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The effects of age, information, and personal contact on attitudes toward individuals with cleft lip and palate

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**THE EFFECTS OF AGE, INFORMATION, AND PERSONAL
CONTACT ON ATTITUDES TOWARD INDIVIDUALS**

WITH CLEFT LIP AND PALATE

by

Adam Thomas Blancher, B.A., M.S., M.A.

A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

COLLEGE OF EDUCATION
LOUISIANA TECH UNIVERSITY

August 2011

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by Adam T. Blancher

entitled The Effects of Age, Information, and Personal Contact on Attitudes Toward
Individuals with Cleft Lip and Palate

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ABSTRACT

The aim of the current study was to examine the effects of information and brief personal contact with individuals with a cleft lip and/or palate (CLP). One hundred and eighty-nine children ($n = 78$) and young adults ($n = 111$) participated in the study. A modified version of the Multidimensional Attitudes Scale Toward Persons with Disabilities (MAS) was used to measure the participants attitudes toward individuals with CLP. Using mixed multivariate analysis of covariance (MANCOVA), it was found that children's attitudes were significantly improved by information and contact with individuals with CLP, and these findings supported previous research. Within the young adult cohort, however, findings were inconsistent with prior research in that information and contact did not significantly affect their attitudes. There were no significant differences in attitudes between the age cohorts; however, data suggests that the children responded differently to the experimental intervention. Age differences in response to experimental intervention were interpreted using the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and the theory of child suggestibility. Future research would help substantiate the current findings and broaden our understanding of the attitudes of non-clefted individuals toward individuals with cleft-lip and palate.

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Author Adam Bal
Date 8/1/11

DEDICATION

This dissertation is dedicated to my wife, Kristen, for her unending support, patience, and love during this long journey. I also dedicate this dissertation to my children, without whom this journey would be meaningless.

...but with God, all things are possible. Matthew 19:26

TABLE OF CONTENTS

ABSTRACT.....	iii
DEDICATION.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	ix
ACKNOWLEDGMENTS.....	x
CHAPTER ONE INTRODUCTION.....	1
Early Child Development.....	6
Child Behavioral Functioning.....	10
Child Emotional Functioning.....	11
Child Social Functioning.....	14
Adult Functioning.....	16
Parental Influences.....	17
Social Influences.....	18
Attitudes.....	19
Definition and Structure.....	19
Attitude Development.....	19
Attitude Function.....	21
Social Attitudes.....	23
Attitude Change.....	26
Research Hypotheses.....	36

CHAPTER TWO METHOD	38
Participants.....	38
Measures and Materials	40
Attitudes.....	40
Social Desirability.....	43
Informational Videos	43
Demographic Questionnaire	44
Procedure	44
Child Cohort	44
Young Adult Cohort	47
Data Analysis.....	49
CHAPTER THREE RESULTS	50
Analysis of Pretest MAS Scores.....	50
Child Data.....	52
Young Adult Data.....	56
Age-related Data.....	61
Personal Contact	64
CHAPTER FOUR DISCUSSION	66
Study Strengths, Limitations, and Future Directions.....	72
Conclusions.....	75
APPENDIX A MODIFIED VERSION OF THE MAS – CHILD VERSION.....	77
APPENDIX B MODIFIED VERSION OF THE MAS – ADULT VERSION.....	82
APPENDIX C MARLOWE-CROWNE SCALE – CHILD VERSION	85
APPENDIX D MARLOWE-CROWNE SCALE – ADULT VERSION	87

APPENDIX E DEMOGRAPHIC QUESTIONNAIRE – CHILD VERSION	89
APPENDIX F DEMOGRAPHIC QUESTIONNAIRE – ADULT VERSION.....	91
APPENDIX G PARENT LETTER	93
APPENDIX H PARENT CONSENT FORM	95
APPENDIX I CHILD ASSENT FORM.....	98
APPENDIX J ADULT CONSENT FORM.....	100
REFERENCES	103
VITA.....	124

LIST OF TABLES

Table 1. Demographic Characteristics for the Child and Young Adult Cohorts	40
Table 2. Results of ANOVAs Assessing Group Differences in Pretest Scores.....	51
Table 3. MAS Pretest Scores Means & Standard Deviations by Group & Cohort	51
Table 4. Group Pretest/Posttest MAS Scores for Child Cohort.....	53
Table 5. Group Pretest/Posttest MAS Scores for Young Adult Cohort.....	59
Table 6. Group Posttest MAS Scores for Both Age Cohorts.....	62

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CHAPTER ONE

INTRODUCTION

Research on craniofacial abnormalities (CFAs) involves the study of physical (e.g., medical and surgical), social (e.g., attitudes, relationships), emotional (e.g., self-concept, adjustment), behavioral (e.g., externalized and internalized behavior problems), and cognitive (e.g., cognitive and intellectual deficits) aspects of an individual with a craniofacial abnormality. A major subsection of CFA research concerns cleft lip and palate (CLP). This specific facial anomaly affects approximately one in 500 to 700 live births; however, incidence rates vary across sex and various cultural and racial groups (Chan, McPherson, & Whitehill, 2006; Shenaq, Kim, Bienstock, Roth, & Eser, 2006; Turner, Rumsey, & Sandy, 1998). A child with CLP is at risk for medical, developmental, psychological, behavioral, cognitive, and social difficulties. Much of the recent research was designed to investigate the adjustment outcomes of individuals with this facial abnormality (Endriga & Kapp-Simon, 1999; Harper & Richman, 1978; Hunt, Burden, Hepper, & Johnston, 2005; Kapp-Simon & Krueckeberg, 2000; Kapp-Simon, Simon, & Kristovich, 1992). Some researchers, however, have investigated the effects of peer attitudes towards individuals with CLP and found that social attitudes influence the psychosocial development of individuals with CLP (Chan, McPherson, & Whitehill, 2006; Hunt, et al., 2005; Okkerse, Beemer, Cordia-De Haan, Heinemen-De Boer, et. al,

2001; Scheuerle, Guilford, & Garcia, 1982; Slifer, Pulbrook, Amari, Vona-Messersmith et al., 2006; Schneiderman & Harding, 1984; Tobiason & Hiebert, 1984). Social attitudes toward individuals with CLP are a crucial area of research in the field of craniofacial abnormalities and the focus of the current study.

There is considerable controversy among CLP researchers regarding the frequency and severity of social, cognitive, behavioral, and emotional deficits in CLP individuals. Furthermore, there is little consensus about the origins of these deficits. The literature consistently reveals that children and adults with CLP and other craniofacial abnormalities have social, cognitive, behavioral, and emotional problems. One major factor contributing to the debate in the field stems from methodological differences between studies. The following literature review provides an overview of the current body of knowledge related to developmental and functional deficits of individuals with CLP. The majority of the literature is focused on child development and adjustment in these domains. Additionally, there is a growing body of literature about adult functioning and adjustment. The literature review reveals the importance of the effects of peer attitudes as they affect the functioning of an individual with CLP.

There are several theories of the etiology of CLP. The traditional theory involves the failure of fusion during embryonic development of the maxillary and frontonasal processes which are associated with cleft lips. Cleft palate occurs due to incomplete growth of palatal shelves at approximately 12 weeks gestation (Shenaq, Kim, Bienstock, Roth, & Eser, 2006). Other theorists point to genes as the primary cause of cleft lip and/or palate. Research findings indicate that several genes are expressed differently in individuals with and without clefts (Britto, Evans, Hayward, & Jones, 2002). There is

also evidence that cleft lip and/or palate is associated with exposure to high levels of vitamins and minerals in the developing fetus (Prescott & Malcolm, 2002). Finally, researchers have identified several risk factors that are associated with the development of a cleft lip and/or palate which include parental age, family history, low socioeconomic status, maternal epilepsy, maternal use of drugs, tobacco, and alcohol, prenatal nutrition, and exposure to teratogens (Shenaq et al., 2006).

There are several different types of lip and palate clefts, and they vary in severity. In the unilateral cleft lip there is an opening in the upper lip on either the right or left side. In the bilateral cleft, an opening exists on both sides of the lip. A cleft palate also can be in either the soft palate (the posterior portion of the roof of the mouth, also called the vellum) or in the hard palate (the anterior portion of the roof of the mouth). Additionally, an individual can have both a cleft lip (unilateral or bilateral) and a cleft palate (unilateral or bilateral). Finally, the Pierre Robin Sequence is a craniofacial anomaly which includes cleft palate, obstructive apnea, and micrognathia or small lower jaw (Breugem & Mink van der Molen, 2009). Unilateral left cleft lips are the most frequent type of cleft, followed by right-sided unilateral clefts and bilateral clefts (Shenaq et al., 2006).

Cleft palate often is associated with numerous syndromes and malformations. According to one study, approximately 30% of all patients with the diagnosis of CLP have some sort of physical malformation, mental retardation, or chromosomal abnormality (Milerad, Larson, Hagberg, & Ideberg, 1997). Other syndromes associated with CLP include the van der Woude syndrome and the velocardiofacial syndrome which

are characterized by mounds or pits in the lip, heart defects, genital defects, and minor learning problems (Children's Craniofacial Center, 2008).

Currently, the most accepted model for evaluating and treating infants and children with CLP is through the use of an interdisciplinary team of medical, dental and orthodontic as well as applied healthcare professionals and specialists (Hodgkinson, Brown, Duncan, Grant, McNaughton et al., 2005). Often a treatment plan is required to most effectively and efficiently address all of the child's needs. Areas of particular concern for most infants and children with CLP include feeding, reconstructive surgery, dental, and speech problems. These issues, if not addressed, can have detrimental effects on the cognitive, academic, social, and emotional development of infants and young children (Center for Children with Special Needs, 2010).

Feeding is crucial to the development of infants and young children, yet many children with CLP have difficulty feeding as a result of orofacial clefts. Many children with CLP require special feeding interventions and possibly special feeding equipment due to their inability to form an adequate seal around the nutrition source (i.e., mother's breast or bottle's nipple). Specially trained nurses can assist mothers in this process and instruct them on various techniques to feed their child. Special equipment may include special bottles and nipples that are specifically designed for infants with CLP. Proper nutrition is important, because prior to surgical procedures adequate weight must be achieved. It is recommended that infants gain approximately five to seven ounces per week to achieve the recommended weight for surgical procedures (i.e., 10-12 pounds total weight; Center for Children with Special Needs, 2010).

The child with CLP will require surgery to repair all forms of clefts and improve facial appearance. These procedures typically are conducted by physicians with specialized training in oral and maxillofacial surgical techniques. Depending on the severity of the cleft, surgery often is scheduled as early as 10 weeks after birth. The advantages of this early repair include the following: prevents continued abnormal development of the cleft(s) and surrounding muscles; children have no memory of the surgery and recovery process; and healing times are optimal at younger ages. Typically, children with clefts will have multiple surgeries throughout their lives depending on the severity of the cleft. Surgical procedures may include closure of the skin, muscles, and mucosa of the lips, closure of the palate (i.e., palatoplasty), closure of the alveolar cleft (i.e., gingivoperiosteoplasty) and bone grafting of the alveolar cleft, and repair and/or reshaping of the nose (i.e., rhinoplasty; Center for Children with Special Needs, 2010).

After the initial surgical procedure(s), another area of concern is dental care. Children with CLP often have abnormal tooth eruptions which require advanced dental and orthodontic treatment. Braces and other orthodontic equipment often are required. Another area of concern that interdisciplinary teams address is speech and language development. Given the abnormalities of the lip and palate, children with CLP are at risk for poor speech and language development due to frequent ear effusions (i.e., inner ear infections) which may result in hearing loss and inability to create proper nasal closure required for speech. Children with CLP should be evaluated early during their speech development in order to identify any delays or problems. Referral to a speech/language pathologist for speech therapy is recommended for those children identified with speech

and/or hearing difficulties (Center for Children with Special Needs, 2010; Hodgkinson et al., 2005).

Early Child Development

Jocelyn, Penko, and Rode (1996) compared the performance of 16 infants with CLP at 12 and 24 months of age to a control group of same-age infants without CLP on the Bayley Scales of Infant Development (BSID) and on measures of expressive language and language comprehension. They found that infants with CLP had lower language scores than controls and also lower scores on the mental and motor scores of the BSID. Kapp-Simon and Krueckeberg (2000) used the mental scale of the BSID, which measures sensory/perceptual acuities, acquisition of object constancy, memory, learning and problem solving skills, language abilities, and abstract thinking, to investigate cognitive development in infants with CLP. They used a longitudinal design in which infants were assessed at 3- and 6-month intervals. They focused on whether cognitive delays were associated with the various cleft types (cleft lip-only, cleft palate-only, cleft lip and palate, or the Pierre Robin Sequence) and found that infants with the Pierre Robin Sequence had the most significant developmental delays. The infants with cleft lip-only had the highest scores on the mental scale of the BSID. Speltz, Endriga, Hill, Maris, Jones, and Omnell (2000) used the BSID and other measures to examine the cognitive and psychomotor functioning of infants with CLP at 3, 12, and 24 months. These researchers found cognitive deficits in both nonverbal and verbal performance domains. Using parent report instruments, Neiman and Savage (1997) found that 5-month-old infants displayed developmental delays in the “at-risk” range in motor, self-help, and cognitive domains of the Kent Infant Development Scale and also on the Minnesota Child Development Inventory. All of these studies support the hypothesis that infants

with CLP are at increased risk for the early onset of cognitive and developmental problems which will affect their future functioning in a variety of areas.

Developmental theorists propose that language and speech are a vital component of cognitive development (Piaget, 1929; Speltz, Endriga, Hill, Maris, Jones, & Omnell, 2000; Vygotsky, 1962). According to Stengelhofen (1989), 38% of all individuals with CLP have speech and language problems. Intellectual deficits (e.g., learning disabilities, mental retardation, and/or reading disabilities) also are found in this population. Richman (1980) found intellectual and verbal language deficits in a sample of 57 young children with CLP. Strauss and Broder (1993) studied a group of children and adolescents with CLP aged 4 to 19 years, with a mean of 11 years. Using information and records from a local craniofacial care center, these researchers determined that there was a significant number of young patients with mental retardation. Additionally, they found that the probability of mental retardation increased when the children had additional malformations or syndromes (i.e., seizure disorders, cardiopulmonary problems, and/or head size abnormalities). Broder, Richman, and Matheson (1998) found that the co-occurrence of a learning disability is approximately 30% to 40% higher in children with than without CLP. Richman and Eliason (1984) found that children with cleft palate only had reading difficulties that were related to language disorders, whereas children with cleft lip and palate had more expressive language problems but milder reading disabilities. Expressive language problems in children with CLP were more closely related to linguistic mechanism problems (physical problems) than to underlying speech disorders (cognitive problems). In a sample of 172 elementary children with CLP, Richman, Eliason, and Lindgren (1988) found that 52% of the children had reading

disabilities in the moderate to severe range. Additionally, other researchers have found that reading difficulties are associated with memory deficits. Using visual and verbal memory tests, Richman, Wilgenbusch, and Hall (2005) found significant memory deficits in a sample of children with CLP. Taken together, results from these studies suggest that children with CLP and related disorders are at significant risk for cognitive and academic difficulties.

The specific cause of cognitive deficits in infants and children with CLP is unclear. One explanation may be related to medical conditions. It is reported that children with CLP often have chronic ear infections due to fluid drainage into the middle ear (Lashley, 2005). The fluid becomes infected if it stays in the middle ear. These ear infections may be associated with hearing difficulties at critical periods of development (Estes, & Morris, 1970; Sak, & Ruben, 1982), which impedes language development. This then negatively affects cognitive development. Linguistic problems may lead to future reading difficulties (Richman, Wilgenbusch, & Hall, 2005). The end result of this chain of events is an overall negative effect on cognitive development. Murray, Hentges, Hill, Karpf, et al. (2008) also suggest that cognitive deficits are partially the result of poor early mother-child interactions which may have affected the timing of the child's surgical cleft repair. Specifically, these researchers suggest that poor infant-mother interaction may result in delayed lip and palate surgeries. Additionally, children with CLP also are at risk for developing sleep disorders, including obstructed sleep apnea, as a result of abnormal palate closure and smaller upper airway (Maclean, Hayward, Fitzgerald, & Waters, 2009; Muntz, Wilson, Park, Smith, & Grimmer, 2008). These abnormalities increase the risk of breathing difficulties while sleeping which subsequently may increase

the risk of hypoxia (i.e., oxygen deprivation). Bass, Corwin, Gozal, Moore, Nishida et al. (2004) conducted a comprehensive review on the effects of chronic and intermittent hypoxia on cognition in childhood, and they concluded that even mild hypoxic events during sleep disorders can contribute to significant neuro-cognitive deficits including lower intelligence quotients, learning difficulties, and attention difficulties in children. Maclean, Waters, Fitzsimons, Hayward, and Fitzgerald (2009) suggest the need for early evaluation of children with CLP to reduce the risk of future cognitive deficits.

