and yang conditions such as infections, hypertension and venereal disease are treated with yin (cold) foods. One avoids disrupting the system by practicing moderation. German Americans tend to avoid doctors if at all possible, believing that pure water and air promote good health. This belief is evident by the 250 health resorts and mineral springs in Germany. The Arab American may wear an amulet containing verses from the Quran as a method of preventing or treating illnesses. Although younger generations may not ascribe to traditional beliefs and practices of older generations, they do feel it is the essence of their culture and demonstrates their uniqueness.

Culture determines illness behaviors such as compliance, self-care, pessimism and pain tolerance. The
following examples were documented by Lassiter (1995). Hispanics when compared to other groups demonstrate high pain intensity and pain expressiveness and experience a high degree of emotional stress. While Vietnamese Americans rarely express negative feelings in public and tend to be stoic and noncomplaining, they may postpone seeking care for obvious pathological disorders due to their fear of invasive procedures and expectation that nature will heal. Mexican Americans may feel that pain and suffering is atonement for their sins and not seek medical attention. It is important for the health professional to recognize that Chinese Americans are generally quiet, polite and unassertive, and suppress feelings of anxiety and fear of pain, while Jewish Americans describe their symptoms in great detail as do Italian Americans. Haitian Americans tend to form their own diagnosis before they seek professional care and serious illness is discussed only with family members.

Lewis-Fernandez and Kleinman (1994) addressing the cultural biases built into North American professional models of personality and psychopathology diagnosis, have identified a new anthropological concept of culture. This new concept of culture challenges the idea that culture is a set of cognitive beliefs occurring uniformly in a population. Rather, the new concept characterizes culture as value commitments and moral orientations akin to faith that are embodied in, and experienced by, individuals as what is
at stake in specific, local settings. The cultural theory of personality and psychopathology asserts that the local cultural world precedes the appearance of the individual and fundamentally patterns a person's biological development and psychological processes.

Historically, professional diagnostic criteria have been based on the constructs of personality and psychopathology that are culture bound (Lewis-Fernandez & Kleinman, 1994). The diagnostic criteria reflects those cultures that are of white European descent and it ignores those cultures that reflect 80% of the world's population. The Chinese and Puerto Rican societies can be used as examples to illustrate the lack of validity in the current clinical diagnostic system. For example, the Chinese conceptions of self and personality are strongly related to family and their birth order within that family. The Chinese concepts of family and birth order provide a framework for understanding how one presents oneself outside the confines of the family. In the mountainous regions of Puerto Rico, women are expected to exert greater self-control than men, who are permitted broader expressions of emotions. Because relationships of confidence serve as outlets for strong emotions, Puerto Rican women are considered in greater need of them than men. The importance of being culturally sensitive to clients is paramount in the Lewis-Fernandez and Kleinman study, suggesting that without this knowledge,
diagnosis can be invalid.

Payne-Johnson (1992) cites the difficulties speech-language pathologists have in understanding elderly African Americans, their communication styles and their priorities. Little research exists on the cultural and related communication differences between elderly African Americans and whites. African Americans have the highest rates of hypertension but they live longer after strokes and require rehabilitation. A number of assessment tools are available to measure communication function, but little is available on cultural diversity within aging populations and how culturally diverse clients respond to these measures.

Pinholt, et al (1987) contend that clinician subjectivity in evaluation of functional status (hearing loss) must be tempered by sensitivity to culturally different communication needs of aging persons. Four important areas have emerged from past studies with implications for culturally derived communication contexts: religion, family relationships, leisure activities and educational interests. These past studies were conducted by Jackson, Jackson and Wood, Taylor, Allen and Chin-Sang, Taylor and Chatters, Multran, Johnson and Barer, Hofferth, and Ralston (as cited in Payne-Johnson, 1992). All four of these areas are integrated into the culture of elderly African Americans more than other age groups. Research on communication differences is needed within larger
populations of the elderly African Americans and culturally related differences should not be overlooked in their assessment and rehabilitation. Payne-Johnson (1992) asserts that to sharpen practitioners cultural sensitivity to diversity among people who are elderly, diversity issues should be included in the curricula of colleges and universities.

Jackson (1993) describes the three major categories of belief systems commonly found: biomedicine (Western medicine), personalistic systems (witchcraft, spells, etc.) and naturalistic systems (equilibrium of the body). Jackson details the different systems and explains why it is important for the healthcare provider to understand these beliefs and integrate them into their treatment. For example, in a personalistic system, the agent, a ghost or deity, causes disease by witchcraft or casting a spell. Curing the illness is done by removing the spell placed upon the person. Prevention of illness in a personalistic system involves making sure all your social contacts are in good working order. The naturalistic system holds that disease is caused by heat or cold entering the body and causing an imbalance. This heat or cold can mean actual temperature but often it means food, medicines, or conditions such as pregnancy, environmental state and emotional state. In China anger is believed to be a hot emotion. A person who remains angry for a long period of time exposes his body to
excessive heat and risks becoming ill with a hot disease i.e. hypertension. Prevention of sickness in a naturalistic system involves maintaining a balance of the hot and cold forces. Again cultural sensitivity is vital in understanding the clients health beliefs and response to illness and disease.

Meyers (1992) says that occupational therapists practicing with culturally diverse client populations need to understand beliefs, values and family structure that will affect treatment. Knowledge of cultural background is especially pertinent for the assessment of children since one must understand family and social mores to integrate the family into the plan of care. Meyers (1992) discusses the Hmong population which is rapidly growing in California, Wisconsin and Minnesota. The Hmong are similar to the Southeast Asians but possess some unique characteristics. The Hmong are from mountainous areas and have limited exposure to city life, other languages, or cultures. The household consists of more than one dwelling and sometimes a whole village. The children are reared by the parents but all members of the extended family are allowed to discipline and teach the children. The children, who are very respectful to elders, are trained to be interdependent and learn that they are part of an extended family. Women marry between 13 and 14 years of age. Once the Hmong immigrated to the U.S., many of their customs began to change to conform
with laws of this country. Asking for help is a shameful experience for a Hmong. Hmong often do not trust Western medicine and are advanced in disease stages before they seek healthcare. Noncompliance is commonplace. Although Meyers (1992) details the Hmong culture, he emphasizes the importance of knowing the family's cultural background when treating children. The passage of the Education for All Handicapped Children Act (1975) brought Hmong children into the local school system where service is rendered. Many of the fears the Hmong have for medical procedures were avoided by going through the school system for which the Hmong have great respect. Much of the health evaluation is done in the home of the child because they are comfortable in this environment. The author points out that unless the occupational therapist has knowledge of the culture of this population and its healthcare practices, diagnosis and treatment could be mismanaged.

Although sensitivity and adjustment to cultural differences have long been part of occupational therapy philosophy, the ability to adapt treatment to cultural parameters is a difficult task (Kinebanian & Stomph 1992). Western therapists view the world through products of their own culture. Realizing this is the first step in development of cross-cultural occupational therapy.

Minority Faculty in the Health Sciences

When considering all fields, fewer than 11% of faculty
belong to minority groups (Green, 1989). A look at minority faculty in the health sciences reveals similar statistics. In 1991, directors of all accredited U.S. dental hygiene programs were surveyed to determine, among other things, the number of minority faculty and minority applicants for faculty positions (Huntley and Minneman, 1994). Of the 1,025 dental hygienists employed as faculty, there were 59 ethnic minorities represented and 10 males. Most dental hygiene program directors (66%) reported no minority faculty in their programs. Huntley and Minneman (1994) concluded that, the scarcity of minority faculty in dental hygiene programs restricts the number of dental hygiene students who are exposed to minorities as professional role models. Not only is there a lack of minority role models for the dental hygiene students, but also a lack of opportunities to view problems and solutions in oral health education and practice from a minority non-white perspective.

When speaking on the participation of minorities in U.S. dental education, DeVore (1995) reported that the great majority of faculty in U.S. dental schools to be white and male. This 86% white faculty is greater now than in the 1980's and the female faculty include more racial diversity than male faculty. The distribution of minority faculty among the schools is uneven, with the vast majority having no minorities teaching basic sciences. All schools have at least one minority clinical faculty member.
Campbell and Sigsby (1994) described cultural diversity in nursing education. The authors reported a decline in minority faculty in the past decade. Although nursing faculty have a greater proportion of black faculty as compared to faculty in general, it has a small representation of other minorities which is likely to continue in the near future because of the limited numbers of minority students who enter and complete nursing programs in higher education. A need exists for multicultural faculty to alleviate difficulties faced by minority students in all white teaching facilities. Campbell and Sigsby (1994) suggested that minority faculty in schools of nursing serve as consultants to work with majority faculty to increase cultural awareness. Campbell and Sigsby (1994) emphasize the need for multicultural students and multicultural faculty who are able to meet the needs of increasing diverse healthcare clients. Only with heightened cultural sensitivity will faculty be able to work effectively with diverse students and clients.

