Attitudes of Nurses Toward Children With Disabilities

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Abstract

The attitudes of U.S. nurses toward children with disabilities have not been adequately measured over time and after an educational intervention. Disability content has not been a priority in nursing education and, if present, the focus has been on adults with disabilities. The attitudes of nurses play a significant role in the provision of quality healthcare services they provide for children with disabilities. This quantitative, experimental research measured the attitudes of graduating nursing students (N= 88) toward children with disabilities utilizing the Attitudes Towards Disabled Persons Scale (ATDP-B) before and after disability education. The control group consisted of 44 nurses while a group of 44 nurses received the treatment. The differences between the groups was measured at pretest (time 1), immediate posttest (time 2) after an educational module, and delayed posttest (time 3) one month follow up, utilizing repeated measures analysis of variance (ANOVA). Multivariate tests for within subject effect of the ATDP-B demonstrated that the dependent variable of attitudes as measured by the ATDP-B scale changes over time and after an educational module based on children with disabilities were ($F= [2, 85] = 28.59, p < .01$). It was discovered that the ATDP-B level changes over time, dependent on the group ($F [2, 85] = 51.15, p < .01$). Also, the between subjects main effect of group was significant across ATDP-B measurements ($F = [1, 86] = 32.53, p <.01$). The results of this research suggest that there is a significant difference in means of ATDP-B measurements between groups which indicates that the graduating nurses who received disability education performed significantly better on an assessment of attitudes toward children with disabilities than those who did not receive
the education. The findings of this research should compel nursing faculty to reevaluate curriculum content, provide specific attitude measurements of nursing students at various levels of education, and develop protocols that can assist students in learning to care for children with disabilities. Future research can be designed to measure attitudes of nurses toward children with disabilities at various levels of nursing education, in several nursing education programs within or outside the U.S, or as a comparison to other healthcare professionals.
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Acknowledgement

I would like to dedicate this research to my husband Vincent and my twins with disabilities, Gina and Eric who supported me through this journey with love, time, and patience. It is my hope that as a nurse and an educator we can assure that children with disabilities receive the best nursing care we can give them and their families. As an educator we are responsible for preparing the next generation of nurses who will care for these vulnerable children. We must embed in their education the necessary knowledge, skills, and attitude to assure we do provide quality nursing care.

I would also like to sincerely thank my dissertation committee and in particular my Chair Dr. K. Fatata-Hall, for her continuous support and dedication to this research as well as Dr. Gerard and Dr. Cooper, members of my dissertation committee. Dr. Fatata-Hall has been a source of strength, inspiration, and encouragement for the completion of this dissertation.

It is my trust that all people will embrace those with disabilities with a positive attitude in life’s journey.
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Chapter 1: Introduction

International research has concentrated on the attitudes of healthcare professionals toward disabled adults and rarely toward children with disabilities (Matziou, Galanis, Tsoumakasm, Gymnopoulou, Perdikaris, & Brokalaki, 2009). Attitudes are hypothetical constructs that embody what an individual views as positive, negative, or neutral; they are comprised from affective, behavioral, and cognitive responses and can be transformed by persuasion and experience (Burns, 2007). Simply put an attitude is a mental state, belief, or a predisposition to behavior (Altmann, 2008). This statement implies attitudes are cognitive, effective, and behavioral in response to a stimulus. Attitudes, like all psychological constructs, are observed indirectly in human responses (Albarracin, Johnson, & Zanna, 2005). If attitudes affect the actions of nurses caring for patients, then it is appropriate to measure the attitudes of nurses, evaluate the implications for nursing practice, and recommend interventions. The attitudes of nurses play a direct role in the quality of the patient care experience.

Children with disabilities are cared for in a variety of healthcare and community settings by professional registered nurses. There are over 60 million people in the United States with some form of disability; approximately 13.9 % are children (National Survey of Children with Special Health Care Needs, 2005/2006). The number of children born with disabilities continues to increase with the application of scientific and technological advances in healthcare as we continue to perfect saving the lives of premature infants and acutely ill children (Cleave, Gortmaker, & Perrin, 2010). Nurses need to be educationally prepared to care for children with disabilities. Baccalaureate nursing education assures student nurse clinical competency by upholding a moral imperative to keep patients safe
by fostering a paradigm of demonstrating continual practice (Ironside, 2008). Nursing faculty are responsible for assessing student skill, knowledge, and attitude to care for children with disabilities. Curriculum in schools of nursing are focused on knowledge and skills in clinical courses, it is not clear how attitudes of nursing students are conceptualized or measured as an outcome of nursing education. Attitude plays an influential role in the quality of clinical services rendered by healthcare professionals (Dorji, & Solomon, 2009).

Disabled individuals report dissatisfaction with healthcare professional contact stemming from inadequate personal experiences described as patronizing and disempowering practices (Heaton, 2002). Services to children with disabilities are described as inexpert, fragmented, and poorly coordinated (Heaton, 2002). Researchers designed a descriptive study was conducted to identify how nursing faculty addresses disability content in a stratified random sample of 1,000 schools of nursing (Smeltzer, Dolen, Robinson-Smith & Zimmerman, 2005). Results of this study evaluated by the researchers indicated some disability content was present in nursing curriculum in some schools; citing barriers to disability education for nurses revolved around issues of time, interest, attitude, and expertise of the faculty. Nurses responsible for the care of children with disabilities do not exhibit the appropriate sensitivity and attitudes towards them, resulting in poor quality nursing care (Matizou, Galanis, Tsoumakas, Gymnopoulou, Perdikaris, & Brokalaki, 2009).

It is critical for the nursing profession to provide insight into the nursing curriculum experiences as it relates to disability issues and examine how nursing students conceptualize disability content in curricula to improve nursing care (Seccombe, 2007).
Theoretically, knowledge, skills, and attitudes of nursing students and faculty are intertwined in nursing education. Faculty attitude are one of the most important variables affecting the education of professionals who will care for children with disabilities (Parasuram, 2006). Faculty develops and evaluates disability courses. The effect of a disability course on the attitudes of nurses toward children with disabilities is a significant research agenda. Diminutive research in this area has been published utilizing quantitative research designs.

**Background**

Nursing has and will continue to play a pivotal role in caring for all children and their families (Noreuil, 2007). Attitudes of nursing students can positively or negatively affect their approach to patient care (Johnston & Dixon, 2006). In order to provide quality nursing care to children with disabilities nurses need formal curricula content and clinical exposure. Disability researchers have focused on measuring the attitudes of healthcare professionals toward adults with various disabilities. Researchers have rarely focused on the attitudes of nursing students toward children with disabilities in the United States. Attitudes of nursing students are directly affected both by faculty and by curricula content (Johnston & Dixon, 2006).

The American Association of Colleges of Nursing in collaboration with State Boards of Nursing establishes standards for nursing education in the United States that list disability as a requirement in baccalaureate nursing education. The methodology for teaching nursing students disability content is not specified. The issue is that there is no baseline measurement of attitudes of nursing students in a university prior to and after disability education focused on children with disabilities. The attitude differences or
similarities between nursing students may identify future areas of research for nursing professionals.

Children with disabilities are typically diagnosed with developmental or intellectual chronic disorders that may affect an individual’s ability to walk, talk, reason, or care for the self. These disorders arise at birth, early childhood, or after trauma and may continue across the lifespan required specialized, coordinated services to realize improvements (Boulet, Boyle, & Schieve, 2009). The most commonly seen disabilities are deafness, blindness, cerebral palsy, and autism, although there are many more disabilities that may be seen in children (Boulet, Boyle, & Schieve, 2009). Researchers have identified that children with disabilities utilized more healthcare services than their non-disabled counterparts between 1999 and 2000 in a sample of 13,792 children under the age of 18 (Newacheck, Inkelas, & Kim, 2004). The largest differences that were noted by researchers were the increases in hospital days (464 vs. 55), non-physician visits (3.0 vs. 0.6), and home care days (3.8 vs. 0.04). Nurses increasingly care for children with disabilities in hospitals, communities, schools, and home care environments. The attitudes of nurses toward children with disabilities remain a significant research agenda.

**Problem Statement**

Attitudes hold significant power relative to classroom outcomes in students (Shippen, Crites, Houchins, Ramsey, & Simon, 2005). Researchers have demonstrated that some undergraduate nursing students hold negative attitudes toward children with disabilities because of fear, ignorance, cultural, and societal influences (Johnston, & Dixon, 2006). Attitudes of nursing students are directly influenced both by faculty and by
curricula content (Johnston, & Dixon, 2006). The attitudes of nursing students may affect their approach to patient care. A cross sectional survey focused on measuring the attitudes of 383 healthcare students was developed by a researcher in the University of South Dakota utilizing the Attitudes Towards Disabled persons (ATDP) scale, Scales of Attitudes Toward Disabled Persons (SATDP), and Rehabilitations Situations Inventory (RSI) scale (Tervo, 2004). Researchers identified that nursing undergraduate students were at greatest risk for exhibiting poor attitudes towards the disabled. There were no attitudinal differences by gender, but those students who had previous experiences with the disabled had more positive scores than those with no experience.

This research was a quantitative study to determine whether disability education affects the attitudes of nursing students as measured by the ATDP-B scale. Attitude measurements will be assessed by this researcher at pretest (time 1), posttest (time 2), and delayed posttest (time 3) utilizing repeated measures analysis of variance (ANOVA) prior to and after disability education. Disability education is part of the curricula content in the school of nursing site for this proposed study consisting of a four-hour module focused on various aspects of children with disabilities.

**Purpose**

The purpose of this quantitative study was to evaluate the change in attitude of nursing students toward children with disabilities over specific time intervals before and after disability education between the experimental and the control group. Negative attitudes toward children with disabilities have the potential to contribute to poor healthcare outcomes for this group (Mantziou, Brocalaki, Andrea, Ktenas, Chatira, & Kotzabassaki, 2002). The attitudes of nursing students were appraised utilizing the
Attitudes Towards Disabled Persons (ATDP-B) scale developed three decades ago (Yuker, Block, & Youung, 1970). This researcher measured the attitudes of 88 nursing students in a pretest posttest design in which 44 students were randomly assigned to each group. The sample size was based on a power analysis of 100 nursing students with a 95% confidence level assuming a 5% margin of error (Gall, Gall, & Borg, 2007). The size of the sample was also based on historical enrollment and graduating data for nursing students at the study site. Findings of this study have implications for nursing students and nursing educators caring for children with disabilities.

**Theoretical Framework**

The theoretical framework for this research was Maslow’s hierarchy of needs developed by Abraham Maslow in 1954. Dr. Maslow, a humanistic psychologist, developed a theory of personality utilizing a five-tier pyramid of basic human needs necessary for human homeostasis. A humanistic view asserts humans strive to develop their capabilities in order to be self-actualized, or reach their potential. The elemental level of need is biological or the need for water, oxygen, and food. Maslow postulated that individuals require basic physiological needs or they cannot progress to higher levels of potential (Duncan, & Blugis, 2010). The second level is the individual’s requirement for safety and security in their environment. The third level of need is concerned with the individual’s need for love, belonging, and affection followed by the need for esteem at the fourth level. The final level is the attainment of self-actualization or directing their existence towards a chosen field. There is a dynamic interaction between the environment and the individual’s ability and capability to access higher levels of human needs. Motivation is essential to attain self-actualization. Maslow posits that behavior at
a particular point in time is determined by the strongest need in the hierarchy of needs scheme. Researchers have attempted to utilize Maslow's theory of the hierarchy of needs as the motivation to understand behavior that is positive (Frey, & Wihite, 2005). It is these basic needs that determine motivation and behavior, which affects the outcome of attitudes (Ugdah, 2008). Motivation for behavior creates the need to formulate an opinion or attitude that drives the behavior in a satisfying way (Koltko-Rivera, 2006). The relationship between human behavior and attitudes is a psychological contract whose conceptual model is fast becoming the basis to improve the work force in all fields (Aggarwal, & Bhargava, 2009). Attitudes in people present the continual tendency to change a reaction to something, thus linking the formation of judgment to an act (Godan, Brajkovic, Fortuna, & Godan, 2008). Attitudes are therefore not acquired, but learnt in a social environment. The attitudes of healthcare professionals have an enormous impact on the patients they serve.

Maslow's understanding of human motivation has had an important influence in the fields of nursing and allied health. The hierarchy of needs theory is a framework to understand patient needs, and has been incorporated into many nursing theorist models. Needs-oriented theories emphasize the nurse's role in assisting patients to meet their physiological or psychological needs to attain healthy outcomes. Maslow's theory is relevant in human resource management literature, assisting in identifying and treating nurse burnout or job dissatisfaction. Higher education often utilizes Maslow's theory as a framework to guide student learning in patient assessment, prioritization, delegation, and treatment of patients (Harvath, 2009). Nurses apply the hierarchy of needs conceptually to understand the motivations behind individual human behavior.
Models seeking to integrate Maslow's theory have been proposed by scholars. The heuristic work environment assists individuals to learn and perform to their potential. It is reasonable to assume nursing faculty exhibits skills in the ability to motivate students, yet many higher education faculty are not trained in motivational theory (Kroth, 2007). Motivation is not limited to student learning but to faculty teaching techniques. A motivating environment expands the capacity to teach and learn. Despite the existence of motivation theory, little has been done to translate existing research into practical tools to use in the classroom to enhance performance for both the student and the faculty. It is the depth of knowledge, skills, and attitudes that serve as the foundation for improvements of pragmatic problems (Kroth, 2007). The syntheses of educational theory and motivational theory can positively affect the attitudes of nurses caring for children with disabilities. Change can be a result of elegant education.

**Research Questions**

The research question to be answered is:

**Q1.** Is there a change in the attitudes of nursing students toward children with disabilities as measured by the ATDP-B who receive disability education as part of a required course as compared to nursing students who did not receive the disability education pretest, immediate posttest, and in one month?

**Hypotheses**

The null hypothesis is:

**H10.** There is no difference in the change in attitudes of nursing students toward children with disabilities as measured by the ATDP-B for the students who received disability education as part of a required course and the students that did
not receive disability education pretest, posttest, and in one month.

The alternative hypothesis is:

**H1a.** There is a difference in the change in attitudes of nursing students toward children with disabilities as measured by the ATDP-B for the students who received disability education as part of a required course and the students that did not receive disability education pretest, posttest, and in one month.

**Nature of the Study**

A quantitative experimental pretest-posttest two-group design was utilized to evaluate the change in attitudes of nursing students toward children with disabilities pretest, immediately posttest, and one month follow up after disability content is presented in a required course. The design was chosen because the pretest posttest two-group design is a strong and commonly used design in social research (Gall, Gall, & Borg, 2007).

The pretest-posttest two-group design is also relevant to this study because it measures the changes in nursing student’s attitudes toward children with disabilities from pretest to posttests after an educational intervention between the groups. The nursing students in this study were randomized into the experimental group ($n = 44$) and the control group ($n=44$). Attitudes of nursing students toward children with disabilities were measured utilizing the Attitudes Towards Disabled Persons (ATDP) scale form B, a valid and reliable measurement of attitude documented in research literature (Yuker, & Block, 1986). The research questions, hypotheses, and null hypotheses were measured utilizing data in the form of descriptive statistics and repeated measures ANOVA utilizing SAS PROC GLM software. Demographic data consisting of age,
gender, prior education or experience in disabilities, and earned degrees will provide additional information about the sample groups.

The sample of nursing students was solicited through the Internet as a time and cost saving method for survey initiation (Alrec, & Settle, 2004). The course content on children with disabilities is available in the fourth year of nursing school. All participants in this study were randomly selected to avoid bias, assure an equal probability of selection, and achieve equivalency between and within the treatment and control group. Each participant was assigned a number and the participants were randomly entered into the school of nursing class scheduling system which placed each subject into a class roster. All senior nursing students were invited to participate in the study and after consent 44 students were randomly assigned to the treatment group and 44 students were randomly assigned to the control group. It is important to state that all fourth year nursing students will ultimately receive the same educational benefits as the experimental group.

The increasing populace of children with disabilities requiring specific health care needs must be recognized and integrated into nursing curricula in order to provide appropriate and expert health care to this vulnerable population. The attitudes of nurses play a prominent role in caring for children with disabilities. Nursing curriculum focuses on knowledge, skills, and attitude of nursing students to prepare them for future practice and all three of these constructs are of equal and vital importance in nursing practice (Mantziou, 2002).

**Significance of the Study**

The Institute of Medicine (2001) challenged all healthcare professions to adopt curricula content focused on the current healthcare needs in the United States. Many
medical schools and schools of health professions struggle to implement this challenge. The Surgeon General has identified children with disabilities as a vulnerable and disenfranchised group relating to health prevention, promotion, and treatment usage. The Robert Wood Johnson Foundation funded an initiative, *Quality and Safety in Education for Nurses* (2007), to close the gap between nursing education and practice, focused on knowledge, attitudes, and skills for nurses. Attitudinal barriers are the most recognized impediment to health care for children with disabilities (Rao, 2004). Attitudes of nurses play a pivotal role in the care of children with disabilities and their families. Diminutive attention is furnished to disability education in undergraduate nursing curriculum in the United States. International healthcare researchers have suggested that education affects the attitudes of healthcare professional students, therefore affecting patient care outcomes (Secomb, 2007). Disability education warrants position in nursing curriculum in the United States.

This study will assist the nursing profession to focus on attitudes of nursing students while supporting the challenge for required disability courses in schools of nursing. This study disclosed the change in attitudes of nursing students at specific periods before and after exposure to disability education in a required course. This study highlights the escalating numbers of children with disabilities with specific health care needs that require expert nursing care.

**Definitions**

*Attitudes*. Attitudes are hypothetical constructs that embody what an individual views as positive, negative, or neutral; they are comprised from affective, behavioral, and cognitive responses and can be transformed via persuasion and experience (Burns, 2007).
The nature of the variables can be a scored response to a scale, an emotion, or a critical assessment (Yuker, & Block, 1986). Yuker and Block (1986) have validated the validity and reliability of the tool over time in research.

**ATDP scale.** The Attitudes Towards Disabled Persons (ATDP) scale is the most common valid and reliable tool to measure attitudes toward the disabled. The ATDP scale has form A, B, and O (Yuker, Block, & Younng, 1970).

**Children with disabilities.** The most widely accepted definition of children with disabilities is that children under the age of eighteen who have or are at increased risk for a chronic physical, development, behavioral, intellectual, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally (Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau, 2007).

**Education in disabilities.** Education is a formal course, seminar, workshop, or clinical experience with children with disabilities taken while attending the school of nursing with a focus on children with disabilities defined by the faulty at the school of nursing.

**Faculty.** A licensed registered nurse who has a minimum of a graduate degree in nursing enrolled in a doctoral program (American Association of Colleges of Nursing, 2005).