Nopoulos and her colleagues at the University of Iowa suggest a link between facial development and cognitive development (Nopoulos, Berg, VanDemark, Richman, Canady et al. 2002; Nopoulos, Langbehn, Canady, Magnotta, & Richman, 2007). These researchers, and others, have found repeatedly that when facial abnormalities occur, they are accompanied by neurological abnormalities, which result in cognitive deficits (Conrad, Canady, Richman, & Nopoulos, 2008). Conrad et al. (2008) found that children with CLP had a higher incidence of neurological soft signs (i.e., cognitive signs which indicate central nervous system dysfunction) than a control group of same-age children. Zametkin and Yamada (1999) also found neurological soft signs that accompanied CLP in the areas of sensory performance (e.g., lateral preference pattern and imperistence) and motor performance (i.e., poor balance and coordination difficulties) on specific tasks. Nopoulos and her colleagues (Nopoulos et al., 2002; Nopoulos et al., 2007) completed brain imaging on children and adults with and without CLP and discovered that individuals with CLP have altered brain morphology (e.g., enlarged frontal and parietal lobes), overall decrease in brain size, and decreased cerebellum volume. Given all these

data, Nopoulos and her colleagues theorize that cognitive deficits are related to abnormal brain development, which is initiated by abnormal craniofacial development in utero.

Child Behavioral Functioning

Behavioral research in this field suggests that children with CLP often exhibit significant internalizing behaviors including social inhibition, social withdrawal, and depression (Richman, 1997; Richman & Eliason, 1982). Results have been mixed regarding problematic externalizing behaviors including aggression, impulsivity, and increased child delinquency (Richman, 1976; Richman & Millard, 1997). Using the Behavior Problem Checklist, Richman and Millard found that children with CLP were rated as having higher frequencies of conduct problems than children without CLP, a finding that is consistent with previous studies (Harper & Richman, 1978; Kapp-Simon, Simon, & Kristovich, 1992; Leonard Dwyer-Brust, Abrahams, & Sielaff, 1991; Richman, 1983). It had previously been reported by Starr (1978) that children without CLP were more aggressive than children with CLP. However, Schneiderman and Auer (1984) found that parents of children with CLP reported a significant number of externalizing behaviors including aggression, in their children. This finding is suspect because the parental ratings tended to indicate more externalizing problems than the self-reports by the children. More recently, however, Slifer, Amari, Diver, Hilley, Beck et al. (2004) found that parents of children with CLP rated their children with significantly more externalizing behaviors and less behavioral control than did parents of children without CLP.

There is no consensus in the literature about whether problematic internalizing and externalizing behaviors exhibited by children with CLP continue into later ages. Richman and Mallard (1997), for example, found a relationship between child behavior

problems and the presence of CLP, which varied by age. Problematic behaviors were reported for young children, but no problems were noted for the same individual at subsequent ages. This finding suggests that, although children with CLP may have early behavioral difficulties, problems may not last into adulthood or cause significant impairment in functioning later in life. In sum, it appears that children with CLP have early behavioral difficulties; however, the extent and persistence of these difficulties is unclear. Regardless, it is pertinent to note that behavioral problems may negatively impact other areas of functioning, specifically the emotional and social functioning of children with CLP.

Child Emotional Functioning

The literature on the emotional development of children with CLP suggests that they are at a higher risk for emotional dysfunction than comparable children without CLP. Cleft lip and palate have been associated with poor self-esteem and low self-confidence (Kapp, 1979). Richman and colleagues concluded that children with CLP have poor emotional adjustment in that they are more socially inhibited and introverted than children without CLP (Richman, 1978; Richman, 1983; Richman & Eliason, 1982; Richman & Harper, 1978). Although not inherently negative, this personality type may exacerbate social skill deficits and increase problematic behaviors. Other researchers (Bernstein & Kapp, 1981; Brantley & Clifford, 1980) found that children with CLP have a more negative body image than non-CLP control subjects. Furthermore, children with CLP often have poor perceptions about facial appearance, which negatively impacts their emotional adjustment (Richman, Holmes, & Eliason, 1985).

According to Kapp-Simon (1986), “self-concept is a complex summary of the multiple perceptions individuals have about themselves...[which include] general and

specific judgments about one's self worth, a personal evaluation of one's capabilities and an internalizations of others' reactions to one's self and behavior" (p. 24). Poor self-concepts generally are associated with poor psychological adjustment and emotional health. Kapp-Simon used the Primary Self Concept Inventory (PSCI) to investigate self-concept in a sample of children with CLP. She found that primary school-aged children with CLP had lower self-concept scores, many in the "at risk" range, than children in the non-clefted control group. Similar results have been found by other researchers (Broder & Strauss, 1989; Padwa, Evans, & Pillemer, 1991; Strauss & Broder, 1991). In an extension of this line of research, Leonard et al. (1991) found that self-concept is affected by both age and sex. According to their results, older girls with CLP had more negative self-concepts than younger girls with CLP, whereas older boys with CLP had more positive self-concepts than younger boys with CLP. Kapp-Simon, Simon, and Kristovich (1992) found that the level of emotional adjustment of children with CLP was associated with their level of inhibition: the more inhibited the child, the poorer the emotional adjustment. Bilboul, Pope, and Snyder (2006) extended the research regarding self-concept and psychosocial adjustment among children with facial disfigurement. They examined internalizing problems, social competence (psychosocial adjustment), appearance self-concept, and global self-worth in a sample of adolescents with congenital craniofacial anomalies. Their data indicated that appearance self-concept was associated with psychosocial adjustment deficits only when global self-worth was low.

A number of studies have suggested that children with CLP and other craniofacial conditions are at increased risk of developing depression (Padwa, Evans, & Pillemer,

1991; Pillemer & Cook, 1989; Pope & Ward, 1997; Ramstad, Otten, & Shaw, 1995). For example, using the Child Behavior Checklist (CBC), Children's Depression Inventory, and the Tasks of Emotional Development, Padwa, Evans, and Pillemer compared 30 patients receiving treatment for craniofacial conditions with 30 control participants without craniofacial conditions. All of the participants were 6-16 years-old. The researchers found that the participants with craniofacial conditions exhibited significantly higher depression scores on the dependent variables than control participants. Interestingly, older participants with craniofacial conditions indicated higher depression scores, suggesting that older populations of children with facial deformities may have increased difficulty coping with their appearance. This may be due to increased socialization demands at this stage of development (Padwa, Evans, & Pillemer). Other researchers also suggest that children with CLP and associated conditions have social-emotional functioning deficits including social anxiety and social disconnectedness (Berk, Cooper, Liu, & Marazita, 2001; Carroll, & Shute, 2005). Murray, Arteché, Bingley, Hentges, Bishop et al. (2010) conducted a longitudinal study in which 93 children with cleft lip and palate and 77 children without cleft lip and palate (control group) were followed from birth to seven years and assessed by teacher and parent ratings and direct, naturalistic observation. The researchers found that children with clefts were rated as having significantly more social anxiety and withdrawn social behavior. According to the authors, the increased anxiety and social withdrawal was related to communication deficits associated with the clefts. The authors highlighted the importance of communication skill and its effects on the social-emotional functioning of children with CLP and other craniofacial anomalies.

Child Social Functioning

As suggested above, there is a growing body of evidence which indicates that children with CLP have poor peer relationships and poor social skills. Often these deficits are related to communication deficits and facial unattractiveness (Boes, Aaron, Murko, Wood, Langbehn et. al., 2007). Results of one previous study suggested that children with CLP were at risk for dropping out of school and participating less frequently in social or school organizations and clubs (McWilliams & Paradise, 1973). Using the MMPI, Harper and Richman (1978) reported that children with CLP tended to have lower self-confidence regarding social relationships, perhaps due to nonverbal communication deficits. Field and Vega-Larh (1984) studied the behavioral and linguistic interactions between mother and child dyads of 3-month-old infants with and without craniofacial abnormalities, and found that infants with clefts smiled less and made less eye contact than the infants without clefts. These early social deficits certainly might impact later social functioning. Children with CLP and other CFAs also have been found to be less friendly and less helpful toward their peers (Kapp-Simon, 1986). Kapp-Simon, Simon, and Kristovich (1992) found that social skills are a significant predictor of positive adjustment in young adolescents with CFAs. Furthermore, children with CLP are likely to have fewer friends than children without CLP (Noar, 1991; Ramstad et al., 1995). Krueckeberg and Kapp-Simon (1993) observed that children with craniofacial abnormalities have less social knowledge and social competence than peers without CFAs. In addition, children with CLP are less socially assertive than those children without CLP (Chapman, Graham, Gooch, & Visconti, 1998). Slifer et al. (2004) surveyed parents of children with and without CLP and found that parents of children with CLP reported lower social competence in their children relative to the non-clefted controls.

These researchers also examined the interactions between children with and without oral clefts and found that children with clefts tended to make fewer social choices and to answer questions asked by peers less frequently than peers without clefts. In conclusion, poor social functioning in children with CLP may exacerbate already poor emotional and behavioral functioning. Brand, Blehschmidt, Müller, Sader, Schwenzer-Zimmerer et al. (2009) examined social competencies in children and adolescents with CLP using the Participation in Everyday Life Communication Questionnaire (PIELCQ). They found that children and adolescents with CLP were six times more likely to report social interaction difficulties than same-age controls. Murray et al. (2010) suggest that navigating the social environment is difficult for children with CLP, especially if interactions with unfamiliar people occur. They suggest that this may be due in part to poor speech intelligibility that results from cleft conditions. Difficulties with speech may increase peer stigmatization and limit the child's ability to effectively communicate with peers.

Although there is a wealth of research which reveals social deficits in children and adolescents with CLP, this topic is not without controversy. For example, Collett, Cloonan, Speltz, Anderka, and Werler (in press) examined psychosocial adjustment in five to nine-year-old children with orofacial clefts using measures of social competence. They found that their sample of children with orofacial clefts did not differ from non-clefted controls on measures of social competence; however, they found that seven to nine year-old children with craniofacial conditions tended to have worse social competence outcomes than younger children with clefts. Similarly, Hoek, Kraaimaat, Admiraal, Kuijpers-Jagtman, and Verhaak (2009) investigated the psychosocial health of 80 children with CLP using their parents and teachers as respondents. Results indicated

that children with CLP were not significantly different on the psychosocial variables than their peers without CLP. The data did suggest, however, that better psychosocial health was associated with less speech problems.

Adult Functioning

Given the social, emotional, and behavioral difficulties of children with CLP, researchers also have investigated the psychosocial and emotional functioning of adults with CLP and other craniofacial abnormalities. Poor social and emotional functioning may persist into adulthood. Heller, Tidmarsh, and Pless (1981) administered self-report survey to young adults 18 to 27 years of age who had repaired cleft-lip and/or palates. Several psychosocial variables were surveyed including past and present social life satisfaction. A significant number of respondents reported having had a poor social history, and nearly one-quarter of respondents recalled being teased. Approximately 56% of respondents reported dissatisfaction with their current social life by reporting infrequent social outings, poor relations with parents, few friends, and few leisure activities. In Noar's (1991) sample a decade later, a significant number of respondents also reported being teased as children. Other researchers also have reported that adults with CLP have social and interpersonal difficulties, including infrequent participation in social activities and community organizations, delays in marriage, and less marital satisfaction than adults without CLP (MacGregor, 1990; Peter & Chinskey, 1974). Marcussion, Akerlin, and Paulin (2001) observed that adults with CLP rated their quality of life (e.g., life meaning, family life, and private finances) to be significantly lower than did adults without CLP. Christensen, Juel, Herskind, and Murray (2004) even found that adults with CLP have a significantly higher rate of suicide than the general population.

Although much of the literature suggests poor psychosocial adjustment of children and adults with CLP, contradictory evidence also can be found which indicates that children and adults with CLP have a relatively normal adjustment in social, emotional, behavioral and other areas of functioning. For example, Hunt, Burden, Hepper, and Johnston (2005) found in their literature review that there were nearly as many studies suggesting poor outcomes as there were studies suggesting positive, or at least non-negative, outcomes. Hunt et al. and Speltz, Morton, Goodell, and Clarren (1993), and Richman (1997) suggest that part of the confusion may be due methodological differences across studies.

For 25 years, researchers in the field of craniofacial abnormalities have hypothesized that childhood and adult maladjustment is strongly influenced by both family and social attitudes toward the disfigurement (Endriga & Kapp-Simon, 1999; Hunt et al., 2005; Kapp-Simon, Simon, & Kristovich, 1992; Krueckeberg & Kapp-Simon, 1993; Tobiason & Hiebert, 1984). It is believed that these familial and social influences shape the social, emotional, and behavioral functioning of individuals with CLP and may contribute to poor psychosocial outcomes in both children and adults. For these reasons, a separate discussion of parental and the social influences is warranted.

Parental Influences

The degree of parental support and the presence of accepting, supportive, and normalizing attitudes all play an important role in the psychosocial success of children with craniofacial abnormalities. In a review of psychological issues in craniofacial care, Endriga and Kapp-Simon (1999) reported that the initial emotional reaction of parents to their child born with a craniofacial abnormality often includes shock, grief, confusion, and guilt, and these reactions can lead to depression and distortions of what might have

been their parenting behaviors toward their child. Researchers also have found that parental stress, specifically maternal stress, is associated with poorer social skills in the child with CLP at preschool and elementary ages (Krueckeberg & Kapp-Simon, 1993). Findings indicate that parental attitudes toward their children also impact the child's self-concept. Parental reactions to the physical appearance of the child with CLP may impair mother-child attachment which, in turn, may undermine the child's psychosocial and cognitive development as well as his or her psychosocial adjustment later in life (Field & Vega-Lahr, 1984; Murray, Hentges, Hill, Karpf et al., 2008). Parents of children with CLP often rate their children as shy and socially isolated, which may result in an increased tolerance for their child's misbehavior, over-protection, and spoiling (Knudson-Cooper, 1981; Tobiason & Hiebert, 1984). Endriga and Kapp-Simon suggest that emotional support for the parents (e.g., therapy, support groups) and knowledge and comprehension of treatment options provide some safeguards against the possibility of their child's poor psychosocial development. Interventions which improve a child's social skills and educational accomplishments can help both the parent and the child compensate for the child's different appearance by providing the family with a coping mechanism while improving family dynamics (Turner, Ramsey, & Sandy, 1998).

Social Influences

Research in the area of craniofacial abnormalities has been extended to include cleft lip and palate with the goal of identifying the effects of external social attitudes on the psychosocial, cognitive, and emotional development and functioning of children and adults with CLP and other CFAs. For example, Hunt et al. (2005) suggest that the amount of exposure to teasing and other negative social attitudes are significant predictors of poor psychosocial functioning in children and young adults with CLP. Therefore,

exploration of the social attitudes of others towards children and adults with CLP and other CFAs is warranted.