Evans (1992) did not document the percentage of minority faculty in occupational therapy programs, but stated that 7.2% of registered occupational therapists were ethnic minorities. She also stated that there has been no gain in minority student enrollment in occupational therapy programs in recent years. Evans (1992) work is based on 14
research studies documenting the disparities in healthcare between blacks and whites. Findings from these previous studies reveal that: blacks are 38% more likely to die of heart disease than whites due to lack of preventive care; whites received more intensive and aggressive treatment for pneumonia than blacks; and seclusion, restraints and as-needed medication were used more on blacks than whites with similar disorders. The Council on Ethical and Judicial Affairs of the American Medical Association (1990) blamed these disparities on racial prejudice and failures by the medical profession. The Council issued a recommendation to increase awareness of subconscious biases that affect healthcare and a call for all healthcare professionals to increase their cultural sensitivity. Skawski (1987) found that black occupational therapists felt more prepared to deal with the diversity of their clients than white occupational therapists.

Data on minority practitioners in the allied health professions are in short supply. To rectify this lack of data, the U.S. Bureau of Health Professions, Health Resources and Services Administration, Public Health Service and the U.S. Department of Health and Human Services set priorities to develop more accurate statistics (Brand and Walker, 1993). Targeted professions included practitioners in the clinical laboratory sciences, cytotechnology, dental hygiene, dietetics, nuclear medicine technology,
occupational therapy, physical therapy, radiologic technology and respiratory therapy. Various government agencies, professional associations, national registry and certifying organizations, and colleges and universities were resources for data. Findings revealed that few agencies/organizations kept records on the ethnic backgrounds of their healthcare practitioners. Furthermore, the membership of most professional organizations reflects a small percentage of practitioners, rather than a true representation of practitioners. Consequently, those organizations that had ethnic data were not representative of the total population of practitioners. Information was obtained from the Bureau of Labor Statistics and the Bureau of Health Professionals, but the percentage of women, African Americans, and Hispanics employed in six allied health profession was not stated in this literature.

Brand and Walker (1993) recommended that a private entity be established to collect, maintain and disseminate minority practitioners data. These statistics are necessary to determine if the needs of underserved minority communities can be met. Minority data also are needed by government agencies for the evaluation and continued development of health profession training programs. A key rationale for training minorities in the healthcare professions is that minority health professionals are more likely to provide care for underserved minority populations.
Other reasons include the need to break down cross-cultural barriers to healthcare, to improve access to healthcare for nondominant minority groups, and to increase minority practitioner role models who can stimulate the influx of more minorities into the health professions.

**Cultural Adaptability and the Curriculum**

The cultural diversity issue in education frequently is met with the suggestion to revamp curricula, diversify staff and embrace new teaching strategies. Implementation of these suggestions is necessary to maintain the richness of cultural diversity (Sklarz, 1993), and has been implicated as a mandate for faculty development in the 1990's (Collett, 1990). Wilkerson (1992) stated that eurocentric perspectives of schooling must give way to a curricula reflecting the cultural diversity of the nation, since by 2020 it is predicted that minorities will comprise about half of the school age population.

Individuals who see the world only from their unique cultural and ethnic perspectives are culturally and ethnically encapsulated. These individuals also are unable to see fully their own cultures because of their cultural and ethnic blinders. One can only get a full view of their own culture by viewing them from the perspectives of other ethnic cultures (Banks, 1994). Multicultural education attempts to remove these blinders. One of the goals of multicultural education is to lessen the pain and
discrimination experienced by members of some ethnic and racial groups in school and in society in general. Another goal of multicultural education is to provide students with the skills, attitudes, and knowledge to function within their own culture and to help students develop cross-cultural competence. This goal becomes increasingly important as we live in a global society where cross-cultural skills are necessary to be effective, influential citizens of the world community. Banks (1994), in identifying two major goals for school reform, stated that schools should:

1. create total school environments that are consistent with democratic ideals and cultural diversity; and

2. define and implement curricular policies that are consistent with democratic ideals and cultural diversity.

Following these goals, Banks lists 23 curriculum guidelines for multicultural education. Among these are developing a curriculum to help students understand the totality of the experiences of ethnic and cultural groups in the United States and promote values, attitudes, and behaviors that support ethnic pluralism and cultural diversity; and develop the skills necessary for effective interpersonal, interethnic, and intercultural interactions. Certainly these guidelines are applicable to the education of future healthcare professionals.

The educational literature concerning cultural
diversity stresses the challenges colleges and universities face in meeting their commitment to ethnic and cultural diversity. Minority student recruitment, minority faculty recruitment and infusing cultural diversity into the curricula are strongly advised. In business management, culture and values are considered part of the environmental forces and management is encouraged to be sensitive and knowledgeable in this arena (Hellriegel & Slocum, 1991). If incorporating cultural sensitivity and adaptability is important in educational and business settings, its importance in healthcare cannot be ignored.

Andrews (1992) observes that the lack of cultural sensitivity by healthcare providers wastes millions of dollars and alienates the very population nurses purport to help. Population trends indicate that by the year 2000, more than a quarter of our population will consist of minorities and that this percentage is projected to increase by 2080. Although it has been more than two decades since the first transcultural nursing course was taught, Andrews (1992) says only a handful of nursing programs have integrated cultural knowledge into the curriculum. From the 1970's on, Leininger has completed several studies and a theory related to transcultural nursing; yet only 18% of nursing baccalaureate programs included some content on multicultural issues (Eliason & Macy, 1992).

In 1986 the American Nurses' Association identified
four approaches that educators might use to achieve cultural diversity in the nursing curriculum. These include the concept approach, the unit approach, the course approach and the multidisciplinary approach. The concept approach refers to the integration of cultural concepts throughout the entire curriculum; the unit approach refers to the inclusion of cultural aspects of healthcare in a specific unit or units; the course approach refers to the offering of a specific course in which the emphasis is on the cultural aspects of healthcare; and the multidisciplinary approach refers to the team-teaching of cultural content by healthcare faculty, anthropologists, medical sociologists, and others. No evidence exists to support the superiority of any of these aforementioned approaches.

Kerfoot (1990) speaks about taking the principles of working with culturally diverse patients and applying them to culturally diverse staff members. Rather than molding a person into the existing cultural mores, Kerfoot recommends using the cultural differences that people bring into a setting. For example, inservices can be offered in the unit for individuals to share experiences that relate to their cultural background. A culturally diverse unit can be brought together by setting common goals and clearly understanding the purpose and direction of the unit. A program of diversity training goes beyond developing sensitivity in others to coexistence peacefully. The program
centers on using diversity to the advantage of the unit and for client care. Kerfoot (1990) emphasizes the importance of cultural sensitivity for all levels of nursing.

Several authors advocate exposing students to cultures other than their own. Two students, one from Northern Arizona University (rural area) and the other from San Francisco State University (urban area), exchanged schools so they could experience different cultures and settings (Huttlinger & Keating, 1991). The students developed new cultural perspectives and appreciation for the health needs of urban verses rural populations, and compared community resources for healthcare in both rural and urban settings.

Classroom activities to introduce cultural diversity are discussed by Elison and Macy (1992). Two primary components of culture are identified: objective components (tangible) such as language and clothing, and subjective components (intangible) such as attitudes and social roles. Both of these components are learned cognitively and affectively. Student’s were asked to record the first word or phrase that they could think of for people in a particular group. The students responses stereotyped groups and were often negative in nature. Anonymity of the responses allowed students to discuss openly their perceptions of diverse groups in the activity that followed. Discussion of stereotypes in the relatively safe environment may help students prepare for real-life experiences where
they will find themselves serving diverse populations. Talking about stereotypes validates a minority's existence and experiences.

Saylor and Taylor (1993) discussed teaching as transformation; the process involving changing curriculum content to meaningful representations for nursing students. In 1991, San Jose State University began teaching its Bachelor of Science in Nursing program to nurses from Saipan Island. These students, Micronesian from Saipan and other outlying islands, had an opportunity to transform cultural beliefs and rituals of their own islands into acceptable healthcare. Assignments were changed so the students could prepare individual nursing care plans taking into account the customs and values of the island's population. For example, the local diet, which is high in fat, caused the problem of high morbidity and mortality on the island. The cultural habits of the people had to be taken into account before changes could be made in the diet. In the program, the students themselves become the transformers. Although Saylor and Taylor (1993) focusing on teaching culturally diverse students, felt that the process of transformation could be applied to many nursing schools experiencing dramatic cultural changes in both student body and in client care.

Lindquist (1990) reviewed both nursing and education literature and found it essential to develop a global
perspective when preparing nurses to practice in a world of increasingly interdependent nations and people. In a descriptive study, Lindquist identified ways in which curricula are being internationalized by National League of Nursing accredited schools. Some of these strategies included study-abroad programs, international courses taught on campus and faculty and student exchange programs. Workshops dealing with transcultural nursing conducted for faculty and students are other means of increasing international and cross-cultural sensitivity. Healthcare professionals, if they are educated in the international arena, can be one of the greatest resources for accomplishing the World Health Organization goal of health for all by the year 2000.

Leininger (1970), a pioneer in transcultural healthcare, viewed the ultimate challenge for the nurse to be that of making the care for the patient more specific, refined and culture focused. Her concept is applicable to client care in any of the healthcare professions. Leininger believes that students' cultural sensitivity can be developed by exploring different perspectives of various cultural backgrounds. For example, allowing students to identify family customs and traditions can be incorporated into classroom activities. Moreover, exploring the beliefs and values related to wellness, health promotion and intervention within the students own culture helps students
consider different cultural perspectives as part of total client assessment.

