2007

Social-Emotional Assessment of Deaf Children

Jennifer J. Vogel-Walcutt
THE FLORIDA STATE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES

Social-Emotional Assessment of Deaf Children

BY

Jennifer J. Vogel-Walcutt

A Dissertation submitted to the
Department of Psychology
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

Degree Awarded:
Fall Semester, 2007

Copyright ©2007
Jennifer J. Vogel-Walcutt
All Rights Reserved
The members of the Committee approve the dissertation of Jennifer J. Vogel-Walcutt defended on September 12, 2007.

________________________________
Christopher Schatschneider
Professor Directing Dissertation

________________________________
Stephanie Al Otaiba
Outside Committee Member

________________________________
Clint Bowers
Committee Member

________________________________
Janet Kistner
Committee Member

________________________________
Ellen Berler
Committee Member

The Office of Graduate Studies has verified and approved the above named committee members.
ACKNOWLEDGEMENT

To Chris Schatschneider, thank you so much for your willingness to take on an unusual situation with a non-traditional student. Without your help and support with all the revisions, the analysis, and the late night correspondence, I would not have been able to get here. Your direction, comments, and recommendations throughout this process have been invaluable.

To Clint Bowers, who has been a mentor to me in every way, I cannot thank you enough for your unending support, direction, and guidance. You encouraged me to take this path and have never wavered in your willingness to help me finish. You have provided me with opportunities that have made it possible for me to accomplish my goals. You have pushed me when I needed it and supported me in every aspect of my life. I hope some day that I will be able to repay the kindness you have shown me but I fear that that day will be a long time coming as I have a lot of repaying to do. You have been an inspiration, a driving force, and excellent teacher. Thank you for all you have done.

To Stephanie Al Otaiba and Marty Beech, thank you for all the opportunities you have provided to me. I have learned so much about reading development, teaching strategies, and children with significant cognitive impairments. I hope I can build on what we have studied and apply the research in other areas.

To Ellen Berler, thank you for all your help with the graduation requirements and also with this project. I appreciate your interest, concern, support, and recommendations. You have helped make sure that I am ready to complete this degree in every way.
To Janet Kistner, thank you for your help with this project. Your comments, suggestions, and questions have helped make this study the best it can be.

To Carrie Keating, thank you for introducing me to psychology. You created a foundation for me that inspired and encouraged me to achieve beyond my wildest expectations.

To Cherie Dilworth-Miller, thank you so much for all your help with requirements, announcements, rules, regulations, and generally making sure I do everything I need to in order to graduate. Without your help, I’m certain I would have made many more mistakes along the way.

To Krista Phelps, thank you for opening your classroom to me as a child and letting me learn about children who are deaf. Your willingness allowed me to grow and become interested in the unique challenges of these kids.

To Patti Schofield, thank you for your unending enthusiasm and your tireless efforts to help with so many of my projects. You are truly an inspiration to work with.

To my mom, thank you so much for all your help in so many areas. You have listened to me talk about all my crazy ideas and theories, you have made dinner when I have had to work late, and you have been so helpful with the children. I could not have done this without you!

To Lindsay, you’ve been a great help with everything. Your unconditional support went beyond expectation—thank you so much!

To my children, Mitch and Monica, thank you for supporting me and helping me get all my work done. You have both been wonderful!

Finally, to my husband, Chris, thank you for listening to all my thoughts, giving me the time necessary to get work done, and being understanding throughout this process. I appreciate your support so much!
# TABLE OF CONTENTS

List of Tables.......................................................................................................................................................... vi
List of Figures.......................................................................................................................................................... vii
Abstract.................................................................................................................................................................. viii
INTRODUCTION.........................................................................................................................................................1
METHOD...................................................................................................................................................................21
RESULTS.................................................................................................................................................................31
DISCUSSION.............................................................................................................................................................44
APPENDICES.............................................................................................................................................................62
REFERENCES............................................................................................................................................................78
BIOGRAPHICAL SKETCH..........................................................................................................................................88
LIST OF TABLES

1. Previous Scales used with Children who are deaf ..........53
2. Scales used in Current Study ........................................55
3. Descriptive Data by Subscale & Construct Groups...........56
4. Correlation Matrix......................................................58
5. Correlation Matrix Child..............................................59
6. Correlation Matrix Teacher..........................................59
7. Correlation Matrix Parent............................................60
8. Correlation Matrix Researcher.....................................60
9. Demographic Data by Hearing Status.............................61
LIST OF FIGURES

1. Z Scores for Acting out, behavior control, externalizing subscales.................................................................37
2. Z Scores for Social Skills.................................................................38
3. Z Scores for Generalized Anxiety and internalization ..........38
4. Z Scores for Task Orientation .........................................................40
5. Z Scores for Assertiveness/Interest.............................................41
6. Z Scores for Loneliness..................................................................42
7. Z Scores Corrected for Direction ....................................................42
8. Z Scores Corrected for Direction ....................................................43
ABSTRACT

The social-emotional development of deaf children is an area, though widely discussed and studied, that has yet to provide an accurate understanding of the differences between deaf and hearing children (Edmundson, 2006; Martin & Bat-Chava, 2003; Greenberg, 1980; Marschark, 1993; Lederberg, 1993; Koetitz, 1976). Consequently, the goal of this project was to assess the current scientific literature and articulate the shortcomings of the existing studies in order to develop and execute a study that specifically addresses these weaknesses.

The impact of hearing loss on social-emotional development is equivocal. Multiple reasons may account for the contradictions in the current research including methodological issues, conceptual problems, or different measurement approaches (Kluwin, Stinson, & Colarossi, 2002; Vandell, 1981; Matson, Macklin, & Helsel, 1985; Astington & Baird, 2005).

A multi-dimensional study of children who are deaf using the state-of-the-art questionnaires for children, parents, and teachers, as well as behavioral measures was completed. A profile analysis (Stevens, 2002) compared hearing and deaf children to determine similarities and differences between the groups.

Significant differences were only found in two areas: School interest and on-task behavior such that children who hear normally report more interest in school and teachers of children who hear normally reported greater on-task behavior while the researcher observed greater on-task behavior in children who are deaf. Overall, however, data from this study showed few differences between hearing and deaf children suggesting that their social-emotional adjustment during the elementary years is
relatively similar. In future studies, the main areas of concern are sample size, sample diversity, and assessment measures.
INTRODUCTION

Research estimating the impact of hearing loss on social-emotional development have found mixed results (Polat, 2003; Vandell, 1981; Matson, Macklin, & Helsel, 1985; Lederberg, 1991; Weisell, 1992; Rachford, 1986; Calderon, 2000; Edmundson, 2006; Martin & Bat-Chava, 2003). Vandell (1981) described children who are deaf as “persistent initiators” while Macklin and Matson (1985) found that children who are deaf are “less assertive”. This type of contradiction follows in other studies. Lederberg (1991) showed that those with high language skills had increased interactions with others but then concluded that this did not correlate with socialness. Uncovering the impact of deafness on social-emotional development is important because it may help explain some of the difficulties people who are deaf experience in school, in relationships, and in the workplace. Compared to the hearing population, the Deaf [capitalized to denote those that identify themselves as culturally Deaf] community experiences more unemployment and they receive, on average, lower salaries than their peers who hear normally(Zahn & Kelly, 1992). MacLeod-Gallinger (1992) described adults who are deaf as frequently showing “career-arrested development”. It has been suggested that children who are deaf tend to aspire to lower skill levels and exhibit lower levels of ambition compared to their hearing counterparts (Farrugia, 1982). Backenroth (1995) further suggests that underemployment affects job and growth opportunities by affecting self-esteem and that while on the job, many people who are Deaf find it difficult to work and socialize with their hearing counterparts. Zahn & Kelly (1992) emphasize the role both schools and families can fulfill in helping these children set realistic goals for future employment options.
Bandura (2001) suggests a direct link may be present between early academic, social and self-regulatory efficacy and future career trajectories. Thus, it is possible that poor social-emotional development in children who are deaf may also influence their employment status as adults. In an effort to investigate one segment in this development, social-emotional adjustment within one age group will be studied. Specifically, elementary aged children were chosen for this study because they are the youngest group that can self-report. If differences are found in the younger years, interventions may be able to be created to help the children before they develop and thus may have a larger impact. Total communication (TC) is the predominant way in which children who are deaf are now educated (Lehfeldt, 1995). Thus, focusing on this subgroup of the deaf population appeared to be the most important to study.

Social - Emotional Issues

Besides employment issues, emotional issues may also plague children who are deaf (Vostanis, Hayes, & Du Feu, 1997). Arnold (1999) reports that school-aged children who are deaf may be as much as five times more likely to suffer from emotional disturbance, defined as a pattern of behavior that deviates from the acceptable patterns of behavior in school that impacts their ability to maintain normal social relationships (Meadow & Schlesinger, 1972 in Arnold, 1999). In their study, Meadow and Schlesinger (1972) found that 12% of the local deaf residential school’s population is described as emotionally disturbed. Others reported an additional 20% of the same population was described as mildly disturbed, considerably exceeding the expected rate of 18% (Fundudis, Kolvin, & Garside, 1979 as cited in Arnold, 1999). On a lesser scale, even those students not carrying such severe descriptions as emotionally disturbed, were often described as immature (Schlesinger & Meadow, 1972).
Schlesinger and Meadow described the pattern of immaturity as being linked more to the family environment than to the loss of hearing. Specifically, those children with two hearing parents tended to exhibit more behaviors associated with dependency and immaturity compared to children with at least one deaf parent. Deaf children of deaf parents appear to have fewer social issues compared to deaf children of hearing parents (Edmondson, 2006). Children in residential schools also exhibited more dependent and immature behaviors compared to children attending day schools. The author further extended the hypotheses to suggest that behavioral differences observed in children who are deaf begin their formation in infancy (Edmondson, 2006). It is suggested that parents of deaf children will likely experience many negative emotions centered around the children including, but not limited to anger, frustration, concern, and fear. These feelings may then be unintentionally expressed to the child where the child may not receive the warm, nurturing environment they may otherwise have received if the child’s hearing were intact (Schlesinger & Meadow, 1972).

Adding support to Schlesinger and Meadow’s (1972) hypotheses, Vogel, Brown, Asberg, and Bowers (2003) used the Attachment Q-set (Waters & Deane, 1985) to assess secure attachment in oral deaf children. All parents involved with the study hear normally and reported using oral communication exclusively or primarily with some minimal hand signing with their children. Their findings suggest a significant difference of secure/insecure attachment score distribution of signing deaf children compared to oral deaf children exists with the oral deaf children being rated significantly more often in the insecure attachment range. This information may indicate that those families aiming to “fix” their child’s hearing, as when a child receives a cochlear implant, or to raise them in a hearing
environment, here defined as using primarily spoken language, may result in lower attachment scores. Other possible explanations may include differences in socio-economic status, parenting types, social support, or others. Further, when combined with previous studies which suggest that a significant positive correlation between infant/toddler attachment to mother scores and later peer interaction levels exists (Schneider, Atkinson, & Tardif, 2001; Park & Waters, 1989), it is possible to hypothesize that early insecure levels of attachment observed in oral deaf children may lead to future difficulties with socialization. Further, they may be rooted in parental difficulties with adjustment to their child’s hearing loss. However, further research is necessary to more strongly support this argument.

The purpose of this study was to more clearly describe one area of concern for this population: the social-emotional development of the deaf child because a better understanding may lead to improved psychoeducation for teachers and parents in this area. More knowledge and education may lead to improved life-long functioning for this population. Specifically, to address one part of this development, social-emotional adjustment during the elementary years will be investigated. For the purposes of this study, the theoretical definition of emotional adjustment is the ability to balance one's emotions in order to support social functioning. For social adjustment, the definition used is the ability to interact with others in a socially acceptable manner.