**Nursing students.** A student in an accredited university-based baccalaureate-nursing program that will successfully complete a minimum of one hundred and fifteen credits prior to graduation in the fourth year of study (American Association of Colleges of Nursing, 2005).
**Nursing care.** Professional nursing care is defined by the profession and by law as the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations (Nursing: Scope and Standards of Practice, 2004).

**Summary**

The attitudes of nursing students in the care of children with disabilities are a significant concern for the profession of nursing. The increasing numbers of children with disabilities requires nursing care based on expert skills, knowledge, and positive attitudes. The evaluation of student attitudes before and after disability education may affect the quality of nursing care. Education in disabilities improves attitudes of healthcare providers toward the disabled (Dorji, & Solomon, 2009). Research in attitudes of nursing students toward children with disabilities provides an outcome evaluation of nursing education.
Chapter 2: Review of the Literature

The purpose of this chapter was to identify literature based replicated research concerning the attitudes of healthcare professionals towards children with disabilities. While the focus of this research proposal is on nurses attitudes towards children with disabilities the affluence of published research in nursing is limited, therefore literature from the healthcare professions will be employed to support this dissertation. The preponderance of published research addresses adult disabilities. The literature was assembled using various Internet based library databases as well as traditional university based libraries. This chapter consists of numerous historical and current researchers cited to provide a comprehensive knowledge background of the topics summarized in this chapter. A theoretical framework was identified and explicated to delineate the variables to be presented as background for this research.

History of Attitudes

The term attitude has been historically defined as a hypothetical construct expressed and sculptured within the confines of various professional disciplines. As early as 1935, Allport proposed the most widely utilized definition of attitudes. Fazio (2007) acknowledged Allport’s description of attitude as “a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related” (para 4.). Attitude is a hypothetical construct that represents the individual’s like or dislike for an item (Burns, 2007). Attitudes directly and indirectly influence cognition and behavior (Friedkin, 2010). Cognitive foundations are central features to form an attitude, thus a behavior is exhibited in response to information (Friedkin, 2010). Attitudes and
behaviors shown strong correlations and attitudes are highly predictive of behavior (Glasman, & Albarracin, 2006). Attitudes are a distinctive concept in social psychology that continues to be investigated by researchers from various fields. Theorists seek continual meaning in attitude research to explain human beliefs and behaviors. The continued vitality of attitude research correlates to the quest towards outcome evaluations in applied research.

Attitudes are associated with varying strengths, stored in memory to be activated when the individual encounters the attitude object (Fazio, 2007). This premise suggests that attitudes are not merely constructs but evaluative knowledge. Attitudes serve as a fundamental function in human behavior subjectively assisting one to organize and interpret the environment. Attitude constructs are further characterized as implicit or explicit in nature. Implicit, or automatic attitude, and explicit, or deliberate attitude, assumes an association between these distinctions requiring reasoning ability (Gawronski, & Bodenhausen, 2006). The recognition of an individual’s attitude may require validation of the attitude or process of evaluation to produce an outcome. Attitude is a belief requiring consistency to avoid conflict. Attitudes are consistent with behaviors (Van Veen, Krug, Schooler, & Carter, 2009). Dissonance requires cognition to change a belief. New knowledge, or education, can serve as a vehicle to affect attitude allowing for homeostasis in the individual’s attitude. This assertion suggests that learning may influence attitudes; therefore, attitudes can be changed over time. A central theme in current attitude research challenges the old paradigm of attitude studies expressing a need for an integrative model focused on evaluation and transformation.

The complexity of attitudes affects the behavior and interaction of nurses with
children with disabilities. A quantitative quasi-experimental study in New Zealand utilized a two group, pretest- posttest design, measuring attitudes of nursing students with the ATDP-B (Seccombe, 2007). The research question in this study explored the inclusion of a significant disability theory unit added into the curriculum for 219 students at the second and third year of study. Results of pretest mean scores were 116.91, 117.23 respectively, while the posttest mean scores were 123.01, 120.87 respectively, degrees of freedom were not reported in this article. There weren’t significant attitudinal changes for 2nd and 3rd year students, $t (20.65) = 0.106, p > 0.05$ $t (19.64) = 0.634, p > 0.05$ respectively, concluding the educational module was not a factor in the attitudes of the sample group towards the disabled. Measurements of attitudes upon entry into the nursing program and after disability education in an experimental research design may have yielded different results.

**Children with Disabilities**

Disability research has focused on measuring the attitudes of healthcare professionals toward adults with various disabilities. The attitude and role of the registered nurse has not specifically been studied nor has the variable of attitudes toward children with disabilities. There are several reasons why the number of children with disabilities has drastically increased in America, but it remains difficult to gather statistics due to ambiguities in definitions of developmental disabilities and the service systems that remain fragmented (Reichman, Corman, & Noonan, 2008). Statistics in the United States are ascertained by survey responses; therefore non-responses lead to a potential bias in statistical assessments.

The Annual Disabilities Compendium of 2009 reveals data that approximately 16
% of children between the ages of birth and twenty-one that live in the community are
disabled. There are no current accurate statistics collected in children with disabilities
that live in institutional settings across the United States. According to the
Developmental Disabilities Act, section 102 (8), the term “developmental disability” is a
chronic, severe disability in children five years old or older that is attributed to; (a) a
mental or physical impairment or both; (b) manifests itself before the age of 22; (c) is
likely to continue indefinitely; (d) results in substantial functional limitations in three or
more major life activities. Major life activities can be further defined as self-care,
language, mobility, learning, and the capacity to be independent both in economics and in
independent living. Children with disabilities require specialized, multidisciplinary
healthcare services and support throughout the lifespan to improve function in daily
activities of living, preventing illness, and avoiding complications. Under federal law,
each state defines the labels of children with disabilities from a developmental and
intellectual viewpoint. The state’s definition is utilized to identify, plan, and implement
managed and coordinated services to support the child that may include community based
physical, occupational, or speech language therapists, social workers, and special
education teachers.

The definitions of developmental disabilities and the approved services vary from
state to state. The Centers for Disease Control and the Department of Health and Human
Services of the United States federal government (2010) have identified autism, cerebral
palsy, mental retardation, and epilepsy as the most commonly diagnosed developmental
disabilities in children. This list can be expanded to thousands of other motor,
behavioral, and genetic diseases diagnosed in children with developmental disabilities.
The plight of families with children with developmental disabilities clearly warrants the need to focus on clinical services, research, education, and public policy initiatives. Clinical services for these children mandate healthcare professionals attain the needed knowledge, skills, and attitude in order to provide safe, appropriate, quality healthcare.

A review of the literature indicates that health care professionals, including nurses (Katz, & Hayout, 2002), view people with disabilities negatively. Research in the field of attitudes of healthcare professionals toward children with disabilities suggests that education may promote positive attitudes supporting an enhanced level of nursing care (Katz, & Hayout, 2002). The philosophical framework of a nursing curriculum can influence the attitudes of students toward specific groups of patients. The development of an understanding of people with disabilities has not been given particular attention in undergraduate nursing curriculum (Chenoweth, Pryor, Jeon, & Hall-Pullin, 2004). This pretest-posttest research design utilized the Attitudes Towards Disablement Scale with a convenience sample of 26 nursing students to ascertain general attitudes toward the disabled while on a rehabilitation unit in an acute care setting. A t test showed no statistical mean difference after the clinical rotation ($t(0.560) = 1.534, p = 0.138, t(0.702), p = .989$, respectively).

Conclusions from researchers in this study suggested that the disabilities course might have influenced student attitudes prior to clinical placement.

The US Surgeon General (2005) issued a *Call to Action to Improve the Health and Wellness of Persons with Disabilities*, with a goal of improving the health status of adults and children with disabilities. This challenge focused on the increasing the knowledge, understanding, access, and awareness of healthcare professionals providing
care for the disabled community in order to promote health and prevent disease complications. During the last decade, legal mandates have provided the impetus for changes needed in society toward citizens with disabilities.

**Health Care Professionals**

Healthcare professionals play a critical role in determining the direction and priorities of services to the disabled. Healthcare professionals consist of physicians, nurses, speech and language therapists, occupational therapists, physical therapists, psychologists, therapeutic therapists, and social workers. The quality of healthcare services is directly influenced by the attitudes of healthcare professionals towards the disabled. A better understanding of complex relationship between healthcare professionals’ knowledge, attitudes, and behaviors would improve rehabilitative services to the disabled (Godan, Brajkovic, & Godan, 2008).

**Attitudes of Medical Students**

Many individuals with disabilities report their physicians are insensitive or patronizing, viewing them as poor, suffering, or in need of pity (Byron, Cocksfoot, Brownett, & Ramkalawan, 2005). Negative provider attitudes often focus on the disability rather than the person, and can result in rendering inferior healthcare (Jackson, 2007). Perception that the disabled person’s quality of life is poor may lead to less aggressive treatments even with an acute medical problem (Iazzoni, 2006). People with disabilities cite negative attitudes and behaviors of healthcare professionals as the most formidable barrier to healthcare (Byron, & Dieppe, 2000). Healthcare providers often lack necessary education to care for the disabled. Medical students lack training in the most common forms of children’s disabilities such as cerebral palsy or learning
disabilities (Sneed, & Stencel, 2000). Senior pediatric residents surveyed in California acknowledged the need for education in childhood disabilities, with only 21% of the residents reporting they received didactic and clinical education in this field (Sneed, & Stencel, 2000). Little attention has been devoted to the development of curricula content to prepare medical students to care for the disabled. Symons, McGuigan, & Akl, (2009), recognized the need for disability content in medical schools and developed a six-step approach to develop curricula for medical education. This approach consisted of the development of a specific and general needs assessment, goals and objectives, instructional strategies, implementation and an evaluation plan for the school of medicine. This new curriculum content on disability included an attitudinal pre and post survey to measure the goal of instilling the “appropriate” attitude in students towards medical care for the disabled. The didactic and clinical curriculum spanned four years of medical student’s exposure to the needs of the disabled from a patient centered perspective. Preliminary outcome evaluations of this disability thread in the curriculum of the medical school find medical students are positive and appreciative for the disability education. Irrespective of specialty, all physicians treat individuals with chronic illnesses and functional limitations in a variety of settings.

The Association of Academic Physiatrists Council of Medical Student Clerkship Directors conducted a survey in 2007 of medical schools in the United States to determine if courses exist for students concerning chronic illnesses discovered dismal results. A group of physicians developed and proposed curricular content and methods for the inclusion of this vital topic in schools of medicine as a required clerkship (Mayer, DeLateur, & Durso, 2007). This pilot course was offered at Johns Hopkins University
School of Medicine in 2008 as part of curriculum restructuring to better prepare medical students to meet the health care needs in the 21st century. This is only one of a handful of medical schools that require courses on chronic illnesses in this country focused on the skills, knowledge, and attitudes required for future medical practitioners (Mayer, DeLateur, & Durso, 2007). Researcher results in this research support the premise that there are increasing numbers of children and adults with chronic illnesses and disabilities that future physicians are not prepared to care for appropriately. Outcome evaluations of this clerkship-measured student’s attitudes measured with the Attitudes Towards Disabled Persons (ATDP) scale realized that knowledge and skills must be supported by positive attitudes in this innovative program. There is a need for health care professionals to assess the changing needs of the population it serves.

A cross sectional survey of 98 medical schools in the United States and Canada studied third and fourth year medical students to determine their attitude towards persons with disabilities (Tervo, Azuma, Palmer & Redinius, 2002). Each medical student was given three attitude surveys to complete; the Attitudes Towards Disabled People Scale (ATDP), the Scale of Attitudes Towards Disabled Persons (SADP), and the Rehabilitations Situations Inventory (RSI). There was no statistical difference in results of attitude surveys between the medical students from the United States and Canada. Compared to the norms the medical students overall had a more positive attitude towards the disabled on the ATDP scale. Male students generally had poorer attitude scores in the surveys than female students. Medical students with a background in caring for those with disabilities had more positive scores than medical students with no experience caring for the disabled. Researchers conclusions in this comparative study suggest
gender and background exposure to the disabled influenced the medical student’s attitudes. Similar studies are published from the international medical community.

Trinity College Medical School in Dublin Ireland was the site for a study to evaluate the impact of disability awareness training for 56 fifth year medical students measuring their attitudes utilizing the Attitudes Towards Disability Persons scale (ATDP) pre and post a twelve hour training module (Timms, O’Carroll & O’Dowd, 2009). The training module consisted of role playing in which students lived the reality of a type of disability, for example blindness, or being wheelchair bound, under the guidance of a physically disabled physician. Comparisons of the ATDP pretest and posttest scores in this experimental module reveal a significant improvement in the attitudes of the sample group. The mean score for the sample was 70.9 with a standard deviation of 15.8, while the post score mean was 78.5 with a standard deviation of 17.9. A paired t test was performed and results suggested that this change in measurement indicated a significant positive attitude toward the disabled (p<0.001). Further analysis of the gender of the medical students supported the hypothesis that females had a more positive attitude towards the disabled than males. Laouris (2009) suggested that a socialization model improved the attitudes of providers towards the disabled and therefore had a positive impact on their quality of life. The University of Newcastle in Australia placed 26 fourth year medical students in a pediatric community clinical rotation in a rural school setting with the purpose of assisting in activities to improve the motor skills of children with disabilities (Jones, & McDonald, 2007). Medical students were paired with teachers to observe innovative educational methods that assist these children in educational settings. Medical students treated a variety of medical
occurrences in the classroom with seizures being the most common, commenting on the stress of school medical emergencies. A questionnaire given to the medical students and their teachers after the clinical rotation rated the experience as very valuable and encouraged the continuity of school placements for students. Traditional tertiary pediatric clinical placements for medical students will be augmented by community placements to broaden student experiences to include children with disabilities and their families.

It is generally accepted that medical education should enable students to acquire knowledge, skills, and attitudes necessary to practice medicine in a variety of settings. Healthcare education emphasizes the importance of recalling large quantities of information. The evolution of healthcare curricula is the identification of critical knowledge elements to produce self-directed practitioners who understand the importance of continual lifelong learning. It is vital to acknowledge that effective healthcare depends upon accurate information and clinical exposure, bridging the gap between attitude and behavior towards the disabled. Attitudes are learned predispositions that elicit consistent responses towards a person (Friedkin, 2010). Therefore, attitude contains a component of affect, cognition, and behavior that must be interconnected. Attitude and behavior, when consistent, provide stability in one’s belief pattern. The characteristics of one’s disability, such as the visual appearance of the disabled individual, can attribute to an attitude (Vilchinsky, Werner, & Findler, 2010). The quality of the interaction between the disabled and non-disabled individual focuses on the disability, and not the person behind the disability, leading to negative attitudes. It is the characteristics of prior beliefs, occupational training, demographic variables, and the
perception of status relative the disabled that influence attitude (Vilchinsky, Werner, & Findler, 2010). Education can influence attitude formation.

**Attitudes of Dental Students**

The American Academy of Pediatrics supports the premise that children with disabilities possess specific medical, behavioral, and pharmacological factors that create complex needs that heighten susceptibility to dental disease. The Commission of Dental educational standards (2005) has identified children with disabilities as prone to dental caries and infections requiring improved oral health assessments and referrals to dentists. A needs assessment conducted by the Louisiana Health Sciences Center School of Dentistry found that predoctoral healthcare education of students was inadequate in dental assessment for both the medical and dental curriculum. The researchers of this study acknowledged that 81% of medical students lacked dental hygiene curriculum while 74% of the students were not interested in treating children with disabilities (Mabry, & Mosca, 2006). A research study paired dental students and school nurses in 15 elementary schools in low socio-economic areas of Louisiana to screen 255 children with disabilities for dental concerns. Researchers documented 43% of the children had untreated dental caries, 17% needed urgent dental care, and only 4% ever had dental care (Mabry & Mosca, 2006). This experimental study lead to the addition of a didactic and clinical education model in dental schools and post intervention over 70% of the dental students stated they positively influenced the dental health of these children, with 92% claiming the importance of the program. The faculty of the dental school developed the tools of measurement in this study and while attitudes were not directly measured, the outcome behaviors of medical, nursing, and dental students had a positive impact on the
dental care of children with disabilities. The relationship between dental student’s attitudes towards care of individuals with intellectual disabilities was studied to assess the impact of instruction and experience expected of third year dental students (DeLucia, & Davis, 2009). Dental students were surveyed before, and one week, six months, and one year after disability lectures at the university to assess their general capability and comfort caring for individuals with disabilities requiring dental work. Repeated measures ANOVA indicated significantly higher expectations of dental students after instruction, but no change in their level of comfort. One year follow up resulted in no change in attitude or level of comfort of dental students providing dental care to this populace. While regression analysis indicated significant positive relationships between experience and comfort for these students, there was no significant relationship existed between experience and expectation of dental student capabilities. The dental faculty elected to revise the curricula in the school of dentistry to include experiential learning with a reflective component to address the comfort level of dental students caring for individuals with intellectual disabilities.

**Attitudes of Physicians, Nurses, and Therapists**

The affect of attitude tends to have a central tendency, either positive or negative, so it is easier to judge, classify or act quickly (Godan, Brajkovic’, Fortuna, & Godan, 2009). Attitudes are thereby learned and affect our behavior. The Scales of Attitudes Toward Disabled Persons (SATDP) was mailed to 269 physicians and nurses in Bhutan to study the impact of these professionals in three major hospitals (Dorji, & Solomon, 2009). Researchers noted 63% of the physicians held significantly more positive attitudes towards the disabled than nurses. Mean scores for both groups were significantly lower
than their western counterparts. The results of this study would permit policy makers to design interventions to improve care and better understand the multi-dimensional relationships that exist between attitudes and health care for the disabled. Further research is warranted in marginalized groups such as children with disabilities. A similar study was conducted in Hong Kong with the objective of exploring the attitudes of healthcare professional towards people with disabilities.

The attitudes of physiotherapists, occupational therapists, social workers, and nurses in Hong Kong were assessed utilizing the Attitudes Towards Disabled Persons (ATDP) scale form O (Au, & Man, 2006). The goal of this research was to compare healthcare students and practicing professionals in the groups described above. The survey tool was mailed to 511 students and 489 professionals that were randomly selected for the study. The mean scores of these eastern students on the ATDP scale were lower than western counterparts indicating a less than acceptable attitude towards the disabled. Professionals had higher scores, or more positive attitudes, with nurses scoring the least favorable in attitudes towards the disabled community. The demographic data of age, educational level, knowledge and contact with disabled persons were cited as significant factors affected the ATDP scores. Significance was particularly relevant at 0.001 for the quality of interactions between the sample and the disabled population. Results will be utilized by the researchers to modify the curriculum and enhance the quality of healthcare services rendered to the disabled population.