Cultural assessment offers a systematic mechanism for understanding client behaviors within the individual's cultural context. The first process to heighten students' awareness of different cultures might be to examine the lifestyle of a sociocultural or ethnic group within their own geographic area. Sharing with other students, customs and beliefs indigenous to their own culture, while focusing on related nursing needs, can enhance cultural sensitivity. As students progress into the nursing program, activities that appraise their own attitudes of health and wellness can be explored and shared in group discussions. Students can then consider multiple differences among cultures and their relationship to healthcare. For example, a nutritional assessment of eastern Indians revealed that they were vegetarians. This finding explained their noncompliance when eating hospital food, and arrangements could be made to ensure culturally acceptable yet healthy diets. Cultural assessment offers a systematic mechanism for understanding client behaviors within the individual's cultural context. An abbreviated form of Leninger's (1978) nine assessment domains help students identify data essential to formulating a cultural assessment of the client. Four major categories were identified: (1) cultural lifestyles and values, (2) folk and professional health cultural systems, including
home remedies and perceptions of health and illness, (3) religion, and (4) cultural taboos, myths, and superstitions. Assessment tools may provide the framework for broadly assessing cultural information, although caution should be taken not to generalize to certain cultures but to individualize client care (Henkle & Kennerly, 1990).

**Theory of Transcultural Nursing and the Human Needs Theory**

Leininger (1985) developed the theory of culture care diversity and universality with the assertion that different cultures perceive, know, and practice care in different ways; yet there are some commonalities about care among all cultures in the world.

Several assumptions were made by Leininger to support this theory, i.e.,

- care has been essential for human survival, development, and to face critical or recurrent like events such as illness, disability, and death" and although "human care is universal...... there are diverse expressions, meanings, patterns (or lifestyles), and action modalities.

Since care is the dominant domain of nursing, the basis for the theory of cultural care diversity and university is care.

The Sunrise Model was developed by Leininger to depict the theory of cultural care diversity and universality. The model contains four levels which address the knowledge base needed for the provisions of culturally sensitive care:

- (level 1) care within the social systems, (level 2) care
within individuals, families, and cultures, (level 3) care within the context of the folk and professional systems, and (level 4) nursing actions and decisions which help provide culturally congruent care. Although the Sunrise Model was designed for nursing care, it could be applied to other health science professions. Concepts from this model could be helpful to practitioners interested in providing culturally congruent healthcare.

Faculty interested in cross-cultural healthcare can guide students to adapt healthcare delivery to meet client human needs within the context of the human needs theory (Yura & Walsh, 1988). Several human needs are particularly relevant within a cross-cultural context: the need for recognition and respect by considering the importance of the client's value system, the territoriality need for a space of one's own, the need for self-determination and responsibility, and the need for appreciation and respect. Once the client's beliefs and customs are understood by the healthcare provider, diagnosis may be more accurate and care tailored to fit his/her unique cultural perspective and environment. The human need for conceptualization and problem-solving refers to one's ability to grasp ideas and abstractions and to make sound decisions. The person responsible for decision making and problem solving within a family unit varies widely across cultures. The need for nutrition, a wholesome body image and freedom from pain and
stress are met more effectively if a healthcare provider recognizes the clients traditions, beliefs, definitions of health and disease and communication styles specific to their ethnicity.

Summary

The importance of both faculty and student cultural sensitivity is addressed in the professional literature of several health science disciplines. Although a considerable amount of literature exists on the subject, little activity actualizing the concept could be found. Surprisingly, the nursing profession, which has focused on this issue, has not incorporated cultural sensitivity into its curriculum in any standard manner. The Sunrise Model (Leininger, 1991) suggests the need to move from knowledge of the client's cultural values and beliefs to their integration into the healthcare process. There is evidence in the literature suggesting that faculty need to be multicultural themselves, or experienced in cultural diversity, to teach this concept effectively. Although literature on all health science faculty could not be found, dental hygiene faculty appear to possess the least cultural awareness. This observation is based on the fact that there are less minorities in the programs and less literature on the subject than could be found in nursing, occupational therapy and speech therapy. With the United States demographics changing so dramatically, the health sciences must be prepared to meet
the challenges of providing healthcare to all persons within our society. Students, who will become the healthcare providers of the future, must be informed of and sensitive to the cultural differences among clients. The ability to be culturally sensitive is often not inherent to individuals entering the healthcare professions, but learning opportunities can increase cultural adaptability.
CHAPTER III
METHODS AND MATERIALS

This descriptive study surveyed the health science faculty at Old Dominion University, Norfolk, Virginia. The Cross-Cultural Adaptability Inventory was used to measure cultural adaptability of the faculty.

Sample Description

This research targeted the faculty in the College of Health Sciences, Old Dominion University, Norfolk, Virginia. The College of Health Science faculty comprises a purposive sample chosen to determine their cultural adaptability. It was also a convenience sample located in the school of the researcher. The entire full-time faculty of the health sciences was used as the sample population. Their programs include: several certificate programs; baccalaureate programs in dental hygiene, medical laboratory sciences, and nursing; and masters programs in dental hygiene, medical laboratory sciences, nursing and physical therapy. The sample constituted a manageable number and represented all the faculty from schools within the College of Health Sciences.

During the Spring 1995 semester, there were 40 full-time faculty composed of 8 men and 8 women with doctorates, 2 men and 21 women with masters degrees, and 1 woman with a bachelors degree. Of 40 faculty, 50% were tenured. Three faculty members were African Americans and one was Indian.
The faculty in the sample all teach at the same university located in a culturally diverse, international port of Virginia.

**Research Design**

A descriptive research approach was selected to measure and describe the cultural adaptability of health science faculty. This study also investigated the extent to which the variable, cultural adaptability, differs among faculty in dental hygiene, medical laboratory sciences, nursing, and physical therapy.

This research design controlled for extraneous variables by:

1. Selecting the entire population of health science faculty at Old Dominion University. Although this sample population teaches at the same university, it is common practice at Old Dominion University to hire faculty educated at other institutions which may allow the findings to be relevant to faculty at other similar institutions.

2. Assuring anonymity and confidentially of inventory results.

3. The same principal investigator administered the CCAI and collected and analyzed the results thus increasing the reliability of the data.

**Methodology**

The *Cross-Cultural Adaptability Inventory* was administered to the health science faculty at Old Dominion
University by the principal investigator. The inventory was accompanied by a cover letter assuring faculty respondents of anonymity and confidentiality (see Appendix B). Instructions for taking and scoring the inventory were given to each group in the same manner by the principal investigator. This procedure took approximately 30 minutes each time the inventory was administered to a faculty group. The subjects had the opportunity to examine their own assets and liabilities in the area of cultural adaptability. Color coded dots were placed on the inventory results indicating the department in which the faculty teaches. The colors were red for dental hygiene, blue for nursing, yellow for medical laboratory sciences and green for physical therapy. The results were kept by the researcher and only the school in which the faculty teaches is known to the researcher.

Protection of Human Subjects

The following information was submitted to the Old Dominion University Committee on the Protection of Human Subjects and approval was received on June 9, 1995.

1. Subject population. The subjects are faculty in the College of Health Sciences. They were chosen because the research is specific to this group.

2. Potential. The research is descriptive in nature and no potential risk to the participants exists. All responses will be kept anonymous and confidential to protect the right of privacy.
3. **Consent.** Participation in the study is voluntary. By completing and returning the inventory, faculty are giving their informed consent to participate.

4. **Protection of Subjects Rights.** All results are to be kept confidential and anonymous. Only the individual faculty member will know how they scored. The results will be kept in group form by discipline only.

5. **Potential Benefits.** The benefits to the faculty will be immediate. They will learn about their own cross-cultural adaptability and examine their assets and liabilities in this area. They also can make decisions about their own readiness to interact with culturally diverse clients or students and establish their comfort level teaching cultural sensitivity to the future healthcare providers.

6. **Risk-benefit Ratio.** There are no risk in participating in this study, only the opportunity to learn about one's cultural adaptiveness.

**Instrumentation**

The construct, cultural adaptability, rather than knowledge of cultures, was selected for this study since it is not cultural specific. A standardized instrument, the Cross-Cultural Adaptability Inventory, was used to measure the cultural adaptability of the health science faculty population. The CCAI takes about 30 minutes to administer which includes completing the inventory, self-scoring and assessing one's cultural adaptability. The 50 item inventory
measures four research based dimensions: emotional resilience, flexibility/openness, perceptual acuity, and personal autonomy. These dimensions are described by Kelley and Meyers (1992) as:

**Emotional Resilience.** (18 items) People can experience feelings of frustration, confusion or loneliness when interacting with people of other cultures. The emotional resilient person has the ability to deal with stressful feelings in a constructive way and to "bounce back" from them. Emotionally resilient people like new experiences and have confidence in their ability to cope with ambiguity. They tend to take risks, and have a sense of humor and positive self-regard.

**Flexibility/Openness.** (15 items) When people live or work with those of other cultures, they usually encounter ways of thinking and behaving that are different from their own. Open, flexible people enjoy interacting with people who think differently from themselves. They like and feel comfortable with all kinds of people. They tend to be tolerant and nonjudgmental, and to think creatively.

**Perceptual Acuity.** (10 items) People sometimes find communication with those of other cultures difficult because of unfamiliar or confusing values, assumptions, customs, body language, and words. People who are perceptually acute are attentive to verbal and nonverbal behaviors, to the context of communication, and to interpersonal relations. These people are sensitive to the feelings of others and to their own impact on others. They tend to be empathic and highly accurate communicators.