Developmental Theories

The assumption is often made that there is a significant difference between the social-emotional adjustment of a child who is deaf and a child who hears normally (Calderon & Greenberg, 2000; Vaccari & Marschark, 1997; Toranzo, 1996;
Schwartzberg, 1976). Bandura’s (1974) social learning theory (SLT) would generally support this belief because the basic premise of SLT focuses on the environment and its influence on the child’s growth. With the sense of hearing missing, a child will miss many social cues that are embedded in our observations and interactions with other people. It is possible that because young children have not yet mastered language, there is a limit to their ability to imitate others. They may not be able to take in verbal information which may lead to misinterpretations or misunderstandings. They must rely more on visual rather than auditory cues for this information (Crain, 1992 from Bandura, 1971; Bandura, 1974). This idea supports the premise that by missing auditory cues, a child may also miss important social cues, which may in turn lead to a slowing of development. Thus, is it the lack of auditory cues that keeps the child from attending to a full range of imitative behavior? To assess this, a better understanding of cognitive development in deaf children could be studied or testing the children in situations where auditory cues are unnecessary may also help distinguish. Or is it perhaps that the child has not yet cognitively developed enough to comprehend all of the facets of social behavior? In addition to this idea, Bandura’s theory states that one of the most important components to social learning is attention (Crain, 1992 from Bandura, 1977). One must attend to another’s actions in order to be able to imitate that behavior. Children who are deaf may not attend to many behaviors, auditory or otherwise, because of their lack of hearing sense. For example, a child who is deaf who uses sign language to communicate and is sitting in a classroom must not only pay attention to a teacher’s signing, but also follow along with whatever is written on the board, on his paper, in his book, and all the other distractions that may be going on around him. It is
impossible to look at and attend to all these stimuli at once. Thus, the child will inherently miss something. A hearing child, on the other hand, can look at his book or the board and still follow what the teacher is saying or other children around him without missing as much information. The impact this has on the social-emotional adjustment of a child who is deaf, again, is debatable and becomes the focus of this project. Thus, attentional focus, or the difficulty of being able to focus one’s attention on multiple social stimuli at the same time may impact the ability of children who are deaf to be able to interact in socially appropriate ways. While attention is not directly addressed in this study, the resultant behaviors are the focus with attentional issues creating the hypothesis that children who are deaf will lag behind their hearing peers in social adjustment.

In more recent work, Bandura (2001) has focused on the influence of media and its widespread delivery of ideas, expectations, and customs. The potential impact of recent technological advances on people who are deaf has not yet been well studied but may allow more access to popular culture and social norms than in the past. The highly visual nature of these platforms may naturally lend themselves to increased interaction with the deaf population and act as a bridge to altering the social relations and understanding between people who hear normally and people who are deaf. Some research has begun to focus on this issue by bringing computer and more visually stimulating computer environments into the classroom with the goal of communicating both improved life skills and academic abilities (Vogel, Bowers, & Brown, 2003; Vogel, et. al., 2004). Potentially, the connection between Bandura’s (2001) focus on early academic and social self-efficacy and later career trajectory can be addressed through these means.
Other theorists such as Piaget (2000) and Erikson (1985) focus more on developmental stages that include social and emotional growth. Thus, the focus is on the inner growth of the person rather than how others influence the individual. Though impact from others is recognized in these theories, the focus is on the developmental stage of the child and how that impacts their ability to understand, learn, and socialize in the world around them. The main difference between SLT and the stage theories by Piaget and Erikson is characterized in whether the theory focuses on the social world shaping the behavior and development of the child or the child’s stage progression influencing their filter of understanding about the world. This key difference changes the possibility of a deaf child’s likelihood of developing, on average, in the same manner as a normally hearing child. For if the development is more from within the child, then it is likely that the child will develop similarly to other children, regardless of hearing loss. But, if it is the case that the child must actively attend to stimuli outside the self, which is far more difficult for the deaf child, then there is likely to be a difference in developmental progression.

Recent research has been focused on testing Theory of Mind (ToM) in children who are deaf (Remmel, Bettger, & Weinberg, 2001). ToM refers to a child’s ability to understand others’ beliefs (Terwogt & Rieffe, 2004). Further, children must understand that others may hold false beliefs that result in unwanted behavioral outcomes (Woolfe, Want, & Siegal, 2002). For example, most four year-old children will understand the results of false beliefs held by others (Surian & Leslie, 1999). Results consistently show that children who are deaf, regardless of language choice (eg. ASL, sign English, or oral methods), show developmental delays in ToM compared to their hearing peers.
(Peterson & Siegal, 1995; Russell, et. al., 1998; Figueras-Costa & Harris, 2001; Lundy, 2002; Peterson, 2004). It is suggested that due to the lack of language skills and social interactions, children who are deaf show delayed development of ToM understanding (Woolfe, Want, & Siegal, 2002). However, deaf children of deaf parents appear to develop normally compared to deaf children of hearing parents who exhibit a delay (Schick, de Villiers, de Villiers, & Hoffmeister, 2007). Increased maternal talk appears to mitigate the delay in development where the mothers’ maternal talk increased as the deaf children’s ToM increased (Moeller & Schick, 2006).

Based on Bandura’s social learning theory and ToM we expect that children who are deaf and have hearing parents will indeed lag behind their hearing counterparts in their social and emotional adjustment. Specifically, due to the possible attention issues associated with deafness, this will likely lead to a reduced ability to attend to the social cues necessary for development. Further, there may be a difference in the developmental trajectory of children who are deaf compared to hearing children’s development due to this inherent attention issue.

Educational Options

There are several different ways in which children who are deaf are educated. There is the issue of school type such as residential, day schools, and mainstreaming. Residential schools are boarding schools exclusively for children who are deaf. Most of these schools are state funded and free to the families. Children may attend these schools as early as three years of age. Typically, residential schools foster strong ties to the deaf community and use ASL exclusively. Children may visit their parents as often as every weekend or as infrequently as only during extended holiday breaks. Day schools include both
residential schools that allow day-only students who attend only during the day but live at home with their parents and schools that have magnet programs for students who are deaf but the larger population of the school is regular education. Those students who attend residential schools only during the day are involved with the typical activities and language focus used by those schools.

Students attending magnet schools often have choices for communication. Some schools offer multiple communication programs within the school. The children who are deaf are usually segregated from their hearing peers and taught in a separate classroom. Sometimes they are integrated into the regular education population during special activities such as physical education classes, but often they are separated throughout the day. The most common communication type used in this setting is Total Communication (TC) (“Educational Programs for Deaf Students: Schools and Programs in the U.S.,” 2003). Most of the teachers in these schools hear normally and deaf culture is not prevalent.

Mainstreaming with students who are deaf is the same as seen in other special populations. The children may be pulled from their magnet programs for one or more classes per day and placed in a regular education class. Some students are mainstreamed for their entire days. These students typically fall into one of two categories. The first consists of students in rural areas or areas where there are few children who are deaf. The result is that there are no special programs for children who are deaf and the children are mainstreamed out of necessity. In the other category, when children who are deaf are working at their appropriate grade-level, mainstreaming is the most popular option. Both residential schools as well as magnet
programs generally operate below grade level and involve students of many ages within the classrooms.

These types of schools can be further broken down into public and private institutions. Public institutions are funded by the state where as private institutions are funded by the families. All three educational options can be either public or private.

Additionally, there is the issue of communication education. Within this population, those learning American Sign Language (ASL), Total Communication (TC) using both oral and sign languages, or the oral method may be socialized differently still. ASL is a manual language that does not follow the syntax or grammar of English. ASL is a conceptual language that uses hand gestures to describe situations using English words translated into hand signs. For example, the sentence, “I want to go to the store” would be signed using the words, “STORE-ME-WANT-GO”.

Sign English (SE) or Manually Coded English (MCE) is similar to ASL in that it uses hand signs representing English words. The difference between the two languages is that SE and MCE follow the syntax and grammar for written English. Thus, every word is signed and in the correct English word order. TC can combine either ASL or SE with oral methods. SE is often used with younger children learning to read and almost always used in English lessons while ASL is more often used with the older students. Schools using TC usually offer speech training and encourage the children to use their voices while signing. Teachers will often wear auditory trainers, or microphones that amplify their speaking, that transmit to fm systems the students wear. The purpose of this is to encourage the students to learn to use their residual hearing.
The oral or oral/aural method involves communicating through only lip-reading or speaking. No signs or gestures are used. Children are encouraged to speak and learn to watch the movements others make with their mouths to decipher the words they are speaking. Students using the oral method are usually involved in extensive speech training classes.

All these different categories of subpopulations fall under the umbrella term “deaf children”, making it difficult for studies to account for all the different subtypes accurately. Certainly, it is possible that a difference in educational setting or communicational type may lead to a difference in development. Whether or not that is the case, however, is not yet clear. Some studies found differences in social-emotional development between these groups (Woolfe, Want, & Siegal, 2002; Jackson, 2001; Buxton, 1994, Rittenhouse, 1987, & James,1986) while others did not (Peterson, 2004; Furstenberg & Doyal, 1994, Bower, 1972). Again, drawing conclusions based on these different outcomes which often provide contradictory information has proven difficult.

Current Research

As stated earlier, the research on the socio-emotional development of deaf children is incongruent (Edmundson, 2006; Martin & Bat-Chava, 2003; Greenberg, 1980; Marschark, 1993; Lederberg, 1993; Koetitz, 1976). Multiple reasons may account for these differences. For example, Vandell (1981) videotaped deaf and hearing preschool aged children and described the children who are deaf as “persistent initiators” in social situations while Macklin and Matson (1985) used the Matson Evaluation of Social Skills with Youngsters (MESSY) (Matson, Macklin, & Helsel, 1985) with school-aged deaf and hearing children finding that children who are deaf are “less assertive”. These two results appear to contradict each other.
Other studies show this same pattern of contradiction. Lederberg (1991) divided children who are deaf into three groups of language ability (high, medium, and low) then observed them on the playground. Results showed that those in the high language group had increased interactions with others, but the conclusions of the study also stated that this did not correlate with socialness. Weisel and Bar-Lev (1992), however concluded that increased general language ability equated to better social adjustment. The operational difference between the terms socialness and social adjustment are unclear. Lederberg (1991) defined socialness as the proportion of time spent in solitary play, with peers, with teachers, with two or more children, containing positive or negative behavior, containing language and imitating interactions. However, Weisel and Bar-Lev (1992) did not directly define social adjustment. They focused on role-taking ability and nonverbal sensitivity as indicators. Additionally, some studies seem to contradict themselves within the study. For instance, Rachford (1986) defined friendship amongst school-age children by assessing their understanding of game and social rules. Results found that children who are deaf lagged behind their hearing peers in comprehension of game rules but then the author concluded that they did not differ in friendships. The author asserted that knowledge of games and social rules leads to better social interactions. However, the expected outcome was not found.

These studies illustrate only a few of the differing outcomes found in the current literature. What they fail to show is why the differences have been found. Issues such as low sample size and reduced access to this population may explain some of the discrepancies (Dyke & Denver, 2003; Anita, 1988, Hus, 1979, Lederberg, 1986, Arnold, 1999, Brackett, 1976). Additionally, multiple ways of operationalizing the definition
of socialness or emotional adeptness have lead to multiple study approaches such as video-taping interactions, behavioral observations, and various questionnaires (Kluwin, Stinson, & Colarossi, 2002; Vandell, 1981; Matson, Macklin, & Helsel, 1985). Differences in study outcomes are rampant and even within studies, distinguishing the meaning of results can be confusing (Polat, 2003; Vandell, 1981; Lederberg, 1991; Weisel, 1992; Rachford, 1986; Capelli, Daniels, & Durieux-Smith, 1995).

Multiple reasons may exist for the differences in research findings with regard to the social-emotional development of children who are deaf (Astington & Baird, 2005). Pragmatic issues can become serious problems when attempting to study small populations. In the United States, there are approximately 65,000 profoundly deaf children and nearly one million hearing impaired children (Lehfeldt, 1995). Obtaining a large enough sample size to draw accurate conclusions can prove difficult. Several studies in the recent literature have less than 15 subjects total (Dyke & Denver, 2003; Anita, 1988, Hus, 1979, Lederberg, 1986, Arnold, 1999, Brackett, 1976). Having few subjects can increase the likelihood of erroneous conclusions being drawn because these studies may not be able to detect any but the largest effects. When this occurs, making decisions about how to properly educate this population can become difficult at best and inaccurate and harmful at worst. For example, if it is the case that the type of education (eg. Residential versus mainstream) impacts the social-emotional development of children who are deaf, that information may be important when considering where to place a child (Zbortekova, 2000; Calderon & Greenberg, 2000; Fjord, 2001; Stinson & Foster, 2000).