It was hypothesized that attitudes differ with various health professional students according to gender and previous exposure to the disabled. A cross sectional survey utilizing the ATDP scale form B, SADP, and RSI scales was distributed to 383 students
in the University of South Dakota (Tervo, 2004). Results displayed all students had less positive attitude scores on the SADP, with nurses having the least positive attitude scores. There were no attitudinal differences by gender, but those students who had previous experiences with the disabled had more positive scores than those with no experience. Nursing undergraduate students were at greatest risk for exhibiting poor attitudes towards the disabled. The researcher recommendations augmented the need for nursing students, specifically in pediatrics, to have educational experiences to promote positive nurse student attitudes when caring for the children with disabilities. Tervo, Palmer, & Redinius (2004) conducted attitude research with healthcare professionals hypothesizing attitude and comfort would differ by discipline. A sample of 383 undergraduate and graduate healthcare students in the Midwest were administered the ADTP, SADP, and the RSI scales to assess if there is a difference in attitude among healthcare students. The results were similar despite community size in that all groups had positive attitudes regarding the disabled. A series of one way ANOVA has resulted in no statistical differences between gender, community size, optimism and human rights, and pessimism or hopelessness factors. Statistical significance existed for the factors of behavioral misconceptions ($F(4.392), df=2, p =.013$). The initial hypothesis assumed that individuals from urban areas would respond with a more positive attitude than those in rural areas based on the assumption that urbanites have more exposure to the disabled. It was concluded healthcare professionals in general hold less positive attitudes with nursing at the greatest risk. Specific education is needed to promote more positive attitudes. Tervo et. al suggests that research on attitudes towards the disabled results in many confounding factors that include sensitivity, response styles, and reactivity to
questions. Limitations to this study sample were college students who were Caucasian, healthcare students, and attended only one university. Replication of this research using different variables may yield interesting results.

Recreation and leisure undergraduate students are increasingly exposed to individuals with disabilities of all ages. Realizing the increasing shift towards societal inclusivity of the disabled, attitudes of these students were measured utilizing the ATDP scale form B to assess 289 students in five universities on the frequency of interaction with the disabled (Perry, Ivy, Conner, & Shelar, 2008). Student interactions with the disabled six or more times a day resulted in more positive student attitudes. It is estimated that recreation and leisure professionals interact with the public of which approximately 22% will have one or more disabilities. Attitude is a core competency in any role that deals with the public. The language of disabilities plays a pivotal role in the formation of attitudes.

The ATPD scale, form A, B and O, was utilized in 283 college students to determine if the language used to describe a disability would influence the participant’s scores on attitude toward the disabled (Gouvier, Betz, O’Jile, Ryan, Parks-Levy, Groves, & Coon, 2006). The researchers focused on three categories of individuals; those without head injury, those who had a head injury associated with loss of consciousness, and those who lived with a relative with head injury (Gouvier et al., 2006). Versions of the ATDP were randomly assigned to groups with descriptors of disabled person, person with a disability, and the disabled. Results indicated no significant difference in ATDP scores. The use of language relative to the content and process in defining disability language may be of significance for further studies. The effects of contact, context, and
social power affect attitudes towards the disabled. Hunt (2002) believes stereotyping can lead to negative attitudes towards the disabled community. Negative attitudes can be a barrier to the disabled face in society. The quality and quantity of social contact, context, social power, and the academic training of undergraduate students across disciplines can affect the overall attitude of professionals in evaluating a child with disabilities whether it be in an academic or medical setting. The ATDP- B was administered to 218 undergraduate students in a Midwestern city to understand attitudes towards persons with disabilities (Cozetta, Tansey, & Schoen, 2009). Researcher developed questionnaires were also administered relating to the described variables. Results revealed there were no statistical differences using a factorial ANOVA across a range of social contexts. Analysis discussed by the researchers in this study suggests attitudes may change according to the discipline the student is enrolled in at the university. The role of the educator as a social power figure influenced student attitudes. The more positive the professor was in the field of disabilities the more positive the score of the student in attitude scales. It was hypothesized that while contact and context of disability studies directed towards students had some affect on attitude, it is the social power of the educator that is a phenomenon that affects not only student attitude, but the ability to change attitudes of students towards the disabled (Cozetta, Tansey, & Schoen, 2009). Power as a salient construct in disability education is an area of minute research.

In a society of multicultural, multiracial, and multilingual people, there may be a lack of awareness in cultural beliefs and attitudes towards the disabled. Culture effects how and why people make certain decisions concerning healthcare. Life choices are affected by function and context in the environment. The factors of knowledge, belief,
and attitude affect how one functions in their daily routines. A cross sectional study in South Africa randomly assigned a dyad of 60 caregivers and children between two and thirteen with a disability, attending physical therapy at three local hospitals with various cultural influences (Masasa, Irwin-Carruthers, & Fanure, 2005). A knowledge, attitude, and belief (KAB) questionnaire adapted from the World Health Organization’s Global Program on Acquired Immuno-Deficiency Syndrome (AIDS) research package was augmented by a demographic questionnaires containing both open and closed ended question design. Approximately 83% of the children had a diagnosis of cerebral palsy revealed no statistical difference on the knowledge of the syndrome with adult caregivers. Differences in why the disability occurred were related to the caregiver’s cultural beliefs. Over 75% of the caregivers stated that disabled people struggle on a daily basis, while 92% indicated the children with disabilities were not inferior. The caregiver’s claim 55% of society generally do not care for children with disabilities, and society is not functionally set up for inclusion of these children. Of interest is that 72% of the caregivers believe children with disabilities should be schooled separately for the reasons that society is not ready for them. A theme in cultural beliefs was one of human error due to something done during the pregnancy that caused the disability, for example taking medications. Researchers concluded that health professionals need culturally sensitive training focused on addressing negative attitudes, and adequate community services are available for children with disabilities. It is imperative that undergraduate healthcare curriculum relate to attitudes of children with disabilities and their adult caregivers. Cultural beliefs play a pivotal role when interacting with children with disabilities and their caregivers.
Yuker (1988), a historical attitude expert, describes attitudes as complex, multifaceted, and difficult to measure. Attitude can guide behavior affecting the experience of lifestyle quality. Professionals that interact with children with disabilities are susceptible to a range of insensitive attitudes. It is assumed an occupational therapist, because of their close and constant interaction with these children, would have positive attitudes towards children with disabilities. Prior research in this area was not conclusive. A prospective study of 11 occupational therapy programs from the United States, Taiwan, Australia, and the United Kingdom surveyed 264 freshman and 221 senior students using a self reported Interactions with Disabled Persons Scale (IDP). The IDP likert scale is a tool focused on the concepts of discomfort, uncertainty, sympathy, fear, coping ability, and vulnerability of the participants. Descriptive statistics documented the mean score was lowest, poorer attitude, in the United Kingdom and highest, better attitude, in Taiwanese students occupational therapy students (Brown, Mu, Peyton, Rodger, Stagnetti, Hutton, Casey, Watson, Hong, Huang, & Wu, 2009). The analysis of variance demonstrated many significant differences ($p<.05$) in entry-level occupational students in the overall total mean scores of discomfort, sympathy, and coping among students from different cultures. The Taiwanese students responded differently from the American, Australian, and British students. The analysis of variance of the senior students were statistically significant ($p<.05$) in the categories of the IDP with the Taiwanese students. Independent $t$ tests compared the freshman and senior level students as a total group and found the two groups scored significantly different in sympathy ($p<.010$), uncertainty ($p<.30$), and vulnerability factors ($p<.017$). The authors do not report a-priori significance level is needed for this study but not reported
in the article. Uncertainty is not significant unless there is a high significance therefore there is a probability of great Type I error. Potential reasons discussed for the differences could be previous experiences with the disabled and cultural influences. Differences in the occupational student's attitude towards the disabled could affect actual or potential care of clients with disabilities. The impact of education on attitudes is less studied in literature review. Negative attitudes towards children with disabilities are reinforced by the lack of knowledge, needing to be addressed at the earliest opportunity in primary childcare or education.

Child health day care services in Australia have set a precedent for inclusion as a norm to reduce the likelihood of negative attitudes toward children with disabilities in the future. A day care center surveyed 77 childcare staff members and directors to assess their attitudes towards disability in their childcare centers. Staff who attended child care agency training programs focused on young children with disabilities was associated with more positive attitude scores upon completion of the training (Mohay, & Reid, 2006). The Interactions with Disabled Persons (IDP) scale measured employee attitudes pre and post training sessions with significant scores post training for increased positive attitudes ($F = 0.11$, $p$ NS), degrees of freedom not reported. Sensitivity to and inclusivity of children with disabilities at the earliest ages into the care of trained caregivers results in embracing children with disabilities into society while providing a sense of staff control over the provision of complex services (Mohay, & Reid, 2006).

Children with developmental disabilities often present with complex communication needs requiring the expertise of speech language pathologists. A study of 34 third year speech language pathology undergraduates and 56 recent graduates
completed the Interaction with Disabled Persons (IDP) attitudinal scale and a questionnaire about interests in augmentative communication with this population (Johnson, Bloomberg, & Iacono, 2008). Researcher findings suggest a small but positive attitudinal shift for undergraduates who had previous clinical experience working with individuals with augmentative communication units but also found it to be a weak predictor of job choices after graduation. Working with developmentally disabled individuals ranked low among undergraduate preferences for employment. The results of the IDP sample utilized repeated measures ANOVA showed no effect of attitude and job choices ($F(1, 83) = 0.007, p>0.05$) degrees of freedom not reported. Researchers suggest didactic and clinical curricula revision embrace the use of mentor support to meet the communication needs of children with disabilities.

**Attitudes of Nursing Students**

Disabled individuals report dissatisfaction with healthcare providers, specifically nurses and their systems of education (Dorji, & Solomon, 2009). A body of literature in the 1980’s and 1990’s identifies disability as the inequality of inequalities in planning and delivering nursing curriculum; modest research has been published since that period. Nursing as an independent discipline needs to focus on curriculum based in methodological pluralism and pragmatic approaches to changing societal needs in caring for patients. Questionnaires were devised by faculty from the English National Board of Nursing, Midwifery, and Health Visiting, an educational accrediting body in the United Kingdom, that consisted of likert scale and rank order disability questions as well as vignettes (Scullion, 1999). Faculty sought to conceptualize and define disability for nursing students, led by Scullion, one of the first nurse educators to champion disability
in nursing curriculum. Questionnaires and interviews were conducted on 51 nursing students to gather qualitative data. Themes that emerged focused on the alignment of disability to illness as opposed to health, the tendency to treat patients and not people, and the lack of experiencing what it is like to be disabled. The language of disability is often confusing with many interpretations, such as retarded or impaired, definitions are unclear, and the need to normalize the individual is a prevalent thesis. Researcher results exemplify the need to study disability within a socially positive context. Nursing education can promote disability in partnership with the disabled as a core requirement for nursing curriculum. Nursing professional literature rarely focuses on children with disabilities but concentrates on adult disability issues. Children with disabilities depend upon adult caregivers to advocate for them and meet their needs. Disability education must also concentrate on the caregivers to the children with disabilities.

Children with disabilities generally live in their communities where they go to school and receive rehabilitative services consisting of occupational, physical, and speech therapies. Attitudes of healthcare professionals are an important aspect of rehabilitative services (Tervo et al., 2004). In relation to a conceptualization Tervo et al., (2004) defines a positive attitude towards disability as:

A belief that those with disability can be productive community members, decides what their own self-interest is, and lead a normal life. At the affective level, it suggests sensitivity toward positive attitudes and liking the person. At the behavioral level, it implies fashioning conditions to help an individual actualize their creative capacity toward self-sufficiency and contribute to the community. (p.908-909)
Tervo’s assumption correlates to Maslow’s hierarchy of needs theory, which speculates positive attitudes of the self are intertwined with an individual’s quest towards self-actualization. However, there are still gaps in the current knowledge of attitudes of nursing students and factors that influence these attitudes towards the disabled, specifically children.

A cross sectional study of 128 baccalaureate nursing and non nursing students in the Netherlands were recruited to join this research and complete the ATDP form A and the SADP (Klooster, Dannenberg, Taal, Burger, & Rasker, 2009). Nursing students scored more positive in attitude toward disability than non-nursing counterparts in school. Researchers are now exploring if the form of contact with the disabled influences attitude. Future researchers may study if the quality and not the quantity of an individual’s contact with the disabled as a more significant attitude predictor. Attention to forms of contact beyond context may be necessary to understand a nurse’s attitude towards the disabled (Klooster, Dannenberg, Taal, Burger, & Rasker, 2009). The philosophy of a nursing curriculum influences a nursing student’s attitude towards patients and groups of patients.

Little attention is given to disabilities in undergraduate nursing curriculum. International research has identified that the health student’s education for practice affects their attitudes and the outcomes of patient care (Symons, McGuigan, & AKL, 2009). The educational approach needs to be broad so healthcare professionals can effectively manage the physical, social, and emotional outcomes of disability. Attitude changes are activated through knowledge, skill, and attitude acquisition. Positive
education in attitude requires positive faculty role models. A convenience sample of 26 nursing students in Australia participated in a pretest -posttest research design offering 60 hours of clinical experience with the disabled (Chenoweth, Pryor, Jeon, & Hall-Pullin, 2004). Attitudes of the nursing students were measured pre and post treatments with the ATDS and SADP scale. The disabilities in this patient mix consisted of chronic medical, emotional, mental, physical, and sensory impairments. The community clinical placements consisted of 20 hours with adults with acquired disabilities, 20 hours in a community-based child with disabilities educational program, and 20 hours in a family based program in the home supporting the disabled of varying ages. Specific goals, journaling, and various other supportive assignments were designed for all three clinical experiences. The results of the means in paired samples t tests identify a difference pre and post intervention (p<.05). Participants changed their attitudes in a positive direction towards the disabled. Researchers provided evidence to support the premise that the attitudes of nursing students toward the disabled may be related to the type of educational preparation received in the clinical setting.

The complexities of attitudes and attitude development affect the behavior and interaction of nurses with the disabled. A quantitative study in New Zealand utilized a two group, pretest- posttest design measuring attitudes of nursing students with the ATDP form B (Seccombe, 2006). The research question explored the inclusion of a significant disability theory unit into the curriculum. This research recruited 219 second and third year nursing students for the sample in this study. There were no statistical mean differences between pretest and posttest, concluding the educational module was not a factor in the attitudes of the sample group towards the disabled. The sample group
demographics were 95% female, ages 17-30, typically found in nursing programs around the world. It is suggested by the researcher that the cultural focus towards the disabled in New Zealand may account for the results. Seccombe suggests nursing curriculum that identifies disability specifics in nursing programs on a global perspective may be beneficial to influence attitude. Additional findings suggest it may be useful to study attitudes over time and utilize disabled professors as primary instructors in nursing specific disability modules offered in schools of nursing. Replication of this study utilizing a different sample may yield different results.

A recent poster presentation in New Zealand displayed an overview of a study to provide insight into the attitudes of nursing undergraduate student's attitudes toward people with intellectual disabilities (Steward, & Sakadalan, 2009). This study focused on individual student characteristics such as prior experiences as well as other demographic factors that may influence student attitudes. A sample of 110 nursing students filled out demographic questionnaires, a community living attitude scale on mental retardation, the Mason ID attitudinal survey, and a balanced inventory of desirable responding form online. The community living attitudes scale is a 17 item scale with four subscales; empowerment, exclusion, sheltering, and similarity (Henry, Keys, Jopp, & Bacalazar, 1996). The Mason ID attitudinal survey is a 43-item scale consisting of six subscales level of knowledge, political correctness, stereotype, paternalism, comfort and discomfort, and perception of culpability and the Balanced Inventory of Desirable Responding is a self-reporting form on individual reported desirability (Stewart, & Sakadakan, 2009). This projected study will determine educational activities in undergraduate nursing programs to foster acceptance and inclusion of people with
intellectual disabilities. This approach will look at fresh factors that may provide insights into the attitudes of nursing students toward this disenfranchised population.

Interdisciplinary learning opportunities for the pre-qualification of medical students and pediatric nursing student’s utilized community based child disability case studies for entry into healthcare education in England (Street, Eaton, Ellis, Hunt, & Emond, 2007). Paired groups of nurse and physician students consisted of 160 students visiting a disabled child in school and at home. Quantitative and qualitative evaluation methods explored the experience and measured attitude in relation to the experience with a tool developed at the site called the Interprofessional Learning (IPL). This tool had been validated in previous studies at the study site, the University of West England, and concurrent validity was established utilizing the Readiness for Interprofessional Learning Scale. Reliability was established with a questionnaire revealing a Chronbach’s alpha coefficient of 0.86 (n =147). Students from both disciplines cited the value of a community setting and independent visits as a positive learning experience. Professional differences were learning points as well as the design approach. Nursing students showed more positive attitudes than medical students did, but both groups had attitudes that are more positive after the experience when compared using ANOVA for the pre score as a covariate. Future studies with different professional student groups may identify areas of collaboration and recognize stereotypical attitudes towards the disabled. The researchers acknowledged the strength of a mixed methodology in knowledge acquisition of the concept of attitudes towards children with disabilities.

There is negligible research that has focused on nursing students that are required to attend both a theory and clinical course in their education on the topic of caring for
children with disabilities. The University of Sydney recruited and randomly assigned 291 second year nursing students to a disability related theory course with a 30 hour clinical component, to assess quantitative and qualitative data to see if attitudes can be changed over time (Johnston, & Dixon, 2006). A researcher open and closed question survey obtained information from student logs of their clinical experiences. The researchers results documented that 61% of the students wrote they would work with children with disabilities and 87% of the students were able to apply theory to practice. Negative feedback from the students consisted of frustration handling behavior issues, lack of skill development, too much responsibility, and poor communication in handling children with disabilities. Behavior management of children with disabilities is an essential topic to include in a course on disabilities.

A qualitative study of emergency room nurses perception in caring for individuals with intellectual disabilities explored the experiences of 23 emergency nurses utilizing case studies resulted in nurses identifying the lack of experience and knowledge dealing with disabled patients (Fischer, Frazer, Hasson, & Orkin, (2007). One vital outcome cited by the researchers in this study was the recognition that nursing knowledge and attitudes concerning this vulnerable population is not well articulated in nursing literature. Designing and implementing curriculum concerning children with disabilities is a challenge for the profession and often the professor.

Children with disabilities are generally thought of as having physical disabilities. A group of developmental disabilities causing significant social, communication, and behavioral issues for children is referred to as the autistic spectrum, affecting one out of every one hundred and ten children in the United States (Centers for Disease Control,
The classification of autistic spectrum disorders as a psychiatric label lends unique complications that may affect the attitude of healthcare professionals. A quasi-experimental pretest-posttest research design was developed to measure Jordanian nursing students' attitudes towards individuals with mental illness and assess if education changed nurses' attitude at the Hashemite University (Hamaideh, & Mudallal, 2009). The Opinion about Mental Illness questionnaire was completed by 193 nursing students. Results interpreted by the researchers revealed the students exhibited a positive attitude towards those with mental illness. A significant statistical difference in attitudes of students who had previous exposure to the mentally ill and those that did not was evident according to descriptive statistics. Conclusions from the researchers of this study suggest that positive attitudes in nurses influences the quality of nursing care rendered to the mentally ill, and these attitudes respond to education. It is significant to realize that children with disabilities can have developmental and intellectual alterations requiring equal attention and educational preparation of healthcare professionals.