**Personal Autonomy.** (7 items) People who interact with those of other cultures may not receive the types of reactions and reinforcement they are accustomed to. Personally autonomous people are not overly dependent on cues from the environment for their identity. They have a strong sense of who they are, clear personal values, and respect for self and others. They tend to be
self-directed and enjoy making their own decisions. Because they are confident of their uniqueness they can feel "at home" in any environment.

Nine negatively worded items are distributed throughout the instrument to reduce a response bias to rate all items in a similar way. The CCAI uses a six point response scale ranging from "definitely not true about me now" to "definitely true about me now." Responses are circled on an answer sheet and tallied on a scoring sheet to obtain scores in each of the four research based dimensions.

The CCAI is not targeted to one particular culture, it is designed to be culture general. The CCAI was designed to help people learn useful information about themselves that can guide them in the development of cross-cultural abilities and skills and to better understand the importance of living and working among people of different cultures. The CCAI is not used to predict success or failure in cross-cultural interaction or for decision making about ones future. Instead, it examines ones assets and liabilities in the area of cross-cultural adaptation and helps one to make decision about their readiness to interact with other people. It also assesses the need for further training.

Content and criterion-related validity of the CCAI has been established by its authors, Kelly and Meyers (1992). Content validity was established by identifying the most consistently identified traits and skills associated with cultural adaptability as cited in the professional
literature. These traits and skills were scrutinized by experts who specialize in the area of cross-cultural adaptability. The outcome was a composite list of all traits and skills associated with the ability to adapt effectively to other cultures. This composite list was further field tested with a sample population (N=25) who were already known to possess cross-cultural knowledge or sophistication and who had experience living abroad. Traits rated the highest in terms of cultural adaptability were again compared with the finding in the cross-cultural literature. Experts in the field further categorized the traits into four dimensions. Further field testing on 653 people resulting in shifting of items among the four dimensions with the present instrument published in 1992.

The instrument is appropriate for use with educators who work in a multicultural or culturally diverse environment and with healthcare personnel who frequently interact with people of other cultures. The health science faculty in this research possess the characteristics of the population for whom this instrument is intended. Because of the methods used in its construction, it is reasonable to expect that the CCAI has predictive validity.

**Statistical Treatment**

Data from the CCAI is continuous in nature and intervally scaled, and therefore, was analyzed using central tendencies and dispersions. Boxplotting, an exploratory data analysis
technique, was used to visually summarize and identify unique features amongst the faculty groups (Daniel, 1995). Differences among faculty in different disciplines on the variable cultural adaptability and its four dimensions were analyzed using one-way analysis of variance procedures. Hypotheses were tested at the .05 level of significance.
CHAPTER IV

RESULTS AND DISCUSSION

A study was conducted to determine the cross-cultural adaptability of the health science faculty at Old Dominion University, Norfolk, Virginia. The entire full-time health science faculty (N=40) in 1995 was used as the sample population. The 40 full-time faculty (8 from dental hygiene, 6 from medical laboratory sciences, 16 from nursing and 10 from physical therapy) were able to complete and self-score the 50 item Cross-Cultural Adaptability Inventory in the presence of the principal investigator. The Cross-Cultural Adaptability Inventory, by Kelley and Meyers (1992), measures four research-based dimensions of cross-cultural adaptability: emotional resilience, flexibility/openness, perceptual acuity and personal autonomy. Data were analyzed using descriptive statistics such as frequencies, percentages, measures of central tendency and measures of dispersions. One-way analysis of variance was used to test for significant differences in the inventory scores among faculty in the different disciplines and to test the difference among faculty on each of the four research-based dimensions within the inventory. The computerized SPSS system for windows was used for data analysis.

Results

Question one. Data were examined to test the hypothesis that no statistically significant difference, at the .05
level, existed in the overall cultural adaptability among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty as measure by the Cross-Cultural Adaptability Inventory (CCAI). The mean, standard deviation, range and median were found for each discipline (see Table 1). Boxplots were generated with summaries for each faculty group (see Figure 1). One-way analysis of variance revealed no statistically significant differences between the faculties \((F = .9840, \text{df} = 39, p = .4112)\) (see Table 2). A 95% confidence interval for the population mean for each group was established (see Table 3).

The boxplots visually summarize and compare the distribution of values in all four faculty groups. The horizontal line inside the box represents the median score on the inventory. The location of this line within the box depicts the skewness of the data (SPSS, 1993). Dental hygiene CCAI scores were positively skewed since the median line is towards the bottom indicating that most of the dental hygiene faculty scored above the median in their group; whereas medical laboratory sciences scores had a tendency to be negatively skewed, its line appearing toward the top. Fifty percent of the scores fall within the box, which also is an indication of the spread of the scores. Fifty percent of the scores of medical laboratory sciences, nursing and physical therapy fall above the CCAI sample population median of 225 (see Appendix C). The vertical
<table>
<thead>
<tr>
<th>FACULTY</th>
<th>N</th>
<th>MEAN</th>
<th>DEVIATION</th>
<th>VARIANCE</th>
<th>RANGE</th>
<th>MEDIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENTAL HYGIENE</td>
<td>8</td>
<td>231</td>
<td>22.06</td>
<td>486.85</td>
<td>209-261</td>
<td>223.5</td>
</tr>
<tr>
<td>MEDICAL LABORATORY SCIENCES</td>
<td>6</td>
<td>231</td>
<td>15.97</td>
<td>255.06</td>
<td>205-254</td>
<td>233.0</td>
</tr>
<tr>
<td>NURSING</td>
<td>16</td>
<td>239</td>
<td>22.71</td>
<td>515.93</td>
<td>189-269</td>
<td>241.0</td>
</tr>
<tr>
<td>PHYSICAL THERAPY</td>
<td>10</td>
<td>245</td>
<td>15.84</td>
<td>250.93</td>
<td>223-275</td>
<td>243.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>238</td>
<td>20.18</td>
<td>407.28</td>
<td>189-275</td>
<td>238.5</td>
</tr>
</tbody>
</table>
OVERALL SCORES OF FOUR HEALTH SCIENCE FACULTY GROUPS ON THE CROSS-CULTURAL ADAPTABILITY INVENTORY

FIGURE 1
Table 2

ONE-WAY ANALYSIS OF VARIANCE OF OVERALL CROSS-CULTURAL ADAPTABILITY SCORES
OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3</td>
<td>1203.7667</td>
<td>401.2556</td>
<td>.9840</td>
<td>.4112</td>
</tr>
<tr>
<td>Within Groups</td>
<td>36</td>
<td>14680.2333</td>
<td>407.7843</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>15884.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 3

CONFIDENCE INTERVALS FOR THE MEAN CROSS-CULTURAL ADAPTABILITY INVENTORY SCORES
OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Group*</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>95 Pct Conf Int for Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grp 1</td>
<td>8</td>
<td>231.2500</td>
<td>22.0632</td>
<td>7.8005</td>
<td>212.8047 TO 249.6953</td>
</tr>
<tr>
<td>Grp 2</td>
<td>6</td>
<td>231.3333</td>
<td>15.9708</td>
<td>6.5201</td>
<td>214.5733 TO 248.0934</td>
</tr>
<tr>
<td>Grp 3</td>
<td>16</td>
<td>239.2500</td>
<td>22.7142</td>
<td>5.6785</td>
<td>227.1465 TO 251.3535</td>
</tr>
<tr>
<td>Grp 4</td>
<td>10</td>
<td>245.4000</td>
<td>15.8409</td>
<td>5.0093</td>
<td>234.0681 TO 256.7319</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>238.0000</td>
<td>20.1812</td>
<td>3.1909</td>
<td>231.5457 TO 244.4543</td>
</tr>
</tbody>
</table>

*GROUPS
Grp 1 = Dental Hygiene Faculty
Grp 2 = Medical Laboratory Sciences Faculty
Grp 3 = Nursing Faculty
Grp 4 = Physical Therapy Faculty
lines extending from the box extend to the lowest score at the bottom of the 25 percentile to the highest score of the 75 percentile. Two outliers were found in the medical laboratory sciences faculty group. (Outliers, designated on the boxplots by 0 indicate that scores fell 1.5 to 3.0 box-lengths from the upper or lower edge of the box.) Since there is no evidence of heterogeneity in the analysis of the data and the fact that these outliers are likely to occur in small sample sizes, these outliers were ignored.

To have an overall account of the following four research questions, a table was constructed presenting the mean scores of each discipline on the four research based dimensions: emotional resilience, flexibility/openness, perceptual acuity and personal autonomy on the Cross-Cultural Adaptability Inventory (see Table 4).