Another issue, found more widely in this literature, is the problem of operationally defining social skills and
emotional maturity. Varying definitions have been used in the literature allowing researchers to use varying methods to test these assumptions. In the area of social skills, only one study involving children who are deaf attempted to define these abilities before testing them. Weisel and Bar-Lev (1992) defined “appropriate social functioning” as “a learned capacity to successfully perceive and analyze others’ verbal and nonverbal social behaviours and affects and to respond in a socially acceptable manner.” The authors went on to divide the Social Skills Checklist (Goldstein, Sprafkin, Greshaw, and Klein, 1980) into four factors on which they rated children who are deaf: Interpersonal relations, Self-control, Planning skills, and Dealing with stress. These four areas of interest were compared to two other theoretical models: Role Taking Ability (RTA) and Nonverbal Sensitivity (NVS). RTA refers to a person’s ability to understand other’s points of view whereas NVS is the ability to understand another person’s emotional state based on nonverbal cues (Weisel and Bar-Lev, 1992). NVS was significantly correlated with Planning skills and Dealing with stress but only moderately correlated with Interpersonal relations and Self-control. RTA was not significantly correlated to any of the four areas. Other research supports this result (Cates & Shontz, 1980). Still, research continues to be based on the assumption that RTA is an acceptable indicator of social skills (Bachara, 1980, Wright, 2006). Besides this study, other research failed to show a clear operational definition of social skills. One can infer based on the methods used what an author’s focus was, but that requires assumptions on the part of the reader that may prove inaccurate. For instance, one study (Meadow, 1983) was used to create an assessment instrument for the social-emotional adjustment of hearing-impaired preschoolers. To validate this instrument, the
The author compared the scores of 18 “sociable, communicative behaviors” (one subsection of the inventory) to three questions asked of the teachers who completed the questionnaires. These included, “Do you consider this child to be generally well-adjusted?” “Do you consider this child to be generally mature for age-level?” and “Do you consider this child to have a high level of self-regard?” It is difficult, at best, to make the assumption that the teachers completing this assessment tool held the same definitions of “well-adjusted”, “maturity”, and “self-regard”. Inter-rater reliability information was provided using 21 subjects observed by teachers and teachers’ aides for comparisons. Scores ranged from .75 to .95. Beyond that, there is no clear connection that these three areas are actually accurate predictors of social skills or emotional maturity. In defense of the author, no other inventories were present at the time, making comparison impossible. Nonetheless, it remains a mystery as to the true operational definition of social-emotional adjustment. Other studies have used such methods as frequency of interaction or initiation of interaction as indicators of social-emotional skill (Kreimeyer, Crooke, Drye, Egbert, & Klein, 1980, Vandell, 1981, Arnold, 1999) while other research found that highly rated items on the MESSY questionnaire such as “smiles” and “looks at others” do not correlate with social skills (Matson & Helsel, 1985). Again, it is found that assumptions in the literature have been used to draw conclusions about the social-emotional development of the deaf population while there is no clear indication that those assumptions are accurate. For the purposes of this study, the construct definition was defined by grouping the subscales into six construct groups: Acting Out/Behavior Control/Externalizing, Social Skills, Generalized Anxiety/Internalization, Task Orientation, Assertiveness/Interest, and Loneliness/Confidence.
Current Scales

A review of the most recent scales used to study social-emotional development in children who are deaf was conducted to identify any problems with current scales and identify possible scales for this project (see table 1). The Peer Acceptance Scale (Kennedy & Bruininks, 1974) and the Social Acceptance Scale (Harter, 1970) have been studied. The Peer Acceptance Scale was derived from the Ohio Social Acceptance Scale (a subscale of the Ohio Guidance Tests for the Elementary Grades) (Bruininks, Rynders, & Gross, 1974) and assessed children’s perceptions of their own and other children’s peer status by asking the children to rate all the children in the class based on their preference to play with each child. Only first and second grade children were included. Further, no normally hearing children were used for comparison. Harter’s (1979) Social Acceptance Scale is a subscale of the Perceived Competence Scale for Children. This original scale contained four domains focusing on assessing the child’s perceived personal competence: cognitive competence, social competence, athletic competence, and global self-esteem or self-worth. The scale has been revised and renamed as the Self-Perception Profile for Children (Harter, 1985). This updated version contains six domains: Scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth. The focus of the scale has also changed to focus on the child’s perceived self-adequacy. The child version is for ages three to eight while the adolescent version can be given to children nine to twelve years of age.

The Social Skills Checklist (Goldstein, Sprafkin, Greshaw, & Klein, 1980) and the Social-Emotional Assessment Inventories (SEAI) (Meadow-Orlans, Karchmer, Petersen, Rudner, 1983) have
also been used with this population. The Social Skills Checklist (SSC) consists of 50 items describing social behaviors. Each behavior is rated on a five-point Likert scale ranging from Never to Always. Four factors comprise this scale including Interpersonal Relations, Self-Control, Planning Skills, and Dealing with Stress. Teachers or counselors can complete this scale.

The SEAI consists of 61 items which fit into four factors: Sociable, Communicative Behaviors; Impulsive, Dominating Behaviors; Developmental Lags; and Anxious, Compulsive Behaviors. The scale is completed by a parent or teacher and can be used with children between three and five years of age.

The Vineland Social Maturity Scale (Doll, 1935) in its original form was used to test a child’s ability to adapt to their surroundings. Since the use of this scale with children who are deaf, it has been revised to its current form, the Vineland Adaptive Behavior Scales (VABS) (Sparrow, Balla, & Cicchetti, 1984). The VABS contains four subscales: Communication, Daily Living Skills, Socialization, and Motor Skills. Thus, in this revised version, the combination of the subscales provides the adaptive behavior composite score similar to the previous maturity rating. Reliability and validity information was provided. Internal consistency was measured using split-half means for domains ranging from .83 to .90. Test-retest reliability means for domains were between .81 and .86 and inter-rater reliability for domains was .62 to .78. Construct validity was calculated using factor analysis. Concurrent validity was calculated by correlating the scale with other adaptive scales such as the Adaptive Behavior Inventory for Children and the AAMD Adaptive Behavior Scale.

The Matson Evaluation of Social Skills with Youngsters (MESSY) (Matson, Rotatori, Helsel, 1983; Matson, Macklin, &
Helsel, 1985) uses a Likert scale format and consists of 62 items on the self-report measure and 64 items on the teacher-report scale. The self-report form has six factors: Appropriate Social Skill, Inappropriate Assertiveness, Impulsive/Recalcitrant, Overconfident, Jealousy/Withdrawal, and Miscellaneous. The teacher-report form contains only three factors: Inappropriate Assertiveness/Impulsiveness, Appropriate Social Skills, and Miscellaneous. The scale is usable with a large age range (ages four to eighteen), however, it is a long test making it difficult to be used as a quick assessment tool. Further, while the authors of the MESSY (1983) report strong test-retest reliability, no validity information is provided. It is thus unclear as to whether or not the MESSY actually tests the construct for which it was intended.

The Borke Test of Empathy (Borke, 1971) is for children ages three to eight and involves presenting a short story then asking the child to indicate how the child in each story is feeling at the end of the story. This test was rejected due to the fact that no validity information was included. It is unclear as to whether or not the operational definition of empathy used in this study actually corresponds with the theoretical definition. Further, it does not target a large enough age range.

The Test of Emotional Vocabulary (Weisel & Bar-Lev, 1992) was created using Plutchik’s (1980) list of 40 emotional terms. A social situation was described and the children were asked to choose from four emotional terms which one best described the person’s feelings in the situation. No validation for this scale was provided. Thus, it was rejected for the current study.

The Teacher’s Report Form (TRF) (Achenbach & Rescorla, 2001) consists of 118 items focusing on academic performance, adaptive functioning, and behavioral/emotional problems. It
provides behaviors observed by the teacher that may not be seen by the parents. These behaviors are rated on a Likert scale by the teacher. Children experiencing clinical level disorders make up the primary population for which this scale is used making it an inappropriate scale to assess normal functioning children who are deaf.

The AML Rating Scale (Door & Cowen, 1973) is a 12-item questionnaire used to assess school adjustment problems. The questions are divided into three groups: Acting-out, aggressive behaviors; Moody, shy, anxious behaviors; and Learning difficulties. The AML scale can be used with children in pre-kindergarten to grade six. This scale focuses more on school adjustment and less on social-emotional development. Thus, it was not considered appropriate to use for assessment of this area of development.

The discrepancies found in the literature and, in some cases, the lack of appropriate measures support the need for a more in-depth understanding and validation of an appropriate scale to assess the social and emotional adjustment of deaf children. It is necessary to describe current and predict future social-emotional functioning of children who are deaf in order to make educational, family, and social accommodations. Changes in these systems will hopefully lead to positive alterations in adulthood life satisfaction for this population.

After an extensive search, the scales chosen for the assessment included the Child Rating Scale (CRS) (child, parent, and teacher versions) (Hightower, et al., 1987), the Children’s Loneliness and Social Dissatisfaction Scale (CLSDS) (Asher, Hymel, & Renshaw, 1984), and The Screen for Child Anxiety Related Emotional Disorders (SCARED) (Birmaher, B., et. al, 1997). Children were interviewed in this study using the Interpersonal Relationships Questionnaire from the Anxiety
Disorders Interview Schedule for DSM-IV: Child Version (Albano & Silvermann, 1996). Finally, children were observed in the classroom by the researcher using the Child Behavior Checklist – Direct Observation Form (CBCL-DOF) (see Table 2).

Data from the children, parents, teachers, and behavioral measures were analyzed for group differences. These data provide the comparison necessary to determine relative adjustment of children who are deaf compared to children who hear normally.

For the purposes of this study, emotional development is defined as the ability to balance one's emotions in order to support social functioning. Social adjustment is defined as the ability to interact with others in a socially acceptable manner.

There are two overall hypotheses. First, there will be significantly different profiles in social-emotional adjustment between children who are deaf and children who hear normally. Second, children who are deaf will show an overall developmental deficit behind their hearing peers. Due to the differences in language, two construct areas of the six being studied will be of more concern than the others. Specifically, acting out/behavior control/externalizing behaviors may be more pronounced since the language barriers may create more frustration leading to an increase in acting out behaviors. Loneliness/self-confidence may be an additional issue. Difficulties with interacting because of language differences may lead children who are deaf to isolate themselves.
METHOD

Participants

Twenty-one children who are deaf and twenty normally hearing children were included in the study. The target population included children in first through fifth grade ranging in age from 8 to 11. Participants were students at four public elementary schools in Florida and Maryland that housed regular education students and were magnet schools for deaf children who use TC. Children in the regular education classrooms were matched with children in the total communication (TC) classrooms using the following inclusion criteria: school, (but not class or teacher), gender, age, and socio-economic class as defined by their free or reduced cost lunch qualifications; and exclusion criteria: children with any special educational, emotional, or physical needs were excluded. Children were matched in these areas in an effort to find children who were as similar as possible without making it impossible to find matches. Specifically, because age and gender may impact adjustment, these two areas were selected. Also socio-economic class and school may impact the environment in which children develop so these two criteria were also included. Finally, because additional educational, physical, or emotional issues may differentially impact social and emotional adjustment, they needed to be excluded.

Several schools were contacted to find enough participants for the study. Specifically, seventeen schools from eleven counties within four states were contacted. Four schools within four counties and within two states agreed to participate. Each county required independent institutional review boards to review the study prior to data collection. Twenty-two teachers participated. Approximately one-hundred-two students and parents
were asked to participate with a return rate of approximately 40%.

One deaf participant had to be dropped from the study because no hearing match could be made. Only two children in the regular education classes matched in all areas. Neither would participate. Additionally, difficulty with matching students forced two other participants to be matched outside the parameters set forth in the study. One requirement was that no student have an additional physical or educational label. However, without other options for a match, a child with a gifted label was used. This child did not meet the standard requirements for giftedness with an IQ of 130. Rather, his IQ was only 118. He was admitted into the gifted program because the school he attended had a low average socio-economic status and a low number of students who met the 130 IQ requirement. Thus, because he did not actually meet the standard requirements of the gifted program, he was allowed into the study. Another deaf student was matched with a hearing student whose age was 10 even though the deaf child was 11. These participants were matched in every other way, including grade. Further, they were less than 12 months apart. Thus, despite their ages being listed differently, it was decided that the hearing student would be allowed into the study since no better match could be found.