**Nurses and Children with Disabilities**

Children with disabilities and their families depend upon professional nurses to be able to case find, screen, care, and make referrals to medical and social resources. More than one-fifth of the households in the United States report caring for at least one disabled child at home (National Survey of Children with Special Health Care Needs, 2005/2006). Children with chronic functional disabilities have a basic right to healthcare by knowledgeable and caring professionals. The practice of nursing is across the lifespan and the landscape; taking place in the home, community, school, and hospital. The American Nurses Association describes responsibilities of the profession to health care
consumers in the Social Policy Statement, which states:

The Nursing Social Policy Statement describes the essence of the profession by incorporating and building upon earlier writings and thinking. This social policy statement serves as a resource to assist nurses in conceptualizing their practice and provides direction to educators, administrators, and researchers. This statement also informs other health professionals, legislators, and other regulators, funding bodies, and the public about nurse’s responsibility, accountability and contribution to health care. The social context of nursing creates the foundation for the understanding the definition of nursing, appreciating the purpose and use of the scope and standards of nursing practice, and valuing the elements of professional, legal, and self regulation. (p.1)

The American with Disabilities Act (ADA) of 1991, amended in 2009, facilitates progress towards influencing societal behaviors towards persons with disabilities while improving access to an array of healthcare services. While a shift in attitudes is not mandated, behaviors can be influenced by legislation. In an effort to meet the needs of children with disabilities, the process must include training and role expectation for nurses.

The perception and experiences of 25 emergency room nurses in caring for disabled individuals revealed three main themes: lack of knowledge and experience, lack of comfort and frustration, in caring for disabled individuals in emergency rooms settings (Fischer, Frazer, Hasson, & Orkin, 2007). Researchers of this qualitative study introduced a disabilities course that measured the knowledge, skills, expectations, specific disability
content, implications for practice and overall satisfaction between hospital and public health nurses. Descriptive data analyzed by researchers concluded the ominous need for a course on disabilities for nurses. Nursing professionals play a critical role in determining the direction and priorities of services to the disabled.

The quality of healthcare services is directly influenced by the attitudes of healthcare professionals towards the disabled (Matziou, Brocalaki, Andrea, Ktenas, Chatira, Galanis, & Kotzabassaki, 2002). The researchers compared the attitudes of practicing nurses and student nurses toward children with disabilities in a convenience sample of 99 nurses employed in pediatrics and 189 nursing students. Researchers reviewed the descriptive data and an analysis of variance concluding that nurses in various roles had poor attitudes toward children with disabilities but practicing clinical nurses scored more positive attitudes scores on the ATDP scale. A better understanding of the complex relationship between healthcare professionals knowledge, attitudes, and behaviors would improve services to the disabled (Godan, Brajkovic, & Godan, 2008).

Most nurses report they receive little or no education in the area of developmental disabilities (Sanders, Kleinert, Free, Slusher, Clevenger, Johnson, & Boyd, 2007). In response to this statement, these researchers assembled a team of nurse practitioners and nursing faculty from three universities to develop virtual instructional modules on children with disabilities. A module on premature infants and toddlers with Down syndrome was piloted at three universities with nursing students. Questionnaires distributed to the nursing students were analyzed by the researchers of this study revealed that the study participants attained a level of comfort and significant knowledge in caring for children with disabilities. Recommendations of the researchers suggest nursing
educators must recognize the need for disability studies as a core competency in undergraduate nursing curriculum.

The attitudes of pediatric nurses towards children with disabilities were presented in a comparative study in the University of Athens (Matziou et al., 2009). The sample consisted of 228-second year nursing students, 90 graduate nursing students, and 123 practicing pediatric nurses, all who were given the ATDP scale to assess attitude. Graduate nurses had significantly more positive attitude scores than second year students or practicing nurses. Second year nursing students had more positive attitude scores than practicing nurses. The researchers of this study documented female students had significantly more positive attitude scores than male counterparts, (F = 9.5, p < 0.002), degrees of freedom not reported. Poor attitude scores for nursing students and nurses can adversely affect the standard of nursing care for children with disabilities. Implications for the nursing profession rests in assuring disability content are present in nursing curricula as a core component of education. Nursing educators need to embrace this concept and redesign nursing curriculum so it is congruent with the current needs of society.

The Americans with Disabilities Act (1990) with amendments (2008) seeks to improve access and services for the disabled, including healthcare. The continued escalation of persons of all ages with disabilities requiring acute and chronic nursing care demands the nursing profession assure the public it serves that future and current practitioners have the knowledge, skills, and attitude to care for these vulnerable populations. Knowledge, skill, and attitude affect the quality of nursing care given to the disabled. Nursing education, practice, leadership and research must insert disability
specific content into nursing curriculum on a national basis (Smeltzer, 2007). The character and chronicity of disease is changing in the United States requiring nurses to contribute to chronic disease management with comprehensible principles and innovations of nursing care based in evidence.

**Nursing Education for Children with Disabilities**

The Health and Human Resources Administration (2001) staff conducted the first national survey initiative coordinated by the National Center for Health Statistics (NCHS) to identify the numbers and types of disabilities in children. Healthy People 2010, the Maternal Child Health Bureau, the March of Dimes, Family Voices, and the American Academy of Pediatrics presented a publication, *The 2010 Express*, to identify an action plan to achieve community based medical, nursing, and rehabilitative services for children with disabilities as a companion to the federal governments Healthy People 2010 initiative. The American Academy of Pediatrics (2009) recognizes that a child with a disability resides in one out of every five households in the United States. Nurses, as health care providers in various environments for children with disabilities, must be both theoretically and clinically competent to care for this vulnerable population. The demand of nursing education continues to be insuperable as research and evidence-based practice initiatives introduce new information on a daily basis. The constant introduction of new content into curricula presents challenges for nursing faculty. Curricula reform is inevitable, yet relevant, as faculty prepare future registered nurses to care for the sick or disabled, prevent complications of disease, and promote creative health care strategies in a cost effective manner. Curricula reform ultimately occurs because of public health mandates, regulations of accreditation bodies, and the insights of the profession itself.
The need for nursing curricula reform has been a common theme in nursing literature for the last few years, but is now becoming an urgent issue. Nursing faculty is challenged to rethink curricula content and design a new paradigm that meets the needs of society. Theory and clinical intensives, specifically in rehabilitation and the nursing care of children, needs to be re-conceptualized utilizing new modalities of education (Giddens, Brady, Brown, & Wright, 2008). Creativity in the syllabus is directly related to creativity in teaching (Fitzpatrick, 2008). Existing nursing literature provides little direction on essential disability content to be included in syllabi for adults and no literature could be identified for children with disabilities within the last decade.

A sample of 234 accredited schools of nursing returned a survey originally sent to 1,000 schools of nursing by researchers to identify details about disability related content in the curriculum (Smeltzer, Dolen, Robinson-Smith & Zimmerman, 2005). These researchers developed a table of 23 disability related topics and requested the schools of nursing rank the frequency of inclusion of these topics anywhere in the curriculum. The results of this study reported that content on children with disabilities were sporadically and rarely addressed in nursing curricula. Teaching strategies included primarily nursing textbooks and the clinical experiences for nursing students were in psychiatric wards, general adult hospital units, and nursing homes. Disability and medical models were the structured teaching design with simulated experiences viewed by faculty with disfavor. The low nursing faculty response rate in this study, 23%, is perhaps reflective of lack of interest for this vital subject. Limitations of this study are sketchy suggesting disability issues are not defined as core nursing curriculum content. Researchers support this
premise based on contextual comments faculty wrote as comments on the questionnaire that identified time constraints, more important information to cover for national boards, and lack of interest as barriers for curricula inclusion of children with disabilities. General questions posed by researchers in this study on the evaluation of effective health promotion efforts for the disabled yielded negative responses and more than half the faculty surveyed reported far too little attention is given to this vital area of care. The researchers of this study propose that the overdue priority of integrating disability content into generic baccalaureate nursing curriculum categorizes nurses as not perceiving the disabled in a positive light, which may promote negative attitudes, leading to inadequate nursing care in the disabled. Factors contributing to negative attitudes in nurses towards the disabled may be related to the lack of exposure to this population during formal education.

Nurse educators find it challenging to prepare students in pediatrics for future nursing practice. Children comprise approximately 25% of the population in the United States and have significant health problems (Satcher, Kaczorowski, & Topa, 2005). Some researchers suggest chronic diseases in children are as high as 30% (Lewis, Robinson & Phelps, 2005). A baccalaureate-nursing program responded to the changing needs in society for children by revising the pediatric curriculum (Smith & Hammer, 2007). The principles of pediatric nursing care were increasingly integrated into all required courses including lab sessions and an enhanced clinical experience in hospitals and community settings. A specific pediatric elective for chronically ill and disabled children was added to the curricula with an overwhelmingly positive response from students. This curricula revision fostered theories of growth and development with
critical thinking skills, promoted health and safety issues, and enhanced communication
skills in a community atmosphere. Children with disabilities present in clinical areas that
service adults, but increasingly service children. Areas of hospitals that care for children
and adults can be the emergency room, operating room, and multiple specialty units.
Registered nurses need pediatric and rehabilitative knowledge and skills regardless of
work environment. It is generally accepted in schools of nursing that 20% of graduates
chose pediatrics as their area of professional practice based on survey data from the
Health Resources and Services Administration (HRSA). A pediatric curriculum requires
a disability component.

Nursing education programs reflect the intent to prepare graduates at beginning
practice levels of competency in a variety of primary, secondary and tertiary clinical
settings. Undergraduate nursing curricula demonstrate an underrepresentation of
specialties that continue to be dominated by medical surgical adult curricula content
(Happell, 2002). Critical curricula evaluation of content in relation to societal nursing
needs is omitted in most nursing programs (Happell, 2002). A greater understanding of
the impact of nursing education on the career choices for future nurses may be a result of
the nursing curricula. A questionnaire was distributed by researchers to 793 nursing
students in Victoria, Australia to determine career choices upon graduation from nursing
school (Happell, 2002). The number one choice was pediatrics in a hospital setting,
supported by the statements that a positive attitude towards children was the predominate
reason for choosing this field. Community health nursing was identified as one of the
least favorite environments for student nursing citing it was boring and slow in pace.
This researcher-recognized technology driven practice arena, the hospital, emerged as the
most popular area of practice. Research characteristics associated with traditional caring practices were less frequently articulated in this study. The privilege of curing over caring was a significant theme nursing students utilize to chose future areas of practice. This statement should be a serious concern for the profession and perhaps best addressed in schools of nursing by faculty. Nursing, as a caring profession, needs to assure society they possess competent, caring, and positive attributes to care for children with disabilities both in the hospital and in the community setting. The profession of nursing defines itself as a caring profession. Transitioning a caring pedagogy into the teaching and learning environment requires faculty and students to be actively engaged and reflective in the classroom (Bankert, & Kozel, 2005). Caring behavior demonstrated by faculty and students is often an elusive and difficult to operationalize. Faculty serves as role models for students. Theoretically, a caring relationship between faculty and students fosters a caring attitude towards patients (Wade, & Kasper, 2006). Caring as a universal need requires continual emphasis nursing courses across the curricula. The lack of literature addressing nursing care and children with disabilities may be a function of faculty attitude.

Faculty Attitudes and Children with Disabilities

The philosophy of a curriculum and the faculty can influence student attitudes to a particular patient group. Faculty awareness of the social construction of disability is reflected in the teaching learning process. Attitudinal barriers are the most recognized impediment for children with disabilities (Rao, 2004). Minimal research has been done in the field of faculty attitude towards students with disabilities. There is no reported research on the attitudes of nursing faculty toward children with disabilities. In general,
attitudes of any faculty are more positive with increased contact with individuals with disabilities (Barr, & Bracchitta, 2008). Disability research has been viewed within a social model perspective, but there are academic implications for faculty. Negative attitudes toward the disabled exist in the adult world, expressed within a wider society, and shape the lives of those with disabilities (Beckett, 2010). Faculty can influence gaps in knowledge concerning people with disabilities by taking a proactive stance when teaching nursing students to care for children with disabilities. Beckett (2010) describes a template for the role of education that addresses knowledge of the disability, examination of disability awareness practices for faculty, and the development of disability pedagogy. Faculty plays a proactive role in disability awareness, which influences the attitudes of students towards children with disabilities.

A survey to assess the attitudes of 198 college professors toward students with learning disorders was conducted in a mid-western university in the United States. The purpose of the study was to determine an association between prior disability-focused training and disability-related attitudes and perceptions among university faculty (Murray, Lombardi, Wren, & Keys, 2009). This researcher-developed tool consisted of questions regarding, fairness, and willingness to invest personally, sensitivity, general disability knowledge, and the provision of accommodations by faculty. The findings of the researchers suggest that the total number or type of disability training experienced by faculty and the amount of time spent engaged in disability activities were indicative or positive faculty attitudes and satisfaction. Implications published by the researchers in this study advocates for a deeper understanding of what, and how faculty attitudes affects the academic performance of students with disabilities in postsecondary settings. The
attitudes of faculty directly affect the attitudes of students.

Nursing faculty can utilize critical pedagogy and disability theory as a framework to support practitioners in their role in caring for children with disabilities (Nevin, Smith, & McNeil, 2008). Critical pedagogy describes and portrays the social context of education as an empowering process to make choices and influence the world (Akbari, 2008). Disability studies, persuaded by the process of empowerment over the past two decades, became a theme for special educators to evolve positive behaviors to plan and support inclusive classrooms (Nevin, Smith, & McNeil, 2008). The key to this framework shifts disabilities from a needs based service to a strengths based service when designing curricula, which is hypothesized to shift attitudes in education towards the positive end of the spectrum. Faculty attitude is one of the most important variables affecting the education of professionals who will care for children with disabilities (Parasuram, 2006).

Three hundred teachers in general, education schools in Mumbai, India consented to be subjects in attitude research utilizing the ATDP scale (Parasuram, 2006). All teachers in the sample had children with disabilities in their classrooms at some point and 12% have a disabled child in their family. Teachers with less than 5 years and more than 25 years of teaching experience had more positive attitude scores. Teachers with bachelor’s and master’s degree in education exhibited more positive attitude scores than those with doctorates. The teachers who had a child with a disability in their immediate family scored the highest for positive attitudes towards the disabled.

In the United States, it is estimated up to 50% of new teachers leave the profession within five years, a major concern to the profession (Smith & Ingersoll, 2004).
One factor that may influence the sustainability of teacher preparation models is the attitudes of teachers toward inclusion of children with disabilities into mainstream classrooms. Researchers designed a study with 117 pre-service teachers enrolled in three universities were surveyed at the beginning and end of a semester revealing teacher attitudes become progressively more negative towards students with disabilities, yet these teachers support the concept of inclusion (Gill, & Sherman, 2009). A social model of disability theory and social learning theory suggests societal climate has a significant impact on the attitudes of teachers (Barnartt, & Altman, 2001). Barnartt and Altman (2001) propose that disability is a relationship between a person with a disability and society, thus a reaction to the barriers that restrains engagement in activities. Barriers can be both physical and attitudinal. The discussion of study results led researchers to suggest that strong mentorship programs and reflective pedagogy may improve the negative attitudes of preservice teachers prior to professional entry. Nursing faculty may also reflect societal views concerning disabilities.

Researchers studied 130 primary school principles to assess their readiness to implement an integrated education practices that include children with disabilities in the Hong Kong school districts (Sharma, & Chow, 2008). A version of the School Principals’ Attitudes Toward Inclusion scale (Bailey, 2004) revealed that principals in smaller schools had more positive attitudes towards children with disabilities. The researchers in this study disclosed that principals who had a family member or a close friend with a child with a disability had a significant positive effect the attitudes of the principals. Educators, regardless of profession, face similar challenges and opportunities. The role of the nurse in schools can influence attitudes of principals and staff.
Pediatric Nurses and Children with Disabilities

Pediatric nurses play a vital role in the care of the pediatric population. The current shortage of pediatric nursing faculty in School of Nursing in the United States can have an adverse affect in the preparation of the next generation of pediatric nurses. The pediatric nursing faculty develops and teaches curriculum content on children with disabilities. Current shortages of nursing faculty have lead to the reduction of pediatric content and clinical experiences designed for students. A study to assess the effects of this shortage was developed by researchers who surveyed 191 deans of nursing programs and 237 pediatric faculty representing 660 schools of nursing (Leonard, Fulkerson, Rose, & Christy, 2008). Over 50% of the dean’s and 70% of the pediatric nursing faculty agreed with the severity of the faculty shortage, with the largest schools reporting major problems. The impact of the pediatric nursing faculty shortage resulted in the elimination of acute clinical experiences, reduction in pediatric didactic content in curricula, and an increase faculty workload leading to faculty retention and recruitment issues. Faculty cite grave concern for the preparation of future nurses in pediatric care, the potential negative impact of pediatric patient care, and the negative impact on pediatric public health. There is no known research that reviews or compares pediatric curricula content in schools of nursing. Pediatric content required for accreditation bodies and national licensing boards that guides nursing curricula content is available from the American Association of Colleges of Nursing (AACN). The lack of provisions for disability studies in nursing curricula is noted with concern although disability content is a topic identified by the AACN (Chenoweth, Pryor, Jeon, & Hall-Pullin, 2004). The quality and role of nurse educator’s may be a significant factor that influences nurses attitude’s suggesting
programs are evaluated to ensure disability awareness is effectively taught in nursing curricula (Johnston, & Dixon, 2006). Nurses embrace a social responsibility to ensure all people have access to healthcare. Consequently, nurse educators are responsible to promote inclusive practices throughout the curricula, challenging stereotypical attitudes of students towards vulnerable groups (Wray, Walker, & Benedict, 2008).

Sometimes the simplest questions are the most important ones to ask. Educators often ask students if they remember what they did last semester. The basic assumption of faculty is that student’s accumulate knowledge over time in nursing school to apply in professional practice. Faculty assumes students can apply knowledge learned into new contexts. The transfer of knowledge was studied by researchers in 265 college students and 45 faculty members focused on attitudes of the participants toward transfer of knowledge and perceived barriers to the transfer of knowledge (Lightner, Benander, & Kramer, 2008). Differences in the two sample groups revealed faculty realize relevance of the material affected knowledge transfer ($t (305) = 4.75, p<0.01$), while students assumed the focus on what the teacher desires was the primary concern ($t (306) = 8.06, p<0.01$). Poor command of the material was a barrier to the continuation of knowledge transfer. Attitude surveys were found to be a simple way to explore how students transfer knowledge. The researchers in this study predict how students transfer knowledge learned in the classroom will be applied to their careers.