**Question two.** Data also were examined to test the hypothesis that no statistically significant difference, at the .05 level, existed in the emotional resilience dimension among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty as measured by the Cross-Cultural Adaptability Inventory. The mean, standard deviation, range and median were found for each discipline (see Table 5). Boxplots were generated with summaries for each faculty group (see Figure 2). One-way analysis of variance revealed no statistically significant differences between the health science faculty groups on the dimension
Table 4

MEAN SCORES ON HEALTH SCIENCE FACULTY
DIMENSIONS OF CROSS-CULTURAL ADAPTABILITY

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>EMOTIONAL RESILIENCE</th>
<th>FLEXIBILITY OPENNESS</th>
<th>PERCEPTUAL ACUITY</th>
<th>PERSONAL AUTONOMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENTAL HYGIENE</td>
<td>80.625</td>
<td>69.625</td>
<td>46.250</td>
<td>34.750</td>
</tr>
<tr>
<td>MEDICAL LABORATORY</td>
<td>83.000</td>
<td>66.667</td>
<td>45.833</td>
<td>35.833</td>
</tr>
<tr>
<td>NURSING</td>
<td>85.063</td>
<td>72.438</td>
<td>47.813</td>
<td>33.938</td>
</tr>
<tr>
<td>PHYSICAL THERAPY</td>
<td>84.700</td>
<td>75.438</td>
<td>49.900</td>
<td>34.900</td>
</tr>
<tr>
<td>TOTAL</td>
<td>83.775</td>
<td>71.875</td>
<td>47.725</td>
<td>34.625</td>
</tr>
</tbody>
</table>
**Table 5**

**CENTRAL TENDENCY AND DISPERSION OF THE FOUR HEALTH SCIENCE FACULTY GROUPS ON THE EMOTIONAL RESILIENCE DIMENSION OF THE CROSS-CULTURAL ADAPTABILITY INVENTORY**

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>N</th>
<th>MEAN</th>
<th>STANDARD DEVIATION</th>
<th>RANGE</th>
<th>MEDIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENTAL HYGIENE</td>
<td>8</td>
<td>80.625</td>
<td>9.226</td>
<td>70-98</td>
<td>78.500</td>
</tr>
<tr>
<td>MEDICAL LABORATORY</td>
<td>6</td>
<td>83.000</td>
<td>9.487</td>
<td>65-92</td>
<td>84.500</td>
</tr>
<tr>
<td>NURSING</td>
<td>16</td>
<td>85.063</td>
<td>9.190</td>
<td>66-99</td>
<td>85.000</td>
</tr>
<tr>
<td>PHYSICAL THERAPY</td>
<td>10</td>
<td>84.700</td>
<td>8.945</td>
<td>66-96</td>
<td>86.500</td>
</tr>
</tbody>
</table>
FIGURE 2

EMOTIONAL RESILIENCE SCORES OF FOUR HEALTH SCIENCE FACULTY GROUPS ON THE CROSS-CULTURAL ADAPTABILITY INVENTORY
emotional resilience \( (F = .4671, \text{df} = 39, p = .7070) \) (see Table 6). A 95% confidence interval for the population mean of each group was established (see Table 7).

**Question three.** Data were examined to test the hypothesis that no statistically significant difference, at the .05 level, existed in the flexibility/openness dimension among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty as measured by the Cross-Cultural Adaptability Inventory. The mean, standard deviation, range and median were found for each health sciences faculty group by discipline (see Table 8). Boxplots were generated with summaries for each faculty group (see Figure 3).

There was evidence of a substantial difference in the standard deviation among the groups; therefore, doing an analysis of variance on all four faculty groups would be invalid (see Table 9). After eliminating the dental hygiene faculty because this group did not meet the assumption of homogeneity of variance, one-way analysis of variance revealed a statistically significant difference among the three remaining groups \( (F = 3.9280, \text{df} = 31, p = .0309) \) (see Table 10). Since the analysis of variance led to a significant difference, the least significant difference (LSD) procedure was used to identify the groups in which this difference occurred. The LSD procedure identified the difference between the two means to be statistically
Table 6

ONE-WAY ANALYSIS OF VARIANCE OF EMOTIONAL RESILIENCE SCORES OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3</td>
<td>118.0625</td>
<td>39.3542</td>
<td>.4671</td>
<td>.7070</td>
</tr>
<tr>
<td>Within Groups</td>
<td>36</td>
<td>3032.9125</td>
<td>84.2476</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>3150.9750</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Table 7

CONFIDENCE INTERVALS FOR THE MEAN EMOTIONAL RESILIENCE SCORES
OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Group*</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>95 Pct Conf Int for Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grp 1</td>
<td>8</td>
<td>80.6250</td>
<td>9.2263</td>
<td>3.2620</td>
<td>72.9116 TO 88.3384</td>
</tr>
<tr>
<td>Grp 2</td>
<td>6</td>
<td>83.0000</td>
<td>9.4868</td>
<td>3.8730</td>
<td>73.0443 TO 92.9557</td>
</tr>
<tr>
<td>Grp 3</td>
<td>16</td>
<td>85.0625</td>
<td>9.1903</td>
<td>2.2976</td>
<td>80.1653 TO 89.9597</td>
</tr>
<tr>
<td>Grp 4</td>
<td>10</td>
<td>84.7000</td>
<td>8.9449</td>
<td>2.8286</td>
<td>78.3012 TO 91.0988</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>83.7750</td>
<td>8.9886</td>
<td>1.4212</td>
<td>80.9003 TO 86.6497</td>
</tr>
</tbody>
</table>

*GROUPS

Grp 1 = Dental Hygiene Faculty  
Grp 2 = Medical Laboratory Sciences Faculty  
Grp 3 = Nursing Faculty  
Grp 4 = Physical Therapy Faculty
Table 8

CENTRAL TENDENCY AND DISPERSION
OF THE FOUR HEALTH SCIENCE FACULTY GROUPS
ON THE FLEXIBILITY/OPENNESS DIMENSION OF THE
CROSS-CULTURAL ADAPTABLE INVENTORY

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>N</th>
<th>MEAN</th>
<th>STANDARD DEVIATION</th>
<th>RANGE</th>
<th>MEDIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENTAL HYGIENE</td>
<td>8</td>
<td>69.625</td>
<td>12.141</td>
<td>52-85</td>
<td>70.500</td>
</tr>
<tr>
<td>MEDICAL LABORATORY</td>
<td>10</td>
<td>66.667</td>
<td>5.428</td>
<td>58-72</td>
<td>67.000</td>
</tr>
<tr>
<td>NURSING</td>
<td>16</td>
<td>72.438</td>
<td>7.642</td>
<td>56-83</td>
<td>74.000</td>
</tr>
<tr>
<td>PHYSICAL THERAPY</td>
<td>8</td>
<td>75.900</td>
<td>4.175</td>
<td>71-82</td>
<td>75.000</td>
</tr>
</tbody>
</table>
FLEXIBILITY/OPENNESS SCORES OF FOUR HEALTH SCIENCE GROUPS ON THE CROSS-CULTURAL ADAPTABILITY INVENTORY

FIGURE 3
Table 9

CONFIDENCE INTERVAL FOR THE MEAN FLEXIBILITY/OPENNESS SCORES
OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Group*</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>95 Pct Conf Int for Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grp 1</td>
<td>8</td>
<td>69.6250</td>
<td>12.1413</td>
<td>4.2926</td>
<td>59.4747 TO 79.7753</td>
</tr>
<tr>
<td>Grp 2</td>
<td>6</td>
<td>66.6667</td>
<td>5.4283</td>
<td>2.2161</td>
<td>60.9701 TO 72.3633</td>
</tr>
<tr>
<td>Grp 3</td>
<td>16</td>
<td>72.4375</td>
<td>7.6417</td>
<td>1.9104</td>
<td>68.3655 TO 76.5095</td>
</tr>
<tr>
<td>Grp 4</td>
<td>10</td>
<td>75.9000</td>
<td>4.1753</td>
<td>1.3204</td>
<td>72.9132 TO 78.8868</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>71.8750</td>
<td>8.1372</td>
<td>1.2866</td>
<td>69.2726 TO 74.4774</td>
</tr>
</tbody>
</table>

*Groups
Grp 1 = Dental Hygiene Faculty
Grp 2 = Medical Laboratory Sciences Faculty
Grp 3 = Nursing Faculty
Grp 4 = Physical Therapy Faculty
Table 10

ONE-WAY ANALYSIS OF VARIANCE OF FLEXIBILITY/OPENNESS SCORES
OF MEDICAL LABORATORY SCIENCES, NURSING AND PHYSICAL THERAPY FACULTY GROUPS

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2</td>
<td>319.7042</td>
<td>159.8521</td>
<td>3.9280</td>
<td>* .0309</td>
</tr>
<tr>
<td>Within Groups</td>
<td>29</td>
<td>1180.1708</td>
<td>40.6955</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>1499.8750</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant

The dental hygiene faculty group was eliminated from this analysis because scores failed to meet the assumption of homogeneity of variance as required for the application of the analysis procedure.
significant. This difference occurred between medical laboratory sciences and physical therapy faculty; therefore, physical therapy faculty have significantly higher flexibility/openness scores than the medical laboratory sciences faculty.

To test the hypothesis that the population variances are equal between dental hygiene faculty and each of the other three faculty groups individually, medical laboratory sciences, nursing and physical therapy, the variance ratio test was conducted. The population variances of dental hygiene faculty when compared with medical laboratory sciences faculty were equal (Computed Value 5.002 < 6.85 Critical Value), as well as the population variances of dental hygiene faculty compared to nursing faculties (Computed Value 2.524 < 3.29 Critical Value); therefore, an independent t test was performed to determine if a difference existed in the population means of these groups. Based on these data, there was no difference in the population mean scores of dental hygiene and medical laboratory sciences faculty (Critical Value ± 2.1788, \( t = .55 \)), nor between dental hygiene and nursing faculty (Critical Value ± 2.0739, \( t = -.70 \)). The variance ratio test comparing dental hygiene and physical therapy faculty revealed unequal population variances (Computed Value 8.456 > 4.20 Critical Value); therefore, a t prime test was conducted to determine if the population means were
different. These results suggest that the dental hygiene population mean scores are not different from the physical therapy population means scores (Critical Value $ \pm 2.355$, $t = -1.40$).