Attitudes

Definition and Structure. An individual's social attitude is "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993, p. 1). There are several definitions of and theories about the structure of attitudes; however, most researchers adhere to the three-dimensional model of attitudes proposed by Zanna and Rempel (1988). In this model, there are three distinct components of attitudes: affective, behavioral, and cognitive. The affective component of an attitude corresponds to arousal level towards the attitudinal object (e.g., the strength of positive or negative feelings). The cognitive component reflects an individual's thoughts, ideas, perceptions, and opinions about the attitudinal object. The behavioral component refers to the display of, or willingness of the individual to display, specific behaviors (i.e., interaction with or avoidance of) toward an attitudinal object (Findler, Vilchinsky, & Werner, 2007). These three components of attitudes comprise the most comprehensive definition of the construct of attitudes and each of them will be assessed in the current study of attitudes toward individuals with CLP.

Attitude Development. There is no single comprehensive theory of attitude development. Theories of attitude formation incorporate many psychological disciplines including social learning, behavioral, and cognitive-developmental theories. The difficulty in integrating these various theories into one acceptable theory may be due to the infinite number of possible attitudes, the complex interaction between attitudes and attitudinal objects, and/or the malleability of attitudes over time (Kaur, 2010; Visser &

Krosnick, 1998). A brief discussion of the most popular theories that describe the formation and development of attitudes is warranted.

Social learning and behavioral theorist provide an excellent framework for understanding attitude formation. Social learning theorists suggest that attitudes develop in one individual through interaction with other individuals, especially interaction with significant others. Through the mechanisms of observation, modeling, and imitation, individuals evaluate the social context and make decisions regarding that context. When an individual draws a conclusion about a specific social context, an attitude is likely to develop. Bandura and Walters (1963) suggested that children develop attitudes by watching and imitating others, primarily their parents. Other sources that contribute to the formation of attitudes include peers, significant relationships (i.e., coaches, pastors), and media (i.e., advertisements, television). All of these influences reinforce acceptable attitudes, and this increases the probability that a particular attitude will be manifested in the future. When an unacceptable attitude is communicated, however, parental and other social influences may respond with punishment, thereby reducing the likelihood of the continued expression of that particular attitude. On the other hand, the use of reinforcement contingencies during attitude development is a form of operant conditioning, and the attitude and/or expression of it is likely to increase (Kaur, 2010).

Although social learning and other theories of behavior provide adequate explanations for the formation of attitudes, other theories provide equally compelling arguments. For example, over half a century ago Festinger (1957) suggested that attitudes are the result of cognitive dissonance. Festinger believed that humans have an unconscious need for consistency between an individual's cognitions (i.e., attitudes),

feelings, and behaviors. If behaviors do not match cognitions, the individual may experience an internal state of tension or discomfort. The individual may develop new attitudes in an attempt to relieve this tension. Fishbein and Ajzen (1974) proposed the expectancy-value model of attitudes in which they posit that attitudes are derived from two sources: beliefs (or expectations) and values (evaluation of attitudinal object which results in some sort of affective response). A more complete explanation of this model is provided below.

Attitude Function. Katz (1960) originally proposed that attitudes serve to fulfill the needs of the individual for knowledge (need for information), ego-defense (protection of self-concept), value expression (self-concept and identity expression), and social connectedness (establishing and nurturing relationships). More recently, Kruglanski (1996) suggested that attitudes function to reduce ambiguity and provide individuals with closure to unanswered questions. Herek (2000) reformulated these theories and suggested that there are two distinct categories of attitudinal functions: expressive and evaluative functions. Expressive functions allow the individual to fulfill affective needs with regard to identity, self-esteem, building in-group relationships, and establishing out-group distance. In general, therefore, attitudes serve a value-expressive, social-adjustive, and ego-defensive function similar to Katz's hypothesis. However, Herek suggested that expressive functions operate on the symbolic level typically during social interaction. For example, individuals may strengthen their bonds with others by sharing similar attitudes regarding an attitudinal object, thereby preserving and possibly enhancing their social connectedness. This is known as the expressive social-adjustive function. Herek also proposed that attitudes allow individuals to analyze information about the attitudinal

object. This is the evaluative function. The attitudinal object is analyzed for potential usefulness. In other words, attitudes allow the individual to summarize information regarding the benefits or determinants of the attitudinal object.

Herek further divided evaluative functions of attitudes into three distinct categories: experiential-specific; experiential-schematic; and anticipatory-evaluative attitudes. Experiential-specific attitudes assist the individual to evaluate positive and negative attributions of the attitudinal object during interaction with that object. For example, attitudes help individuals evaluate the interaction between themselves and unfamiliar groups. For example, an individual may analyze the interaction between different political groups. Experiential-schematic attitudes allow the individual to assess the favorable or unfavorable attributes of a more general group of attitudinal objects. For example, an individual may analyze racial and cultural differences portrayed through media sources. Anticipatory-evaluative attitudes assist individuals to assess the projected utility of the attitudinal object such as the expectation that certain elected leaders will positively influence the country.

There is some empirical support for Herek's (2000) theory from his previous research. For example, Herek (1987) designed the Attitude Function Inventory (AFI) to assess evaluative and expressive functions of respondents' attitudes. Using the AFI, Herek and Capitanio (1998) examined attitudinal functions of heterosexual stigma toward homosexuals and Acquired Immune Deficiency Syndrome (AIDS) in approximately 300 adults. The researchers suggested that negative attitudes (e.g., stigma) function differently for different individuals. Data suggested that among adults, expressive attitudes are more prevalent than evaluative functions. This indicates that adults are more likely to express

negative attitudes toward AIDS and homosexuality than to evaluate the information available and construct new and potentially different attitudes. Herek and Capitanio conclude that public service campaigns may be necessary to educate the public in regards to homosexuality and AIDS.

Maio and Haddock (2004) suggested that attitudes ultimately function as cognitive short cuts which allow us to navigate the physical and social environment easily. When interactions with the environment are smooth and more efficient, some evidence exists that decision making improves (Fazio, Ledbetter, & Towles-Schwen, 2000). When individuals are able to make better decisions about the environment and attitudinal objects, ambiguity is reduced and personal needs are more likely to be met (Maio & Haddock).

Social Attitudes. There is a wealth of literature about negative attitudes and perceptions toward children and adults with disabilities. Overall, research indicates that children's attitudes toward other children with disabilities are often negative (Schneiderman & Harding, 1984). Attitudes also can be influenced by a variety of other variables such as age, gender, culture, extent of contact with a disabled person, and the environmental setting or situation (Harper, 1995, Rosenbaum, Armstrong, & King, 1988; Richardson, 1970). Generally, children with facial disfigurements receive negative social ratings from peers, and they often are perceived as less intelligent, less attractive, and socially undesirable (Bull & Rumsey, 1988). Using rank-ordered preferences of standardized pictures, Richardson (1970, 1976, 1983) found that pictures of children with a cosmetic disability (i.e., facial scar or obesity) were the least preferred by children when compared to a variety of other functional disabilities (e.g., a child with crutches or a

child with left hand missing). Harper (1995) reported that this pattern of negative attitudes toward children with a facial deformity also persists across non-western cultures. Furthermore, there is increasing evidence that there are sex differences in negative attitudes toward people with facial deformities. The evidence suggests that girls are less likely than boys to interact with a child with a cosmetic disability (i.e., facial scar or disfigurement), and boys tend to display more negative attitudes than girls towards children with functional disabilities (i.e., children in a wheelchair or with missing limbs; Reed, Robathan, Hockenhull, Rostill, Perette, & Lees, 1999; Richardson, 1970). In their study, Nabors, Lehmkuhl, and Warm (2004) found that five- to nine-year-old children gave lower acceptance ratings for children with facial scars than for control subjects without facial disfigurement. Additionally, Nabors and Keyes (1997) noted context-specific preferences towards children with disabilities. Specifically, when the context demanded physical activity (i.e., playground activities), children in their study preferred to interact with non-disabled children and children with a facial scar over children who were seated in a wheelchair which suggests that attitudes and willingness to interact is context-specific (Harper, Wacker, & Cobb, 1986).

Although the evidence for negative social attitudes toward disabilities and facial disfigurement is plentiful, there have been only a few studies in which social attitudes of children and adults towards individuals with specific craniofacial anomalies such as CLP have been investigated. Kapp-Simon and McGuire (1997) found that peers of children with craniofacial conditions (CFC) tended to address these children less frequently and for shorter durations, and they were less likely to respond when a child with a CFC addressed them. Both of these findings indicated a lack of willingness for peers to

interact with children with CFCs. Reed and colleagues (1999) also investigated the differences in willingness of children without CLP to interact with children with and without CLP. They found that children without CLP, in general, preferred to interact with non-clefted children. These same effects also are found in other cultures. For example, Harper and Peterson (2001) asked children from the Philippines to rate their willingness to interact with children with and without CLP who were depicted in line drawings. These researchers found that children without CFAs gave very low preference ratings for interacting with children with CLP and these ratings were significantly positively correlated with ratings that were made by children in Western cultures. Schneiderman and Harding (1984) showed non-clefted children photographs of children with and without a visible cleft lip and had them rate each picture using a semantic differential task (i.e., bipolar adjectives). Based on this procedure, they found that children with cleft lip were rated more negatively than children without cleft lip. Similar findings had been reported by Tobiason and Hiebert (1984). Subsequently, Tobiason (1987) provided children with photographs of other children, and she asked them questions regarding social issues (i.e., friendliness, popularity, attractiveness, and intelligence). The children with CLP were more likely to be viewed as less friendly, less popular, less attractive, and less intelligent. Slifer et al. (2006) found that children with CFAs who rated themselves low on social acceptance by others also displayed fewer positive facial behaviors that indicated social competence.

Few studies exist in which college students' attitudes towards individuals with cleft lip have been investigated. Okkerse, Beemer, Cordia-De Haan, Heinemen-De Boer, Mellenbergh, and Wolters (2001) assessed college students' ratings of children with and

without CFAs. They found that the students' ratings of attractiveness and other social variables were significantly more negative for children with than without CFAs. The study of attractiveness is important in the CFA literature, because facial behaviors and facial attractiveness are variables that significantly influence other people's perceptions of self-confidence and social competence (Okkerse et al., 2001).

Although there is evidence that children often rate other children with CFAs and CLP lower than they rate children without CFAs or CLP, there is little evidence to indicate that this trend continues into early adulthood. Most studies of this nature have investigated adult (e.g., parents or teachers) attitudes toward children with CLP. Few studies have directly investigated adult attitudes towards other adults with CFAs. In one such study, Scheuerle, Guilford, and Garcia (1982) found that videotaped adult males with cleft lip and palate who were applying for a job were rated more negatively on measurable characteristics (e.g., speech and appearance) by business and professional men without CLP than were males in the non-clefted control condition. These findings suggest that negative attitudes do persist into adulthood; however, more evidence is needed to substantiate this claim.

Attitude Change. Much of the research about attitudes involves modification or change of attitudes. There are two leading lines of research regarding positive attitude change. First, researchers have investigated whether contact and exposure to the attitudinal objects improves attitudes (Allport, 1954; Cline, Proto, Raval, & Dipaolo, 1998; Olson & Zanna, 1993; Pettigrew, 1998; Yuker, Block, & Youngg, 1966). Second, researchers also have investigated the effects of information on attitudes and found that it can improve attitudes (Ajzen & Fishbein, 1980; Corrigan, River, Lundin, Penn,

Uphoff-Wasowski et al., 2001; Ronald, 1977; Sigelman, Miller, & Whitworth, 1986). A brief review of the literature regarding underlying mechanisms of attitude change and the effects of social contact and information on attitudes toward individuals with disabilities and cleft lip and palate is warranted.

A substantial amount of empirical work has been conducted on the underlying mechanisms that mediate attitude change. One of the most widely accepted models is the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986). They proposed that attitude change is determined by how motivated a person is to cognitively process information regarding the attitudinal object. Two separate pathways to process information are proposed in the model based on the amount of cognitive effort used to process the incoming information. When cognitive effort is high, the *central route* is utilized in which individuals spend time deeply thinking about and considering the presented information. The central route of cognitive elaboration is that attitude change is influenced by the amount of cognitive processing utilized by the participant; the more cognitive processing that occurs regarding the information presented, the higher the probability of attitude change. If cognitive effort is low or too much information is presented too quickly, however, the *peripheral route* is utilized. An individual's peripheral route of information processing does not take into account the actual information presented. Instead, only the characteristics of the presenter, for example, expertise and attractiveness, are accounted for, and attitude change is achieved when the individual perceives the presenter as an expert and/or more attractive. A similar dual-processing model was proposed by Chaiken, Liberman, and Eagly (1989), and it is called the Heuristic-Systematic Model in which attitude change is a result of using systematic

analysis of the information (high cognitive effort) or heuristic analysis of information (low cognitive effort). It is generally agreed that these two models utilize the same theoretical constructs (Petty, Briñol, & Priester, 2006; Petty, Wegener, & Fabrigar, 1997).

Allport (1954) first proposed the theory that social contact will improve relationships between members of majority and minority groups. This has come to be known as the “contact hypothesis” which is that under certain conditions positive interactions with a member of a stigmatized or stereotyped group will improve or ameliorate negative attitudes towards other members of those same stigmatized groups. Allport specified four necessary conditions for contact to improve negative attitudes: 1) equal status; 2) cooperative pursuance of common goals; 3) personal interaction; and 4) identification and acceptance of social norms provided by authority (e.g., government or another party responsible for legal and policy decisions). There is supportive evidence for this hypothesis in the literature (see Pettigrew, 1998, and Dovidio, Gaertner, & Kawakami, 2003, for extensive reviews). Studies have shown that contact, with the four necessary conditions present, can improve attitudes towards members of racial and ethnic groups (Pettigrew, 1971; Sigelman, & Welch, 1993;), homosexual individuals (Herek & Capitano, 1996), mentally ill persons (Corrigan et al., 2001), elderly persons (Schwartz & Simmons, 2001), persons with intellectual disabilities (McManus, Feyes, & Saucier, 2010), and people with physical and developmental disabilities (Barr & Bracchitta, 2008; Yunker, Block, & Young, 1966).

Although there is supportive evidence for the contact hypothesis, there also is contradictory evidence. In a review of studies investigating the contact hypothesis regarding attitudes towards individuals with disabilities, Yunker (1988) found that only

half of the studies provided evidence for significant improvements in attitudes following contact between individuals with and without disabilities. He also found evidence for negative effects of social contact on attitudes. Additionally, Pettigrew, and Tropp (2006) recently conducted a meta-analysis of studies in which the contact hypothesis was investigated and the analysis revealed positive improvements in attitudes. The analysis also revealed that all forms of Allport's initial conditions were not necessary for attitude change.

Inconsistencies among studies regarding the effects of social contact on attitudes may be due to the frequency and length of the social contact. Many researchers agree that more frequent contact and longer intervals of exposure will improve attitudes (Barr & Bracchitta, 2008; Diamond, 2001; Okagaki, Diamond, Kontos, & Hestenes, 1998). Some researchers, however, report that relatively brief exposure also can significantly alter negative attitudes. For example, Cline, Proto, Raval, and Di Paolo (1998) found that merely showing children photographs of other children with facial disfigurement improved the attitudes of children without CFAs toward those with facial disfigurement. Lee and Rodda (1994) suggest that negative attitudes originate in part from multiple sources: faulty information about the attitudinal object (i.e., the disability or disfigurement); "pervasive sociocultural conditioning" (p. 231); and fear of ostracism. This is a compelling argument; the most effective method of modifying negative attitudes toward others, therefore, may be to include both social contact and accurate information in which basic knowledge is linked to personal experience. It is this approach to attitude change that was used in the current study.

Early researchers believed that negative attitudes develop from early developmental experiences. Fishbein and Ajzen's (1975) expectancy-value model of attitudes explains that information is very important when individuals are developing attitudes toward objects and behaviors. According to this model, attitudes develop in a person based on the behaviors, characteristics, and information displayed and/or provided by the attitudinal object (e.g., the person with CLP). This information is perceived as either positive or negative, and the attitude is formed based on these perceptions. Ronald (1977) noted that children often form specific attitudes based on curiosity (i.e., "why does that person have a scar on his lip?") and the quality and accuracy of subsequent information provided to them. Intuitively, if inaccurate and biased information is provided to children, their attitudes may become inaccurate and biased. On the other hand, accurate and unbiased information is likely to improve or at least neutralize negative social attitudes.