**Quality of Health Care**

Rendering quality health care is a goal healthcare professionals strive for on a daily basis. Health care quality is focused on desired outcomes consistent with current professional knowledge that is safe and appropriate. The Institute of Medicine (2001)
published a report, *Crossing the Quality Chasm: a New Health System for the 21st Century*, which states professionals should be educated to deliver patient centered, evidence-based practices. The focus of these authors is to encourage each health care profession to continually assess and improve practice based on evidence identifying existing disparities in healthcare. The nursing profession adapted the Institute of Medicine’s challenge by developing a framework, *Quality and Safety Education for Nurses* (QSEN) which identifies knowledge, skills, and attitudes necessary for nursing practice (Cronenwett, Sherwood, Barnsteiner, Disch, Johnson, Mitchell, Sullivan, & Warren, 2007).

Negative attitudes towards people with developmental and intellectual disabilities have the potential to contribute to poor healthcare outcomes. This premise may be augmented by the lack of knowledge healthcare professionals possess concerning children with disabilities. One hundred and twenty eight medical students completed the Interaction with Disabled Persons Scale (IDP) before and after a three-hour session on developmental disabilities and communication skills taught by a lecturer with a disability (Tracy, & Iacono, 2008). Significant mean differences in attitudes and level of comfort were obtained by the researchers post session (t (127) = -5.07, p < .001). Researchers illustrated that even brief sessions on disability topics have a significant impact on medical students attitudes and may influence their future practice. Practitioners often equate knowledge with enhancing the quality of healthcare.

Healthcare professionals aspire to deliver quality healthcare in their practice. The measurement of quality in healthcare can be illusive, generally reported by complications, patient complaints and satisfaction surveys of patients and
families. Donabedian (1992) created a method to measure quality health care outcomes utilizing questionnaires for rating the perceptions of patient satisfaction with the patient and their families who received the continual medical care. One hundred and twenty one families filled out the Multidimensional Assessment of Parental Satisfaction for Children with Special Needs questionnaire who live with children with disabilities described as complex and requiring continual nursing care. Researchers requested these families to rate the ability of their physicians to be sensitive and knowledgeable about their child's condition (Liptak, Orlando, Yingling, Theurer-Kaufman, Maly, Tompkins, & Finn, 2006). Families rated physicians highest on their ability to keep abreast of new medical knowledge and on their sensitivity to their patients. The lowest ratings described were their lack of community resources, understanding the impact of disability on the family unit, ability to answer questions clearly, and the lack of guidance in preventative healthcare measures. The lowest ratings in the sample were related to the lack of physician knowledge in complementary and alternative healthcare options and the lack of guidance in preventative healthcare measures. Parents were generally dissatisfied with the unmet needs of their child with disabilities related to aspects outside of the traditional medical arena.

Attitudes of medical providers towards individuals with disabilities can affect the quality of care they receive from healthcare professionals. An experimental learning module for pediatric residents in the University of Miami, Jackson Memorial Hospital, required the medical residents to visit homes of families with children who have disabilities (Sharma, Lalinde, & Brosco, 2006). Families were instructed to convey a
primary message to the residents in this required rotation about disabilities that they
deemed as important. A grounded theory approach was designed by researchers to assess
key themes written in a one-page reflection paper requisite for each medical student. The
learning assignment was completed by 63 medical students and involved 24 families that
volunteered to provide a clinical experience for these students that they would not receive
in a hospital setting. The major themes that emerged included medical provider’s
pessimism in caring for children with disabilities. Medical students also reported an
appreciation for the obstacles that families with disabled children face in the healthcare
arena. Patient satisfaction with care influences health behaviors.

The attitudes of health care professionals toward people with disabilities have an
effect on the provision of care. Researchers designed a descriptive study in which 41
nursing students participated in a respite program for children with disabilities (Floyd, &
Webb, 2009). The ATDP questionnaire was administered to this sample to measure the
attitudes of the nursing students before, immediately after, and three months after the
respite experience. Statistically significant positive changes in attitudes were
demonstrated pretest and posttest, but not reflected three months later. Researchers
suggest that the respite experience has an immediate and positive influence on the
student’s attitude. Inclusion of disability content in nursing curriculum can influence the
attitudes of students toward children with disabilities. Parents of children with disabilities
suggest health care professionals are not sensitive to the unique need of these children
thus demonstrating negative attitudes and disrespect. It is essential that healthcare
professionals nurture positive professional relationships with the families of children with
disabilities. The perceptions of families of children with disabilities toward primary care
providers are essential to delivery of quality health care.

The evolving role of community health nurses is integral to sustain quality health care. Researchers in the University of Ulster in Ireland studied the changing role of community health nurses over the last decade since the numbers of children with learning disabilities had significantly increased (Barr, 2006). A survey of 1,559 fifty people of all ages with learning disabilities was conducted by researchers to illicit descriptions of healthy behaviors and the integral role of nursing in this assessment (Barr, 2006). Researchers results stated nurses were less involved with children than with adults with learning disabilities and described the role of nurses as less active and more of a monitoring nature. An important result of this study identified by the researchers was the need for revisions in nursing education to update nurses on the changing role of community health nurses emphasizing health care promotion and prevention particularly for children with disabilities. Continuing education for nurses directly relates to the quality of care rendered to patients. The continuity of nursing care across the continuum of environments is necessary to meet healthcare needs in a social construct (Pontin, & Lewis, 2009).

**Attitudes, Nurses, and Disability**

It is generally acknowledged that disability is viewed within a medical model where a deficit in the individual is in need of scientific examination, diagnosis, and treatment. This assertion lends itself to complexity within human diversity. The history of disability studies describes differences in language, labels, and stereotypes inherent in the word disability. Disability law and rights activists have forged society to view the disabled in a new venue that is both inclusive and progressive. A broader and deeper
understanding of disability is central to acknowledge the linkages between varieties of possible discrimination, hopefully to enhance the possibilities of reconciliation between concepts of disabilities and practices of professionals with a population with disabilities (Ford, 2009). A concerted effort to include children with disabilities in society would be accomplished with teaching faculty about disability studies (Ford, 2009). People with disabilities are often viewed as a diversity of society and humanity.

Nurses view of disability is limited and directly related to their lack of education and experience in working with the disabled (Hahn, 2003). Lack of disability training for health care providers and common health issues associated with disability was addressed during the World Health Organization meetings in 1999. In 2001, a conference convened by the U.S. Surgeon General addressed the health care disparities of individuals with disabilities and the need for relevant current education for healthcare professionals. Health care disparities are documented by researchers in the U.S. Public Health Service report, Closing the gap: a national blueprint for improving the health of individuals with mental retardation (2001). Researchers in this report set the tone for identification of health care disparities in developmental and intellectual disabilities on a national level. The creation of University Centers of Excellence for Developmental Disabilities (UCEDD) supported the evolution of university-based education and research in the field of disability. The Developmental Disability Nursing Association (DDNA) executive board members developed a very broad disability curriculum focused on 13 content areas specific to the nurse’s role in numerous aspects of nursing care for individuals with developmental disabilities in 1998, yet few schools of nursing have implemented specific programs in their undergraduate curriculum. The curriculum focused on life span,
cultural, and person-family centered care for children and adults with disabilities to guide faculty in specific syllabus development. The profession of nursing is ethically and morally obligated to assure competent nurses care for this populace. Creative, visionary, and relevant pedagogy needs to be part of nursing education guiding specific syllabus content in this field. Courses for nurses on children with disabilities should include core content on motor, sensory, language, communication, infection control, and behavior issues. Specific content that requires inclusion is medication, nutrition, gastrointestinal, respiratory, nutritional, and seizure control issues described in relation to medical diagnosis. Nurses should be part of the interdisciplinary teams that treat children with disabilities in a variety of environments. It is imperative to begin education with disability awareness training based on the hypothesis that attitudes towards the disabled are instrumental in behaviors towards the disabled (Brostrand, 2006).

Attitudes about Nursing Disability Education

Reflection has been cited as a method to teach disability education to undergraduate nurses. Faculty employs reflection as an instructional modality to create and clarify meaning in disability education for the student. The potential outcomes of reflection in disability studies were to allow students to own, monitor, and develop lifelong learning skills that formalize a connection between theory and practice (Brookfield, 2009). Disability studies are not separate courses in nursing curriculum; rather disability content is threaded in the curriculum. Assignments of 12 written reflection papers on various aspects of disability were assigned to all students in a new nursing baccalaureate program at the University of Auckland. Researchers found that these students identified themes of fear, loneliness, unpreparedness, and inability to cope
while caring for people with disabilities (Honey, Waterworth, Baker, & Lenzie-Smith, 2006). Follow up longitudinal studies designed by researchers in clinical experiences may confirm reflection as a positive methodology in teaching and learning practices of nursing students caring for people with disabilities. Nursing professors acknowledge that adult learning theory is appropriate for nursing students in a time when there are increased numbers of second-degree students and older students seeking a professional nursing degree. E-learning technologies in education uses adult learning theories that view the professor as a facilitator and assessor of outcomes (Magnussen, 2008). The use of technology in nursing education can expand the capacity and capability of what professors teach and students learn.

Faculty developed advances in simulation and virtual technology offers excellent clinical scenarios to students in a time of limited resources. Technology provides a safe, effective means to expand learning opportunities in a flexible manner for both students and faculty. Researchers conducting a qualitative descriptive study explored attitudes, experiences, teaching practices and perceived barriers for simulation use in 101 university faculties in the United States (Oomen-Early, & Murphy, 2009). Major themes identified by researchers as vital to the use of simulation were institutional support, student readiness, faculty readiness, technical support and academic integrity. Implications for practice emerged as well as a general theme of enhancing the self-actualization of faculty developing web enhanced learning modules. The use of Maslow’s hierarchy of needs theory can address the needs of faculty utilizing technology in their courses. Teaching methodologies using technology is increasing in nursing education requiring the faculty to become expert utilizing technology both in and out of
The University Of California School Of Nursing faculty developed a 6-day web-based disability curriculum for disability education across the lifespan as a pilot study for nurses to assess the effectiveness of this type of learning modality (Hahn & Willis, 2004). Researchers validated cognitive gains in nursing students who participated and this web-based course might fill an historical gap in nursing education worldwide. The use of this course to educate nurses in all undergraduate schools of nursing have not been actualized in the United States, and may speak to the attitudes of faculty as curriculum designers.

Few graduate schools of nursing have identified disability as content in curriculum. Increasing numbers of advanced practice nurses (APN’s) are caring for children and adults with disabilities in the community. A survey of 500 APN’s was analyzed by researchers to determine if they had any disability education, 60% stated they had little or no education in this field (Walsh, Hammerman, Josephson, & Krupka 2000). A team of 24 APN’s has developed a cd-rom on a child with Down’s syndrome since these children were commonly seen in their clinical practice to assist the APN’s in caring for children with Down’s syndrome (Sanders, Kleinwet, Free, & King, 2008). Researchers in this study identified significant gains in the knowledge and comfort level of APN’s caring for children with disabilities.

Simulation as a learning tool continues to emerge in schools of nursing. Researchers on this subject are equally ambivalent about the positive and negative effects of disability related simulations for education (Flower, Mills, & Bottsford-Miller, 2007). The most ominous factor identified by researchers in simulation design poses that unintended interpretations of the simulation may result in misunderstanding of the
experience and may negatively affect viewer attitudes (Burgstahler, & Doe, 2004). Appropriate simulation designed by faculty may demonstrate the environmental or accessibility challenges of the disabled but success has not been studied. Teaching in a learning environment should provide realistic learning outcomes allowing students to bridge a gap between the classroom and practice (Dillard, Sideras, Ryan, Carlton, Lasater, & Siktberg, 2009). Appropriately orchestrated faculty driven disability simulations may be a credible vehicle for disability education.

**Nursing Education and Children with Disabilities**

Increasingly, schools of healthcare professionals in the United States may need to include adequate, consistent, and continuous disability curricula content focused on the unique needs of medically fragile children with developmental and intellectual developmental disabilities in this rapidly increasing population (Smeltzer, Dolen, Robinson-Smith, & Zimmerman, 2005). Disability related content should be supported with clinical experiences in acute care and community care arenas translating nursing knowledge, skills, and attitude into nursing practice for quality outcomes (Johnston & Dixon, 2006). Researchers designed a mixed qualitative and quantitative study consisting of a sample of 397 nursing students in the University of Sidney to assess the impact of disability education gathered from an author-developed tool used for student journal requirements. The convenience two-group sample was assigned either to a disability content course or to a disability clinical experience each lasting 30 hours. Descriptive statistics revealed no difference in the two groups. A majority of the students (87%) reported positively on the application of knowledge and skills learned during disability education. The measurements of attitudes of nursing students toward children
with disabilities are a method to evaluate outcome assessments of student learning in a university based nursing program.

**Higher education, attitudes, and change**

Higher education seeks affective outcomes for sustainability of learning. Education theories in the affective domain address values, attitudes, and behaviors drawing upon relevant experiences and multiple theories (Shephard, 2007). Relevant theoretical underpinnings should influence learner activities. An important question for faculty to ask is how learning outcomes relate to education theory. Curriculum revisions offer faculty an opportunity to embed principles of learning into curriculum seeking sustained learning outcomes across the lifespan. Nursing curricula topics on children with disabilities is such an attempt to move beyond cognitive domains of learning into the affective domains of learning described by Bloom (1956) in the hierarchy of affective learning. Bloom’s hierarchy of affective learning evolves along a continuum of balance and consideration of new knowledge, skills, and attitudes for learners as they evolve their professional behaviors. In order to guide affective learning, specific educational objectives escalate the level of learning and measures learning outcomes. Conventional knowledge-based learning outcomes are no longer sole viable options in higher education. Higher education that assumes responsibility to sustain the student outcomes in knowledge, skills, and attitudes of graduates enables society as a whole to progress towards more sustainable ways of working and living (Chalkley, 2006). Higher education outcomes seek to sustain behaviors because of education. Health education professionals are trained to heal, but training must assure appropriate caring attitudes towards patients (Shephard, 2007). Service learning in community-based environments foster positive
affective learning outcomes. The ability of a health care professional to practice is connected to professional behaviors attained in formal education. Epistemology and contextualization of learning outcomes is an emerging field in education focused on how to sustain affective learning outcomes as a measurement of curriculum outcomes (Shephard, 2007).

Health education in higher education is restructuring in turbulent times. The theoretical and ideological basis for health education, namely the advancement of clinical education of healthcare professionals, transforms because of external forces in the environment. Information and technology changes results from shifting demographics, knowledge, and epidemiology (Kachur, & Krajic, 2006). The globalization of economy, politics, and health policy are critical elements that affect the organizational framework of healthcare education. Teaching processes facilitates the learning vital for professional healthcare roles. Donabedian (1972), a historical expert in quality improvement measures, describes the development of structure, process, and outcomes to improve the quality of performance for healthcare professionals and organizations. The educational component of quality outcomes can be identified as the structure in a university, the process is teaching, and the outcome is a healthcare professional that can perform in a safe, knowledgeable, and ethical manner. Healthcare professional education is challenged to remain current with plethora of knowledge delivered in new instructional methods. Education staples remain the integration of knowledge, skills, and attitudes customized to the profession and based on an ethical framework where healthcare consumers scrutinize healthcare professionals more than ever before. Higher education healthcare faculty is obligated more than ever to involve all stakeholders in a long-term
perspective, and assure curriculum is based on evidence (Kachur, & Krajic, 2006). The measurement of teaching and learning outcomes of healthcare professionals have been based on knowledge and skills, but evidence of attitude requires concrete attention.

Constructivist learning theory is situated within a larger constructivist epistemology that acknowledges multiple social truths, perspectives, and realities in education (Gall, Gall, & Borg, 2007). Constructivism assumes that meaning and values differ for individuals, an essential part of healthcare professional competency. Researchers designed a quasi-experimental study to measure the many variables that affect cultural competency including attitudes before and after an educational component offered to nursing students in a university (Hunter, & Krantz, 2010). The inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals tool (IAPCC-R) was administered in a pretest-posttest control group design to two groups of 76 students. A pretest was administered to determine the equivalence of the groups in the area of attitude, an educational component on disabilities was conducted and a posttest was administered to all students utilizing the same instrument. Chi-squared analyses of the pretest and posttest scores revealed significant changes in competency scores for all aspects of culture including attitudes (Hunter, & Krantz, 2010). The researchers of this study indicated that an educational experience, based in constructivist pedagogy, could positively influence learner competencies. It should be noted that few nursing studies relate education theory to instructional modalities, thus the link between education and research is emerging.

**Challenging disabling attitudes in higher education**

Change is a process over time, not an event. Self-efficacy is a necessary element
nursing students need to change over time. The relationship between education and inequality has been debated in the educational system. The system of education has the potential to rise above the inequalities of society, even reduce the disparities by education (Mills, 2008). The role of the faculty in education systems is to provide equal access to quality education, and responsive to the needs of students regardless of race, gender, sexuality, or disability (Beckett, 2010). Education plays a pivotal role in challenging disableism. If disableism in society can change, the argument would be that the most important role education can play is to challenge and change disabling attitudes. If nurses display disabling attitudes towards patients, then the nursing profession has violated their contract with society. Evidence presented in this chapter discusses negative attitudes of nurses caring for the children with disabilities. Nursing faculty need to include attitude assessment and measurement in educational evaluations as an equally important outcome of nursing education in concert with knowledge and skills. The range of issues known, and not known, related to attitudes of nurses caring for children with disabilities is a path to future research. Exploring how education can assure positive educational outcomes is the core role of any system of education. Theoretical foundations frame the design of education. Maslow’s hierarchy of basic needs is one such theory that can be applied to the education of healthcare professions.

Most scholars present Maslowe’s hierarchy of basic needs as a plain triangle, but much debate the lines of the triangle should be fluid and elaborate (Yadolla- Saeednia, 2010). Maslow’s theory without understanding the relationship between the characteristics of the defined basic needs is not adequate to operationalize the theory. The hierarchy of basic needs theory utilizes primary creativeness as the basis for self-
actualization, and this concept can be a model for education. Creativity and self-actualization are intertwined, both moving the individual to a direction of greater health or fulfillment (Rivero, 2002). It can be postulated that by being self-actualized one becomes more creative, more a whole person. The whole person includes behaviors that are cognitive, emotional, perceptual, or attitudinal in nature (Maslowe, 1970). The focus of self-actualization is on personality, not achievement. Education practices can utilize the hierarchy of needs theory to support learning that promotes creativity and integration of concepts into a learning immersive environment. The creation of a value intensive classroom theoretically embraces an individual’s motivation to learn the skills, knowledge, and attitude to be the best you can be in a chosen field (Rivero, 2002). Nursing faculty can change practice through education by employing pedagogy that supports a creative learning environment and measures learning outcomes.