**Question four.** Data were examined to test the hypothesis that no statistically significant difference, at the .05 level, existed in the perceptual acuity dimension among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty as measured by the Cross-Cultural Adaptability Inventory. The mean, standard deviation, range and median were found for each health science faculty group (see Table 11). Boxplots were generated with summaries for each faculty group (see Figure 4). One-way analysis of variance revealed no statistically significant difference between the four health sciences faculty groups ($F = 1.1667$, $df = 39$, $p = .3359$) (see Table 12). A 95% confidence interval for the population mean of each group was established (see Table 13).

**Question five.** Data were examined to test the hypothesis that no statistically significant difference, at the .05 level, existed in the personal autonomy dimension among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty as measured by the Cross-Cultural Adaptability Inventory. The mean, standard deviation, range and median were found for each health science faculty group by discipline (see Table 14). Boxplots
Table 11

CENTRAL TENDENCY AND DISPERSION 
FOR THE FOUR HEALTH SCIENCE FACULTY GROUPS 
ON THE PERCEPTUAL ACUITY DIMENSION OF THE CROS-S-CULTURAL ADAPTABLEITY INVENTORY

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>N</th>
<th>MEAN</th>
<th>STANDARD DEVIATION</th>
<th>RANGE</th>
<th>MEDIAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENTAL HYGIENE</td>
<td>8</td>
<td>46.250</td>
<td>5.776</td>
<td>36-53</td>
<td>47.000</td>
</tr>
<tr>
<td>MEDICAL LABORATORY</td>
<td>6</td>
<td>45.833</td>
<td>2.787</td>
<td>41-49</td>
<td>46.000</td>
</tr>
<tr>
<td>NURSING</td>
<td>16</td>
<td>47.813</td>
<td>5.023</td>
<td>40-56</td>
<td>46.500</td>
</tr>
<tr>
<td>PHYSICAL THERAPY</td>
<td>10</td>
<td>49.900</td>
<td>5.131</td>
<td>44-60</td>
<td>48.500</td>
</tr>
</tbody>
</table>
PERCEPTUAL ACUITY SCORES OF FOUR HEALTH SCIENCE FACULTY GROUPS
ON THE CROSS-CULTURAL ADAPTABILITY INVENTORY
FIGURE 4
Table 12

One-way analysis of variance of perceptual acuity scores of four health science faculty groups

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F Ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3</td>
<td>86.3042</td>
<td>28.7681</td>
<td>1.1667</td>
<td>.3359</td>
</tr>
<tr>
<td>Within Groups</td>
<td>36</td>
<td>887.6708</td>
<td>24.6575</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>973.9750</td>
<td></td>
<td></td>
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</tr>
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</table>
Table 13

CONFIDENCE INTERVAL FOR THE MEAN PERCEPTUAL ACUITY SCORES
OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
<th>95 Pct Conf Int for Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grp 1</td>
<td>8</td>
<td>46.2500</td>
<td>5.7756</td>
<td>2.0420</td>
<td>41.4215 TO 51.0785</td>
</tr>
<tr>
<td>Grp 2</td>
<td>6</td>
<td>45.8333</td>
<td>2.7869</td>
<td>1.1377</td>
<td>42.9087 TO 48.7579</td>
</tr>
<tr>
<td>Grp 3</td>
<td>16</td>
<td>47.8125</td>
<td>5.0229</td>
<td>1.2557</td>
<td>45.1360 TO 50.4890</td>
</tr>
<tr>
<td>Grp 4</td>
<td>10</td>
<td>49.9000</td>
<td>5.1305</td>
<td>1.6224</td>
<td>46.2298 TO 53.5702</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>47.7250</td>
<td>4.9974</td>
<td>.7902</td>
<td>46.1268 TO 49.3232</td>
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</tbody>
</table>

*GROUPS
Grp 1 = Dental Hygiene Faculty
Grp 2 = Medical Laboratory Science Faculty
Grp 3 = Nursing Faculty
Grp 4 = Physical Therapy Faculty
Table 14

CENTRAL TENDENCY AND DISPERSION
OF THE FOUR HEALTH SCIENCE FACULTY GROUPS
ON THE PERSONAL AUTONOMY DIMENSION OF THE
CROSS-CULTURAL ADAPTABLE INVENTORY

<table>
<thead>
<tr>
<th>FACULTY</th>
<th>N</th>
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<th>STANDARD DEVIATION</th>
<th>RANGE</th>
<th>MEDIAN</th>
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</thead>
<tbody>
<tr>
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<td>34.750</td>
<td>3.370</td>
<td>30-41</td>
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<tr>
<td>MEDICAL LABORATORY</td>
<td>10</td>
<td>35.833</td>
<td>6.210</td>
<td>25-42</td>
<td>37.000</td>
</tr>
<tr>
<td>NURSING</td>
<td>16</td>
<td>33.938</td>
<td>3.660</td>
<td>25-39</td>
<td>35.000</td>
</tr>
<tr>
<td>PHYSICAL THERAPY</td>
<td>10</td>
<td>34.900</td>
<td>3.573</td>
<td>30-40</td>
<td>34.500</td>
</tr>
</tbody>
</table>
were generated with summaries for each faculty group (see Figure 5). One-way analysis of variance revealed no statistically significant difference between the four health science faculty groups \( F = .3510, \ df = 39, \ p = .7886 \) (see table 15). A 95% confidence interval for the population mean for each group was established (see Table 16).

**Discussion**

**Question one.** Analysis of mean differences in the overall CCAI scores revealed no statistically significant difference among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculty; therefore, the null hypothesis was retained. The population means for all four faculty groups were equal, and there was evidence of homogeneity in the overall cultural adaptability scores of the health sciences faculty. The mean score for the entire health sciences faculty was 238.00 (see Table 3) and the mean score for the norm group for the CCAI is 225.85 as reported by Kelley and Meyers (1992) (see Appendix C). This norm group consisted of 653 persons who took the CCAI, administered by a pool of cross-cultural trainers, in conjunction with cross-cultural training, education, or team building (Kelley & Meyers 1992). As reflected in the demographic statistics of the CCAI, the norm group had experience living abroad and had relatively high educational levels. The CCAI norm group mean was within the 95% confidence interval of both the dental hygiene and the
PERSONAL AUTONOMY SCORES OF FOUR HEALTH SCIENCE FACULTY GROUPS ON THE CROSS-CULTURAL ADAPTABILITY INVENTORY

FIGURE 5
Table 15

ONE-WAY ANALYSIS OF VARIANCE OF PERSONAL AUTONOMY SCORES
OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Source</th>
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<th>Mean Squares</th>
<th>F Ratio</th>
<th>Prob.</th>
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Table 16

CONFIDENCE INTERVAL FOR THE MEAN PERSONAL AUTONOMY SCORES
OF FOUR HEALTH SCIENCE FACULTY GROUPS

<table>
<thead>
<tr>
<th>Group*</th>
<th>N</th>
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<th>Standard Error</th>
<th>95 Pct Conf Int for Mean</th>
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</thead>
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<td>3.3700</td>
<td>1.1915</td>
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<td>2.5353</td>
<td>29.3162 TO 42.3504</td>
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<td>10</td>
<td>34.9000</td>
<td>3.5730</td>
<td>1.1299</td>
<td>32.3440 TO 37.4560</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>34.6250</td>
<td>3.9399</td>
<td>.6229</td>
<td>33.3650 TO 35.8850</td>
</tr>
</tbody>
</table>

*GROUPS
Grp 1 = Dental Hygiene Faculty
Grp 2 = Medical Laboratory Science Faculty
Grp 3 = Nursing Faculty
Grp 4 = Physical Therapy Faculty
medical laboratory sciences faculty scores, but fell below the 95% confidence interval of both the nursing and physical therapy faculty scores (see Table 3 and Appendix C). The mean score of 225.85 for the CCAI norm group fell below the 95% confidence interval of the entire health sciences faculty when all four faculty groups scores were combined (see Table 3). Therefore, higher levels of cross-cultural adaptability scores were exhibited among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty than found in the CCAI norm group (Kelley & Meyers, 1992). Faculty must be somewhat culturally adaptable to teach cross-cultural concepts within a program or curriculum. The CCAI scores exhibited by the health sciences faculty suggest that, on average, they possess qualities cross-cultural experts often cite as necessary to be successful in cross-cultural adaptability (Kelley & Meyers, 1992). However, with Healthy People 2000 singling out the minority populations of African Americans, American Indians/Alaskan Natives and Pacific Islanders as being most in need of healthcare, then faculty must further develop cultural adaptability skills if they are to incorporate skill training into the health sciences curricula. Cross-cultural training is necessary if healthcare providers are to care for and communicate effectively with people who are culturally different. The CCAI instrument was designed on established concepts of cross-cultural effectiveness and
measures factors documented in the literature as important for successful cross-culture functioning (Hannigan, 1990). Although no literature was found assessing the cross-cultural adaptability of other health sciences faculty, the literature by Sikkema and Nijekawa (1987) suggests that the qualities measured by the inventory are paramount for successful cross-cultural interactions.