Given the effect of information on attitude development, Ajzen and Fishbein (1980) hypothesized that providing basic and factually accurate information to individuals at various stages of development could improve negative attitudes towards attitudinal objects and behaviors. In a literature review, Dovidio, Gaertner, and Kawakami (2003) reported that improving someone's knowledge about the attitudinal object can improve attitudes in several ways. First, positive and accurate information can reduce individuals' uncertainty regarding face-to-face interactions with a stigmatized individual by providing them with a better understanding of the stigmatized group. Second, information can reduce the probability of interactional avoidance, which may be a result of uncertainty. Finally, information may increase sensitivity to injustice and

reduce prejudicial behavior and thinking. There is a wealth of research that supports these conjectures. Sigelman, Miller, and Whitworth (1986), for example, found that during the early elementary school years, children's preference for play with others who are physically similar increases significantly. The authors note that providing information which helps increase perceived similarities between disabled and non-disabled children improves their interaction preferences. Similarly, Hunt and Hunt (2004) were able to modify adult attitudes toward individuals with disabilities in the work place by using informational interventions. Educational information also can improve attitudes toward individuals with psychological disorders. Corrigan et al. (2001) showed that providing college students with a brief educational intervention program regarding mental illness significantly improved their attitudes toward individuals with schizophrenia. Information about disabilities provided by the media also can affect attitudes. Mathews and White (1990) used a slide presentation to change attitudes and were able to improve attitude toward disabilities. Hall and Minnes (1999) found that television programs that depicted various disabilities enhanced attitudes by providing opportunities for exposure which reduced anxiety regarding social interactions with individuals with disabilities.

Pettigrew (1998) suggested that to optimize attitude change, information should have three characteristics. First, the information must be accurate. Second, the information should produce affective connections in which positive emotions are connected to the attitudinal object. Third, the information should cause an attitudinal "reappraisal" which helps the individual to gain a new perspective on the attitudinal object.

As noted in the literature review above, attitudes toward individuals with disabilities and craniofacial abnormalities are more negative than attitudes toward the nondisabled and those without CLP. There have been few studies, however, in which attitude change toward CLP has been investigated, and the number of studies in which the effects of information and contact on attitudes specifically about craniofacial abnormalities have been examined is especially small. Cline et al. (1998) used an educational intervention and brief exposure to photographs to examine the effects of information on children's attitudes toward other children with facial disfigurement. Their results indicated that knowledge about and exposure to the disfigurement positively altered the children's attitudes. Chan, McPherson, and Whitetail (2006) investigated whether social contact affected the attitudes of adults (e.g., parents, teachers) toward children with CLP. They found that adults with less contact showed less favorable attitudes toward the children with CLP than toward those without CLP. The lack of research in this area warrants continued exploration of the effects of information and personal contact on the attitudes of children and adults toward individuals with CLP and other craniofacial abnormalities.

As noted above, attitude change researchers have focused on the underlying mechanisms that promote attitude change. Additionally, researchers have studied the relationship between age and susceptibility to attitude change and/or flexibility. There appears to be a developmental relationship between age and attitude flexibility. Four of the most widely accepted theories include: the increasing persistence hypothesis; the impressionable years hypotheses; the life stages hypothesis; and the life-long openness hypothesis. The increasing persistence hypothesis is that attitudes are most flexible at a

younger age and that this susceptibility to change slowly decreases with age (Glenn, 1974; 1980). According to this hypothesis, beliefs and cognitions are influenced by socialization and developmental experiences (i.e., social learning). A person's attitudes and beliefs reflect each of their social and developmental experiences, and leads to increased attitude stability. Additionally, it is argued in this hypothesis that as people age they socialize with others who have similar attitudes and beliefs, further crystalizing their existing attitudes over time (Gergen & Back, 1966; Newcomb, Koeing, Flacks, & Warwick, 1967).

In a second attitude flexibility hypothesis, called the impressionable years hypothesis, it is proposed that flexibility in attitudes is highest during the transition from adolescence to adulthood, ages 18 to 25, because attitudes during this time are plastic (Newcomb et al., 1967; Sears, 1975). It is proposed that attitudes during this transitional period are most plastic because people have an increased interest in novel topics and topics beyond their current worldview. For example, young adults are able to vote in political elections and serve in the military, both of which provide them with an opportunity to establish their own belief systems separate from those of their parents, their primary caregivers, and/or their families of origin. According to the impressionable years hypothesis, however, there is a sharp decline in openness to attitude change over time and by middle-age the probability of attitude change is low. There is some empirical support for this hypothesis, and many researchers agree this model may provide the most comprehensive understanding of the relationship between age and attitude flexibility (Lewis-Beck, Jacoby, Norpoth, & Weisberg, 2008; Stoker & Jennings, 2008).

In the life stages hypothesis, it is suggested that a curvilinear relationship between age and susceptibility to attitude change. Similar to the impressionable years hypothesis, it is suggested in the life stages hypothesis that susceptibility to attitude change is high during early adulthood, and it decreases during middle-age susceptibility. In late adulthood, however, the life stage hypothesis predicts a subsequent increase in susceptibility to attitude change. This late-age susceptibility to attitude change may be the result of a decrease in social support that may be associated with loss of close relationships through death (Lang & Carstein, 1994). Early and late adulthood are marked by higher susceptibility, because they are associated with numerous developmental changes that may impact people's beliefs about social topics. For elderly individuals, these transitions may include cognitive decline, social withdrawal, and decreases in health and wellness (Burt, 1990; Steckentrider & Cutler, 1989).

In a final model of attitude change, called the life-long openness model, it is suggested that susceptibility to attitude change is relatively stable over the lifespan. According to this model, individuals are flexible throughout life, and attitudes continually change in response to various life experiences (Brim & Kagan, 1980). Some researchers (Krosnick & Alwin, 1989) suggest that this model is not radically different from the other models, because *susceptibility to attitude change may decrease over time; however, the decrease may never reach extremely low levels.* Tyler and Schuller (1991) conducted a series of experiments testing the life-long openness model and the impressionable years hypothesis. They examined the openness to attitude change across young adults (aged 18-25), adults (ages 26-35), middle-aged adults (ages 36-45), mid-to-late-aged adults (ages 46-60), and late-aged adults (ages 61 and older). The researchers examined

the influence of political and governmental attitudes. Their results supported the life-long openness model because their data suggested that older adult's attitudes were influenced similarly to those of the younger respondents regarding their personal experiences with government.

Taken together, all of the models contribute to our understanding of developmental differences in attitudes. These hypotheses suggest age-related differences in attitudes. In fact, most of the hypotheses suggest that susceptibility to attitude change is highest during young adulthood (ages 18-25). These hypotheses support the use of young adults in the current study, because they tend to be more susceptible to attitude change at that age than older adults. However, although these hypotheses have received empirical attention from researchers, two limitations of research are apparent. First, these hypotheses were developed with adults 18 years and older and not with younger individuals. Second, these hypotheses were based predominantly on political attitudes, and it is unclear whether these hypotheses are applicable to children and young adult's attitudes toward individuals with cleft lip and palate. To date, there have been no studies in which differences between children and young adults have been addressed with regard to the effect of information and personal contact on attitudes toward individuals with CLP. Therefore, more research is required to examine age-related differences in attitudes toward CLP.

The rationale for the current study was twofold. Previous research has suggested that information about and personal contact with individuals with disabilities and craniofacial abnormalities such as CLP improve negative attitudes (Allport, 1954; Barr & Barrchita, 2008; Beh-PaJooh, 1991; Budisch, 2004; Chan, McPherson, & Whitehill,

2006; Corrigan et al., 2001). The first purpose of this study, therefore, was to investigate whether information and/or personal contact improves social attitudes in groups of children and young adults toward people with CLP. The second purpose was to examine age-related differences in attitudes toward individuals with CLP as rated by non-clefted children and young adults.

Research Hypotheses

Attitudes toward people with CLP were investigated using a pretest/posttest combined within- and between-groups design. Two age cohorts were examined: children (4th and 5th graders) and young adults (college students). Each age cohort was divided into three groups. Two experimental groups within each age cohort were provided with CLP-related information: participants in both cohort's *Information Only* group received educational information regarding CLP; participants in both cohort's *Information plus Contact* group received educational information regarding CLP and personal contact with an adult male with CLP who talked to participants about his successful academic, athletic, and personal life. *No Intervention* (control) groups in both age cohorts were provided with information unrelated to CLP for the same length of time as the experimental groups' presentations. Within this 2x3 pretest/posttest experimental design, the following hypotheses were tested:

H_1 : Type of intervention will determine the amount of attitude change from pretest to posttest in both age cohorts (child and young adult). Treatment groups (*Information Only* and *Information plus Contact* groups) in both age cohorts will show a significant positive change in attitudes from pretest to posttest, and the *Information plus Contact* group in both cohorts will show the most positive change in attitudes. *No*

Intervention (control) groups in both age cohorts will show no change in attitudes from pretest to posttest.

H_2 : There will be significant differences in attitudes toward CLP between the two age cohorts at posttest. Specifically, the child treatment groups (*Information Only* and *Information plus Contact* groups) will show significantly lower attitude scores than the comparable young adult treatment groups at posttest. There will be no significant differences in posttest attitude scores between the child and the young adult *No Intervention* (control) groups.

CHAPTER TWO

METHOD

Participants

Of the 417 participants who were recruited to participate in the study, 189 completed the study with data viable for analysis. Within the child cohort, 137 out of 161 available parents completed and signed consent forms giving permission for their children to participate. Of the 137 children with parental permission, 110 of them signed the assent form and were provided with the pretest procedures; data from 32 of these children later were excluded from the analysis because the children failed to complete the entire pretest and/or were unavailable on the day of posttest. The predominant reasons for posttest unavailability included absenteeism due to illness or other personal matters and special educational programming. In sum, pretest-posttest child attrition rate was 29% (i.e., 32 of 110). The data from 78 of the children were retained for final analysis.

Within the young adult cohort, 280 college students initially signed up to participate in the study. A total of 176 participants completed consent forms and were administered the pretest. Sixty-five of these students either failed to complete the entire pretest or did not return for the posttest portion of the study. This represents a 37% attrition rate (i.e., 65 of 176). Data was retained for analysis from 111 young adult participants.

Participants in both age cohorts were randomly assigned to three groups: the *No Intervention* (control) group; the *Information Only* group; and the *Information plus Contact* group. This division of groups within each age cohort resulted in six age-by-condition groups.

The age range of the child cohort was 9 - 11 years ($M = 10.01$, $SD = .68$), with 30 males and 48 females. Of the 78 child participants, 65.38% classified themselves as Caucasian, 21.79% as African-American, 3.84% as Hispanic, 3.84% as Asian, and 5.12% as Other. The young adults ranged in age from 19 - 36 years ($M = 19.58$, $SD = 2.38$), with 46 males and 65 females. Of the 111 young adult participants, 71.17% classified themselves as Caucasian, 19.82% as African-American, 1.80% as Hispanic, 5.41% as Asian, and 1.80% as Other. Age, ethnicity, and sex descriptives of the child cohort are summarized in Table 1.

Table 1. Demographic Characteristics for the Child and Young Adult Cohorts

	Child Cohort (<i>n</i> = 78)	Young Adult Cohort (<i>n</i> = 111)	Combined (<i>n</i> = 189)
Age	<i>M</i> = 10.01; <i>SD</i> = .68	<i>M</i> = 19.58; <i>SD</i> = 2.38	
Ethnicity			
Black	17	22	39
White	51	79	130
Hispanic	3	2	9
Asian	3	6	5
Other	4	2	6
Sex			
Male	30	46	76
Female	48	65	113

Measures and Materials

Attitudes. A modified version of the Multidimensional Attitudes Scale toward Persons with Disabilities (MAS; Findler, Vilchinsky, & Werner, 2007) was used in the current study to measure the attitudes of participants in all six groups toward individuals with CLP. The MAS is a 34-item self-report questionnaire designed to measure a participant's attitudes toward people with disabilities. A vignette system is used in which respondents are asked to read an authentic scenario and answer related questions. This third-person technique is employed to measure a participant's thoughts, behaviors, and emotions in an indirect fashion, as recommended by Antonak and Livneh (2000). This technique reduces the impact of socially desirable responding, because it allows

respondents to express their attitudes indirectly rather than directly and in a socially appropriate manner. There are dual forms of the MAS for men and women, and a gender-neutral form was used in this study to simplify the administration.

The MAS was constructed to assess all three theory-based dimensions of attitude: cognitive, behavioral, and affective. The cognitive subscale was constructed using items from the College Interaction Self-Statement Test (CISST; Fichten & Amsel, 1988). The behavioral subscale was created using items that incorporate approach behaviors (e.g., start a conversation), escape behaviors (e.g., move to another table) and avoidance behaviors (e.g., continue what the person is doing). The affective component of the scale was constructed using the schematic map of core affect (Russell, 1980; Russell & Barrett, 1999). The authors of the MAS used factor analysis to establish reliability and validity. A principle components factor analysis resulted in the three expected distinct dimensions (cognitive, behavioral, and affective), which had moderate intercorrelations. According to Findler, Vilchinsky, and Werner (2007), the strongest correlation was found between behaviors and emotions ($r = .41, p < .001$) and the weakest was found between and cognitions and emotions ($r = .23, p < .01$). Concurrent validity was established using correlation coefficients between the MAS and the Attitudes Toward Disabled Persons Scale (ATDP; Yuker Block, & Youngg, 1966), a widely used attitudinal questionnaire with established reliability and validity. Each dimension of the MAS was positively correlated with the ATDP. Cronbach's alpha reliabilities for the cognitive, behavioral, and affective dimensions were moderate to high: .83, .88, and .90, respectively.

Modifications of the MAS were necessary in order to make it appropriate for the study of attitudes specifically toward CLP in the modern public school and college

settings. The following changes were made: 1) all references to disabilities were changed to “cleft-lip and palate”; 2) in the vignette, “coffee shop” was changed to “cafeteria”; 3) several of the stimulus words in the affective portion of the scale were modified to make them more age appropriate (e.g., “serenity” was changed to “peacefulness” and “pity” was changed to “sympathy”); 4) in the cognitive portion of the instrument, the phrase “read the newspaper” was changed to “listen to iPod, “talk on the cell phone,” or “play a handheld videogame” to make the items more contemporary; 5) an age-appropriate stimulus picture was presented with the questionnaire items to help participants visualize the characters in the story; and 6) for the child MAS only, the emotions presented in the emotion portion of the measure were accompanied by “emoticons” (i.e., cartoon-like representations of facial expressions and emotions) that depicted specific emotions.

Participants are instructed on the MAS to rate each scale item based on the degree of likelihood that they might experience certain emotions, thoughts, and behaviors, using a 5-point Likert-type scale ranging from 1 (*not at all*) to 5 (*very much*). Higher scores represent more negative attitudes. The modified version of the MAS for each cohort may be examined in Appendix A and Appendix B.

Social Desirability. A short version of the Marlowe-Crowne Scale (Crowne & Marlowe, 1960) was used to assess biased responding based on social desirability. The original Marlowe-Crowne scale has 36 items; however, as recommended by Ballard (1992), the short form with only 13 specified items from the original scale were used to assess social desirability in the current study. Although there has been some controversy regarding the reliability of the short version of the Marlowe-Crowne Scale,

Barger (2002) reported that short versions are useful especially when time and fatigue are factors. Furthermore, Ballard found that internal consistency reliability of the short version of the scale was acceptable (Cronbach's alpha = .70) and nearly as high as the full scale Marlowe-Crowne Scale (Cronbach's alpha = .75). In the version provided to children in the current study, some of the language was modified for age-appropriateness and readability. For example, the word "rebellious" was changed to "going against my parents," and "good fortune" was changed to "good luck." The items that were included in the short version administered to each age cohort are listed in Appendix C and Appendix D. The Marlowe-Crowne scores were used as a covariate variable in the data analyses for both age cohorts.