**Summary**

Research findings presented in this chapter suggest that nurse’s attitudes toward children with disabilities are inconsistent. Few longitudinal studies exist to assess attitudes over time as a core competency of a caring profession. The nursing faculty are responsible to teach and measure nursing student’s knowledge, skills, and attitudes during formal education. Little emphasis has been placed on the measurement of attitudes of nursing students as compared to knowledge and skills assessments. Nursing faculty have rarely been a focal point in nursing research studies, yet faculty has a significant influence on students and attitudes. The complexities and richness of the nursing profession is paralleled by the context in which nurses learn and practice. The profound changes in society will radically transform the profession of nursing and the
roles nurses play in the profession. Nursing faculty are in a position to dramatically improve the quality of nursing education to meet societal needs.

Children with disabilities have been underserved in society as well as in nursing curricula (Wilson, & Merrill, 2002). Research has established that children with disabilities and their families often do not receive adequate health care. The hierarchy of needs theory reinforces the concept that basic skills and knowledge for nurses caring for children with disabilities is a foundation to achieve self-actualization as a professional. Attitude, knowledge, and skills are equally vital educational components for the profession of nursing. Attitudes are learned in a social environment (Godan, Brajkovic, & Godan, 2008). The attitude of nurses has a colossal effect on the patients they serve. Winston Churchill once said, “attitude is a little thing that makes a big difference” (1874-1965).

The aim of this study was to measure the attitudes of nursing students in a baccalaureate-nursing program before and after participation in disabilities education. This experimental research design study will also examine whether a statistical difference in attitudes exists between two groups of nursing students who have completed disability education at specific periods. Attitudes have a profound impact on the delivery of nursing care for children with disabilities (Johnson, & Dixon, 2006).
Chapter 3: Research Method

The purpose of this chapter is to restate the problem and purpose of the study as well as provide a description of the research method design, participants, instruments, operational definition of variables, data collection analysis, assumptions, limitations, delimitations, and ethical assurances.

The purpose of this quantitative study was to evaluate the change in attitude of nursing students toward children with disabilities over specific time intervals before and after disability education, between the experimental and the control group. The numbers of children with disabilities in society are increasing; schools of nursing are obligated to add didactic and clinical experiences for nursing students in the care of children with disabilities. The site for this study is one of the few schools of nursing in the United States that include disability data in curriculum for both adults and children in an undergraduate program. Attitudes were measured utilizing the Attitudes Towards Disabled Persons scale (ATDP-B) which is the most common valid and reliable tool to measure attitudes in research over the last four decades (Yuker, & Block, 1986). Attitude measurements were assessed by this researcher at pretest (time 1), posttest (time 2), and delayed posttest (time 3, follow up) utilizing repeated measures analysis of variance (ANOVA) prior to and after disability education. Participant demographic data were displayed with descriptive statistics.

Attitudes hold significant power relative to classroom outcomes in students (Shippen, Crites, Houchins, Ramsey, & Simon, 2005). Researchers have demonstrated that some undergraduate nursing students hold negative attitudes toward children with
disabilities because of fear, ignorance, cultural, and societal influences (Johnston, & Dixon, 2006). Attitudes of nursing students are directly influenced both by faculty and by curricula content (Johnston, & Dixon, 2006). The attitudes of nursing students may affect their approach to patient care. Research recommends the need for nursing students, specifically in pediatrics, to have educational experiences to promote positive nurse student attitudes when caring for the children with disabilities (Tervo, Palmer, & Redinius, 2004). Modest research measures the attitudes of nursing students at various levels of study in an undergraduate program that includes disability content in the curricula. Results of this research provide additional insights into the attitudes of nurses toward children with disabilities.

This research explored whether the dependent variable of attitudes in nursing students were impacted by the independent variable of exposure to a disability education component focused on children with disabilities. The disability education component was a four-hour component within a required nursing course that presents an overview of developmental and intellectual disabilities commonly seen in children. This researcher is interested in the attitudes of graduating nursing students who will be entering the practice arena in the near future. The attitudes of new graduate nurses can negatively affect the quality of care rendered to patients in various healthcare settings. The focus on attitudes and patient care is at the core of the profession of nursing. Faculty in schools of nursing are obligated to assess student attitude as an outcome of education.

**Research Methods and Design**

An experimental research methodology was the study design. Experimental research provides the most rigorous test of causal hypotheses (Gall, Gall & Borg, 2007).
A pretest posttest two-group study allowed the researcher to measure the difference in the attitudes of nursing students toward children with disabilities at three specific time intervals surrounding disability education. From a group of 99 predicted nursing student participants this researcher randomly assigned 44 participants to a class, which will receive a 4 hour disability education intervention. The education intervention for the experimental group intervention consisted of an overview on children with disabilities in the United States, a case study on a child with cerebral palsy, nursing care requirements, required medical equipment, medications, school services, legal implications, and community resources. The teaching strategies for this disability intervention consisted of lecture, discussion, videos, and multiple web sites. Data were collected during the Spring 2011 semester before, immediately after, and 1 month after an educational intervention. The disability intervention in class was evaluated with a reflection paper. Data were entered online by means of iPads accessing SurveyMonkey (Finley, 2011). This researcher also randomly assigned 44 nursing students to the control group, which does not receive disability education. Randomization in this study assured all participants will have an equal chance of random assignment to either of the two groups. All participants were selected using random sampling to assure that no bias existed in the selection process. Each member of the population had an equal probability of selection in the study. Each student’s name was assigned a number, compiled into one composite list in random order, and entered into the school’s scheduling software. The computer software randomly placed students into their classes. All questionnaires were answered online at the secure website at the university study site to enhance efficient and effective turnaround of data. Institutional review board’s approvals were obtained from
Northcentral University and Long Island University prior to the data collection.

Participants

Participants for this study were recruited from the senior nursing class in one of the largest private urban universities in the United States that has one of the largest and most respected schools of nursing in the United States. Students have a diverse background and vary in age, gender, religious affiliation, ethnicity, and socio economic background. For this study, the sample size of 88 nursing students resulted in a confidence level of .99 with a sampling error of 1%. The sample consisted of two groups of 44 graduating nursing students in an inner city school of nursing based on historical data from prior graduating registered nursing students. Based on an a priori power analysis estimating an effect size of .40, an alpha level of .05, and a power of .9501, 80 participants were sufficient to assess whether attitudes of nursing students are affected by disability education. Participant confidentiality was maintained as well as the right to decline involvement in this study. It is vital for participants to meet the criteria for study inclusion described for this study in the definitions of the variables.

Instruments

Researchers typically use two methods, direct and indirect measurements, to gauge people’s attitudes. Direct measurements include surveys, opinions, rankings, or questionnaires (Alreck, & Settle, 2004). Indirect measurements employ approaches where the subject is not aware they are being observed (Gall, Gall, & Borg, 2007). Yuker (1988) identified factors that contribute to the formation of perceptions towards persons
with disabilities that include frequency of contact, the setting, the behavior, and the
good quality of the contact between the disabled and nondisabled individual that influence
attitudes in the development of the ADTP tools (Yuker, Young, & Block, 1986). Yuker
(1994) states that for the interaction to create positive attitudes the non-disabled person
should

have demographic and personality characteristics similar to those of the disabled
individuals with whom they interact, and should have status that is
equal to the disabled person. The interaction should involve cooperation
and reciprocity, be rewarding to both disabled and nondisabled participants,
result in the participants getting to know one another as individuals, and
persist over time (Yuker, 1994, p.6).

The measurement in this study utilizes direct methods approach measured by the
Attitudes Towards Disabled Persons scale, form B, which is in the public domain. The
ATDP scale has forms A, B, and O. The ATDP scale forms A and O consist of 20
questions while form B has 30 questions and is suitable for the proposed research
(Appendix A).

The Attitudes Towards Disabled Persons scale (ATDP) was designed as a
measure of attitudes towards individuals with disabilities’ (Yuker, Block, & Campbell,
1960). The ATDP form B scale is a thirty question Likert scale that requires individuals
to rate their agreement to each statement using a six point likert type scale that ranges
from +3 (I agree very much) to -3 (I disagree very much). The interpretation of the
scores is based on the perceived similarity or difference of persons with or without
disabilities. The ATDP scales are the most common measurement of attitude in literature
and the most widely utilized tool to measure attitude towards the disabled (Yuker, & Block, 1986). Yuker and Hurley (1987) describes scores on the ATDP have shown acceptable split half reliabilities ranging from .78-.81 with to gauge people’s attitudes alpha estimates ranging from .79-.89. Normative data presented by Yuker and Block summarizes over 200 studies. There is reported evidence that ATDP scale scores show a moderate to high correlation with other measures of attitude towards the disabled such as the Interaction of Disabled Persons Scale. Yuker and Hurley (1987) report validity ranging from .54 to .98. Furthermore, the ATDP-B correlates negatively (-40) with a measure of prejudice and social restrictiveness as described by Yuker, & Hurley (1987). Scores on the ATDP have shown test retest reliability of .84 over five weeks but this estimate decreases to .68 in studies over four months (Yuker, & Hurley, 1987). Scoring of the ATDP form B scale according to Yuker et al (1970), is accomplished by changing the positive signs of each of the 30 item scale after participants have responded and then obtaining an algebraic score. The sign of this sum is then reversed. The ATDP-B 30 question likert scale survey was individually scored utilizing the following instructions: a) change the signs of positively worded items in questions 1, 3, 4, 6, 7, 10, 12, 13, 22, 26, and 28; b) add the responses algebraically; c) change the sign of the resultant; and add a constant of 90 for the final score (Yuker, Block, & Youung, 1970). The ATDP scale form B scores are between 0 and 180, with a score of 120 or above considered a positive attitude. The higher the obtained score the more positive the attitude. Yuker also provides reminders to researchers that if 10% or fewer items are omitted; the completed items are scored as usual with a constant added to eliminate negative values by keeping the value neutral.
The ATDP-B scale identifies factors that may contribute to the formation of perceptions towards disabled persons such as the setting, behavior, frequency, and quality of contact between individuals (Yuker, 1988). The ATDP is an accepted measure of attitudes that has been widely used in the literature (Yuker, & Hurley, 1987). Validity and reliability of this historical tool has been established over the last thirty years, and it is the standard tool to measure attitudes (Klooster, Dannenberg, Taal, Burger, & Rasker, 2009).

The demographic questionnaire was designed for nursing students for this research to gather such data. This research required study participants answer questions requesting age, gender, highest college degree earned, if the participant had taken a course or has had clinical experience caring for children with disabilities (Appendix B). All data in this research was processed and analyzed utilizing descriptive statistics and repeated measures ANOVA. ANOVA is a powerful statistical procedure to evaluate the differences between dependent and multiple independent variables or statistical significance of difference between two or more means (Alreck, & Settle, 2004).

Operational Definition of Variables

The variables for this research study will be attitude, time, and disability education.

Dependent variable.

Attitudes were measured with the ATDP-B scale (Yuker, & Block, 1986). This tool is scored from 0-160 with a score of 120 or above considered positive while a score below 120 represents a less positive attitude. High scores on the ATDP-B scale suggest a more positive attitude toward children with disabilities. The ATDP-B scale is a thirty question interval psychometric scale in which participants respond to questions and have
the choice of six responses to the question. Each response has a positive or negative graded score. The ATDP-B scale is administered three different times: pretest, posttest and a one-month follow up.

**Independent variables.**

In this study, the independent variable was the disability education (experimental vs. control) and time (pretest vs. immediate posttest vs. one-month follow up).

Disability education is a formal component of a required nursing course that is a four-hour seminar on children with disabilities in the fourth semester of nursing education.

**Data Collection, Processing, and Analysis**

Recruitment procedures consisted of a letter about the study posted on the school of nursing website. Participants were recruited from the undergraduate senior level group of nursing students. A link was provided on the site directing participants to an online survey developed using Survey Monkey. Data collected online remained secure and accessible online only to the researcher by password protection for the duration of data collection. Participants accessed the password protected online survey, viewed a brief description of the study, and were directed to a second page that explains participants rights and informed consent (Appendix C). Participants were told that they will be answering questions regarding their thoughts, feelings, and behaviors toward persons with disabilities. After reviewing the consent form, participants marked a check box to indicate that they had read the consent statement and would like to take the survey. Consent data was saved in a file (Appendix E). Those who wished to withdraw from participating could mark a check box that then exits them from the survey. Individuals who consented to participate were prompted at the end of each subsequent survey page to
proceed until the end. Participants could decide to withdraw from participation at any point during the survey and all cases with incomplete data will be excluded from analysis.

Data will be transferred and coded to this researcher’s personal computer for analysis and permanently deleted from the Survey Monkey server. The web link will remain active for a three-month period. This researcher assured the participants had access to the 30-item ATDP-B scale as a pretest (semester start), immediate posttest (week 7 of a typical semester), and in one month (week 11 of a 14 week semester) after disability education to both design. Participants provided data anonymously and no identifying information besides basic demographics (i.e., sex, age, prior earned college degrees, prior disability education, and prior experience caring for a child with disabilities) will be required. The average time to complete the full survey was 15-20 minutes. Data collection was completed within three months.

Methodological considerations that include randomization enhance the validity of experimental research designs. The validity of any experiment is a direct function of the degree of control of the internal and external variables (Gall, Gall, & Borg, 2007). Randomization is the best control for extraneous variables and creates equivalent groups. Participants had an equal probability of selection in the study. Each participant’s name was assigned a number, compiled into one composite list in random order, and entered into the school’s scheduling software. The computer software randomly placed students into their classes, and the sample number of participants for each group was 44. All nursing students in the fourth year were invited to participate in the study. Threats to internal validity were assessed and incorporated into this research design. Directions
were clear, concise, and repeated in the participant instructions. Instrumentation and treatment were clearly defined to avoid confusion, maturation, or attrition. Three principles to strengthen internal validity in experimental designs are: (a) identification and study of plausible threats; (b) design controls that limit threats and; (c) specific hypotheses that limit the number of variables (Shadish, 2002). Randomization controls for alternate explanations between the variables, or when the dependent variable is expected not to change because of the manipulation but because of the threats to internal validity (Shadish, 2002).

The ATDP-B scale and demographic questionnaires for each participant were coded for proper analysis. Two postings online reminded participants who agreed to begin this study to access the site to complete the surveys at the specific periods. Once the samples of 44 in each group were obtained after informed consent, the data was evaluated with inferential statistics. Attitude measured by the ATDP-B was assessed at pretest (time 1), posttest (time 2), and delayed posttest (time 3, one month follow up) utilizing repeated measures ANOVA prior to and after a four hour session in disability education. It was vital for this researcher to assure the ATDP-B was administered at the correct times and specific attention was paid to the period when the disabilities education component is offered to the students. This researcher was assisted in the web designs by the faculty research support department of the university. Every three days this researcher accessed the response rate in addition to daily checks. A software package, SAS 9.2, analyzed the repeated measures ANOVA SAS PROC GLM. Repeated measures ANOVA was utilized because all participants in the randomized samples had attitudes measured with ATDP-B under different conditions necessitating the evaluation of the
equality of means data. A sample exposed to different conditions requires the measurement of the dependent variable to be repeated (Fields, & Miles, 2010). The repeated ANOVA assumption of independence requires correlations between the data resulting in repeated measures, whereas a standard ANOVA violates the assumption of independence of the dependent variable (Introduction to SAS, 2007). Researchers at the University of California in Los Angeles (UCLA) agreed that some hypotheses require repeated measures, such as longitudinal research, where it is likely that there is a great deal of variation between sample participants and error variance estimates from standard ANOVAs are large (Introduction to SAS, 2007). Repeated measures ANOVA reduces error variance thus making statistical results more precise. It can be difficult to recruit participants for repeated ANOVA designs because it is essential to obtain measurements under all conditions, but there is an economical benefit to the research budget that can be achieved as well.

In this study, matched sets of sample members were generated, with each set having the same number of members (i.e., 44 participants in the control group and 44 participants in the experimental group) and one group was exposed to disability education while one was not, therefore sample members were matched according to important characteristics such as being a senior nursing student. The measurement of attitude changes over time and over exposure to a disability module in matched sample are considered to be treated like repeated measures in a repeated measure ANOVA. The use of ANOVA GLM allows for the examination of more than one independent variable showing the effects separately or the interacting effects of multiple variables (Howell, 2004). Results were displayed utilizing various tables and graphs.
The demographics questionnaire requested from all participants the following data: (a) age; (b) gender; (c) highest earned degree; (d) attendance at a formal education program for children with disabilities; and (e) clinical experiences with children with disabilities. All the results from this research were displayed in appropriate tables and graphs.

Methodological Assumptions, Limitations, and Delimitations

The methodological design of this quantitative study is to determine the differences among the variables in the participant groups. Assumptions in this study presume participants answered survey questions in an honest and timely fashion. This researcher analyzed data impartially and relevant to the study. It was anticipated that the implication of studying attitudes in nursing students towards children with disabilities will assist the nursing profession in surveying attitudes more frequently and including disability content into all existing nursing courses. It is also assumed that the importance of this research will positively affect nurses in same way regardless of title or position. All data from this study is accurate, authentic, and clearly stated allowing for replication of this study.

The limitations of this study may include: (a) randomization did not include any demographic data; (b) students may have done the surveys quickly because of the strains of an upcoming graduation; (c) students may have difficulty remembering school experiences over time; (d) students may want to rate themselves more positive for desirability factors; (e) participants may experience fatigue or disruption when answering survey questions; and (f) students may elect not to participate in this type of study.

The possible delimitations of this study may include: (a) entry-level nursing
students may have prior experience caring for children with disabilities; (b) seniors who are graduating were asked to participate in this study; (c) knowledge, skills, and attitudes toward children with disabilities were threads throughout the nursing program in a variety of didactic and clinical courses; (d) a specific course on disabilities was not offered at the university; (e) variations in clinical experiences may exist between students; and (f) the study relies upon voluntary participation to assess nurses attitudes toward children with disabilities.