Further analysis of each dimension within the CCAI, when comparing the mean scores among dental hygiene, medical laboratory sciences, nursing, and physical therapy faculties, revealed no statistically significant difference, at the .05 level, in emotional resilience, perceptual acuity and personal autonomy. All the null hypotheses were retained. A statistically significant difference, at the .05 level, did occur in the dimension flexibility/openness between physical therapy and medical laboratory sciences. That null hypothesis was rejected.

**Question two.** The boxplots show 50% of the medical laboratory sciences, nursing and physical therapy faculty scores, in the dimension emotional resilience, falling above the CCAI group norms of 79 (see Figure 2 and Appendix C). Although dental hygiene faculty scored lowest of the groups in the emotional resilience dimension, their scores were comparable to the CCAI group norms. The emotional resilience dimension measures the ability to "fit in" to a new culture and interact positively (Searle and Ward, 1990). One's
ability to deal effectively with culture shock is very important in the cross-cultural experience (Kelley & Meyers, 1990). These lower scores may be attributed to the fact that Old Dominion University's full time dental hygiene faculty, unlike the other health sciences groups, has no minorities. This finding is within the range of findings from the total population of full-time faculty in U.S. dental hygiene programs where only 6% are minorities (Huntley & Minneman, 1994). Scores with values more than 3.0 box-lengths from the upper or lower edge of the box are considered extreme values and are designated by an asterisk(*) (SPSS, 1993). There is evidence of an extremely low score in the medical laboratory sciences faculty group; however, since there is no evidence of heterogeneity in the analysis of the data and extremes can occur in small sample sizes, these extremes were ignored. Physical therapy faculty exhibited one outlier which, for the same reasons, was ignored.

**Question three.** Dental hygiene faculty exhibited a substantially greater standard deviation than the other three faculties in the dimension flexibility/openness (see Table 9); therefore, a one-way analysis of variances was conducted on three faculty groups without the dental hygiene faculty scores (see Table 10). This one-way analysis of variance revealed a significant difference at a .03 level; further Least Significant Difference (LSD) test identified a difference between the medical laboratory sciences and
physical therapy faculties. The physical therapy faculty's mean of 76 was considerably higher than the CCAI mean of 67 for the dimension flexibility/openness. This could have occurred because of the physical therapy's experience with individuals from other cultures. Two of the faculty members chose to practiced abroad and another participated in a project in Haiti in fulfillment of his doctoral degree. During academic year 1994-1995, the faculty also hosted an exchange professor from the Netherlands. The chairman of the department of physical therapy had spent 24 years in the U.S. Public Health Service providing healthcare to culturally diverse individuals (Echternach, 1996). This interpretation is supported by Yoshikawa (1987) who suggests that a person does not accept cultural differences unless he is flexible and open.

**Question four.** In the dimension perceptual acuity, the scores for the four health sciences faculty groups are equal to or greater than the mean and median of the CCAI group norms (see Table 11 and Figure 4). Perceptually acute people tend to be empathic and effective communicators; both of these characteristics are highly encouraged in the healthcare professions (Kelley & Meyers, 1992). The lowest mean score among the four health science faculty groups was exhibited by the medical laboratory sciences faculty. Medical laboratory sciences professionals, having the least direct interaction with the clients may lack the
opportunities to develop cross-cultural skills in the healthcare setting.

Question five. Fifty percent of the scores for all four health sciences faculty groups in the dimension personal autonomy are above the CCAI norms (see Table 16, Figure 5 and Appendix C). In fact, the CCAI group norm mean of 32.88 falls below the 95% confidence interval of the total health sciences faculty groups means of 33.37 to 35.89 (see Table 16 and Appendix C). An explanation for the higher than average scores in the personal autonomy dimension among all four of the health science faculty groups may be that faculty tend to be independent people and that independence gets reinforced by the autonomy they have in their roles. Personally autonomous people tend to be self-directed and are not dependent on cues from the environment to give them a sense of identity (Kelley & Meyers, 1992). Since the responsibilities and achievements of most college instructors are not influenced by their peers, self-direction is a behavior that most faculty possess.

A closer look at the mixed nature of the health science faculty, having "dual roles" as healthcare providers and as college teachers, may explain the higher than average CCAI scores exhibited by all four health science faculty groups as compared with the CCAI group norms. For instance, the very nature of providing healthcare exposes individuals to clients' diets, family life, health behaviors, values and
beliefs, all of which are culturally determined. The Old Dominion University health science faculty are involved in providing services to migrant workers, indigent populations who are often minorities and immigrant populations. Some faculty members have traveled abroad to third world countries as part of goodwill healthcare teams. In the educational arena, the increasingly diverse student body at Old Dominion University requires some cultural adaptability on the part of the health science faculty. During academic year 1994-95, the health science student body of approximately 1500, was comprised of 25% minorities.

As on many campuses, cultural diversity is an important issue in higher education and is being addressed on an ongoing basis at workshops and seminars. The general education goals at Old Dominion University include developing students' understanding of Western and non-Western cultures and values, and developing their understanding of the perspectives, contributions, and concerns of women and minorities. All these experiences tend to increase faculty's knowledge of different cultures and emphasize the need to be adaptable (Leininger, 1985). Still, this degree of cross-cultural knowledge and experience is inadequate to provide increasing numbers of culturally diverse individuals optimum healthcare (USDC, 1992). This cross-cultural knowledge needs to be consciously included in the curriculum making it possible for students to
incorporate cultural awareness into healthcare planning, client education and decision making (Lindquist, 1990).

The environment, an important factor, may also help explain the higher than average CCAI scores of the health sciences faculty, as compared with the CCAI groups norm scores. The city of Norfolk, in which Old Dominion University is located, has a unique geographic attribute, that of a large deep water harbor, making it the largest naval base on the east coast and a growing international port. These features attract people from around the globe. Therefore, it is likely that the health science faculty at Old Dominion University, both on and off the campus, are exposed to greater cultural diversity than health science faculty at universities or colleges in a homogenous environment.

As stated earlier in both the introduction and significance of the problem sections, the early immigrants to the United States were predominantly Caucasian, possessing Eurocentric beliefs; thus, they were perceived as being part of the "melting pot" (Fuller & Schaller-Ayars, 1990). With the tremendous growth of ethnically diverse groups within the United States, (Statistical Abstract of the United States, 1992), assimilation is being replaced with pluralism. Healthcare professionals have an unprecedented challenge to provide culturally sensitive healthcare to multicultural communities that are not
abandoning their ethnic culture. The first in line to meet this challenge are faculty who educate future healthcare providers, and who must incorporate the concept of culturally sensitive healthcare into existing health science curricula. Since the United States population is increasingly pluralistic, an even higher degree of cross-cultural knowledge and awareness than exhibited by the health sciences faculty on the CCAI may be required to meet the challenge of graduating culturally sensitive healthcare providers.
CHAPTER V

SUMMARY AND CONCLUSIONS

The complex issues of diversity, multiculturalism and cultural awareness are being addressed in all facets of American life. The rapidly changing demographics of the United States require cultural adaptability skills for successful communication in business, education and healthcare (Hillriegel & Slocum, 1991; Banks, 1994). This study addressed healthcare and the need to develop interculturally competent practitioners who are skilled in recognizing and working with clients' cultural values and beliefs. As the literature suggests, this process begins with education starting with the faculty (Kalkwarf, 1995; Payne-Johnson, 1992). The purpose of this study was to determine the cross-cultural adaptability of the health science faculty who are responsible for teaching cultural sensitivity to future healthcare providers. Identifying the strengths and weaknesses of the health science faculty on the constructs of cross-cultural adaptability, documents their potential to work successfully in a multicultural environment and to prepare future healthcare providers to work in a multicultural environment.

Forty full-time health science faculty members representing dental hygiene, medical laboratory sciences, nursing and physical therapy at Old Dominion University, completed the Cross-Cultural Adaptability Inventory by
Kelley and Meyers (1992) to determine their potential for cross-cultural effectiveness. Descriptive statistics were used to analysis the frequencies, percentages, measures of central tendency and measures of dispersions. One-way analysis of variance was used to test for significant differences in the inventory scores among the different faculty groups, and to test the difference among faculty on each of the four-research based dimensions, emotional resilience, flexibility/openness, perceptual acuity, and personal autonomy, within the inventory.

The results obtained in this study determined that there was no statistically significant differences in the overall cultural adaptability scores among dental hygiene, medical laboratory sciences, nursing and physical therapy faculty. When comparing these scores with the Cross-Cultural Adaptability Inventory (CCAI) norm group, the health science faculty as a group had higher than average overall scores. This CCAI norm group had experienced living abroad and completed this inventory after cross-cultural training; therefore, these results suggests that the majority of health science faculty possess qualities necessary to be cross-culturally adaptable.

When considering the first of the four researched-based dimensions of the CCAI, emotional resilience, there were no significant differences among the four health science groups. Dental hygiene faculty, the only faculty group with
no minorities, scored lowest of the faculty groups. Since emotional resilience measures the ability to fit into a new culture, this may suggest that having little interaction with culturally diverse individuals on a daily basis increases frustration and confusion when placed in a situation of interacting with people of other cultures.

In the dimension flexibility/openness, which measures the ability to deal with different communication styles, a significant difference was found between medical laboratory sciences faculty and physical therapy faculty. This was attributed to the fact that several members of the physical therapy faculty have experienced working with culturally diverse population in the U.S. and abroad. Medical laboratory sciences faculty on the other hand have the least amount of direct contact with clients than any of the four faculty groups.