Informational Videos. Educational videos were used during the intervention phase of the study. Participants in both age cohort's No Intervention (control) groups were provided with a 7-minute informational video related to anxiety. The film was part of "The Answered Patient Series" entitled "Anxiety Overview" (Hanson, 2008) which was produced by AnswersTV.com, a business of AnswersMedia, LLC. The video consisted of information regarding the five main anxiety disorders, symptoms, diagnostic issues, and the available treatments. The *Information Only* and *Information plus Contact* groups in both age cohorts were provided with a 7-minute educational film related to CLP entitled "To Have and To Hope: Children with Cleft Lip and/or Palate" (Burststein, 2006). The video was created by The Children's Healthcare of Atlanta Center for Craniofacial Disorders. Modifications to the original video were necessary, because the original video was intended for parents and families, and some of the content was inappropriate for young children. The video was edited for content, and the audio was re-dubbed to make

the language more appropriate for participants in the study. Both videos were identical for each age cohort.

Demographic Questionnaire. Participants were asked to complete a demographic questionnaire that elicited information about their age, ethnicity, gender, academic grade, and other pertinent demographic information. Two additional questions were added to the demographic questionnaire to assess previous contact between participants and individuals with CLP. The first question was “Do you have a cleft lip and/or palate?” The second question was “Have you ever had any contact with anyone with a cleft lip and/or palate?” If an affirmative answer to the second question was given, participants were instructed to describe the nature of the contact. The demographic questionnaire for each age cohort may be examined in Appendix E and Appendix F.

Procedure

Child Cohort. The child participants were recruited from the 4th and 5th grade classes at an elementary school in a mid-sized city in northwest Louisiana. Consent forms and demographic information were obtained from the parents prior to the initiation of experimental procedures. The initial letter sent to parents and consent forms may be examined in Appendix G and Appendix H, respectively. Only children whose parents provided a signed consent form were eligible to participate in the study. A repeated measures design was employed and data collection was conducted over two separate days separated by one week (pretest and posttest). Pretest/posttest procedures were each conducted on two separate occasions in order to obtain adequate child sample sizes in each of the three experimental groups. Study procedures were consistent across the two data-gathering sessions.

On the day of the pretest, the child participants were escorted at a prearranged time from their regular classrooms to an unoccupied classroom by a female research assistant without a cleft lip and/or palate. Each child was asked to complete an assent form after the study and the form had been explained. The assent form may be reviewed in Appendix I. Children who decided against participation were returned to their classrooms without punitive consequences ($n = 3$). After assent forms were signed by the remaining children, they were provided with a definition of cleft lip and palate adapted from KidsHealth.org by the Nemours Foundation (2010):

The word cleft means a gap or split between two things. A cleft lip is a split in the upper lip. This can happen on one or two sides of the lip, creating a wider opening into the nose. A cleft palate is a split in the roof of the mouth. The word palate is talking about the roof of the mouth. You can run your finger or tongue across the roof of your mouth and feel the palate. This leaves a hole between the nose and the mouth. Sometimes a cleft lip and cleft palate occur together in the same student. Cleft lip and cleft palate are very common and occur in about 1 in 700 babies born in the United States each year.

Cleft lip and cleft palate are birth defects. Normally, the mouth and nose of a baby grow early on in the pregnancy. In some babies, parts of the lips and roof of the mouth don't grow together quite right. Because the lips and the palate don't grow at the same time, it's possible to have a cleft lip, a cleft palate, or both.

We don't always know why a particular baby has cleft lip or cleft palate.

Sometimes it runs in families. Other times, cleft palate is part of a syndrome,

meaning there are birth defects in other body parts, too. Sometimes a cleft may be related to what happened during a mother's pregnancy, like a medication she may have taken, a lack of certain vitamins, or exposure to cigarette smoke. Most of the time, however, the cause of the cleft is unknown and could not be prevented.

Next, the child participants were asked to sign in, and they were given a participant number. Assent forms and other identifying information were kept separate from the participation numbers which were used to keep all data anonymous and confidential. The participants next completed the demographic questionnaire and the Marlowe-Crowne Scale. Prior to completing the MAS, a pictorial example of a male child with a repaired cleft lip and palate was presented to the participants using a still picture presented on a television screen. The picture was used to help the participants better visualize the character represented in the MAS. Finally, the researcher read aloud the MAS to the children, and they were provided answer sheets to record their responses to each question.

Following the baseline measure of attitudes (MAS pretest), participants were matched on baseline MAS scores and assigned to one of the three experimental groups. Group 1: *No Intervention/control*; Group 2: *Information-Only*; and Group 3: *Information plus Contact*. One week after baseline measurement (pretest), participants were brought out of their classes again to complete the experimental portion of the study. Children in Group 1 were asked by a female researcher without a cleft lip and palate to watch the 7-minute video related to an unrelated topic (i.e., anxiety). Following the video, a 5-minute summary was read to the children, and they were administered the MAS (posttest). Participants in Group 2 were asked by a female researcher without a cleft lip

and palate to watch a 7-minute informational video related to cleft lip and palate (see description above). Following the video, a 5-minute summary was read to the children, and the children were administered the MAS (posttest). The procedure for Group 3 mirrored that of Group 2 with two fundamental differences: a male researcher with a repaired cleft lip and palate facilitated the informational CLP video. Additionally, instead of providing the participants with a summary of the video, the researcher provided this group with a 5-minute speech detailing his experiences as someone living with a repaired cleft-lip and palate. The speech was intended to be motivational in nature and provide participants with a better understanding of the academic, athletic, and personal successes of individuals with CLP. Following the motivational component, each participant was asked to complete the MAS (posttest). The researcher was not present while participants completed the MAS in order to not bias participant responses.

Young Adult Cohort. Young adult participants were recruited from undergraduate sections of psychology courses at a rural, southern university with approximately 10,000 students. To aid in the recruitment process, extra credit was provided to participants by all course instructors if they completed their participation commitment. These college student participants also were enrolled in a raffle to be eligible to win a \$25 Visa Giftcard if they participated in both days (pretest and posttest) of the experiment. Given the repeated measures design, data collection was conducted over two separate days separated by one week. Approximately one week prior to the initial experimental session, each participant was given an opportunity to sign up for pretest and posttest dates and times. Paper reminders were provided to reduce the probability of participant attrition.

Participants arrived on the first day and were provided a participant number. This number was used as an experimental identification. Participation numbers were kept confidential and separated from other identifying information. All pretest procedures were conducted by female graduate research assistants without cleft lip and/or palate. During the initial session, participants were asked to complete consent forms. The young adult consent form may be viewed in Appendix J. After the consent forms were collected, participants were instructed to use only their participant numbers on the remaining materials. Next, participants were provided with the same definition of cleft lip and palate as given to the child cohort. Participants next completed the demographic questionnaire and the Marlowe-Crown Scale. After these materials were completed, participants were shown an example of a young adult male with a CLP using a standard overhead projector, and then they completed the MAS (pretest). After participants completed the MAS, they were reminded to keep their participant numbers for use on the second day (one week later) of the experiment. Participants in the young adult cohort, just as with the child cohort, were matched based on their MAS baseline (pretest) scores and randomly assigned to one of the three experimental groups (*No Intervention* [control], *Information Only*, and *Information plus Contact*). The second day's procedure was identical to that of the children's procedure. For the young adult cohort, the two-day experimental procedures were conducted on four separate occasions in order to obtain adequate young adult sample sizes in each of the three experimental groups.

Data Analysis

All data were entered into the statistical software package SPSS 10.0 for analysis purposes. Two separate doubly multivariate analysis of covariance (MANCOVA) were used to analyze within-group pretest/posttest changes in MAS scores in the two age

cohorts and between-group differences in MAS scores between the two age cohorts at posttest (H_1). For each analysis, the independent variable was group membership which had three levels: *No Intervention* (control), *Information Only*, and *Information plus Contact*. Each group was considered independent. The four dependent variables at pretest and at posttest were the four MAS scores: Emotion, Cognitive, Behavior, and Total. The dependent variables were considered continuous, interval level measurements. Covariate variables in these analyses included Marlowe-Crowne social desirability scores for both age cohorts and age for the child cohort (to address possible developmental differences between 4th and 5th graders who were 9 – 11 years old).

A separate MANCOVA was used to analyze age-related differences in posttest MAS scores (H_2). As in the previous MANCOVAs, the independent variables were group membership (*No Intervention* [control], *Information Only*, and *Information plus Contact*) and cohort (child or young adult), and emotion, cognitive, behavior, and total MAS posttest scores were the dependent measures. Pretest MAS scores and social desirability scores were used as covariates in this analysis. This MANCOVA was designed to examine multiple dependent variables for differences between independent groups (cohort and group) while controlling for other variables that may have influenced the DV (pretest scores and social desirability).

CHAPTER THREE

RESULTS

Analysis of Pretest MAS Scores

Due to the repeated measures design and the multivariate nature of the current study, it was necessary to examine pretest scores of the four MAS dependent measures (Emotion, Cognitive, Behavior, and Total) for homogeneity of variance across all intervention groups in both age cohorts. It was important that groups within each cohort had similar baseline attitude (MAS) scores. For example, it was essential that participants in the child *No Intervention* (control) group had comparable pretest attitudes to those in the other child groups (*Information Only* and *Information plus Contact* groups). Furthermore, because age-related differences were a topic of interest, it was important that baseline attitudes were consistent across cohorts as well, i.e., that participants in the child groups had similar pretest scores as those in the young adult groups for each of the four dependent variables. Separate Analysis of Variance (ANOVA) analyses were conducted to assess differences between groups within each cohort on each of the four dependent variables. The results of these multiple ANOVAs analyses are presented in Table 2. Furthermore, means and standard deviations for each dependent variable by group and cohort are presented in Table 3.

Table 2. Results of ANOVAs Assessing Group Differences in Pretest Scores

Dependent Variable	<i>MS</i>	<i>df</i>	<i>F</i>	<i>p</i>
Emotion	.064	4	.129	.972
Cognitive	.039	4	.056	.994
Behavior	.096	4	.128	.972
Total	.266	4	.080	.988

Table 3. MAS Pretest Scores Means & Standard Deviations by Group & Cohort

Child Cohort	Emotion	Cognition	Behavior	Total
No Intervention Group	2.26 (0.75)	2.46 (1.01)	2.21 (0.83)	6.92 (1.97)
Information Only Group	2.39 (0.75)	2.46 (0.83)	2.25 (0.82)	7.09 (1.79)
Information Plus Contact Group	2.29 (0.62)	2.40 (1.06)	2.31 (1.05)	7.01 (2.18)
Young Adult Cohort				
No Intervention Group	2.53 (0.66)	2.32 (0.79)	2.35 (0.84)	7.20 (1.78)
Information Only Group	2.54 (0.76)	2.28 (0.62)	2.42 (0.91)	7.24 (1.65)
Information Plus Contact Group	2.50 (0.70)	2.24 (0.66)	2.29 (0.75)	6.95 (1.57)

Overall, there were no significant differences in pretest scores between the child and young adult cohort groups. Given no between-group differences in baseline MAS scores, the proposed analyses were considered appropriate and were subsequently conducted.

Child Data

Descriptive statistics (pretest and posttest MAS scores) for all three groups of children are shown in Table 4. For this analysis, the between-group independent variable was intervention (i.e., represented by *group*) with three levels (i.e., *No Intervention/Control*, *Information Only*, and *Information plus Contact* groups). Age was used as a covariate due to possible developmental differences between 4th and 5th graders. Scores on the Marlowe-Crowne Scale were used as covariates to address social desirable responding.

Table 4. Group Pretest/Posttest MAS Scores for Child Cohort

Emotion	Pretest <i>M (SD)</i>	Posttest <i>M (SD)</i>	Difference	% Change
No Intervention	2.28 (0.75)	2.37 (0.69)	-0.09	-.395
Information Only	2.39 (0.75)	2.13 (0.69)	0.26	10.88
Information plus Contact	2.36 (0.59)	2.36 (0.71)	0.00	0.00
Cognition				
No Intervention	2.50 (1.02)	2.56 (0.99)	-0.06	-2.40
Information Only	2.46 (0.83)	2.44 (0.88)	0.02	0.81
Information plus Contact	2.50 (1.04)	1.93 (0.65)	0.57	22.54*
Behavior				
No Intervention	2.23 (0.84)	2.17 (0.95)	0.06	2.69
Information Only	2.25 (0.82)	2.06 (0.69)	0.19	8.44
Information plus Contact	2.40 (1.05)	1.87 (0.85)	0.53	22.08
Total				
No Intervention	7.00 (1.97)	7.09 (2.35)	-0.09	-1.29
Information Only	7.09 (1.79)	6.63 (1.79)	0.46	6.49
Information plus Contact	7.11 (2.08)	6.17 (1.385)	0.96	13.50

Note: Negative numbers indicate an increase in MAS scores from pretest to posttest.

* $p < .05$.

The within-group independent variable was pretest and posttest scores, represented as *time*. Emotion, cognitive, behavioral and the total MAS scores were the dependent variables. Univariate normality was assessed using Quantile-Quantile (Q-Q) plots for each of the dependent variables. Inspection of these plots indicated acceptable univariate normality. No significant outliers were found in the data and the data did not require transformation due to non-normality. Analysis of missing data revealed that three children failed to complete the social desirability scale, so their data were removed from the analysis. The assumption of linearity was analyzed using correlation matrices to ensure moderate bivariate relationships between all pairs of dependent variables. The dependent variables were correlated and linearity was judged to be sufficient. A Box's test was attempted in order to assess the assumption of homogeneity of covariance matrices. However, SPSS was unable to perform this test because there were fewer than two nonsingular cell covariance matrices. According to Leech, Barrett, and Morgan (2005), multivariate analysis is robust to violations of homogeneity of variance-covariance matrices if sample sizes are equal and when groups are independent. In this case, the sample sizes were similar and the groups were independent of each other. According to some researchers (Field, 2006; Tabachnick & Fidell, 2007), Pillai's trace statistic is a more appropriate statistic to utilize than Wilks' Λ when violations of homogeneity of variance-covariance matrices occur. Given the difficulty assessing this assumption and to take a more conservative stance, Pillai's Trace statistic was used in the analysis. Additionally, Levene's test was conducted to test the univariate assumption of homogeneity of variance. None of the analyses resulted in significant differences in

variance among groups. Overall, the assumptions of multivariate analysis were considered met for this set of data and further analyses were warranted.

A mixed multivariate analysis of covariance (MANCOVA; also called doubly multivariate) was conducted to assess differences between the *No Intervention* (control), *Information Only*, and *Information plus Contact* groups in the amount of pretest-posttest change in each of the four MAS scores while controlling for age and level of social desirability. It was hypothesized (H_1) that treatment groups (*Information Only* and *Information plus Contact* group) in the child cohort will show a significant positive change in attitudes from pretest to posttest and that the *Information Plus Contact* group will show the most change. The between-groups effect of group for the linear combination of the dependent variables was nonsignificant, Pillai's Trace = .072, $F(8, 136) = .634, p > .05, \eta^2 = .036$. The within-subject results indicated a significant interaction between the two factors of *time* (pretest and posttest) and *group*, Pillai's Trace = .157, $F(8, 134) = 2.025, p = .048, \eta^2 = .108$. Significant within-subjects effects were found for the main effect of time, Pillai's Trace = .140, $F(4, 67) = 2.735, p = .036, \eta^2 = .140$. The age covariate significantly influenced the combined dependent variable for time, Pillai's Trace = .157, $F(4, 67) = 3.11, p = .021, \eta^2 = .157$, whereas the social desirability scores did not, Pillai's Trace = .038, $F(4, 67) = .658, p > .05, \eta^2 = .038$.