**Ethical Assurances**

The Belmont Report (United States, 1979) guides the ethical principles for all research activities involving human subjects citing conduct involving the principles of respect for persons, beneficence, and justice. The design, conduct, and reporting of research may raise ethical concerns. Quantitative studies are guided by positivist epistemology (Gall, Gall, & Borg, 2007). This type of research often creates a detachment between the researcher and the research participants. This research could have ethical concerns based on privacy, confidentiality, informed consent, respect, and the use of the internet. Participants were anonymous; codes were used for data collection and analysis. It is feasible to assure participants rights are protected and they are free from harm. This experimental research design assures no harm and privacy for participants. A key ethical provision of research is that participation is voluntary and there is informed consent. The Investigation Review Boards (IRB) assists researchers in meeting ethical requirements for research and serve as a consulting body to the researcher. This researcher adhered to all ethical considerations in conducting this study and received IRB approvals from both Northcentral and Long Island Universities prior to
Summary

This chapter presents the research problem, purpose of the study, research questions, and hypotheses including the design, method, and statistics for data analysis. Ethical assurances and IRB approvals will be assessed in relation to this study. Attitudes of senior nursing students will be measured utilizing the ATDP-B scale at pretest (time 1), posttest (time 2), and delayed posttest (time 3, one month follow up) utilizing repeated measures ANOVA prior to and after disability education. The attitudes of nurses toward children with disabilities have not been a significant research focus in the United States as evidenced by the few publications in this venerable group. Nurses need to display appropriate attitudes and behavior toward children with disabilities. Negative attitudes can be a barrier to quality health care and rehabilitation. Disability awareness improves relationships with healthcare providers, increases communication, avoids delays in treatment, and assists in resource referrals and management realizing that nurses attitudes toward children with disabilities is of the utmost importance (Mantziou et.al, 2002).
Chapter 4: Findings

The purpose of this quantitative study was to evaluate the change in attitudes of nursing students toward children with disabilities over specified time intervals before, immediately after a disability education intervention, and one month after the disability intervention. The study was experimental in design, with random assignment of participants to an experimental group \(N=44\) and a control group \(N=44\). Participants included 88 senior-level nursing students in the school of nursing in one of the largest private urban universities in the United States. The disability intervention consisted of a 4-hour class mid-semester or week 7 in Spring 2011. The intervention consisted of an overview on children with disabilities in the United States, a case study on a child with cerebral palsy, nursing care requirements, required medical equipment, medications, school services, legal implications, and community resources. The teaching strategies for this disability intervention consisted of lecture, discussion, videos, and multiple web sites. Data were collected during the Spring 2011 semester before, immediately after, and 1 month after an educational intervention. The disability intervention in class was evaluated with a reflection paper. The independent variables were the time of test (pretest, posttest, and follow-up) and the group assignment (experimental vs. control). The dependent variables were the attitudes to disability, as measured by the Attitudes Towards Disabled Persons (ATDP-B) scale (Yuker, Block, & Younng, 1970; see Appendix A) at pretest, posttest, and follow-up. This chapter contains the results of this research, followed by an evaluation of the findings, and a summary.
Results

A total of 88 students participated in this research. Eighty-one (92.0%) were female, including 42 in the experimental group and 39 in the treatment group. Inferential tests were not included on gender since the male subgroup in each treatment was very small and descriptively would not yield informative information.

Twenty-seven (30.7%) had a bachelor’s degree, in disciplines including psychology, biology, computer science, and health education. No participants had a postgraduate degree.

A total of 22 participants (25.0%) had prior formal education in caring for children with disabilities, including 10 in the experimental group and 12 in the control group. A total of 40 participants (45.4%) had prior clinical experience caring for children with disabilities, including 17 in the experimental group and 23 in the control group. Sixty-nine participants (78.4%) were between 20 and 29 years of age, 15 (17.0%) were between 30 and 39, and 4 (4.5%) were between 40 and 49. Participants were randomly assigned but not matched on age, gender, or any other characteristics. Mean ages of participants are presented in Table 1.

Table 1

Mean Age Distributions, All Participants

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>M (SD)</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>44</td>
<td>26.2 (4.0)</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td>Control group</td>
<td>44</td>
<td>27.7 (5.7)</td>
<td>21</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>88</td>
<td>26.9 (5.0)</td>
<td>21</td>
<td>45</td>
</tr>
</tbody>
</table>

Note. N = 88.
Following is the research question addressed in this study.

Q1. Was there a difference in the change in the attitudes toward children with disabilities across time (pretest, posttest, and 1-month follow-up), as measured by the ATDP-B (Yuker et al., 1970; see Appendix A), among nursing students who received disability education as part of a required course, as compared to nursing students who did not receive the disability education?

H1a. There was a difference in the change in the attitudes toward children with disabilities across time (pretest, posttest, and 1-month follow-up), as measured by the ATDP-B (Yuker et al., 1970; see Appendix A), among nursing students who received disability education as part of a required course, as compared to nursing students who did not receive the disability education.

H1b. There was no difference in the change in the attitudes toward children with disabilities across time (pretest, posttest, and 1-month follow-up), as measured by the ATDP-B (Yuker et al., 1970; see Appendix A), among nursing students who received disability education as part of a required course, as compared to nursing students who did not receive the disability education.

Data were gathered from the 88 participants at pretest (time 1, week 1 in the semester), immediate posttest (time 2, week 7 in the semester) after an educational intervention, and delayed posttest (time 3, week 11 in the semester) one month later. Possible scores range from 90 (lowest) to 180 (highest), with scores of 120 or above suggesting a more positive attitude of an individual toward persons with disabilities. The
higher the ATDP-B score above 120 the more positive the attitude of the participant becomes. Mean scores were computed for the experimental and control groups for each time point of evaluation (pretest, posttest, and follow-up). Figure 1 shows the mean scores across all measures. Table 2, 3 shows the means scores on the ATDP-B based on whether the participants received formal education in caring for a child with disabilities. Table 4, 5 shows the mean scores on the ATDP-B based on whether the participants had clinical experience in caring for a child with disabilities.

Figure 1
Mean Scores, Attitude Towards Disabled Persons Scale, Form B (ATDP-B)

Note N=88

Mean scores increased in the experimental group after the education intervention, but dropped at follow-up. However, follow-up mean scores remained higher in the follow up as compared to the pretest.
Table 2

Mean ATDP-B Scores for Control Participants With and Without Formal Education

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M (SD) [Minimum, maximum]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal education</td>
<td>23</td>
<td>116.87 (14.90) [83, 137]</td>
<td>110.17 (13.01) [86, 132]</td>
<td>112.30 (13.54) [89, 143]</td>
</tr>
<tr>
<td>No formal</td>
<td>21</td>
<td>110.43 (20.86) [77, 145]</td>
<td>107.86 (23.73) [76, 146]</td>
<td>110.62 (15.25) [87, 144]</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>113.80 (18.07) [77, 145]</td>
<td>109.07 (18.70) [76, 146]</td>
<td>111.50 (14.23) [87, 144]</td>
</tr>
</tbody>
</table>

Note: aFormal education in caring for children with disabilities.

Table 3.

Mean ATDP-B Scores for Experimental Participants With and Without Formal Education

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M (SD) [Minimum, maximum]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal education</td>
<td>17</td>
<td>111.24 (19.84) [75, 139]</td>
<td>146.65 (17.93) [116, 182]</td>
<td>128.12 (19.84) [92, 160]</td>
</tr>
<tr>
<td>No formal</td>
<td>27</td>
<td>112.11 (19.78) [77, 143]</td>
<td>143.85 (13.03) [122, 170]</td>
<td>128.89 (18.11) [90, 162]</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>111.77 (19.57) [75, 143]</td>
<td>144.93 (14.97) [116, 182]</td>
<td>128.59 (18.57) [90, 162]</td>
</tr>
</tbody>
</table>

Note: aFormal education in caring for children with disabilities.

The mean scores in the experimental group increased posttest and remained higher than pretest for the follow up regardless of prior formal education participants received.
concerning children with disabilities. This effect was not seen in the control group. In fact, pretest, posttest, and follow-up tended to show similar mean scores regardless of formal education.

Table 4

Mean ATDP-B Scores for Control Participants With and Without Clinical Experience$^a$

<table>
<thead>
<tr>
<th>$M(SD)$ [Minimum, maximum]</th>
<th>$N$</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical experience</td>
<td>12</td>
<td>114.67 (18.70) [83, 137]</td>
<td>111.17 (13.09) [88, 132]</td>
<td>116.75 (14.16) [89, 160]</td>
</tr>
<tr>
<td>No clinical experience</td>
<td>32</td>
<td>113.47 (18.12) [77, 145]</td>
<td>108.28 (20.55) [76, 146]</td>
<td>109.53 (13.97) [87, 144]</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>113.80 (18.07) [77, 145]</td>
<td>109.07 (18.70) [76, 146]</td>
<td>111.50 (14.23) [87, 144]</td>
</tr>
</tbody>
</table>

Note. $^a$Clinical experience in caring for children with disabilities.

Table 5.

Mean ATDP-B Scores for Experimental Participants With and Without Clinical Experience$^a$

<table>
<thead>
<tr>
<th>$M(SD)$ [Minimum, maximum]</th>
<th>$N$</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical experience</td>
<td>10</td>
<td>104.30 (20.83) [75, 139]</td>
<td>145.70 (21.82) [116, 182]</td>
<td>122.50 (16.22) [99, 142]</td>
</tr>
<tr>
<td>No clinical experience</td>
<td>34</td>
<td>113.97 (18.95) [77, 143]</td>
<td>144.71 (12.72) [122, 170]</td>
<td>130.38 (19.05) [90, 162]</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>111.77 (19.57) [75, 143]</td>
<td>144.93 (14.97) [116, 182]</td>
<td>128.59 (18.57) [90, 162]</td>
</tr>
</tbody>
</table>

Note. $^a$Clinical experience in caring for children with disabilities.
The mean scores in the experimental group increased posttest and remained higher than pretest for the follow-up measurement regardless of prior clinical experiences participants received concerning children with disabilities. However, those experimental students without clinical experience showed slightly higher mean scores at pretest and follow-up than those experimental students with clinical experience. Mean ATDP-B scores were very close at the posttest measurement for students with and without clinical experience. This effect was not seen in the control group. The mean ATDP-B scores between control students with and without clinical experience remained consistent with the greatest difference being at follow-up (in favor of control students with clinical experience). It should be noted that there tends to be considerably less people (in either control or experimental groups) with clinical experience.

Table 6

Mean ATDP-B Scores for Control Participants With and Without a Bachelors Degree

<table>
<thead>
<tr>
<th></th>
<th>$M (SD)$ [Minimum, maximum]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$N$</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>[81, 145]</td>
</tr>
<tr>
<td>No Bachelors Degree</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>[77, 133]</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>[77, 145]</td>
</tr>
</tbody>
</table>

Note. *Participants with or without a Bachelors degree
Table 7

*Mean ATDP-B Scores for Experimental Participants With and Without a Bachelors Degree*

<table>
<thead>
<tr>
<th></th>
<th>M (SD) [Minimum, maximum]</th>
<th>N</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors</td>
<td></td>
<td>9</td>
<td>111.67 (18.63)</td>
<td>146.11 (13.90)</td>
<td>134.00 (18.08)</td>
</tr>
<tr>
<td>Degree</td>
<td></td>
<td></td>
<td>[83, 138]</td>
<td>[122, 170]</td>
<td>[110, 159]</td>
</tr>
<tr>
<td>No Bachelors</td>
<td></td>
<td>35</td>
<td>111.80 (20.07)</td>
<td>144.63 (15.41)</td>
<td>127.20 (18.70)</td>
</tr>
<tr>
<td>Degree</td>
<td></td>
<td></td>
<td>[75, 143]</td>
<td>[116, 182]</td>
<td>[90, 162]</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>44</td>
<td>111.77 (19.57)</td>
<td>144.93 (14.97)</td>
<td>128.59 (18.57)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>[75, 143]</td>
<td>[116, 182]</td>
<td>[90, 162]</td>
</tr>
</tbody>
</table>

*Note.* *Participants with or without a Bachelors degree.*

The mean scores in the experimental group increased for the posttest in participants who had a previous non-nursing Bachelor’s degree. As in the previous tables, the mean ADTP-B scores for follow-up dropped compared to the posttest, but remained higher than the pretest mean scores. The mean ADTP-B scores for pretest and posttest were very close regardless of having or not having a Bachelors degree. The greatest difference in mean ATDP-B scores exists for the follow-up measurement (in favor of experimental students with a Bachelors degree). Overall, the number of experimental students that hold a Bachelors degree is considerably lower than experimental students without a Bachelors degree. The mean ATDP-B scores for the control students were higher for those with a Bachelors degree. The highest mean ATDP-B scores were at pretest particularly control students that hold a Bachelors degree. Control students with a Bachelors degree dropped
at posttest and increased slightly at follow-up. On the other hand, control students without a Bachelors degree tended to remain consistent throughout the ATDP-B measurements.

Data were examined for assumptions of multivariate normality, homogeneity of covariance matrices, data independence, and sphericity. The assumption of homogeneity of covariance matrices required a univariate analysis because sphericity was violated since the variances for each set of difference scores were not equal. Violations of the sphericity assumption invalidated the analysis conclusions in repeated-measures ANOVA (Elliot, & Woodward, 2010). Mauchly’s sphericity test was used to evaluate the data. Variances across ATDP-B measures were unequal, Mauchly’s criterion = .68, $\chi^2 (2, N = 88) = 32.25, p < .0001$, indicates that the sphericity assumption was not met. A multivariate approach was therefore used to analyze the data.

Pearson’s correlation coefficients were computed to determine the intercorrelations of pretest, posttest, and 1-month follow-up scores. All repeated measures were significantly correlated and not independent. Table 8 shows the intercorrelations of test scores for the ATDP-B.

Table 8

<table>
<thead>
<tr>
<th>Test time point</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>.41 (p &lt; .0001)</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>
A repeated-measures analysis of variance (ANOVA), with a general linear model, was computed to determine the within-group main effect. The within-group*between-groups interaction effect, and the between-groups main effect for the ATDP-B across all factors is displayed on Table 9.

Table 9
Least Square Means for Pretest, Posttest, and Follow-up, Experimental Versus Control Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>111.77</td>
<td>144.93</td>
<td>128.59</td>
</tr>
<tr>
<td>Control group</td>
<td>113.80</td>
<td>109.07</td>
<td>111.50</td>
</tr>
</tbody>
</table>

Note. N = 88.

Table 9 shows the results of the least square means across the different administrations of the ATDP-B. The mean ATDP-B scores for the experimental increase from pretest to posttest and drop some at follow-up. Conversely, the ATDP-B scores for the control scores remain fairly consistent across ATDP-B administrations.

The within-group main effect of time on ATDP-B scores was significant, Wilks’ lambda = 0.60, Pillai’s trace = 0.40, $F(2, 85) = 28.59, p < .0001$ (see Table 10). The between-group main effect of experimental versus control group was significant, $F(1, 86) = 32.53, p < .0001$ (see Table 11). The ATDP-B*group interaction effect was significant, Wilks’ lambda = 0.45, Pillai’s trace = 0.55, $F(2, 85) = 51.15, p < .0001$ (see Table 12).
As mentioned previously, ATDP-B scores rose significantly at posttest for the experimental group but did not rise for the control group. At follow up, ATDP-B scores declined slightly from posttest but remained significantly higher than all scores for the control group.

Table 10

Repeated Measures ANOVA for the ATDP-B Main Effect and ATDP*Group Interaction

<table>
<thead>
<tr>
<th>Effect</th>
<th>Source</th>
<th>df</th>
<th>Wilks’ lambda</th>
<th>Pillai’s trace</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDP-B (pretest, posttest, follow-up)</td>
<td>(2, 85)</td>
<td>0.60</td>
<td>0.40</td>
<td>28.59</td>
<td>p &lt; .0001</td>
<td></td>
</tr>
<tr>
<td>ATDP-B * group</td>
<td>(2, 85)</td>
<td>0.45</td>
<td>0.55</td>
<td>51.15</td>
<td>p &lt; .0001</td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 88.

Table 11

Repeated Measures ANOVA for the Group Main Effect

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Type III sum of squares</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (experimental, control)</td>
<td>(1, 86)</td>
<td>19023.0</td>
<td>32.53</td>
<td>p &lt; .0001</td>
</tr>
</tbody>
</table>

Note. N = 88
Table 12.

*Repeated-Measures ANOVA, Univariate Tests for Time Main Effect on Dependent Variable, General Linear Model*

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean Square</th>
<th>df</th>
<th>F</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATDP-B</td>
<td>4446.7</td>
<td>(2, 172)</td>
<td>26.89</td>
<td><em>p &lt; .0001</em></td>
</tr>
<tr>
<td>ATDP-B*group</td>
<td>7894.8</td>
<td>(2, 172)</td>
<td>47.74</td>
<td><em>p &lt; .0001</em></td>
</tr>
</tbody>
</table>

*Note.* N = 88.

The Greenhouse-Geiser epsilon (ε) and the Huynh-Feldt epsilon (ε) are univariate tests that correct for violations of sphericity. The Greenhouse-Geiser epsilon was significant, $\varepsilon = .82, p < .0001$, and the Huynh-Feldt epsilon was significant, $\varepsilon = .85, p < .0001$. The results of the multivariate analysis were confirmed. The null hypothesis $H_{10}$ was rejected.

**Evaluation of Findings**

The findings of this research showed a significant change in the attitudes of nursing students toward children with disabilities after an educational intervention. The null hypothesis was rejected. Human behavior affects attitudes and attitudes are learned in a social environment (Ugdah, 2008). The model of the relationship between human behavior and attitudes is increasingly being used to improve the quality of work in all fields (Aggarwal, & Bhargava, 2009). The attitudes of healthcare professionals are affected by the education they receive; both education and attitude may directly affect the quality of patient care.
Maslow’s (1971) understanding of human motivation has had an important influence in the fields of nursing and allied health. The art and science of nursing education molds the attitudes, intellectual competencies, and caring capacities of nurses to help the ill and the disabled (Abdellah, & Levine, 1994). In the literature on higher education, Maslow’s theory is often cited as a framework to guide student learning in patient assessment, prioritization, delegation, and treatment of patients (Harvath, 2009). Nurses apply the hierarchy-of-needs concept to understand the motivations and attitudes behind individual human behavior. The depth of knowledge, skills, and attitudes serve as the foundation for improvements in healthcare rendered (Kroth, 2007). The syntheses of educational theory with the necessary integration of key knowledge, skills, and attitudes can positively affect the attitudes of nurses caring for children with disabilities. Change can be a result of well-planned education designed in the interests of the patients under nurses care.

The results of the repeated measures ANOVA maximizes the differences between the experimental and control groups when $F$ is statistically significant thus attributing the effect of variances to the educational treatment (Elliot, & Woodward, 2010). The results of the multivariate tests for interaction effect of the ATDP-B illustrate that attitudes change over time and after an educational intervention on disabilities. The univariate tests agree with the multivariate approach for within-subject and between subjects effects of the education intervention. The intervention utilized in this study has resulted in significant results. The literature review on educational interventions rarely describes any detail in the educational components on disabilities. The designed syllabus for this study utilized a conceptual approach of a child with cerebral palsy that was imbedded in the
nursing process of subject and objective knowledge, assessment, interventions, and evaluations specific to neurological diseases. The 4-hour module included a global overview of children with disabilities, resources, and referrals for nurses to teach to their patients. This intervention was interactive and augmented with technology that included video clips and websites. It is vital to understand the approach was not medical in nature but taught from a nursing care perspective. The one page reflection papers allowed student to think deeper about children with disabilities and alone could be a basis for further research.