Participants used in the final analysis included twelve students aged eight years, twelve students aged nine years, nine students aged ten years, and seven students aged eleven years. Twenty males and twenty females were included. Twenty participants paid in full for their lunches while twenty participants were on free or reduced lunches (see table 9). For children who hear normally, there were eight Caucasians, ten African-Americans, one Hispanic, and one nonrespondant. Five children’s parents were single, ten were married, and five were
divorced. For children who are deaf, there were twelve Caucasians, three African-Americans, four Hispanics, and one listed 'other' for race. Four children’s parents were single, ten were married, five were divorced, and one was living with a partner. Six of the children were deaf from birth, seven became deaf due to health problems, six have unknown etiologies, and one participant did not respond. Finally, eight of the children were implanted while twelve were not.

Measures

Child Rating Scale (CRS)

This scale was chosen for a number of reasons (Hightower, et al., 1987) (see Table 2 and Appendices J, K, & L). First, many of the scales previously used with this population have questionable construct validity. Others have not been properly validated on a large sample size with neither normally hearing nor deaf children. None have been correlated to other scales for validation or are useable for a large range of ages. The CRS has been normed on over 2,000 children, shows strong test-retest reliability, has been correlated to other scales, and has a strong four-factor division. Specifically, three factor analytic methods, Principal Factor, Image, and Maximum Likelihood, as well as two rotations, orthogonal and oblique, were used to define the factors. Collectively, the factors account for about 40% of the total variance in social-emotional adjustment. Test-retest reliabilities across three samples had a median value of .60. Intercorrelations between the three CRS scales, the child, teacher, and associate versions, had a median value of .22. Validation procedures for the CRS included correlating the scale scores with various other criterion measures. Specifically, adjustment, achievement, anxiety, self-control, and report card measures were used for comparison. Results indicate correlations in the expected directions for
each area. Additionally, the deaf population, on average, has a very low reading level and thus necessitates a simply written questionnaire (Kelly & Erting, n.d.). The CRS reads at an appropriate level for the majority of the children that were involved. A teacher or researcher helped those who could not read the questionnaire. The test consists of 24 questions in Likert scale format divided into 6 groups of four questions each. Four factors have been identified defined as Rule Compliance/Acting Out, Anxiety/Withdrawal, Peer Social Skills, and School Interest. The Rule Compliance/Acting Out factor addresses the child’s perception of how they behave in school relative to their peers. The second factor, Anxiety/Withdrawal addresses how the child feels they respond to stress in the classroom. The Peer Social Skills factor assesses the child’s perception of how they deal with social interactions with others as well as their confidence during such interactions. Finally, the last factor, School Interest measures the child’s perception of their level of interest in school activities (see Appendix A). This test can be administered to a single student or to an entire class at the same time. Further, scoring options allow for group analyses to be completed if desired to assess group comparisons within schools or grades.

Additionally, a teacher and parent version of this scale were used (see table 2 and Appendices J & K). The teacher version (T-CRS) was developed by Primary Mental Health Project, Inc. by reducing the well known scales Teacher Referral Form (TRF) and the Classroom Adjustment Rating Scale (CARS) from 95 to 32 items. The T-CRS was correlated with other criterion measures (e.g., adaptive skills, grades, and parent ratings). Correlations were in the expected directions and in the low to moderate range. The internal consistency was .85-.95. The primary objective of this new scale was to incorporate the
existing scales' focuses but with a shortened length for ease of use and reduced time for teachers. The T-CRS also contains four factors, including: Task Orientation, Behavior Control, Assertiveness, and Peer Social Skills. The Task Orientation factor addresses how the teacher views the child’s desire to succeed in school. It has both positive and negative or “Learning Difficulty” items focused on the child’s completion or incompletion of school activities. The second factor, Behavior Control, assesses the child’s ability to adapt to the rules and regulations imposed by the school, others, and the children themselves. This factor also contains positive items, referred to as “Frustration Tolerance” and negative items, termed “Behavior Control”. Assertiveness, the third factor, measures the child’s confidence and ability to socialize in the classroom. The positive scale items have been named “Assertive Social Skills” while the negative scale items are defined as “Shyness/Anxiety”. Finally, the fourth factor, Peer Social Skills, assesses the child’s popularity in the classroom. This factor also contains positive and negative items, but lacks category names from the authors. Again, like the CRS, group data can be assembled and compared using the norming scales provided. This task allows for an assessment of the teacher’s overall assessment of her classroom.

The Associative-Child Rating Scale can be completed by another individual in the classroom besides the teacher or by a parent. In an effort to obtain convergent data points, information was solicited from the parents on a questionnaire equivalent to the child version. Using principal components analysis with varimax rotation, this scale also defined four factors including: Initiative/Participation, Acting Out/Limits, Shy/Anxious, and Self-Confidence. Initiative/Participation, the first factor, addresses the child’s interest and assertiveness
in attending school and involvement in classroom activities. The second factor, Acting Out/Limits measures the child’s tendencies toward aggressive and disruptive behavior. The Shy/Anxious factor focuses on the child’s feelings of sadness or worry toward school. Finally, the fourth factor, Self-Confidence, assesses the parent’s perception of the child’s ability to complete tasks and tolerate frustration.

Children’s Loneliness and Social Dissatisfaction Scale (CLSDS)

The CLSDS consists of 24-items with questions such as: “It’s easy for me to make new friends at school” (Asher, Hymel, & Renshaw, 1984). The children were asked to rate how true the statement is for them. The scale was chosen to measure children’s feelings of social rejection. Internal consistency is .9 (see table 2 and Appendix H).

Screen for Child Anxiety Related Emotional Disorders (SCARED)

The SCARED has 41 sentences describing various feelings and behaviors possibly associated with anxiety symptoms (Birmaher, B., et. al, 1997) (see table 2 and Appendix I). The SCARED was chosen to measure the children for anxiety disorders. Validity data shows sensitivity at 71% and specificity of 61%. Internal consistency is .78 to .87. Discriminate validity showed that the SCARED could significantly discriminate between anxious and depressed children. Example questions include, “People tell me that I look nervous.” and “I worry about being as good as other kids.” The children rated the sentences based on how well they believe the sentences describe themselves. Three ratings were used: “Not True or Hardly Ever True,” “Somewhat True or Sometimes True,” and “Very True or Often True.” Based on reading level, some participants completed the surveys themselves, while others had the questions signed to them.

Interpersonal Relationships Questionnaire from the Anxiety Disorders Interview Schedule for DSM-IV: Child Version
Children were interviewed in this study using the Interpersonal Relationships Questionnaire (Albano & Silvermann, 1996) (see Table 2 and Appendix M). All ten questions were read to the children by a researcher using the ASL or SE method of communication, whichever the child prefers. Such questions include, “If you could, would you like to have more friends?” and “Once you’ve made friends do you have trouble keeping them?” Children were asked to select the most appropriate answer primarily from “yes, no, or other” in regard to their personal experience and opinions.

Child Behavior Checklist–Direct Observation Form (CBCL-DOF)

As the final measurement of social and emotional adjustment, the children in this study were observed in the classroom during normal school activities (Achenbach & Rescorla, 2001) (see Appendix N). The CBCL-DOF provides observational data from the researcher. It was chosen to create a comparison to parent, teacher, and child ratings. Validity testing revealed that the questions in the CBCL-DOF discriminate significantly. The reliability was .87 to .90. This information was used to behaviorally demonstrate the skills described in the CRS. The CBCL-DOF was completed by an outside observer in the classroom. The form was completed during regular classroom activities and over three sessions. The scale includes a narrative component, on-task assessments at the end of each minute of observation, and 97 Likert scale questions. The scale is divided into two factors: Internalizing and Externalizing behaviors. Internalizing behaviors include those activities that might not be noticed by others such as feelings of anxiety while externalizing behaviors refer to actions such as fighting or arguing with others. Narrative data was gathered only as a back-up to the on-task data. The narratives were not used in the analysis.
Procedures

Students were given sealed envelopes containing consent forms (Appendices C & D), an assent form (Appendix F), the biographical form (Appendix G), and the A-CRS questionnaire (Appendix J). Parents were asked to complete all the forms should they wish to participate in the study and return them to school via the child in a sealed envelope. Teachers were given the consent form (Appendix E) and the T-CRS forms (Appendix K) for each child in their class that participated. Following the completion of consent forms by parents and teachers, and assent forms by the children, parents were given another sealed envelope containing $10 for their participation. Teachers were given $5 per child for which they completed a T-CRS form.

Children were asked to complete the Children’s Loneliness and Social Dissatisfaction Scale (CLSDS) (Asher, Hymel, & Renshaw, 1984) (Appendix H), The Screen for Child Anxiety Related Emotional Disorders (SCARED) (Birmaher, B., et. al, 1997), and Interpersonal Relationships Questionnaire from the Anxiety Disorders Interview Schedule for DSM-IV: Child Version (Albano & Silvermann, 1996) (Appendix I) while in class with the researcher. Usually this was done individually but some were done as a group up to four children at one time. The children were usually pulled from academic classes but sometimes were removed during recess or special activity classes to complete the questionnaires.

Instructions were signed by the researcher or the teacher and the children completed the forms at the same time. Hearing children were told the instructions verbally. In the event that a child was unable to read or understand the questionnaires, the child’s teacher or the researcher demonstrated a signed interpretation of the instrument to each participant individually. Most of the students spent 30 minutes completing the questionnaires and interviews. All forms were gathered by
the researcher and filed. No forms had the children’s names or identifying information. Rather, numbers were used to identify the files of questionnaires. Finally, a behavioral assessment was completed for each child. The Child Behavior Checklist – Direct Observation Form (Rev. Ed.) (CBCL-DOF) (appendix N) was used by 2 different observers to code various behaviors by the children. Two raters observed two students on six occasions to determine inter-rater reliability. Any disagreements were discussed between raters. The lead researcher had previously been trained in graduate classroom exercises and she taught the research assistant. Both raters observed the children to establish inter-rater reliability but subsequently only the lead research completed the observations. The absolute agreement across the behaviors between the two raters was 90% with a Cohen’s Kappa ranging between .50 and .80 for the observed behaviors. The lowest kappa for the observations was .50 for fidgeting and .80 for all the variables that had perfect agreement, which were most of the variables.

Children were observed on three occasions, twice in the morning and once in the afternoon on different days. All scores were averaged as recommended on the CBCL-DOF. Observations were 10 minutes in duration and occurred during organized classroom activities, as required by the CBCL-DOF directions. Children were rated on various behaviors including, but not limited to maturity, self-control, classroom participation, and mood. Following each minute of the observation time period, raters observed each child for 5 seconds specifically to determine if the child was appropriately on-task in the classroom. On-task behavior was defined as being actively engaged in the classroom activity or observing the teacher. Finally, narratives describing each child were written by observers to explain any further information or behaviors not included in the
questionnaire. Narratives were used only as back-up information but were not used in the analysis. Parents, teachers, and children were debriefed as to the purpose of this study following completion of the questionnaires, interview, and observations.
RESULTS

Data Analysis

The data analytic plan began with a preliminary investigation of data. An inspection of the missing data, means, standard deviations, and outliers was conducted. It is important to deal with missing data because it can affect the generalizability of the results. Next, the variables were grouped by construct area and a subsequent inspection of the correlations among the measures was conducted. This was done for type one error control and to make the presentation of the results more interpretable. Grouping the subtests into construct groups allowed bonferroni adjustments to be made per group rather than across the entire set of questionnaires allowing for smaller effect sizes to be significant.