To address the significant multivariate within-groups interaction between time and group, follow-up contrasts (ANCOVAs) were conducted using each of the four MAS dependent measures and controlling for age and social desirability. Bonferoni's adjustment was used as the post-hoc correction, because there were a relatively small

number of groups. There was no significant interaction for the emotion MAS scores, and no main effect $F(2, 70) = 1.21, p > .05, \eta^2 = .017$. There was a significant interaction effect for time and group for the cognitive MAS scores, $F(2, 70) = 3.508, p = .035, \eta^2 = .091$. The *age* covariate significantly influenced this dependent variable, $F(1, 70) = 1.79, p = .031, \eta^2 = .015$. A comparison of means revealed that posttest cognition scores ($M = 1.93, SD = .65$) were reduced from pretest cognition scores ($M = 2.49, SD = 1.04$) in the *Information plus Contact* group only, representing a 22.54% decrease in cognitive MAS scores. (It should be noted that a decrease in MAS scores from pretest to posttest indicates an improvement in attitudes.) This suggests that providing information and contact to participants was more effective in improving attitudes related to the cognitive component than information alone or providing no intervention. There was no significant interaction or main effect for the behavior MAS scores, $F(2, 70) = .829, p > .05, \eta^2 = .012$. Finally, there was no significant interaction or main effect for the total MAS scores, $F(2, 70) = 1.28, p > .05, \eta^2 = .002$. Although not statistically relevant, general inspection of the means may be useful to understand group differences from pretest to posttest. With the exception of the emotion MAS score, a general trend in the means is illustrated in Table 6; the *No Intervention* (control) group was subject to the least amount of change from pretest to posttest whereas the *Information Only* group sustained more change than the *No Intervention* (control) group but less than the *Information plus Contact* group. Accordingly, this analysis partially supported Hypothesis 1.

Young Adult Data

A separate analysis was conducted with the young adult data. The between-groups variable (i.e., *group*) and within-groups variable (i.e., *time*) were the same as in the child

cohort analyses. Social desirability (i.e., scores on the Marlowe-Crowne Scale) was used as a covariate. Again, the emotion, cognition, behavioral and total MAS scores were used as the dependent variables. The data were transformed to meet the assumptions for multivariate analysis. The initial data had a disparity in sample sizes across groups. Due to unequal sample sizes across groups, the “select cases” function in SPSS was used to randomly eliminate 19 participants from the *Information Only* and *Information plus Contact* groups. The result was an equal sample size across experimental groups ($n = 31$ per group; $N = 93$). One additional student was omitted because he identified himself as having a cleft lip and/or palate on the demographic questionnaire. The resulting sample sizes for the *No Intervention* (control), *Information Only*, and the *Information plus Contact* groups were 31, 30, and 31, respectively. Univariate normality was assessed using Q-Q plots for each of the dependent variables. Inspection of these plots indicated acceptable univariate normality. No significant outliers were found in the data and the data did not require further transformation due to non-normality. Examination of Box’s test revealed a violation of the homogeneity of variance-covariance matrices, Box’s $M = 97.23, p < .01$.

As noted above, multivariate analyses are robust to violations to this assumption if sample sizes are sufficiently large (i.e., greater than 20 per cell) and equal (Leech, Bartlett, & Morgan, 2005). Therefore, further analysis is appropriate. As suggested by other researchers (Field, 2006; Tabachnick & Fidell, 2007), Pillai’s Trace statistic is a more appropriate statistic to utilize than Wilks’ Λ when violations of homogeneity of variance-covariance matrices, so it was used. Additionally, Levene’s test was conducted to test the univariate assumption of homogeneity of variance. None of the analyses

resulted in significant differences in variance among groups. Pre- and posttest means and standard deviations as well as difference scores and percent change are presented in Table 5.

Table 5. Group Pretest/Posttest MAS Scores for Young Adult Cohort

Emotion	Pretest <i>M (SD)</i>	Posttest <i>M (SD)</i>	Difference	% Change
No Information (control)	2.53 (0.66)	2.57 (0.67)	-0.04	-1.58
Information Only	2.55 (0.75)	2.55 (0.71)	0.00	0.00
Information plus Contact	2.50 (0.70)	2.33 (0.66)	0.17	6.80
Cognition				
No Information (control)	2.32 (0.79)	2.60 (0.81)	-0.28	-12.07*
Information Only	2.28 (0.62)	2.30 (0.88)	-0.02	-0.88
Information plus Contact	2.24 (0.66)	2.24 (0.68)	0.00	0.00
Behavior				
No Information (control)	2.34 (0.84)	2.09 (0.72)	0.25	10.68
Information Only	2.42 (0.90)	2.15 (0.87)	0.27	11.16
Information plus Contact	2.29 (0.75)	2.10 (0.68)	0.19	8.30
Total				
No Information (control)	7.20 (1.78)	7.27 (1.70)	-0.07	-0.97
Information Only group	7.24 (1.65)	7.01 (1.95)	0.23	3.18
Information plus Contact	7.04 (1.62)	6.68 (1.55)	0.36	5.11

Note: Negative numbers indicate an increase in MAS scores from pretest to posttest.

* $p < .05$.

A mixed MANCOVA was conducted to assess differences between the *No Intervention* (control), *Information Only*, and *Information plus Contact* groups in the amount of pretest-posttest change in each of the four MAS scores while controlling for level of social desirability. It was hypothesized (H_1) that treatment groups (*Information Only* and *Information plus Contact* group) in the young adult cohort will show a significant positive change in attitudes from pretest to posttest and that the *Information plus Contact* group will show the most change. The between-subjects effect of group for the linear combination of the dependent variables was nonsignificant, Pillai's Trace = .056, $F(8, 172) = .615, p > .05, \eta^2 = .028$. The within-subjects results indicated a nonsignificant interaction between the two factors of *time* (pretest and posttest) and *group*, Pillai's Trace = .086, $F(8, 134) = .971, p > .05, \eta^2 = .043$. A significant within-subjects main effect was found for *time*, Pillai's Trace = .110, $F(4, 85) = 2.639, p = .039, \eta^2 = .110$. This suggests that the linear combination of MAS scores was different at pretest and posttest. Follow-up ANCOVAs for each dependent variable revealed a significant main effect for *time* (change from pretest to posttest) only for the cognitive MAS scores, $F(1, 88) = 5.80, p = .018, \eta^2 = .062$. Bonferoni's adjustment was used as the post hoc correction, because of the relatively small number of groups. Examination of the means revealed that scores in the *No Intervention* (control) group significantly increased from pretest ($M = 2.32, SD = 0.79$) to posttest ($M = 2.60, SD = 0.81$). This appears to be an anomaly and is not in line with Hypothesis 1. (It should be noted that scores were significantly worse at posttest relative to pretest.) The *social desirability* covariate did not significantly influence the combined dependent variable for time, Pillai's Trace = .843, $F(4, 85) = 1.385, p > .05, \eta^2 = .061$.

Age-related Data

To investigate age-related differences in attitudes, the child data and the young adult data were analyzed together. For the purposes of this analysis, the two independent variables were groups (*No Intervention* [control], *Information Only*, and *Information plus Contact*) and cohort (child and young adult). To simplify analysis and subsequent interpretation, posttest MAS scores were used as the dependent variables and the pretest scores were used as covariates, as recommended by Tabachnick and Fidell (2007) and Gliner and Morgan (2000). Additionally, scores on the Marlowe-Crowne Scale (i.e., social desirability) were used as a covariate.

Q-Q plots were used to assess univariate normality for each of the dependent variables. Inspection of these plots indicated acceptable univariate normality. No significant outliers were found in the data, and the data did not require transformation due to non-normality. Three participants with missing values were excluded from this analysis, resulting in relatively equal sample sizes across cohorts ($n_{\text{(child cohort)}} = 75$; $n_{\text{(young adult cohort)}} = 92$). These data violated the assumption of homogeneity of covariance matrices, Box's $M = 138.03$, $p < .001$, therefore, Pillai's trace was used as the criterion statistic (Field, 2006; Tabachnick & Fidell, 2007). Descriptive statistics for this analysis are shown in Table 6.

Table 6. Group Posttest MAS Scores for Both Age Cohorts

	Child Cohort	<i>n</i>	Young Adult Cohort	<i>n</i>
Emotion				
No Intervention	2.37 (0.69)	24	2.57 (0.67)	31
Information Only	2.13 (0.69)	27	2.54 (0.71)	30
Information plus Contact	2.36 (0.71)	24	2.33 (0.66)	31
Cognition				
No Intervention	2.56 (1.00)	24	2.60 (0.81)	31
Information Only	2.44 (0.88)	27	2.30 (0.88)	30
Information plus Contact	1.93 (0.65)	24	2.24 (0.68)	31
Behavior				
No Intervention	2.17 (0.95)	24	2.09 (0.72)	31
Information Only	2.06 (0.69)	27	2.16 (0.87)	30
Information plus Contact	1.87 (0.85)	24	2.11 (0.68)	31
Total				
No Intervention	7.09 (2.35)	24	7.27 (1.70)	31
Information Only	6.63 (1.79)	27	7.01 (1.95)	30
Information plus Contact	6.17 (1.85)	24	6.68 (1.55)	31

A multivariate analysis of covariance (MANCOVA) determined if the posttest MAS scores were significantly different between the three experimental groups within both age cohorts, after adjusting for pretest scores and social desirability scores (i.e., covariates). It was hypothesized (H_2) that there will be significant differences in attitudes toward CLP between the two age cohorts at posttest. Specifically, treatment groups (*Information Only* and *Information plus Contact*) in the child cohort would show significantly lower attitudes than the corresponding young adults groups at posttest. There was a significant interaction effect for *group* and *cohort*, Pillai's Trace = .098, $F(8, 308) = 1.98, p = .048, \eta^2 = .049$, indicating that posttest attitude scores among the participants in the *No Intervention* (control), *Information Only*, and *Information plus Contact* groups differed across conditions as a function of age. Additionally, there was a significant main effect for *group*, Pillai's Trace = .101, $F(8, 308) = 1.98, p = .041, \eta^2 = .05$, but not for *cohort*, Pillai Trace = .025, $F(4, 153) = .965, p > .05, \eta^2 = .025$. None of the covariates significantly influenced the linear combination of the dependent variables.

Follow-up univariate ANCOVAs were performed on each of the posttest MAS scores to address the significant multivariate interaction and main effect. Results revealed no significant interactions. A significant main effect for *group* was noted for the cognitive MAS scores, $F(2, 156) = 6.88, p = .001, \eta^2 = .081$, and the total MAS scores, $F(2, 156) = 3.76, p = .025, \eta^2 = .046$. No significant main effects were noted for *cohort*. Social desirability significantly influenced the cognitive MAS scores, $F(1, 156) = 5.88, p = .016, \eta^2 = .036$, and the total MAS scores, $F(1, 156) = 6.23, p = .014, \eta^2 = .038$. None of the covariates significantly influenced the emotion or behavior MAS scores.

Overall, inspection of the cognitive MAS means, after having been adjusted for social desirability, revealed that participants in *Information plus Contact* group ($M = 1.93, SD = 0.65$) had significantly lower (more positive) MAS scores than those in the *No Intervention* (control) group ($M = 2.55, SD = 1.00$), but not lower than those in the *Information Only* group ($M = 2.44, SD = 0.88$). This treatment effect was only significant in the child cohort. The total MAS posttest means reflect a similar effect. After having been adjusted for social desirability, participants in the *Information plus Contact* group ($M = 6.17, SD = 1.85$) had significantly lower (more positive) MAS scores than those in the *No Intervention* (control) group ($M = 7.09, SD = 2.35$), but not in the *Information Only* group ($M = 6.63, SD = 1.79$), and this treatment effect was only significant in the child cohort. It should be noted that the general trend of the means was in line with Hypothesis 2. In other words, generally speaking, for each DV, the *No Intervention* (control) group showed the highest posttest means, followed by the *Information Only* group. The *Information plus Contact* group generally had the lowest (most positive) posttest test means.

Personal Contact

After the initial analyses, it became apparent that it was important to address the level of prior personal contact each participant had with individuals with CLP and to determine if prior contact differed within groups of each age cohort and between the respective cohorts. The level of prior contact was measured by using a single question “Have you ever had contact with someone with a cleft lip and/or palate? If yes, please explain.” Each participant who answered this question “No” received a score of 1 (*no contact*). Each participant who answered “Yes” received a score of 2 (*contact*). It should be noted that there may be many factors associated with level of contact,

including familiarity (i.e., frequency of contact/interaction) and similarity (i.e., perceived social closeness to the person with CLP based on personal characteristics, values, etc.), so participants were provided with the opportunity to describe the level of prior contact in their own words (Allport, 1954; Pettigrew, 1998). In order to simplify the analysis, however, this variable remained dichotomous and no qualitative analysis was made of participants' descriptions.

Chi-square analyses were conducted to analyze differences in prior contact. Within the child cohort, results indicated a nonsignificant difference in contact between intervention groups, $\chi^2_{(2)} = 0.529$, $p > .05$. Similarly, within the young adult cohort, results indicated a nonsignificant difference in prior contact between groups, $\chi^2_{(2)} = 1.40$, $p > .05$. It should be noted that of the 75 child participants who answered the prior contact question, only five (6.67%) reported having had prior contact with someone with CLP. Of the 92 young adult participants, 34 (36.96%) reported having previous contact with someone with a CLP. Given this discrepancy in prior contact between the cohorts, an additional Chi-square was conducted, and results indicated a significant difference between cohorts, $\chi^2_{(1)} = 21.98$, $p < .00$. Intuitively, this indicates that the young adult cohort had significantly more contact with individuals with CLP than the child cohort.

CHAPTER FOUR

DISCUSSION

The primary goal of this study was to examine the effects of educational information and brief personal contact with someone with a cleft lip and/or palate on children's and young adult's attitudes toward individuals with CLP. Results from the child data suggest that nine to eleven year old children's attitudes can be significantly improved using educational information in conjunction with brief personal contact with someone with CLP. The current data suggest that information alone does not significantly impact children's attitudes, however, a finding that is somewhat inconsistent with the current literature regarding attitude change (Nabors, Lehmkuhl, & Warm, 2004; Rossiter & Horvath, 1996). Attitudes were significantly modified only when children were provided with personal contact with an adult with CLP in addition to accurate educational information.

Only the cognitive component of attitudes was affected by experimental intervention in the current study, a finding that partially supports H_1 . Previous researchers suggest that attitude change is dependent on the content of the message or intervention used to target attitudes. Edwards (1990) investigated "affect-based attitudes" and "cognitive-based attitudes" and concluded that when a persuasive message has predominantly affective elements, it tends to modify the affective component of attitudes and to a lesser degree the cognitive component. Edwards also suggested that when the

persuasive message is heavily cognitively based, the cognitive component is influenced to a greater degree than the affective component. In other words, persuasive messages are effective when the message content matches the attitude structure (called the match hypothesis). In the current study, the methods to acquire attitude change were more cognitively-focused than affective and behavioral. In fact, there was no behavioral element to the intervention. For example, the participants were not taught ways of interacting (e.g., to limit staring, pointing, and/or laughing) or communicating (e.g., not using inappropriate terms such as “hair lip” and/or asking inconsiderate questions) with individuals with CLP. In both age cohort’s *Information Only* groups, there was no emotional component to the intervention. The participants merely watched an informational video and were provided a five-minute summary of the information. In both cohort’s *Information Plus Contact* groups, a small portion of the intervention provided by the adult with a CLP had an emotional or affective element (i.e., motivational tone); however, this was relatively minor element. A more substantial portion of the intervention was informational and designed to raise awareness (i.e., cognitions).

The results from the young adult cohort were inconsistent with the original hypotheses and previous literature (Corrigan et al., 2001; Hunt & Hunt, 2004), because none of the groups showed significant attitude change as a result of intervention. The results suggest that the young adult cohort was resistant to attitude change. This finding came as somewhat of a surprise, and it is clear that more research is required to determine the precise mechanisms of resistance to change noted in the current young adult cohort.

Resistance to attitude change is a well-documented phenomenon in the social psychology literature. Researchers have indicated that resistance to attitude change is influenced by a number of factors including, but not limited to, cognitive elaboration (Petty & Cacioppo, 1986), attitude relevance (Haugtvedt & Petty, 1992), attitudinal strength (Visser & Krosnick, 1998), low ambivalence (Piderit, 2000), and attitude certainty (Smith, Fabrigar, MacDougall, & Wiesenhal, 2007). Cognitive elaboration and attitude relevance may have played an important role in the resistance among participants in the young adult cohort.