In determining the differences among the health science faculty in the dimension perceptual acuity, there was no significant difference among the four health science faculty groups. Perceptually acute people are attentive to nonverbal as well as verbal cues; the health science faculty, being healthcare professionals who are encouraged to be sensitive to these cues during client care, scored around or above the average mean and median for the CCAI group norm.

In the dimension personal autonomy, all four of the health science faculty groups scored high. The reason for
these high scores may be that educators in a university setting tend to be self-directed as well as independent in the way they carry out their roles. Independence and self-direction are qualities found in personally autonomous people.

**Conclusions**

The similarities in the scores among the four health science faculty groups reflect the fact that: they are all educators and health professionals, they all teach in an urban setting, and they are all exposed to culturally diverse clients and students. The results of this study suggest that living or working in an environment that is culturally different from one's own might increase cultural sensitivity, as in the case of the physical therapy faculty. If this is true, deliberately exposing students to cultures other than their own, in culturally different environments, will broaden the cross-cultural experiences and hence enhance their cross-cultural adaptability.

A limitation of the study was that the health science faculty are from the same university and are not representative of all health science faculty in the United States; therefore, these findings are limited to health science faculty similar to those at Old Dominion University. There is also a chance that the faculty answered the CCAI ideologically rather than truthfully, but every effort was made to decrease this threat to external validity.
The following recommendations for future studies are:

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. A study to determine if cross-cultural training does increase cross-cultural adaptability. Study the results of cross-cultural training of a health science faculty by using the CCAI as a pre-test and post-test.

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 culturally diverse environment, are more cross-culturally adaptable than faculty?

Results of this study lead to the conclusion that dental hygiene, medical laboratory sciences, nursing and physical therapy faculty possess similar levels of cross-cultural adaptability, and that these levels are slightly higher than the cross-cultural adaptability found in the CCAI norm group. The 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 practitioners. The questions remain: Are these levels of cross-cultural adaptability in health science faculty high enough to teach students to provide culturally sensitive healthcare? Can education and
experience increase the cross-cultural adaptability of health science faculty? Does possessing cross-cultural adaptability automatically infer that faculty can impart this attribute to students? Continued exploration of these questions is necessary as health science faculty develop curricula that prepare students to live and work in a world of increasingly interdependent cultures.
BIBLIOGRAPHY


APPENDICES
APPENDIX A

THE CROSS-CULTURAL ADAPTABLE INVENTORY
CCAI SCORING SHEET
THE CROSS-CULTURAL ADAPTABILITY INVENTORY PROFILE
THE CROSS-CULTURAL ADAPTABILITY INVENTORY INTERPRETATION
The CROSS-CULTURAL ADAPTABILITY INVENTORY
Dr. Colleen Keiley and Dr. Judith Meyers

This inventory is designed to help you assess your ability to adapt to other cultures. Answer each item as it relates to you. Please respond to each item by circling your answer in the box on the CCAI Scoring Sheet containing the corresponding item number. For example, if you think that an item is true about you, circle the “T” in that item’s answer box. Do not worry about being consistent. Some items may seem to be similar. Simply answer each item as it best describes you.

1. I have ways to deal with the stresses of new situations.
2. I believe that I could live a fulfilling life in another culture.
3. I try to understand people’s thoughts and feelings when I talk to them.
4. I feel confident in my ability to cope with life, no matter where I am.
5. I can enjoy relating to all kinds of people.
6. I believe that I can accomplish what I set out to do, even in unfamiliar settings.
7. I can laugh at myself when I make a cultural faux pas (mistake).
8. I like being with all kinds of people.
9. I have a realistic perception of how others see me.
10. When I am working with people of a different cultural background, it is important to me to receive their approval.
11. I like a number of people who don’t share my particular interests.
12. All people, of whatever race, are equally valuable.
13. I like to try new things.
14. If I had to adapt to a slower pace of life, I would become impatient.
15. I am the kind of person who gives people who are different from me the benefit of the doubt.
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.
17. If my ideas conflicted with those of others who are different from me, I would follow my ideas rather than theirs.
18. I could live anywhere and enjoy life.
19. Impressing people different from me is more important than being myself with them.
20. I can perceive how people are feeling, even if they are different from me.
21. I make friends easily.
22. When I am around people who are different from me, I feel less.
23. I don’t enjoy trying new foods.
24. I believe that all cultures have something worthwhile to offer
25. I feel free to maintain my personal values, even among those who do not share them
26. Even if I failed in a new living situation, I could still like myself
27. I am not good at understanding people when they are different from me
28. I pay attention to how people’s cultural differences affect their perceptions of me
29. I like new experiences
30. I enjoy spending time alone, even in unfamiliar surroundings.
31. I rarely get discouraged, even when I work with people who are very different from me
32. People who know me would describe me as a person who is intolerant of others differences
33. I consider the impact my actions have on others.
34. It is difficult for me to approach unfamiliar situations with a positive attitude
35. I prefer to decide from my own values, even when those around me have different values
36. I can cope well with whatever difficult feelings I might experience in a new culture
37. When I meet people who are different from me, I tend to feel judgmental about their differences
38. When I am with people who are different from me, I interpret their behavior in the context of their culture
39. I can function in situations where things are not clear.
40. When I meet people who are different from me, I am interested in learning more about them
41. My personal value system is based on my own beliefs, not on conformity to other people’s standards
42. I trust my ability to communicate accurately in new situations
43. I enjoy talking with people who think differently than I think
44. When I am in a new or strange environment, I keep an open mind
45. I can accept my imperfections, regardless of how others view them
46. I am the kind of person who gives people who are different from me the benefit of the doubt
47. I expect that others will respect me, regardless of their cultural background
48. I can live with the stress of encountering new circumstances or people
49. When I meet people who are different from me, I expect to like them.
50. In talking with people from other cultures, I pay attention to body language
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**CCAI SCORING SHEET**

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Copy your totals from the Scoring Sheet into the appropriate boxes and shade in the corresponding portion of each quadrant.
The CROSS-CULTURAL ADAPTABILITY INVENTORY
Dr. Colleen Kelley and Dr. Judith Meyers

Interpretation
The concept of cross-cultural adaptability has been found to involve both personal characteristics and learnable behavior. The CCAI is designed to assist you in determining the extent to which you have acquired those characteristics which are correlated with effectiveness in working in another culture or with people from another culture. The inventory yields four scores, each representing an aspect of yourself which can be modified through training and experience. These four dimensions are listed below.

The graph on your CCAI Profile is a global representation of your scores on the CCAI relative to one another. The dimensions are: Emotional Resilience (ER), Flexibility/Openness (FO), Perceptual Acuity (PAC) and Personal Autonomy (PA).

Emotional Resilience
Being among people from another culture can be frustrating, confusing and lonely. In this situation, the ability to maintain a positive, buoyant, and non-depressed state, to tolerate strong emotion, and to cope with ambiguity and stress are important. Also important is the ability to maintain self-esteem and self-confidence, and to "keep an even keel." Other characteristics associated with emotional resilience include confidence in one's ability to cope with the unfamiliar and the ability to maintain positive feelings toward new experiences. This can involve courage, risk taking, and a sense of adventure.

Flexibility/Openness
Adapting to different ways of thinking and acting requires an ability to maintain a liking for and openness toward different thoughts and people. These characteristics are also helpful in developing and maintaining relationships with those who are different from oneself. Characteristics associated with this ability include tolerance, lack of rigidity, and liking for and comfort with all kinds of people.

Perceptual Acuity
Unfamiliar language—verbal or nonverbal—makes communication more challenging and difficult. Perceptual sensitivity is the key to meeting this challenge. Perceptual acuity is associated with attentiveness to verbal and nonverbal behaviors, as well as to interpersonal relations. It is also associated with attention to the context of communication, the ability to read others' emotions, sensitivity to one's impact on others and accuracy in communication with others. In addition, a person scoring high on perceptual acuity seldom distorts information based on his or her own inner needs.

Personal Autonomy
When others hold values and beliefs different from one's own, self-knowledge is important. The main characteristic associated with personal autonomy is a strong sense of identity. It includes the ability to maintain one's own personal values and beliefs, to take responsibility for one's actions, and to respect oneself and others. People with high personal autonomy feel empowered. They know how to make and act on their own decisions while respecting the decisions of others.
APPENDIX B

COVER LETTER
Dear Health Science Faculty Member,

The purpose of this study is to determine the cultural adaptability of health science faculty in working with culturally diverse populations. The Cross-Cultural Adaptability Inventory measures your cultural adaptability. The CCAI is not targeted to one particular culture, it is designed to be culture general.

You will need approximately 15 minutes to complete the inventory, self-score and assess your ability to adapt to other cultures. Taking the inventory will allow you to examine your assets and liabilities in the area of cross-cultural adaptability. The results of the scores can indicate your readiness to interact with people of different cultures and you can make choices about future training to acquire the skills necessary to be effective.

Please answer each question honestly and to the best of your ability. Complete anonymity and confidentiality is assured. The colored coded dot on CCAI scoring sheet will identify only the department in which you teach.

Thank you for taking the time to complete this inventory.

Sincerely,

Irene M. Connolly BSDH
Master Degree Candidate
APPENDIX C

CCAI DESCRIPTIVE STATISTICS BY SCALE
**CCAI DESCRIPTIVE STATISTICS BY SCALE**

\( N = 653 \)

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Kelley/Meyers