Next, a profile analysis was conducted. A profile analysis is a special type of multivariate analysis of variance (MANOVA) such that there are several dependent variables all measured on the same scales. In this case, a profile analysis is being used to compare two groups or profiles of these groups which have been measured using several scales at the same time. The goal of this analysis is to compare these groups on these levels in an effort to determine where they are similar and where they are different as well as how their overall patterns compare (Tabachnick & Fidell, 2001). Following the profile analysis, correlated t-tests were performed to compare means and bonferroni corrections were used with follow-up tests within each category. Correlated t-tests were used because the subjects were matched allowing for within subject comparisons and making it more likely to find significance. Finally, frequency data from the Interpersonal Relations subtest of the ADIS was analyzed.
Preliminary Investigation of Data

Missing data were dealt with on a case-by-case basis and changes made were driven by the criteria set-forth by each scale. Specifically, for the Child Rating Scale, if more than one data point was missing in a subscale, the participant’s data for that subscale were not used for the analysis, as was recommended by the scale’s directions. However, in the cases where only one data point was missing, the most frequently used rating found within the subscale was substituted. In cases where there were two ratings that occurred the same number of times, then either value was used. For the teacher version of the CRS, the missing value was replaced with the median value of the other matching positive or negative values in the subscale, as was recommended by the directions for the scale. The Associate CRS directions failed to provide any direction regarding how to deal with missing values. Thus it was decided to use median substitution in the same manner as was used for the teacher version. Likewise, no information was provided for the CLSDS or the SCARED. Thus, mean substitution using same direction (positive or negative) data points was used. For the Interpersonal Relations data, missing data points were simply omitted from the frequency analysis used with this scale. The CBCL-DOF did not have any missing data points so no methodology was determined for replacement or omission. Seventeen participants in the original sample, scattered through groups and dependent variables, had missing data on one or more subtests, however only three participants were missing enough data in one or more subtests that required their data to be excluded from one section of the analysis. Overall, forty-three data points were missing. Twenty-two data points were substituted in accordance to their respective scales’ requirements leaving twenty-one omitted data points.
Next, means, standard deviations, and estimates of skewness and kurtosis were examined for each of the dependent variables (see Table 3).

**Variables Grouped by Construct**

In an effort to make the results more interpretable and to balance the need to control type I and type II error, the dependent measures collected were grouped into conceptual construct areas and a type I error correction procedure was applied by area (see Appendix A). All dependent measures were placed into one of six groups: Acting Out/Behavior Control/Externalizing, Social Skills, Generalized Anxiety/Internalization, Task Orientation, Assertiveness/Interest, Loneliness/Confidence. Subscales were placed into the groups based on their questions within the subtests and how they matched up with the questions in other subtests. No empirical evidence supports these groupings, however, they moderate type I error and aid in presentation of the data so they were chosen instead of reporting each subtest individually. Not all subscales fit into these groups and therefore were not included in the grouped tests. Specifically, the Panic subscale in the SCARED was not included in the anxiety construct because there was already a variable used from that questionnaire. The data may overlap such that it would be a confound. Thus, only one subscale was chosen with Generalized Anxiety having a better fit than Panic. Grouping the dependent variables into construct areas had the additional benefit of organizing the results into meaningful areas. Then, to determine if the pattern of means was different between the hearing and the deaf, a profile analysis was performed using the dependent variables in each construct group as the repeated measures factor and group (deaf vs. hearing) as the between subjects factor.
The following subtests were split into the construct groups. They were identified a priori and their correlations were compared to determine how closely the methods matched in measuring each construct (see Appendix A) (superscripts denote respondent: C=child, P=Parent, T=Teacher, R=Researcher): Acting Out/Behavior Control/Externalizing (CCRS: Rule Compliance/Acting Out\textsuperscript{C}; CBCL-DOF: Externalizing Behavior\textsuperscript{R}; TCRS: Behavior Control\textsuperscript{T}; ACRS: Acting Out/Limits\textsuperscript{P}), Social Skills (CCRS: Peer Social Skills\textsuperscript{C}; TCRS: Peer Social Skills\textsuperscript{T}; SCARED: Social Anxiety\textsuperscript{C}); Generalized Anxiety/Internalization (CCRS: Anxiety/Withdrawal\textsuperscript{C}; SCARED: Generalized Anxiety\textsuperscript{C}; CBCL-DOF: Internalizing\textsuperscript{R}; ACRS: Shy/Anxious\textsuperscript{P}); Task Orientation (TCRS: Task Orientation\textsuperscript{T}; CBCL-DOF: Task\textsuperscript{R}); Assertiveness/Interest (CCRS: School Interest\textsuperscript{C}; TCRS: Assertiveness\textsuperscript{T}; ACRS: Initiative/Participation\textsuperscript{P}; SCARED: Significant School Avoidance\textsuperscript{C}); Loneliness/Confidence (CLS: Child Loneliness\textsuperscript{C}; ACRS: Self-Confidence\textsuperscript{P}; SCARED: Separation Anxiety\textsuperscript{C}).

Comparisons were made between the validity coefficients (see tables 4-8) and the correlations between different traits measured by different methods as well as with the correlations between different traits measured by the same method. Making these comparisons helps determine if those subscales with similar names measure similar constructs. It also helps determine if those subscales that appear, based on their names, to be measuring different constructs are actually significantly different from each other. Correlations between methods on the same traits were not obviously different compared to correlations between methods on different traits making it unclear as to the best construct grouping for these subscales. Besides the researcher, two additional raters were used to determine inter-rater reliability for the conceptual groupings of the subtests into constructs. All raters had at least a
masters degree in psychology and knowledge of social-emotional development. The percent agreement across raters was 85%. Thus, even though the pattern is unclear statistically, the conceptual grouping of the variables was reliable and thusly retained for analysis purposes because it remains easier to report the data in a meaningful way and moderates type I error if the groups are used.

Profile Analysis

For graphing purposes only, Z scores for hearing and deaf participants were corrected for direction such that those scores in the positive range indicate positive attributes while those in the negative range indicate negative attributes. However, in the analysis, higher scores or means indicate a higher propensity for the subtest behaviors such that negative behavioral subtests with high scores indicate more negative behaviors and positive subtests with high scores indicate more positive behaviors.

A profile analysis was performed on twenty-one subtests of the Child CRS: Rule Compliance/Acting Out, Anxiety/Withdrawal, Peer Social Skills, School Interest; Associate CRS: Initiative/Participation, Acting Out/Limits, Shy/Anxious, Self-Confidence; SCARED: Panic, Generalized Anxiety, Separation Anxiety, Social Anxiety, Significant School Avoidance; Teacher CRS: Task Orientation, Behavior Control, Assertiveness, Peer Social Skills; Child Loneliness Scale total; and CBCL-DOF Observation: Internalizing, Externalizing, and Task. The grouping variable was hearing status, divided into students who are (1) deaf and (2) hear normally.

A correlation analysis was used to assess the construct validity of the testing procedure used for this study. Specifically, correlations were made between and within each
scale to determine the level of similarity between the various methods used to assess each trait. Each subscale was correlated with every other subtest regardless of whether or not they were in the same questionnaire. The correlations among the measures appears in table 4.

For each of the six construct areas, a mixed-model ANOVA was performed, with the dependent measures comprising the repeated measures “measure” effect, and the group variable as the between subjects effect. Analysis of multiple dependent measures in this manner has been referred to as a profile analysis (Tabachnick & Fidell, 2001). In these analyses, a significant group main effect would imply that after averaging across all dependent variables in the analysis, the groups differed on that average. A significant measure main effect would imply that the measures differed in their means, ignoring any group effect. The significant interaction of measure and group would be interpreted as a difference in the pattern of means on the dependent variables by group. For these analyses, each dependent measure was z-scored first. This has the effect of putting all the dependent measures on the same metric and makes differences among the measures not due to a scaling artifact. Using z-scores in a profile analysis will also make the measure main effect nonsignificant by design.

**Acting Out/Behavior Control/Externalizing**

The group effect was nonsignificant for the acting out/behavior control/externalizing construct \[F(1,36)=.024, p=.88\] (see Figure 1.) suggesting that observations done by the researcher and reports by both teachers and children show similar behavior patterns across groups with hearing and deaf children demonstrating similar patterns of behavioral control. With four comparisons in this group (alpha=.0125), the power to
detect an effect here would have been .80 to detect an effect size of .81.

Figure 1. Z Scores for Acting Out, Behavior Control, Externalizing Subscales

Social Skills

The group effect was nonsignificant for the social skills construct \( F(1,37)=1.356, p=.252 \) (see figure 2) suggesting that hearing and deaf children are relatively similar in social skills. With three comparisons in this group (alpha=.0167), the power to detect an effect here would have been .80 to detect an effect size of .79.

Generalized Anxiety/Internalization

The group effect was nonsignificant for the generalized anxiety/internalization construct \( F(1,37)=1.45, p=.237 \) (see figure 3) suggesting that the children were relatively similar in social anxiety. With four comparisons in this group (alpha=.0125), the power to detect an effect here would have been .80 to detect an effect size of .81.
The group effect for task orientation \( F(1,38) = 7.688, p = .009 \) was significant suggesting that the two groups differ significantly from each other in task orientation (see figure...
4). Observations by the researcher showed that children who are deaf were on task more often than children who hear normally while teachers of these children reported the opposite interpretation (see figure 4). However, using correlated t-tests, comparisons were made between hearing and deaf participants for the task orientation construct. To control for Type I error for the multiple t-tests conducted, a bonferroni correction procedure was applied. Measures were not declared to be significant unless the p value was below .05/2=.025. Results indicated that there were no significant differences between groups when tested individually. With two comparisons in this group (alpha=.025), the power to detect an effect here would have been .80 to detect an effect size of .74.

![Figure 4. Z Scores for Task Orientation](image)

The group effect for assertiveness/interest \( [F(1,36) = 5.09, p=.030] \) was significant suggesting that the two groups differ significantly from each other in assertiveness and
interest in school. Using correlated t-tests, comparisons were made between hearing and deaf participants for the assertiveness/interest construct. To control for Type I error for the multiple t-tests conducted, a bonferroni correction procedure was applied. Measures were not declared to be significant unless the p value was below .05/4=.0125. Results indicated that there was a significant difference between groups in school interest \( t(19)=3.774, p=.001 \) (see figure 5) such that hearing participants reported more interest in school compared to deaf participants. All other areas of interest were nonsignificant suggesting that no significant differences exist between the two groups in these areas. Observations of the graph suggest that hearing children reported higher levels of school interest such as having fun in school and enjoying doing schoolwork. With four comparisons in this group (alpha=.0125), the power to detect an effect here would have been .80 to detect an effect size of .81.

Figure 5. Z Scores for Assertiveness/Interest

Loneliness/Confidence
The group effect was nonsignificant for the loneliness/confidence construct \( F(1,36)=0.54, \ p=.467 \) (see figure 6) suggesting that the children have relatively similar feelings of loneliness and confidence. With three comparisons in this group (alpha=.0167), the power to detect an effect here would have been .80 to detect an effect size of .79.

![Z Scores for Loneliness](image)

Figure 6. Z Scores for Loneliness

Overall, the data suggest that children who are deaf are not significantly different from children who hear normally in their social-emotional development.

While the data above were presented by conceptual area, it is oftentimes informative to try and view the entire pattern of performance across all of the measures. Figures 7 and 8 above display all of the z-scores for the two groups.

**Peer Data**

The peer data was separated out of the construct groups because it is descriptive data only and did not fit specifically into one group. This interview looked at the
Note: Scores in the positive direction indicate positive attributes while scores in the negative direction indicate negative attributes.

Figure 7. Z Scores Corrected for Direction

Note: Scores in the positive direction indicate positive attributes while scores in the negative direction indicate negative attributes.

Figure 8. Z Scores Corrected for Direction

children’s perceptions of their peer status. Collapsed across groups, the majority of the students reported having about the same number of friends as their peers, most have a best friend (90%), but (77.5%) would prefer to have more friends, some report having trouble making and keeping friends (27.5% and 42.5% respectively), most have been part of a club, group, or
sport (77.5%), and the majority of students reported they prefer to play with others as opposed to playing alone (75%).

Differences between deaf and hearing students were reported in several areas. Specifically, the perceived number of friends relative to others was different between the groups. An almost equal percentage of deaf students reported that they believe they have more friends than most kids (31.6%), fewer friends than most kids (36.8%), or about the same number of friends as most kids (31.6%). However, students who hear normally predominately reported that they perceive themselves as having the same number of friends as their peers (75%). This difference is statistically significant ($z = 3.01$, $p = .017$) suggesting that deaf and hearing students perceive their peer status differently. Another area that differed between the groups was difficulty making and keeping friends. The overwhelming majority of hearing students reported they do not have trouble making friends (80%) while only 60% of deaf students reported the same. These findings are not statistically significant. Again, the majority of hearing students (60%) reported not having trouble keeping friends compared to 50% of deaf students reporting the same. This difference is also not statistically significant.