This research was the first study for the attitudes of nurses towards children with disabilities in the United States with a pure experimental design, and a well described 4-hour module that encompassed a well-designed education intervention and specific learning strategies administered to the treatment group. Experimental research designs are recognized as the most appropriate method for drawing causal conclusions about instructional interventions (Gall, Gall, & Borg, 2007). Additionally, data for this study were analyzed with SAS, a statistical software package capable of providing powerful predictive analytics, syntax based, and commonly used outside the academic world making the user more marketable in the arena of statistical analyses (Wuensch, 2010).

**Summary**

The purpose of this quantitative experimental study was to evaluate the change in attitudes of nursing students toward children with disabilities over specified time intervals pretest, immediately posttest after an educational intervention on disabilities, and in one month follow-up after a disability education intervention. A total of 88 participants were randomly assigned to an experimental group and a control group.
Participants completed the ATDP-B at pretest, posttest, and 1-month follow up. The findings of this study showed that the attitudes of nurses toward children with disabilities were significantly more positive after an educational intervention, $p < .0001$. The null hypothesis $H_{10}$ was rejected; the $H_{1a}$ was accepted. This completed research was the only experimental design measuring attitudes of nurses toward children with disabilities in the United States utilizing repeated measures ANOVA. The statistically significant results of this research support the importance of disability education intervention for nursing students prior to licensure for practice. There are direct implications for nursing faculty to review and include into curricula disability education.
Chapter 5: Implications, Recommendations, and Conclusions

Teacher attitudes have a strong influence on classroom outcomes in students (Shippen et. al, 2005). Some undergraduate nursing students hold negative attitudes toward children with disabilities because of fear, ignorance, cultural, influences, and societal influences (Johnston, & Dixon, 2006). Negative attitudes toward children with disabilities have the potential to contribute to poor healthcare outcomes for this group (Mantziou et. al., 2002). Both faculty members and curriculum content have direct influences over the attitudes of nursing students (Johnston, & Dixon, 2006). Most nurses report they receive little or no education in the area of developmental disabilities (Sanders et. al., 2007).

The purpose of this quantitative study was to evaluate the change in attitudes of nursing students toward children with disabilities over specified time intervals before, immediately after and one month after a disability education intervention. The study was experimental in design, with random assignment of 44 participants to an experimental group and an equal number of participants to a control group. The intervention consisted of a 4 hours of disability education module as an intervention. Participants completed the Attitude Towards Disabled Persons (Form B) scale (ATDP-B; Yuker et al., 1970; see Appendix A) at pretest, posttest, and 1-month follow up. Repeated-measures analysis of variance (ANOVA) was conducted, using a general linear model, to evaluate within-group and between-groups differences. The design of this study resulted in statistically significant findings with implications specific to nursing curricula.
**Limitations.** There were several limitations to this study with disabilities. Students may have completed the posttest and follow-up surveys quickly because of the strains of an upcoming graduation. Students may have had difficulty remembering school experiences over time. There may have been a social desirability bias, in that students may have answered questions in ways that made their answers appear more desirable. Participants may have experienced fatigue or disruption when answering the survey questions.

**Ethical considerations.** This study was designed to encompass the confidentiality, privacy, and anonymity of all participants as defined in the Belmont report (1974). Informed consent was obtained for each participant and the questionnaires were kept on a private computer with security codes. It was important not to withhold valuable information from nurses who were soon to be licensed. Therefore, all participants were given equal access to the information provided to the experimental group; in the form of web-based courses provided after the posttest follow up and follow up period. These web-based courses were identical in content to the courses given to the experimental group. The remainder of this chapter is a discussion of the implications, recommendations, and conclusions related to this research. Results will be shared with participants who have requested it by email.

**Implications**

There was one research question presented in this study, together with associated null and alternative hypotheses:

**Q1.** Was there a difference in the change in the attitudes toward children with disabilities across time (pretest, posttest, and 1 month follow up), as measured by the ATDP-
B (Yuker et al., 1970; see Appendix A), among nursing students who received
disability education as part of a required course, as compared to nursing students
who did not receive the disability education?

**H10.** There was no difference in the change in the attitudes toward children with
disabilities across time (pretest, posttest, and 1 month follow up), as
measured by the ATDP-B (Yuker et al., 1970; see Appendix A), among
nursing students who received disability education as part of a required
course, as compared to nursing students who did not receive the disability
education.

**H1a.** There was a difference in the change in the attitudes toward children with
disabilities across time (pretest, posttest, and 1 month follow up), as
measured by the ATDP-B (Yuker et al., 1970; see Appendix A), among
nursing students who received disability education as part of a required
course, as compared to nursing students who did not receive the disability
education.

The within-group main effect of time on ATDP-B scores was significant, $F(2, 85) = 28.59, p < .0001$. The between-group main effect of experimental versus control
group was significant, $F(1, 86) = 32.53, p < .0001$. The within-group*between-group
interaction effect was significant, $F(2, 85) = 51.15, p < .0001$. At follow-up, ATDP-B
scores declined from posttest but remained significantly higher than all scores for the
control group. The null hypothesis H10 was rejected.

The results of this research directly supported the purpose of the study. The
significance of the study was defined within the framework of The Robert Wood Johnson
Foundation initiative, Quality and Safety in Education for Nurses (Croneett et al., 2007), a study designed to close the gap between nursing education and practice by focusing on knowledge, attitudes, and skills for nurses. Within this framework, attitudinal barriers were the most recognized impediment to health care for children with disabilities (Rao, 2004). The results of this study showed that the question of improving attitudes through nursing education is critically important for nursing curricula in the United States.

This research was a quantitative study to determine whether disability education affects the attitudes of nursing students as measured by the ATDP-B scale. Attitude measurements were statistically significant at pretest, posttest, and one month follow up. Disability education is part of the curricula content in the school of nursing site for this study consisting of a 4-hour module focused on various aspects of children with disabilities is successful in producing a more positive attitude in senior level students over time. The education intervention was purposely designed to be interactive, virtual, holistic, and meaningful to the students. The research design process requires time, commitment, are careful thought to the details of the design, much like the learning teaching process a dedicated faculty member embarks upon daily.

The findings of this research directly affect nursing curriculum content. Nursing faculty are compelled to reevaluate curriculum content, provide specific attitude measurements of nursing students at various level of education, and develop protocols that can assist students in learning to care for children with disabilities. The assessment of outcomes in education is essential to the teaching and learning processes. Future experimental research is needed for children with disabilities in relation to attitudes of nurses, nursing curriculum, and patient care outcomes.
Attitudes of nurses concerning children with disabilities are generally relatively negative (Mantziou et al., 2002; Seccombe, 2006). Nevertheless, much about attitudes of nursing students toward patients with disabilities, particularly children, is not yet known. Attitude research in the healthcare professions exists, but only one identified quasiexperimental study has addressed nursing students working with children with disabilities (Matziou et al., 2002). Matziou et al. (2002) compared the attitudes of 99 practicing pediatric nurses and 189 student nurses in Greece toward children with disabilities. Both groups of nurses were found to have poor attitudes toward children with disabilities. The nursing curriculum was then revised to include the topic of attitudes to disabilities, and a follow up study was then conducted using the ATDP (Mantziou et al., 2009). Although overall ATDP scores remained low, there were significant posttest differences in the follow-up study, \( p<0.001 \). The details of the nursing curriculum for children with disabilities were not published in this article.

Matziou et al. (2009) concluded that carefully designed curricula can influence the attitudes of nurses towards children with disabilities. However, in a quasiexperimental study in New Zealand (Seccombe, 2006), attitudes of 219 nursing students were measured with the ATDP-B after a significant disability theory unit was introduced into the curriculum. Pretest-posttest differences were not significant, perhaps because more specific information was needed in the curriculum for attitudes to be affected (Seccombe, 2007). The findings from this study are more consistent with the findings of Matziou et al. (2009), but not with the findings of Seccombe (2007). Previous studies of attitudes of nurses and nursing students to children with disabilities have been quasiexperimental, mixed with qualitative components (Matziou, 2002, 2009; Seccombe, 2007).
There is a lack of consensus concerning details of education for children with disabilities present in healthcare curriculum. Even more concerning is the lack of attitude measurements in future healthcare professionals during formal education. Quality initiatives supported by the Surgeon general speak to the equal important of knowledge, skill, and attitude in education for all healthcare professionals. Attitudes of nurses play a pivotal role in the care of children with disabilities and their families. Diminutive attention is furnished to disability education in undergraduate nursing curriculum in the United States. Findings of this study have implications for nursing students and nursing educators caring for children with disabilities.

**Recommendations**

The results of this study have corroborated the need for nursing educators to require didactic educational materials and clinical experiences for children in the nursing curriculum. The content of these courses must be designed to develop the skills, knowledge, and attitudes needed for nurses in clinical care for children with disabilities. Education affects the attitudes of students in the healthcare profession and therefore affects patient care outcomes (Seccomb, 2007). There is a clear relationship of knowledge, skill, and attitude in professional nursing practice affects healthcare outcomes (Croneett et al., 2007).

Professional registered nurses care for children with disabilities in a variety of healthcare and community settings. The number of children born with disabilities continues to increase with the application of scientific and technological advances in healthcare, as increasing numbers of premature infants and acutely ill children survive (Cleave, Gortmaker, & Perrin, 2010). Nurses need to be educationally prepared to care
for children with disabilities. Baccalaureate nursing education assures student nurse clinical competency by upholding a moral imperative to keep patients safe (Ironside, 2008).

Nursing faculty members need to embrace the topic of children with disabilities as an important component of nursing education. Faculty members and the philosophical foundation of a curriculum can influence student attitudes to a particular patient group (Johnston, & Dixon, 2006). Faculty awareness of the social construction of disability is reflected in the teaching and learning process. Attitudinal barriers are the most recognized impediment for children with disabilities (Rao, 2004). Disability research has been viewed primarily from the perspective of a social model, but there are academic implications for faculty members. Negative attitudes toward individuals with disabilities exist among adults and shape the lives of those individuals (Beckett, 2010).

Faculty members can help to fill gaps in knowledge concerning people with disabilities by taking a proactive stance when teaching nursing students to care for children with disabilities. A template can be used for the role of education in treating people with disabilities (Beckett, 2010). The template includes knowledge of the disability, an examination of disability awareness practices for faculty, and the development of disability pedagogy. Faculty members can have a proactive role in disability awareness, thereby influencing the attitudes of students towards children with disabilities. Nurses must be aware of specific potential adolescent and adult health concerns requiring the knowledge, skill, and attitudes needed to provide good quality outcomes (Shakespeare, Iezzoni, & Groce, 2009).
Nursing faculty members are responsible for assessing student skills, knowledge, and attitudes to care for children with disabilities. The focus of most clinical courses in nursing school curricula is knowledge and skills, rather than attitudes. A clearer indicator is needed of how the attitudes of nursing students as an outcome of nursing education are conceptualized or measured.

Representatives of the nursing profession have produced no scholarly research in the United States concerning children with disabilities. Most of the research in the nursing profession concerning children with disabilities has originated in Greece, the United Kingdom, Australia, and New Zealand. Nursing faculty members in the United States should encourage experimental studies focused on the care of children with disabilities. The numerous variables that affect nursing students in U.S. urban areas could yield interesting research results from an educational, psychosocial, and cultural perspective. Research, including qualitative research, designed to examine the care and caregivers of children with disabilities in the United States in both urban and rural environments could add a depth and breadth of knowledge. Findings would assist this vulnerable group in attaining additional resources, including good quality, professional health care.

Future nursing research for people with disabilities is needed at a time when many Americans are living longer with disabilities and therefore are acquiring a variety of chronic medical conditions. Compelling insights of nurses, combined with quantitative research and larger sample sizes, can help in identifying solutions for people with disabilities who seek nursing care for healthcare issues. Future research on the attitudes of nurses toward children with disabilities can be designed to compare different kinds of
nursing education programs. A larger sample size would be useful. Educational modules can be developed to include not only nursing-specific content, but also cultural, psychosocial, and economic variables. Curriculum content analysis and additional outcome measurements could be developed. More research conducted within the United States would benefit children with disabilities and their families, as well as other healthcare professionals. I would be interested in seeing post hoc pair wise analyses of posttest-follow-up differences to measure if there was a significant decline for the experimental group.

Conclusions

The attitudes of nursing students toward children with disabilities were shown to change significantly in response to the introduction of a 4-hour educational module on the subject of children with disabilities. The findings from this study supported prior research in demonstrating the benefits of introducing education about children with disabilities into the nursing curriculum. The study also demonstrated the benefits of having nursing faculty members measure the attitudes of nursing students toward children with disabilities as an outcome of nursing education. The results of this research represent a challenge to nursing faculty members to reform nursing curricula to meet the current needs of society.
References


Dillard, N., Sideras, S., Ryan, M., Carlton, K., Lasater, K., & Sikberg, L. (2009). A collaborative project to apply and evaluate the clinical judgment model through simulation. *Nursing Education Perspectives, 30*(2), 99-104.


curriculum for a new era of nursing education. *Nursing Education Perspectives*, 29(4), 200-204.


Seccombe, J. (2007). Attitudes towards disability as an undergraduate nursing


attitude change in cognitive dissonance. *Nature Neuroscience, 12*(11), 1469-1474. doi: 10.1038/nn.2413


Appendixes

Appendix A:

Attitudes Towards Disabled Persons Scale

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +1, +2, +3: or —1, —2, —3: depending on how you feel in each case.

+3: I AGREE MUCH
+2: I AGREE PRETTY MUCH
+1: I AGREE A LITTLE
—1: I DISAGREE A LITTLE
—2: I DISAGREE PRETTY MUCH
—3: I DISAGREE VERY MUCH

1. Disabled persons are usually friendly.
2. People who are disabled should not have to pay income taxes.
3. Disabled people are not more emotional than other people.
4. Disabled persons can have a normal social life.
5. Most physically disabled persons have a chip on their shoulder.
6. Disabled workers can be as successful as other workers.
7. Very few disabled persons are ashamed of their disabilities.
8. Most people feel uncomfortable when they associate with disabled people.
9. Disabled people show less enthusiasm than nondisabled people.
10. Disabled people do not become upset any more easily than nondisabled people.
11. Disabled people are often less aggressive than normal people.
12. Most disabled persons get married and have children.
13. Most disabled persons do not worry more than anyone else.
14. Employers should not be allowed to fire disabled employees.
15. Disabled people are not as happy as nondisabled ones.
16. Severely disabled people are harder to get along with than are those with minor disabilities.
17. Most disabled people expect special treatment.
18. Disabled persons should not expect to lead normal lives.
19. Most disabled people tend to get discouraged easily.
20. The worst thing that could happen to a person would be for him to be very severely injured.
21. Disabled children should not have to compete with nondisabled children.
22. Most disabled people do not feel sorry for themselves.
23. Most disabled people prefer to work with other disabled people.
24. Most severely disabled persons are not as ambitious as other people.
25. Disabled persons are not as self-confident as physically normal persons.
26. Most disabled persons don’t want more affection and praise than other people.
27. It would be best if a disabled person would marry another disabled person.
28. Most disabled people do not need special attention.
29. Disabled persons want sympathy more than other people.
30. Most physically disabled persons have different personalities than normal persons.


ATDP scales are within the public domain available at Abilities Inc., or Hofstra University. Hempstead: New York.
Appendix B:

Demographic Questionnaire

1. Indicate your age:
   - 20-29
   - 30-39
   - 40-49
   - 50-59
   - 60-69
   - 70 plus

2. Indicate your gender:
   - Male
   - Female

3. Highest degree earned:
   - Bachelors in Nursing
   - Bachelors in other field
   - Masters in Nursing
   - Masters in other field
   - Doctorate in Nursing
   - Doctorate in other field

4. Have you ever attended formal education in the care of children with disabilities’?
   - Yes
   - No

5. Have you ever had clinical experiences in caring for a child with disabilities’?
   - Yes
   - No
Appendix C:

Invitational Letter for Participation in the Study

Dear Participant,

My name is Kathleen Cervasio. I am an assistant professor and doctoral candidate in Teacher Leadership in the School of Education at Northcentral University, Prescott, Arizona. I have reached the point in my program where I am conducting research for my dissertation entitled “Nurses Attitudes Toward Children with Disabilities” in the School of Nursing at Long Island University, Brooklyn, New York.

I would like to request your participation in the measurement of attitudes of nursing students with the goal of improving disability education in the school as well as measuring program outcomes. Your participation in this study will contribute to our understanding of nurse’s attitudes in relation to children with disabilities. Your participation in this study is voluntary, confidentiality, and anonymity are assured. You may withdraw at any time and may choose not to answer any question that you feel uncomfortable in answering. The survey will take approximately 15 to 20 minutes to complete on line between (dates). Please go to the following link to participate in this study. Thank you for your interest and participation in this study. I genuinely appreciate your time and effort in this important study.

Sincerely,
Appendix D:

Reminder Letter to Study Participants

Dear Participants,

This is a reminder to view (link) for the study "Nurses Attitudes Toward Children With Disabilities" to participate in this important nursing research. The study dates are...

I would greatly appreciate your participation and your voice in nursing curriculum issues.

Sincerely,

Kathleen Cervasio
A. RESEARCH PROCEDURES:
The purpose of this study is to investigate the attitudes of entry-level and graduating nursing students toward children with disabilities currently enrolled in the School of Nursing at Long Island University, Brooklyn campus. You will be required to respond to the researcher via email to confirm consent. You will not be required to disclose any personal information in the survey. Only the servers from where you complete the survey will be recorded. Confidentiality is promised to the extent allowed by law. If you agree to participate in this study, you will be required to complete two surveys, which should take about 15-20 minutes. One survey requests demographic information and the other survey is a tool to measure attitudes towards people with disabilities. The survey is computer-based via SurveyMonkey.com. You will simply click on a link within an email and submit the survey electronically.

B. BENEFITS:
There are no direct benefits to you as a participant but your feedback about inclusion is highly valuable to the purpose of this study.

C. RISKS:
There are no foreseeable risks for participating in this study.

D. PARTICIPATION:
Your participation in this study is voluntary. You may withdraw from the study at any time for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefit to you. There is no cost to you or any other party for participating in this study. Results of this study may improve the ways in which nurses view children with disabilities and potentially as recipients of nursing care.

E. CONTACT:
This research study is being conducted by Kathleen Cervasio as part of a Doctoral Dissertation for Northcentral University’s School of Education. She may be contacted via email at [email protected] for any questions or issues regarding the study. You may also contact the Dean for the School of Education at Northcentral University at 1888- ext.  if you have any questions regarding this study or your rights regarding participation.

F. CONSENT:
I have read this form and by replying to the email address [email protected] I give my consent to participate in this study. We recommend that you print a copy of this page to keep for your records.