With regard to cognitive elaboration and the Elaboration Likelihood Model, Petty and Cacioppo (1986) noted two separate pathways to process information including the central route (high cognitive processing) and peripheral route (low cognitive processing). The central route of cognitive elaboration suggests that the more cognitive processing that occurs regarding the information presented, the higher the probability of attitude change. The peripheral route only takes into account the characteristics of the presenter (i.e., expertise and attractiveness). Using the ELM framework for the current study, participants failed to use the central route and little cognitive effort was achieved because the participants failed to deeply process the presented information. It also could be argued that the young adults did not use the peripheral route effectively either. They may not have viewed the research assistants and/or the principle investigator as “experts” on the topic of CLP given the close proximity of age. Furthermore, the information provided (i.e., educational video) was medically themed and provided information on topics such as feeding equipment, schedule of surgeries, dental care, etc. Perhaps, the young adults did not view the researchers as having sufficient medical knowledge of CLP and,

therefore, were not perceived as medical experts on the topic of CLP. Overall, it is feasible, therefore, that both the central and peripheral routes to cognitive elaboration were weakened by low topic relevance, and this resulted in resistance to attitude change.

Regarding attitude relevance, Haugtvedt and Petty (1992) theorized that the most important determinant of cognitive processing is attitude relevance. When a message is considered by someone to have high self-relevance (i.e., meaningfulness), this motivates the individual to process the message more deeply. In the current study, it is speculated that the topic of cleft lip and palate may have been an uninteresting topic with little relevance in the lives of the young adult college students, and this low attitude relevance may have limited the degree of cognitive processing.

It also is possible that there was limited internal motivation for participation in the study. Participants were provided with opportunities to receive extra credit and to win a monetary award for participation, further weakening their internal motivation to process the provided information at a deeper level. There is anecdotal evidence (based on observations by the principle investigator and reports from several of the research assistants) that many of the young adult students appeared unmotivated to actively engage in the experimental process. Specifically, several students entered the experimental situation and asked “how long is this going to take?” and other participants quickly finished the questionnaires, and very few of them asked questions out of curiosity after the intervention portion of the experimental session. This lack of engagement in the study and/or interest in the topic may have limited cognitive processing and, therefore, increased the participants’ resistance or reluctance to change their attitudes towards individuals with CLP.

The data highlights differences among the age cohort in response to the intervention. The data suggests that children are more heavily influenced by information and personal contact than young adults, at least in regards of CLP. Several factors may have contributed to the age-related differences at posttest between the children and young adults. In the current sample, children may have possessed more internal motivation to participate in the study, because they were not given any external incentive for participation such as extra credit or monetary compensation. Furthermore, participation in the study may have been a novel experience for them, which naturally increased their interest in the study. Some qualitative evidence is available to support this view. For example, after the experimental sessions ended, children asked many more questions regarding CLP than the young adults. In addition, children may have found the study more relevant to their lives than young adults, because children at this age are highly engaged in developing social skills with individuals who are alike and also different from themselves. Less experience with individuals who are different from themselves highlights the type of experience they had in the study. Taken together, increased motivation for, interest in, and personal relevance of the topic of CLP may have promoted deeper cognitive processing (i.e., central route) in the children than in the young adults who participated in the current study. Furthermore, given the differences in age between the researchers and the children, the children may have perceived the adult researchers as having more expertise on the topic of CLP (i.e., peripheral route) than perceived by the young adults, thereby contributing to the children's pretest/posttest cognition attitude change and the lack of significant change for the young adults. It should be noted that in the young adult cohort there was a minimal amount of change

among the scores on the emotion, behavior, and total scores and this change was in the desired direction (i.e., improvement of attitudes). However, it is unclear whether this change in attitudes was due to experimental intervention or merely to chance. Therefore, more research is needed to uncover the specific mechanisms of attitude change among college students regarding attitudes towards individuals with CLP.

Another factor that may support the age-related differences in response to the intervention is child suggestibility. There is substantial support in the literature for the suggestibility of young children. Gudjonsson (1984) defined suggestibility as “the extent to which, within a closed social interaction, people come to accept messages communicated during formal questioning, [and] as a result ... their subsequent response is affected” (p. 2). It has been shown that young children are highly susceptible to suggestion (Bruck, Melnyk, & Ceci, 1997; Ceci & Bruck, 1993), whereas children over the age of 12 and adults tend to be less suggestible. The current sample included children younger than age 12, and perhaps they were more susceptible to influence than the young adults. Suggestibility, therefore, especially in the *Information plus Contact* group, may certainly have contributed to significant differences in posttest scores for the child cohort and not for the young adult cohort. The children’s data revealed significant differences among the cognition and total score variables, and the young adult cohort did not, and these differences may be, in part, due to the increased suggestibility of the child cohort.

The current data suggests that there was a disparity in the amount of previous contact with individuals with CLP between the cohorts. Specifically, more young adults than children indicated that they had had previous contact with individuals with CLP. This finding may be somewhat intuitive given the increased opportunity for interactions

that comes with increased age. However, this is an interesting finding when the baseline attitudes of each cohort are considered. Baseline attitudes between the cohorts were identical, a finding that is inconsistent with current literature. Many researchers suggest that contact with the attitudinal object improves attitudes toward that object (Allport, 1945; Chan, McPherson, & Whitehill, 2006). Results of the current study, however, indicate that previous contact did not result in significant differences in attitudes between the two cohorts at baseline (pretest). This finding may reveal that contact with someone with CLP is not sufficient to produce adequate attitude change. Perhaps a combination of educational information plus contact with an individual with CLP may provide the most positive changes in attitudes. Researchers also have suggested that the quality of contact influences the degree of attitude change (McManus, Feyes, & Saucier, 2010; Schwartz & Simmons, 2001). Schwartz and Simmons suggest that frequency of contact is not sufficient to produce substantial attitude change. Instead, the quality of contact is the most important determining factor with regard to Allport's (1954) contact hypothesis that personal contact with an individual in an out-group can improve attitudes.

Study Strengths, Limitations, and Future Directions

One limitation of the current study is that not enough information was gathered from the participants prior to their participation in the study, including the degree of interest in the topic of CLP (i.e., attitude relevance), and quality of previous contact with individuals with CLP. Given the potential impact on pretest and posttest attitudes, this information would have provided substantial insight into the differences between the child and young adult cohorts with regards to their attitudes toward individuals with CLP. Assessing the participant's perception of the researchers' expertise may also have been beneficial and contributed to the overall understanding of the current study outcomes.

In addition, the experimental design also limited the specificity of conclusions in that one group in each age cohort received educational information about CLP and a second group received both information and contact with an individual with CLP, but the design could not provide insight into the effects of personal contact alone. Adding a *Personal Contact Only* group to the design is highly recommended for follow-up work, because it would provide increased specificity regarding the degree of influence that information and contact each had on attitudes towards individuals with CLP.

To extend the current findings, future research should include measures of attitude relevance and perceived expertise to provide more insight into the exact mechanism(s) that influence age-based differences in attitudes towards CLP. It should be noted there are numerous ways to measure attitudes, and most of the current literature regarding attitudes toward individuals with cleft-lip and/or palate does not use an operational definition to classify the construct of attitudes. Instead, attitudes are measured in some studies by semantic cues (i.e., good vs. bad, happy vs. sad, attractive vs. unattractive, etc.), by attitudinal questionnaires that do not incorporate the three components of attitudes, and by picture ranking methods in which participants are required to rank pictures based on preferences (Chan, McPherson, & Whitehill, 2006; Harper & Peterson, 2001; Richardson, 1970).

The current study is one of few studies in the CLP literature in which attitudes are defined in terms of the empirically validated multicomponent (cognitive; behavioral; emotional) attitude theory proposed by Zanna and Rempel (1988). Furthermore, a psychometrically sound instrument designed to measure these three components of attitudes was used in the current study which was designed to change attitudes toward

individuals with CLP. The empirically validated theory and psychometrically sound instrument are both viewed as strengths of the design and implementation of the current study. Future research should always attempt to operationally define attitudes in order to provide some clarity and consistency among studies.

Further research also should focus on experimental interventions that include all three elements of attitudes, especially behaviorally and/or emotionally-based interventions. Behaviorally-based interventions could use role-play and other simulated learning exercises to provide non-clefted children with feedback regarding how to appropriately interact with individuals with CLP. Emotionally-based interventions could focus on promoting empathy similar to the methods presented by Batson and Ahmad (2009) who describe the importance of empathy toward out-groups and suggest ways to design programs to improve empathy among in-group members. By matching elements of the intervention to the three components of attitudes, researchers may be able to assess more accurately the various influences and nuances of interventions aimed at changing attitudes toward individuals with CLP.

It also would be interesting for future study designs to include a larger number of age cohorts in order to investigate further the age-related differences in attitudes towards CLP. Age groups should include very young children as well as adults in middle and/or late-adulthood. In the current study, sex and race differences in attitudes toward CLP were not investigated. There is empirical evidence that females tend to have more positive attitudes than males in regards to individuals with a variety of intellectual, physical, and/or emotional disabilities (Reed et al., 1999; Richardson, 1970). There is a relative paucity of research on the effects of race on attitudes. Future studies, therefore,

should include a sample sufficient to include sex and race/ethnicity as experimental variables.

Conclusions

In sum, in support of previous research findings that information and personal contact influences attitudes (Allport, 1954; Ajzen & Fishbein, 1980; Cline, et al., 1998; Corrigan et al., 2001; Olson & Zanna, 1993; Pettigrew, 1998; Ronald, 1977; Sigelman, Miller, & Whitworth, 1986; Yuker, Block, & Young, 1966) children's attitudes toward individuals with CLP in the current study were significantly modified using educational information and personal contact with individuals with CLP. Specifically, the combination of accurate information and personal contact enhanced the degree of attitude change over and above the provision of information only. The data also provided support for the match hypothesis (Edwards, 1990), given that the cognitively-based intervention used in this study had a significant effect only on the cognitive-component of attitudes as measured by the MAS. Young adults appeared resistant toward or reluctant to change their attitudes. Age differences in response to intervention were most likely the result of increased motivation, interest, relevance, and suggestibility of the child cohort. Specifically, the child cohort data displayed significant posttest differences whereas the young adult cohort data did not. More research must be conducted to substantiate the findings in both age cohorts and to discover why the young adults were resistant to attitude change. It is believed that the Elaboration Likelihood Model (Petty & Cacioppo, 1986) provides a compelling framework for attitude change and resistance, and it appears to provide a theoretical base for understanding cohort differences. Finally, the current data contributes to the current body of knowledge in the area of attitude change toward individuals with CLP, because it highlights the impact of information and personal

contact on attitudes and it also highlights age-based differences in response to interventions aimed at changing attitudes. Future research would help substantiate the current findings and widen the scope of understanding of social attitudes of non-clefted individuals towards individual's with cleft-lip and/or palate.





APPENDIX A
MODIFIED VERSION OF THE MAS - CHILD VERSION

Participant # _____







Vignette Instructions

Pretend that you are in the following situation. Some friends are sitting at lunch in the school cafeteria. A child with a cleft-lip and palate comes into the cafeteria and sits with this group. The group doesn't know the child. The group introduces themselves, but then everyone leaves, except for one child. The child with the cleft lip and palate and this child are left alone together at the table. They have 15 minutes until they have to go back to class. Try to think of the situation.


People may have a variety of feelings when they are put in a situation like this. Below is a list of possible feelings that may come up before, during, or after this situation. Please rate on each line the likelihood that this *feeling* might come up in the child without cleft lip and palate.

<i>Feeling</i>	<i>Degree of Likelihood</i>				
	<i>Not at All</i>				<i>Very Much</i>
 TENSE	1	2	3	4	5
 SHOCKED	1	2	3	4	5
 UNPLEASANT	1	2	3	4	5
 ANNOYED	1	2	3	4	5

Participant # _____

<i>Feeling</i>	<i>Degree of Likelihood</i>				
	<i>Not at All</i>				<i>Very Much</i>
 CALM	1	2	3	4	5
 KI AXFU	1	2	3	4	5
 PEA EHLI	1	2	3	4	5
 CALM	1	2	3	4	5
 SAD	1	2	3	4	5
 RC TENFU	1	2	3	4	5

Participant # _____

Feeling	Degree of Likelihood				
	Not at All				Very Much
 JEER	1	2	3	4	5
 JUDG	1	2	3	4	5
 JUDG	1	2	3	4	5
 FEEL JOEY FOR	1	2	3	4	5
 DISCH T L	1	2	3	4	5
 A L L	1	2	3	4	5

Participant # _____

People may have a variety of thoughts when they are put in a situation like this. Below is a list of possible thoughts that may come up before, during, or after this situation. Please rate on each line the likelihood that this *thought* might come up in the child without cleft lip and palate.

<i>Ideas or Thoughts</i>	<i>Degree of Likelihood</i>				
	<i>Not at All</i>				<i>Very Much</i>
1. He/she seems to be an interesting guy/girl	1	2	3	4	5
2. He/she looks like an OK person	1	2	3	4	5
3. We may get along really well	1	2	3	4	5
4. He/she looks friendly	1	2	3	4	5
5. I enjoy meeting new people.	1	2	3	4	5
6. He/she will enjoy getting to know me	1	2	3	4	5
7. I can always talk with him/her about things that interest both of us.	1	2	3	4	5
8. I can make him/her feel more comfortable	1	2	3	4	5
9. Why not get to know him/her better?	1	2	3	4	5
10. He/she will appreciate it if I start a conversation	1	2	3	4	5

People may have a variety of behaviors/actions when they are put in a situation like this. Below is a list of possible actions that may come up before, during, or after this situation. Please rate on each line the likelihood that this *action* might come up in the child without cleft lip and palate.

<i>Behaviors/Actions</i>	<i>Degree of Likelihood</i>				
	<i>Not at All</i>				<i>Very Much</i>
1. Move Away	1	2	3	4	5
2. Get up and leave	1	2	3	4	5
3. Listen to iPod or play hand-held video game.	1	2	3	4	5
4. Continue what he/she is doing	1	2	3	4	5
5. Find an excuse to leave.	1	2	3	4	5
6. Move to another table	1	2	3	4	5
7. Start a conversation if he/she doesn't make the first move.	1	2	3	4	5
8. Engage in conversation	1	2	3	4	5

APPENDIX B
MODIFIED VERSION OF THE MAS - ADULT VERSION

Participant # _____

MMAS

Imagine the following situation. Some friends went to lunch at the campus cafeteria. A person with a cleft-lip and palate comes into the cafeteria and sits with the group. The group doesn't know the person. The group introduces themselves, but then, everyone else leaves, except for one person in the group. The individual with the cleft lip and palate, and the remaining person, are left alone together at the table. They have 15 minutes until they have to go back to class. Try to think of the situation.

People experience a variety of *emotions/feelings* when they are involved in a situation similar to the one above. Below is a list of possible emotions, which may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this *feeling* might arise in the person without cleft lip and palate.

<i>Feeling</i>	<i>Degree of Likelihood</i>				
	<i>Not at All</i>				<i>Very Much</i>
1. Tension	1	2	3	4	5
2. Stress	1	2	3	4	5
3. Helplessness	1	2	3	4	5
4. Nervousness	1	2	3	4	5
5. Shame	1	2	3	4	5
6. Relaxation	1	2	3	4	5
7. Peacefulness	1	2	3	4	5
8. Calmness	1	2	3	4	5
9. Sadness	1	2	3	4	5
10. Fear	1	2	3	4	5
11. Upset	1	2	3	4	5
12. Guilt/Sorrow	1	2	3	4	5
13. Shyness	1	2	3	4	5
14. Sympathy	1	2	3	4	5
15. Disgust	1	2	3	4	5
16. Alertness	1	2	3	4	5

Participant # _____

People experience a variety of *ideas or thoughts* when they are involved in such a situation. Following is a list of possible thoughts that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this *thought* might arise in the person without cleft lip and palate.