Finally, when asked if they prefer to play alone or with others, 73.7% of hearing students reported that they prefer to play with others compared to 80% in the deaf group. These results are also not statistically significant.
DISCUSSION

Two groups of children were compared in this study for their social and emotional skills: those who hear normally and those who are deaf. Attributes were measured using several methods of measurement and several raters or observers to create the profiles. Differences between the groups arose in the areas of school interest and on-task behavior. Children who hear normally reported being more interested in school and their teachers described them as more likely to be on-task compared to children who are deaf. In contrast, children who are deaf reported being less interested in school and the researcher observed more on-task behaviors in this group. Additionally, some differences in reported peer relationships emerged. Results showed that the majority of the children who hear normally in this study reported that they have about the same number of friends compared to their peers while children who are deaf were much less likely to report the same. In contrast, the majority of deaf and normally hearing children do not report difficulty making or keeping friends and state that they prefer to play with others. This information suggests that children who are deaf often perceive themselves as having differential numbers of friends compared to others but also report similar beliefs about their social skills compared to their hearing peers.

Thus, the initial hypothesis was not well supported. Based on Bandura’s social learning theory, it was expected that children who are deaf would lag behind their hearing peers in social and emotional adjustment. Specifically, due to language differences, it was expected that children who are deaf would have more difficulty with acting out/behavior control/externalizing behaviors and experience more feelings of loneliness. Difficulty with the ability to attend to multiple stimuli at one time may impact their ability to stay on task or
take in social cues from others. However, children who are deaf did not demonstrate a significant lag overall in socio-emotional adjustment as compared to their hearing counterparts. Bandura’s social learning suggests the environment can influence growth while ToM refers to children’s ability to understand others’ beliefs. Due to hearing loss, deaf children likely have more difficulty attending to social stimuli. Because of this and current research showing that deaf children have a delay in ToM (Peterson & Siegal, 1995; Russell, et al., 1998; Figueras-Costa & Harris, 2001; Lundy, 2002; Peterson, 2004), it was expected that these factors would create a delay in social adjustment for children who are deaf. However, this was not the case. Social adjustment, as measured by these questionnaires, interview, and observations, was not significantly different between hearing and deaf elementary aged children. Possibly, the deaf children’s environment is similar enough to their hearing counterparts that it does not impede adjustment. Potentially, hearing loss does not reduce a person’s ability to attend to social stimuli enough to impact social skills. Perhaps the children’s segregated classrooms provide a different frame of reference resulting in a similar perceived social-emotional adjustment due to a lack of accurate comparisons. Stated another way, children who are deaf who also spend the majority of their time in school in segregated classrooms lack exposure to children who hear normally or others in regular education classrooms. This difference in exposure to others may impact their viewpoints’ of themselves such that they compare themselves to other children who are deaf rather than to all children. Delayed ToM was another theory that was hypothesized to impact social-emotional adjustment in children who are deaf. Whether or not deaf children are slow to develop ToM was not directly tested in this
study but it does not appear that if there is a lag that it impacts overall socio-emotional adjustment.

Attentional issues were also expected to negatively influence the deaf children’s ability to attend to social cues because Bandura’s SLT is based on the premise that people learn social skills through imitating others. However, this does not appear to be the case. Possibly, the children have learned to effectively cope with their hearing loss such that they can attend to social cues beyond the threshold of necessity to result in normal development. There is also a chance that besides the observations, using self-report measures for this study allowed a certain level of comparison bias such that not only the children but also the parents and teachers of children who are deaf have become desensitized to differences between these children and children who hear normally. Thus, their frame of reference would center on same hearing status peers rather than their hearing counterparts.

The lack of differences between the groups may reflect the true similarities of development. However, with such a small sample size, it is difficult to be confident in these findings. If it can be assumed that the effect sizes presented in table 3 are a reflection of true effect sizes, then relatively small differences (standardized effect size estimate around .2) were seen in shy/anxious behavior, taking the initiative and class participation, separation anxiety, externalizing behavior, and feelings of loneliness with children who are deaf reporting overall higher ratings in each area. These findings suggest that children who are deaf are slightly more likely than children who hear normally to feel shy, lonely, or overly concerned about being away from their parents. They also demonstrated slightly more externalizing behavior such as arguing or calling out in class and showed more willingness to participate in class. Most
of the self-contained classrooms are much smaller (for this sample, n=3 with one teacher up to n=15 with one teacher and four aides) and therefore may allow for more opportunities to participate. Other small effect sizes were seen in social anxiety, task orientation, and self-confidence with children who hear normally reporting higher ratings in each area suggesting that children who hear normally are slightly more likely to be concerned about how they interact with others socially and report higher ratings of self-confidence. Their teachers report that they stay on task most of the time. A moderate effect size (standardized effects closer to .5) favoring children who are deaf was found for internalizing behaviors suggesting that children who are deaf are moderately more likely than children who hear normally to internalize their concerns or frustrations through worry, day dreaming, anxiety, or other feelings. Moderate effect sizes were found in observations of being on task and school avoidance suggesting that children who hear normally were observed being off task and wish to avoid school more often than children who are deaf. One large effect size was found in school interest suggesting that children who hear normally are more interested in school compared to children who are deaf.

However, significance tests suggest that there are few differences between children who are deaf and children who hear normally. These findings contradict some of the literature in this area (Edmonson, 2006; Kalback, 2006; & Polat, 2003) which suggest that children who are deaf have significant lags in development. No clear reason can be attributed to these differences. Possible reasons include sampling error, differences in methodology, age, language or school type, or construct definition differences. Based on the preponderance of evidence in this study, it appears that children who are deaf
may not be at a great risk for socio-emotional problems. The implications of this are two-fold. First, this information further adds to the literature in this area providing more knowledge about children who are deaf using total communication in self-contained classrooms supporting the research showing similarities between deaf and hearing children in social-emotional adjustment. Second, it provides another data-analytic structure that has not yet been used with this population. Presumably, using a more rigorous technique such as the profile analysis better validates the results. Providing specific construct areas within social-emotional adjustment also allows for better comparisons to be made in the future.

Limitations

Sample selection and measurement error may have impacted the results. Identifying an adequate and representative sample with this population can be a serious concern. The difficulty in finding participants can limit the researcher’s ability to gather enough data to draw accurate and generalizable conclusions. Further, finding measurement tools that were at a low enough language/reading level for children who are deaf to understand was difficult and excluded many of the more routine scales. Very few scales have been normed with this group making an acceptable scale choice even more difficult. Inter-rater differences may also have impacted the findings. Parents, teachers, and children may perceive similar situations differently. Finally, in an effort to gather data from several different sources, it was necessary to use scales that allowed for more than one reporter. However, an inspection of the correlations among the measures for the constructs of interest revealed that the tests designed to measure similar traits were not well correlated. The goal of studies like this one is to have multiple measures that test the same construct that are
correlated more strongly with each other and less correlated with the other constructs being measured. Thus, it would be best in future studies to either find additional measures that would better match or create new measures that would show better evidence that they are indeed measuring the same construct.

Sample selection may also have contributed to the results. When considered as a whole, the deaf population is small. Once children who use ASL or the oral/aural method of communication, who are housed in residential schools or are mainstreamed, or who have other physical or educational issues were excluded, the sample of children to select from was extremely small. Additionally, it is possible that some parents were unwilling to allow their children to participate due to the nature of the questions in the study. Thus, obtaining the number of children included in this study was very difficult, and it is difficult to know how this sample of students would compare to students nationally. However, the matching of the deaf children to other children in their same schools may have mitigated the impact of this problem. The deaf students were matched with normally hearing students that come from the same schools and had the same age, gender, and to at least some extent, from the same socio-economic class.

Recommendations

The information gathered from this study can be used to help guide teachers and parents of children who are deaf to become more aware of some of the unique concerns that face these children with regard to various areas of their social and emotional development. The over-arching message from this study is that deaf and hearing children, on the average, do not appear to be significantly different from each other in social-emotional adjustment in elementary years. Minor differences in the groups suggest that teachers could monitor the number of
interactions deaf children have with others, the quality of those interactions, and finding ways to empower the children socially and emotionally. Possibly helping them to interpret social cues and understand different types of people may prove beneficial as well. Also, the large differences in school interest should be addressed. Boredom in school has been correlated with less knowledge acquisition, slower learning, and higher drop-out rates (Anderson, 2004; Collins & O’Toole, 2006). To mitigate these effects, altering the information presentation type, providing material that is more relevant to the students, and even movement during learning may help (Kanevsky & Keighley, 2003; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003; Ellis, 1999). Having said that, it is important to remember that these data should be used with caution in the school setting due to the low sample size and questionnaires used that were not well correlated to each other.

Future Research

In future studies, the main areas to focus more attention upon are sample size, sample diversity, and assessment tools. Specifically, the literature as a whole, studying the deaf population, needs to incorporate larger sample sizes in order to increase generalizability and accuracy of results. Further, sample diversity in this case refers to the large differences between groups within the deaf population from issues such as language preference, school options, and parental primary language. Thus, to improve generalizability across sub-groups, better sampling should be employed. Assessment tools choices also need to be developed that can accurately assess the state of children who are deaf while also being able to be easily read despite the low average reading levels of this population. Additional replicating studies should be conducted to verify these results. Of particular interest would be differences
between modes of communication, educational choice, and whether or not the child lives at home or at school. Communication types, ASL, sign English, or oral/aural methods, may significantly impact the social skills of children who are deaf and thus should be studied further. Educational types such as mainstreaming, magnet schools (as used in this study), and residential schools may also differentially impact development thus supporting the need for future investigation. Living at home or school may significantly impact research findings due to the differences of parental involvement and guidance. Last, instruments with better convergent and discriminate validity need to be developed to use with this population in order to improve the validity of the results.
<table>
<thead>
<tr>
<th>Scale Name</th>
<th>Author</th>
<th>Method</th>
<th>Why rejected?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Acceptance Scale</td>
<td>Kennedy &amp; Bruiniks, 1974</td>
<td>Self-report</td>
<td>No comparison group used, therefore validity of the scale has not been established</td>
</tr>
<tr>
<td>Social Acceptance Scale</td>
<td>Harter, 1970, Updated to Self-Perception Profile for children (Harter, 1985)</td>
<td>Self-report</td>
<td>Reading level too high, Age groups do not match current sample</td>
</tr>
<tr>
<td>Social Skills Checklist</td>
<td>Goldstein, Sprafkin, Greshaw, &amp; Klein, 1980</td>
<td>Teacher report</td>
<td>Not a self-report measure</td>
</tr>
<tr>
<td>Social-Emotional Assessment Inventories</td>
<td>Meadow-Orlans, Karchmer, Petersen, Rudner, 1983</td>
<td>Teacher or Parent report</td>
<td>No comparison scale, small/too young age range</td>
</tr>
<tr>
<td>Vineland Social Maturity Scale</td>
<td>Doll, 1925, Updated to Vineland Adaptive Behavior Scales (Sparrow, Balla, &amp; Circhetti, 1984)</td>
<td>Interview Administration</td>
<td>Inappropriate population intellectually and/or psychologically for comparison</td>
</tr>
<tr>
<td>Borke Test of Empathy</td>
<td>Borke, 1971</td>
<td>Child report, story interpretation</td>
<td>Low age range, no validity information</td>
</tr>
<tr>
<td>Test of Emotional Vocabulary</td>
<td>Weisel &amp; Bar-Lev, 1992</td>
<td>Self-report</td>
<td>No validity information</td>
</tr>
<tr>
<td>Teacher’s Report Form</td>
<td>Achenbach &amp; Rescoria, 2001</td>
<td>Teacher report</td>
<td>Inappropriate population – mostly used with clinical disorders</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------</td>
<td>-----------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>AML Rating Scale</td>
<td>Door &amp; Cowen, 1973</td>
<td>Teacher report</td>
<td>Wrong construct – School adjustment</td>
</tr>
</tbody>
</table>
# Table 2. Scales used in current study

<table>
<thead>
<tr>
<th>Scale Name</th>
<th>Method</th>
<th>Validity</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Rating Scale</td>
<td>Teacher, Parent, or Self-report</td>
<td>Correlated &quot;scale scores with [other] criterion measures&quot;; CRS and T-CRS scores yielded rs in the expected directions, low to moderate range; &quot;All CRS correlations w/ STAIC were significant&quot;; &quot;Total CRS correlated [positively] w/ school functioning&quot;</td>
<td>Test-retest (T-R)= .36-.79; Inter-rater reliability (IRR) = UNK; Internal Consistency(IC) (T-CRS) = .85-.95; Cronbach's Alpha (CA) = .74-80</td>
</tr>
<tr>
<td>Child Behavior Checklist - Direct Observation Form</td>
<td>Researcher Observation</td>
<td>Content Validity=&quot;nearly all CBCL items discriminate significantly between referred and nonreferred children&quot;</td>
<td>T-R=.87-.90</td>
</tr>
<tr>
<td>SCARED</td>
<td>Self-report</td>
<td>Distinguished between normals, anxiety, and depression; ROC Analysis:Sensitivity=71%, Specificity=61% - 71%</td>
<td>IC=.78-.87; Itemremainder coeefficients=.34-.67; CA=.90</td>
</tr>
<tr>
<td>Child Loneliness Scale</td>
<td>Self-report</td>
<td>Unknown</td>
<td>Internal Consistency =.90</td>
</tr>
<tr>
<td>Interpersonal Relationships Questionnaire</td>
<td>Interview</td>
<td>Kappa coefficients (inter-rater and test-retest reliabilities) = moderate to moderately high range</td>
<td>Concurrent validity with social phobia, SAD, &amp; panic disorder</td>
</tr>
</tbody>
</table>

Table 3
Descriptive Data by Subscale and Construct Groups

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Hearing</th>
<th>Deaf</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Std Dev</td>
<td>Mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acting Out, Behavior Control, Externalizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RuleCompliance</td>
<td>16.35</td>
<td>2.21</td>
<td>16.05</td>
</tr>
<tr>
<td>RuleCompliance Standard Score</td>
<td>101.97</td>
<td>17.42</td>
<td>99.61</td>
</tr>
<tr>
<td>Externalization*</td>
<td>1.45</td>
<td>1.32</td>
<td>1.95</td>
</tr>
<tr>
<td>BehaviorControlT</td>
<td>31.40</td>
<td>6.87</td>
<td>30.65</td>
</tr>
<tr>
<td>Limits*</td>
<td>11.11</td>
<td>3.20</td>
<td>11.32</td>
</tr>
<tr>
<td>Social Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PeerSocial</td>
<td>4.95</td>
<td>2.56</td>
<td>14.85</td>
</tr>
<tr>
<td>PeerSocial Standard Score</td>
<td>101.39</td>
<td>14.25</td>
<td>100.83</td>
</tr>
<tr>
<td>PeerSocialT</td>
<td>32.21</td>
<td>9.33</td>
<td>31.00</td>
</tr>
<tr>
<td>SocialAnxiety*</td>
<td>6.93</td>
<td>3.30</td>
<td>5.60</td>
</tr>
<tr>
<td>Generalized Anxiety, Internalization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AnxietyWithdrawal*</td>
<td>9.55</td>
<td>2.42</td>
<td>9.25</td>
</tr>
<tr>
<td>AnxietyWithdrawal Standard Score</td>
<td>100.27</td>
<td>12.95</td>
<td>98.66</td>
</tr>
<tr>
<td>GeneralizedAnxiety*</td>
<td>4.96</td>
<td>2.87</td>
<td>5.25</td>
</tr>
<tr>
<td>Internalization*</td>
<td>2.20</td>
<td>1.47</td>
<td>3.23</td>
</tr>
<tr>
<td>ShyAnxious*</td>
<td>10.0</td>
<td>2.22</td>
<td>10.58</td>
</tr>
<tr>
<td>Task Orientation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TaskOrientationT</td>
<td>30.6</td>
<td>9.87</td>
<td>26.75</td>
</tr>
<tr>
<td>Task*</td>
<td>1.77</td>
<td>1.03</td>
<td>1.13</td>
</tr>
<tr>
<td>Assertiveness, Interest</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SchoolInterest</td>
<td>15.75</td>
<td>1.89</td>
<td>12.95</td>
</tr>
<tr>
<td>SchoolInterest Standard Score</td>
<td>106.40</td>
<td>8.33</td>
<td>94.04</td>
</tr>
<tr>
<td>AssertivenessT</td>
<td>32.55</td>
<td>5.91</td>
<td>28.80</td>
</tr>
<tr>
<td>Initiative</td>
<td>20.58</td>
<td>3.36</td>
<td>21.32</td>
</tr>
<tr>
<td>SigSchoolAvoidance*</td>
<td>2.30</td>
<td>1.81</td>
<td>2.20</td>
</tr>
</tbody>
</table>
Table 3 Continued

<table>
<thead>
<tr>
<th></th>
<th>Loneliness, Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loneliness*C</td>
<td>46.02  11.77  50.95  11.85</td>
</tr>
<tr>
<td>SelfConfidence*P</td>
<td>17.8   2.78   16.83   2.85</td>
</tr>
<tr>
<td>SeparationAnxiety*C</td>
<td>5.65   3.20    6.40   3.89</td>
</tr>
</tbody>
</table>

*Reverse coded such that higher scores equate to higher levels of the negative construct.
*Superscripts denote informant - C=Child, P=Parent, T=Teacher, and R=Researcher.
Table 4

Correlation Matrix

| Variable                        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     |
|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1.RuleCompliance<sup>C</sup>    | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 2.AnxietyWithdrawal<sup>C</sup>| -0.14  | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 3.PeerSocial<sup>C</sup>       | 0.09   | -0.55* | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 4.SchoolInterest<sup>C</sup>   | 0.07   | -0.33* | 0.31   | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 5.Initiative<sup>P</sup>       | 0.46*  | -0.12  | 0.20   | -0.01  | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 6.Limits<sup>P</sup>           | -0.11  | -0.25  | 0.13   | -0.01  | -0.20  | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 7.ShyAnxious<sup>P</sup>       | 0.03   | 0.02   | -0.15  | -0.26  | -0.12  | 0.33   | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 8.SelfConfidence<sup>P</sup>   | 0.46*  | -0.06  | 0.14   | 0.25   | 0.50*  | -0.44* | -0.58* | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 9.Panic                         | 0.06   | 0.57*  | -0.39* | -0.37* | -0.14  | -0.05  | 0.05   | 0.02   | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 10.GeneralizedAnxiety<sup>C</sup> | -0.17 | 0.56*  | -0.26  | -0.22  | -0.15  | -0.12  | 0.04   | 0.13   | 0.63*  | 1      |        |        |        |        |        |        |        |        |        |        |        |        |        |
| 11.SeparationAnxiety<sup>C</sup> | -0.21 | 0.64*  | -0.33* | -0.37* | -0.25  | 0.04   | 0.04   | -0.20  | 0.71*  | 0.54*  | 1      |        |        |        |        |        |        |        |        |        |        |        |        |
| 12.SocialAnxiety<sup>C</sup>   | -0.28  | 0.43*  | -0.30  | -0.08  | -0.28  | -0.00  | 0.04   | -0.25  | 0.51*  | 0.69*  | 0.55  | 1      |        |        |        |        |        |        |        |        |        |        |        |
| 13.SigSchoolAvoidance<sup>C</sup> | -0.90 | 0.55*  | -0.30  | -0.28  | -0.25  | -0.10  | 0.16   | -0.22  | 0.57*  | 0.65*  | 0.52*  | 0.46  | 1      |        |        |        |        |        |        |        |        |        |        |
| 14.TaskOrientation<sup>T</sup> | 0.54*  | -0.29  | 0.25   | 0.44*  | 0.19   | -0.25  | -0.32* | 0.57*  | 0.13   | -0.10  | -0.28  | -0.27  | -0.15  | 1      |        |        |        |        |        |        |        |        |        |
| 15.BehaviorControl<sup>T</sup> | 0.51*  | -0.16  | 0.24   | 0.29   | -0.33* | -0.34* | 0.60*  | -0.02  | 0.03   | -0.14  | -0.17  | 0.05   | 0.69*  | 0.66*  | 0.50*  | 0.62  | 1      |        |        |        |        |        |
| 16.Assertiveness<sup>T</sup>    | 0.44*  | -0.19  | 0.29   | 0.29   | 0.03   | 0.05   | 0.17   | -0.41* | -0.12  | -0.07  | -0.25  | -0.19  | -0.01  | 0.62*  | 0.35*  | 1      |        |        |        |        |        |        |
| 17.PeerSocial<sup>T</sup>      | 0.34   | -0.14  | 0.30   | 0.12   | 0.22   | -0.24  | 0.34*  | -0.07  | 0.02   | -0.20  | -0.23  | -0.03  | 0.66*  | 0.50*  | 0.62  | 1      |        |        |        |        |        |        |
| 18.Loneliness<sup>C</sup>      | -0.23  | 0.51*  | -0.72* | -0.50* | -0.32* | -0.15  | 0.22   | -0.30  | 0.45*  | 0.35*  | 0.30   | 0.29   | 0.41*  | -0.38* | -0.30  | 0.32*  | 0.33*  | 1      |        |        |        |        |
| 19.Internalization<sup>R</sup>  | -0.00  | 0.12   | -0.24  | -0.13  | 0.13   | -0.05  | 0.16   | -0.10  | 0.03   | 0.05   | 0.09   | 0.00   | 0.07   | -0.18  | 0.10   | -0.17  | 0.01   | 0.18  | 1      |        |        |        |        |
| 20.Externalization<sup>R</sup>  | 0.01   | 0.20   | -0.17  | -0.11  | 0.22   | -0.04  | 0.03   | 0.10   | 0.02   | 0.00   | -0.15  | -0.05  | -0.09  | 0.14   | 0.22   | 0.32*  | 1      |        |        |        |        |        |        |
| 21.Task<sup>R</sup>            | -0.22  | 0.14   | -0.06  | 0.22   | 0.06   | -0.08  | 0.01   | -0.08  | -0.32* | -0.05  | 0.05   | 0.19   | -0.04  | -0.10  | -0.05  | -0.07  | 0.26  | 0.26  | 0.09  | 1      |        |        |        |        |

* Correlation is significant at the 0.05 level (2-tailed).
### Table 5

**Correlation Matrix Child**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>RuleCompliance</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AnxietyWithdrawal</td>
<td>-.14</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PeerSocial</td>
<td>.09</td>
<td>-.55*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SchoolIntererst</td>
<td>.07</td>
<td>-.33*</td>
<td>.31</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GeneralizedAnxiety</td>
<td>-.17</td>
<td>.56*</td>
<td>-.26</td>
<td>-.22</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SeparationAnxiety</td>
<td>-.21</td>
<td>.64*</td>
<td>-.33*</td>
<td>-.37*</td>
<td>.54*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SocialAnxiety</td>
<td>-.28</td>
<td>.43*</td>
<td>-.30</td>
<td>-.08</td>
<td>.69*</td>
<td>.55</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SigSchoolAvoidance</td>
<td>-.90</td>
<td>.55*</td>
<td>-.30</td>
<td>-.28</td>
<td>.65*</td>
<td>.52*</td>
<td>.46</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.23</td>
<td>.51*</td>
<td>-.72*</td>
<td>-.50*</td>
<td>.35*</td>
<td>.30</td>
<td>.29</td>
<td>.41*</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

### Table 6

**Correlation Matrix Teacher**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>TaskOrientation</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BehaviorControl</td>
<td>.69*</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assertiveness</td>
<td>.62*</td>
<td>.35*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>PeerSocial</td>
<td>.66*</td>
<td>.50*</td>
<td>.62</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
Table 7

**Correlation Matrix Parent**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Initiative*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Limits*</td>
<td>-.20</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. ShyAnxious*</td>
<td>-.12</td>
<td>.33</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8. SelfConfidence*</td>
<td>.50*</td>
<td>-.44*</td>
<td>-.58*</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).