<i>Ideas or Thoughts</i>	<i>Degree of Likelihood</i>				
	<i>Not at All</i>			<i>Very Much</i>	
1 He/she seems to be an interesting guy/girl	1	2	3	4	5
2 He/she looks like an OK person	1	2	3	4	5
3 We may get along really well.	1	2	3	4	5
4 He/she looks friendly.	1	2	3	4	5
5 I enjoy meeting new people	1	2	3	4	5
6 He/she will enjoy getting to know me	1	2	3	4	5
7 I can always talk with him/her about things that interest both of us.	1	2	3	4	5
8 I can make him/her feel more comfortable	1	2	3	4	5
9 Why not get to know him/her better?	1	2	3	4	5
10 He/she will appreciate it if I start a conversation	1	2	3	4	5

People experience a variety of *behaviors* when they are involved in such a situation. Following is a list of possible behaviors that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that this *behavior* might arise in the person without cleft lip and palate.

<i>Behaviors</i>	<i>Degree of Likelihood</i>				
	<i>Not at All</i>			<i>Very Much</i>	
1. Move Away	1	2	3	4	5
2. Get up and leave	1	2	3	4	5
3. Listen to iPod or play hand-held video game	1	2	3	4	5
4. Continue what he/she is doing.	1	2	3	4	5
5. Find an excuse to leave.	1	2	3	4	5
6. Move to another table	1	2	3	4	5
7. Start a conversation if he/she doesn't make the first move.	1	2	3	4	5
8. Engage in conversation	1	2	3	4	5

APPENDIX C

MARLOWE-CROWNE SCALE - CHILD VERSION

MC

Participant # _____

Directions: Listed below are several statements about how you think. Read each statement and decide whether the statement is similar to how you think. Circle *true* if the statement is like you. Circle *false* if it is not like you.

1. I sometimes feel angry when I don't get my way. T F
2. Sometimes, I have given up doing something because I didn't think I could do it.
T F
3. There have been times when I felt like going against my parents even though I knew they were right. T F
4. No matter who I'm talking to, I'm always a good listener. T F
5. I can remember "playing sick" to get out of something. T F
6. There have been occasions when I took advantage of someone. T F
7. I'm always willing to admit it when I make a mistake. T F
8. I sometimes try to get even rather than forgive and forget. T F
9. I am always courteous, even to people who are unlikeable. T F
10. I have never been bothered when people are very different from me. T F
11. There have been times when I was very jealous of the good luck of others. T F
12. I am sometimes bothered by people who ask favors of me. T F
13. I have never purposely said something that hurt someone's feelings. T F

APPENDIX D
MARLOWE-CROWNE SCALE - ADULT VERSION

MC

Participant # _____

Directions: Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to your personality or way of thinking.

1. I sometimes feel resentful when I don't get my way. T F
2. On a few occasions, I have given up doing something because I thought too little of my ability. T F
3. There have been times when I felt like rebelling against people in authority even though I knew they were right. T F
4. No matter who I'm talking to, I'm always a good listener. T F
5. I can remember "playing sick" to get out of something. T F
6. There have been occasions when I took advantage of someone. T F
7. I'm always willing to admit it when I make a mistake. T F
8. I sometimes try to get even rather than forgive and forget. T F
9. I am always courteous, even to people who are disagreeable. T F
10. I have never been bothered when people expressed ideas very different from my own. T F
11. There have been times when I was quite jealous of the good fortune of others.
T F
12. I am sometimes irritated by people who ask favors of me.
T F
13. I have never deliberately said something that hurt someone's feelings.
T F

APPENDIX E
DEMOGRAPHIC QUESTIONNAIRE - CHILD VERSION

Demographic Information

Participant # _____

How old are you? _____

Male / Female

(Check)

African-American/Black _____

American Indian/Native American _____

Asian _____

Caucasian/White _____

Hispanic/Mexican/Cuban _____

Other _____

Do you have a cleft lip and/or palate? Yes _____ No _____

Have you ever known someone with a cleft lip and/or palate?

Yes _____ No _____

If yes, explain:

APPENDIX F
DEMOGRAPHIC QUESTIONNAIRE - ADULT VERSION

Demographic Information

Participant # _____

Age: _____

Gender: Male / Female

Class Status: (Check)

- Freshman _____
- Sophomore _____
- Junior _____
- Senior _____
- Graduate _____

Major: _____

Ethnicity: (Check)

- African-American _____
- American Indian _____
- Asian _____
- Caucasian _____
- Hispanic _____
- Other _____

Do you have a cleft lip and/or palate? Yes _____ No _____

Have you ever come in contact with a person with a cleft lip and/or palate?

Yes _____ No _____

If yes, explain:

APPENDIX G
PARENT LETTER



LOUISIANA TECH
UNIVERSITY

DEPARTMENT OF PSYCHOLOGY & BEHAVIORAL SCIENCES
PH.D. - COUNSELING PSYCHOLOGY • M.A. - COUNSELING & GUIDANCE,
EDUCATIONAL PSYCHOLOGY • INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY • B.A. - PSYCHOLOGY

April 7, 2010

Dear Parent/Guardian

I am writing to request consent for your child to participate in a research project at Shreve Island Elementary. I am completing the dissertation research for my doctoral degree in Counseling Psychology and will be investigating social attitudes towards children with cleft lip and palate. The research is educational in nature, and it is our intention to make the time spent with the children a fun learning experience for them.

Attached to this letter is a consent form detailing the purpose and procedures of the study. I have received authorization from the school principle, Mrs. Emily Stanford, to conduct this research. I also have received approval through the Institutional Review Board at Louisiana Tech University to conduct this research. If you agree to allow your child to participate, please read, sign, and date the consent form. Return the consent form immediately in your child's Shreve Island folder.

Sincerely,

Adam Blancher, M.S., M.A.
Doctoral Candidate in Counseling Psychology
Louisiana Tech University
tel: 318-257-3413
email: atb012@latech.edu

Mary Ann Goodwyn, Ph.D.
Dissertation Chair / Associate Professor
Child Clinical Psychologist
Louisiana Tech University
tel: 318-257-2192
email: goodwyn@latech.edu

A MEMBER OF THE UNIVERSITY OF LOUISIANA SYSTEM

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APPENDIX H
PARENT CONSENT FORM



LOUISIANA TECH
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DEPARTMENT OF PSYCHOLOGY & BEHAVIORAL SCIENCES
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**HUMAN SUBJECTS CONSENT FORM
PARENT/GUARDIAN**

TITLE OF PROJECT: Social Attitudes Toward Individuals with Cleft Lip and Palate

PURPOSE OF STUDY/PROJECT: The purpose of this portion of the present study is to investigate children's social attitudes towards individuals with cleft lip and palate.

PROCEDURE: All child participants will be asked to complete two very short surveys, after which an experimenter will talk with them. Then participants will be asked to complete a third survey. The experimenter will use visual aids and assist in other ways to help clarify the survey so that the children can easily complete it.

RISKS/ALTERNATIVE TREATMENTS: None

BENEFITS/COMPENSATION: None

SAFEGUARDS OF PHYSICAL AND EMOTIONAL WELL-BEING: This study will not involve any physical contact between participants and researchers, nor will it involve any pharmaceutical treatment. An assent form detailing the nature of the study will be given to each child prior to initiating the experiment. The assent form will be read aloud by the examiner as the children follow on their own copy. It will explain that participation is voluntary, and no penalties will be assessed for withdrawal at any time. All information collected from the survey will remain anonymous (only code numbers will be put on surveys) and confidential (no one will be able to match the child's identity to the survey answers. No one will be allowed access to the survey other than the researchers. A debriefing session will be conducted after the experimental procedures, and all participants will be told more about the study and informed of its purpose.

ASSENT: In order to adhere to ethical standards, assent must be given by your child. Assent is defined as an "agreement by an individual not competent to give legally valid informed consent (e.g., a child or cognitively impaired person) to participate in research. An assent form will be provided for child during preliminary research activities; however, to reduce the effects of social pressure, we would like your assistance in getting your child's assent. Please read the following statement to your child:

NAME OF CHILD: _____

DATE OF ASSENT: _____

“At school you will be participating in an activity in which you will complete some surveys. The people leading the activity wish to find out about people’s feelings, behaviors, and thoughts towards other people. Would you like to do that at school?”

Please check your child’s response below.

Yes **No**

SIGNATURE:

I, [print name] _____, attest with my signature that I have **read and understood the following description of the study, "Social Attitudes Toward Individual’s with Cleft Lip and Palate", and its purposes and methods. I understand that my child’s participation in this research is strictly voluntary and my child’s participation or refusal to participate in this study will not affect my relationship with Shreve Island Elementary, Louisiana Tech University, or my child’s grades in any way.** Further, I understand that my child may withdraw at any time or refuse to answer any questions without penalty. Upon completion of the study, I understand that the results will be freely available to me upon request. I understand that the results of my child’s survey will be **confidential and accessible only to the principal investigators, or a legally appointed representative.** I have not been requested to waive nor do I waive any of my child’s rights related to participating in this study.

Child’s Name

Signature of Parent or Guardian

Date

CONTACT INFORMATION: The principal experimenters listed below may be reached to answer questions about the research, subjects' rights, or related matters.

Adam Blancher	Principal Investigator	atb012@latech.edu	(318) 547-4283
Dr. Mary Ann Goodwyn	Dissertation Chair	goodwyn@latech.edu	(318) 257-2192

APPENDIX I
CHILD ASSENT FORM

Social Attitudes Toward Individuals with Cleft Lip and Palate

My name is Adam Blancher. I am a doctoral student doing research at Louisiana Tech University.

I am asking you to take part in an activity because I am trying to learn more about how children's thoughts about people with cleft lip and palate. Cleft lip and palate is a facial deformity that some people are born with. I want to learn about the kinds of feelings, behaviors, and thoughts kids your age have regarding cleft lip and palate.

If you agree, you will be asked to complete a survey. Answering these questions will take about 30 minutes. You do not have to put your name on the survey.

You do not have to be in this activity. No one will be mad at you if you decide not to do this activity. Even if you start, you can stop later if you want. You may ask questions about the activity. You will not get a grade on the answers you give and your teacher won't know how you answer questions during this activity.

If you decide to be in the activity I will not tell anyone else what you say or do in the activity. Even if your parents or teachers ask, I will not tell them about what you say or do in the activity unless you say it is ok.

Signing here means that you have read the form or have had it read to you and that you are willing to be in this activity.

Signature of participant _____

Participant's printed name _____

Signature of investigator _____

Date _____

APPENDIX J
ADULT CONSENT FORM

HUMAN SUBJECTS CONSENT FORM

COLLEGE

The following is a brief summary of the project in which you are asked to participate. Please read this information before signing the statement below.

TITLE OF PROJECT: Social Attitudes Toward Individuals with Cleft Lip and Palate

PURPOSE OF STUDY/PROJECT: The purpose of the present study is to investigate the social attitudes towards individuals with cleft lip and palate.

PROCEDURE: All participants will be asked to complete two very short surveys, after which an experimenter will talk with them. Then participants will be asked to complete a third survey.

INSTRUMENTS: Prior to the experimental portion of the study (above), participants will be asked to complete a questionnaire adapted from previous researchers used assess biased responding based on social desirability and an attitude measure. During the experimental portion of the study, as described above, a modified version of the Multidimensional Attitudes Scale Toward Persons with Disabilities (MAS) will be administered to the participants. This scale is a 34-item self-report questionnaire designed to measure a participant's attitudes towards people with cleft lip and palate.

RISKS/ALTERNATIVE TREATMENTS: None

BENEFITS/COMPENSATION: At the discretion of the individual instructors, extra credit may be provided to each volunteer participant. If a student wishes not to participate in the study, however, an equivalent alternative assignment will be provided by the professor. Participants may not receive credit for both the experiment and the alternative. A raffle/drawing for a \$25 VisaCard will be held for those students who complete the experimental portion of the study.

SAFEGUARDS OF PHYSICAL AND EMOTIONAL WELL-BEING: This study will not involve any-physical contact between participants and researchers, nor will it involve any pharmaceutical treatment. A consent form detailing the nature of the study will be given to each participant prior to initiating the experiment. The consent will explain that participation is voluntary, and no penalties will be assessed for withdrawal at any time. All information collected from the survey will remain anonymous (only code numbers will be put on surveys) and confidential (no one will be able to match the identity of the participant to the survey answers). No one will be allowed access to the survey other than the researchers. A debriefing session will be conducted after the experimental procedures, and all participants will be informed of the purpose of the study.

SIGNATURE:

I, [print name] _____, attest with my signature that I have read and understood the following description of the study, "Social Attitudes Toward Individual's with Cleft Lip and Palate", and its purposes and methods. I understand that my participation in this research is strictly voluntary and my participation or refusal to participate in this study will not affect my relationship with Louisiana Tech University or my grades in any way. Further, I understand that I may withdraw at any time or refuse to answer any questions without penalty. Upon completion of the study, I understand that the results will be freely available to me upon request. I understand that the results of my survey will be confidential, accessible only to the principal investigators, myself, or a legally appointed representative. I have not been requested to waive nor do I waive any of my rights related to participating in this study.

Signature of Participant or Guardian

Date

CONTACT INFORMATION: The principal experimenters listed below may be reached to answer questions about the research, subjects' rights, or related matters.

Adam Blancher	Principal Investigator	atb012@latech.edu	(318) 547-4283
Dr. Mary Ann Goodwyn	Dissertation Chair	goodwyn@latech.edu	(318) 257-2192

Members of the Human Use Committee of Louisiana Tech University may also be contacted if a problem cannot be discussed with the experimenters:

Dr. Les Guice (257-3056)

Dr. Mary M. Livingston (257-2292 or 257-4315)

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VITA

Adam Blancher received his Bachelor of Arts in Psychology with a minor in English in 2002 from Centenary College of Louisiana. In 2004, he received a Master of Science degree in General Psychology, with a concentration in psychometrics, from the University of Louisiana at Monroe (ULM). He was accepted into the Doctor of Philosophy in Counseling Psychology program at Louisiana Tech University in April, 2006. In 2009, he received a Master of Arts in Counseling and Guidance from Louisiana Tech University. While in the doctoral program at Louisiana Tech, Adam was an active member of the Counseling Psychology Doctoral Student Organization (CPDSO), and he was elected Secretary of the CPDSO during the 2008-2009 academic year. He also received the Graduate Teaching Award for the 2008-2009 academic year.

Adam's clinical experiences include a number of positions in the mental health field. In 2002, Adam was employed by the Department of Mental Health in the State of Alabama as a Behavior Specialist. After receiving his Master of Science degree from ULM, he worked for the State of Louisiana as an Associate to a Psychologist II at Northwest Developmental Center, a facility where support and services for individuals with mental retardation and other disabilities are provided. During his doctoral program, Adam received practicum and field placement training at a variety of settings, including the Psychological Services Clinic at Louisiana Tech University, Shreveport Mental

Health Center, and in the private practice of Cheryl Marsiglia, Ph.D., where he conducted evaluations for children and adolescents with developmental delays and autistic spectrum disorders. Adam currently is completing his pre-doctoral internship at Mississippi State Hospital in Whitfield, MS.

Throughout his academic career, Adam has been involved in a number of research projects. In 2004, he received the Most Outstanding Research award at the ULM Student Research Symposium for a poster presentation of his graduate thesis entitled *Individual Differences in Child Suggestibility: The Effects of Parenting Style and Child Age and Gender on Suggestibility*. Between 2003 and 2008, Adam participated in five additional poster presentations at scholarly conferences. Recently Adam coauthored a journal article with two of his professors: Blancher, A., Buboltz, W. & Soper, B. (2010) Content analysis of the Journal of Counseling and Development: Volumes 74 to 84. *Journal of Counseling and Development*, 88(2), 136 – 145. Adam currently is completing his doctoral dissertation entitled *The Effects of Age, Information, and Personal Contact Toward Individuals with Cleft-lip and Palate*.

Adam is married with two children. After internship, he plans to reside in Shreveport, Louisiana. He is an active member of the Noel United Methodist Church in Shreveport.