Table 8

**Correlation Matrix Researcher**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Internalization*</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Extrenalization*</td>
<td>.32*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>21. Task*</td>
<td>.26</td>
<td>.09</td>
<td>1</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
<table>
<thead>
<tr>
<th></th>
<th>Hearing</th>
<th>Deaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Age 9</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Age 10</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Age 11</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>African-American</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Etiology of Deafness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Problems</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Deaf from Birth</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Children who are Deaf with Implants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implanted</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Not Implanted</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Married</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Divorced</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Living w/ Partner</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*Reverse coded such that higher scores equate to higher levels of the negative construct.
APPROVAL MEMORANDUM

Date: 12/3/2004

To: Jennifer Vogel
1329 Tall Maple Loop
Oviedo, FL 32765

Dept: PSYCHOLOGY DEPARTMENT

From: John Tomkowiak, Chair

Re: Use of Human Subjects in Research
Social-Emotional Assessment of Deaf Children

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Human Subjects Committee at its meeting on 11/10/2004. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by 11/9/2005 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

cc: Chris Schatschneider
HSC No. 2004.773

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2763
(850) 644-8633 · FAX (850) 644-4392
APPENDIX C

INFORMED CONSENT FORM - Parents

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled “Social-Emotional Assessment of Deaf Children.”

This research is being conducted by Jennifer Vogel, M.S., who is a graduate student at Florida State University. I understand the purpose of her research project is to better understand social and emotional development in children who are Deaf. In addition to general developmental knowledge it will provide a basis of comparison for other children with similar characteristics. I understand that if I participate in the project I will be asked questions about my child’s school, their friends, and how they feel about themselves. Also, I will be asked to complete a biographical form asking general questions about my child and my family.

I understand I will be asked to fill out paper and pencil questionnaires. The total time commitment would be about 25 minutes. If I participate in the study, I will receive $5.00 compensation for my time. My questions will be answered by the researcher or she will refer me to a knowledgeable source.

I understand my participation is totally voluntary and I may stop participation at anytime. If I decide to stop participation, I will still be entitled to the $5.00 compensation given to me. All my answers to the questions will be kept confidential and identified by a subject code number. My name will not appear on any of the results. No individual responses will be reported. Only group findings will be reported.

I understand the researcher knows of no risk to me that would result from participating in this study. All information will be kept strictly confidential to the extent allowed by law, with only a code number appearing on the collected information so that each form can be matched to the same respondent. No information will be shared with local agencies or schools unless you specifically request it in writing. I am also able to stop my participation at any time I wish.

I understand there are benefits for participating in this research project. I will be providing psychology with valuable insight into children’s feelings and behaviors regarding social and emotional development. The information gained in this study may help in the treatment of children who are Deaf and their families.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Jennifer Vogel, Florida State University, School of Psychology, (407) 365-3983, or Dr. Chris Schatschneider, Florida State University, School of Psychology, (850) 644-4436 for answers to questions about this research or my rights. Group results will be sent to me upon my request.

IRB contact information: Office of Research, Human Subjects Committee, 2035 E. Paul Dirac Drive, Box 16, 100 Sliger Bldg., Innovation Park, Tallahassee, FL 32310; Telephone: 850-644-8633 (Heidi Hodges) or 850-644-8673 (Peggy Haire); Fax: 850-644-4392

I have read and understand this consent form.

____________________________________  _________________________
(Subject)           (Date)

(Child’s Name)
INFORMED CONSENT FORM – Child (completed by a legal guardian)

I freely and voluntarily and without element of force or coercion, consent to allow my child to participate in the research project entitled “Social-Emotional Assessment of Deaf Children.”

This research is being conducted by Jennifer Vogel, M.S., who is a graduate student at Florida State University. I understand the purpose of her research project is to better understand social and emotional development in children who are Deaf. In addition to general developmental knowledge it will provide a basis of comparison for other children with similar characteristics. I understand that if my child participates in the project they will be asked questions about their school, their friends, and how they feel about themselves. Also, they will be observed by a researcher during regular classroom activities for three 10-minute segments on three different days.

I understand they will be asked to fill out two paper and pencil questionnaires and will be interviewed by the researcher for the third questionnaire. The total time commitment would be about 25 minutes. If I allow my child to participate in the study, I will receive $5.00 compensation for giving consent. Our questions will be answered by the researcher or she will refer us to a knowledgeable source.

I understand my child’s participation is totally voluntary and they may stop participation at anytime. If they decide to stop participation, I will still be entitled to the $5.00 compensation given to me. All their answers to the questions will be kept confidential and identified by a subject code number. My child’s name will not appear on any of the results. No individual responses will be reported. Only group findings will be reported.

I understand the researcher knows of no risk to my child that would result from participating in this study. All information will be kept strictly confidential to the extent allowed by law, with only a code number appearing on the collected information so that each form can be matched to the same respondent. No information will be shared with local agencies or schools unless you specifically request it in writing. My child is also able to stop their participation at any time they wish.

I understand there are benefits for participating in this research project. My child will be providing psychology with valuable insight into children’s feelings and behaviors regarding social and emotional development. The information gained in this study may help in the treatment of children who are Deaf and their families.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Jennifer Vogel, Florida State University, School of Psychology, (407) 365-3983, or Dr. Chris Schatschneider, Florida State University, School of Psychology, (850) 644-4436 for answers to questions about this research or my rights. Group results will be sent to me upon my request. IRB contact information: Office of Research, Human Subjects Committee, 2035 E. Paul Dirac Drive, Box 16, 100 Sliger Bldg., Innovation Park, Tallahassee, FL 32310; Telephone: 850-644-8633 (Heidi Hodges) or 850-644-8673 (Peggy Haire); Fax: 850-644-4392

I have read and understand this consent form.
<table>
<thead>
<tr>
<th>Child’s Name</th>
<th>Parent’s Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Parent’s Signature</td>
</tr>
</tbody>
</table>
INFORMED CONSENT FORM - Teacher

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled “Social-Emotional Assessment of Deaf Children.”

This research is being conducted by Jennifer Vogel, M.S., who is a graduate student at Florida State University. I understand the purpose of her research project is to better understand social and emotional development in children who are Deaf. In addition to general developmental knowledge it will provide a basis of comparison for other children with similar characteristics. I understand that if I participate in the project I will be asked questions about my students’ school, their friends, and how they feel about themselves.

I understand I will be asked to fill out paper and pencil questionnaires. The total time commitment would be about 10 minutes per child. If I participate in the study, I will receive $5.00 compensation per survey for my time. My questions will be answered by the researcher or she will refer me to a knowledgeable source.

I understand my participation is totally voluntary and I may stop participation at anytime. If I decide to stop participation, I will still be entitled to the $5.00 compensation per survey given to me. All my answers to the questions will be kept confidential and identified by a subject code number. My name will not appear on any of the results. No individual responses will be reported. Only group findings will be reported.

I understand the researcher knows of no risk to me that would result from participating in this study. All information will be kept strictly confidential to the extent allowed by law, with only a code number appearing on the collected information so that each form can be matched to the same respondent. No information will be shared with local agencies or schools unless you specifically request it in writing. I am also able to stop my participation at any time I wish.

I understand there are benefits for participating in this research project. I will be providing psychology with valuable insight into children’s feelings and behaviors regarding social and emotional development. The information gained in this study may help in the treatment of children who are Deaf and their families.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Jennifer Vogel, Florida State University, School of Psychology, (407) 365-3983, or Dr. Chris Schatschneider, Florida State University, School of Psychology, (850) 644-4436 for answers to questions about this research or my rights. Group results will be sent to me upon my request.

IRB contact information: Office of Research, Human Subjects Committee, 2035 E. Paul Dirac Drive, Box 16, 100 Sliger Bldg., Innovation Park, Tallahassee, FL 32310; Telephone: 850-644-8633 (Heidi Hodges) or 850-644-8673 (Peggy Haire); Fax: 850-644-4392

I have read and understand this consent form.

____________________________  ______________________________
(Subject)      (Date)
APPENDIX F

Child Assent Form

I have been told that my parents (mom or dad) have said it’s okay for me to participate, if I want to, in a project about my school, my friends, and my feelings.

I know that I can stop at any time I want to and it will be okay if I want to stop.

Name: _____________________________________________
APPENDIX G

Child Biographical Information

Child’s ID_____________________  School_________________Grade_______ Age_______

   Hispanic  Other:______________________________

Parents’ hearing status (please circle all that apply if known):
   Mother hearing   Mother Deaf   Father Hearing   Father Deaf

Number of children in household: _____

Age of deaf child: __________________________(Please indicate age in months and years)

Gender of deaf child (Please circle): MALE   FEMALE

a) Has this child been implanted? (Please circle)     YES   NO

b) If yes, what was the child’s age at implantation? ___________________ (Please indicate age in months and years).

Please circle SES/combined income of household (if known):

$0-9,999   $10,000-19,999   $20,000-29,999   $30,000-39,999

$40,000-49,999   $50,000-59999   $60,000-69999   $70,000 –

Child is qualified for: Free Lunch   Reduced Cost Lunch   Regular Lunch

Child’s education (Please circle all that apply):

Residential   Totally mainstreamed   Partially mainstreamed

Deaf magnet school within larger hearing school   Public school   Private school
Other (please explain): ___________________________________________________________

Age of child at diagnosis:____________________ (Please indicate age in years and months)

Etiology of child’s deafness/hearing loss (deaf from birth, accident, etc.): ________________
__________________________________________________________________________

a) Marital status of parents (Please circle):

Single     Married   Divorced   Widowed   Living with partner

b) With whom does the child live?

Biological Mom Only       Biological Dad Only       Both Biological Parents

Biological Mom and Stepdad  Biological Dad and Stepmom

What is mom’s current working status? (Please circle)

Staying at home       Work full-time       Work part-time       Student

What is dad’s current working status? (Please circle)

Staying at home       Work full-time       Work part-time       Student       N/A

What is the highest degree of education parents have obtained?

Some high school       High school diploma       Some college

Bachelors degree       Some Graduate Experience       Completed Graduate Degree

Has the child participated in any intervention? (Please circle)       YES   NO

a) If yes, please describe the type of intervention (Medical, social, etc.): ________________
__________________________________________________________________________

If yes, please indicate the age of the child at the time of intervention: ________________ (Please indicate age in years and months)
a) Has the child had any counseling? (Please circle)  YES   NO

b) If yes, what was the main reason for seeking counseling? __________________________

What is the primary language the child uses at home?

Signing exclusively               If signing, please indicate type (circle):   ASL  English
Oral communication exclusively     Total communication (signing and speaking)

Other (please explain): ___________________________________________________________

What is the primary language the parents use with the child?

Signing exclusively               If signing, please indicate type (circle):   ASL  English
Oral communication exclusively     Total communication (signing and speaking)

Other (please explain): ___________________________________________________________

What is the severity of the child’s hearing loss? (If you are not exactly sure, please estimate at least one of the two categories)

a) Db loss of hearing: _____

b) Percentage loss of hearing: _____
Children’s Loneliness Scale

Instructions: Please answer the following questions.

It's easy for me to make new friends at school.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most of the time</th>
<th>Sometimes</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I like to read.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most of the time</th>
<th>Sometimes</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I have nobody to talk to.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most of the time</th>
<th>Sometimes</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I'm good at working with other children.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most of the time</th>
<th>Sometimes</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I watch TV a lot.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most of the time</th>
<th>Sometimes</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It's hard for me to make new friends.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most of the time</th>
<th>Sometimes</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I like school.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most of the time</th>
<th>Sometimes</th>
<th>Hardly ever true</th>
<th>Not true at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I have lots of friends.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

I feel alone.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

I can find a friend when I need one.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

I play sports a lot.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

It's hard to get other kids to like me.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

I like science.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

I don't have anyone to play with.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

I like music.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|

I get along with other kids.

| Always True | True most of the time | Sometimes true | Hardly ever true | Not true at all |
---|---|---|---|---|
I feel left out of things.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>

There's nobody I can go to when I need help.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>

I like to paint and draw.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>

I don't get along with other children.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>

I'm lonely.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>

I am well-liked by the kids in my class.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>

I like playing board games a lot.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>

24) I don't have any friends.

<table>
<thead>
<tr>
<th>Always</th>
<th>True most</th>
<th>Sometimes</th>
<th>Hardly</th>
<th>Not true</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>of the time</td>
<td>true</td>
<td>ever true</td>
<td>at all</td>
</tr>
</tbody>
</table>
APPENDIX I
Screen for Child Anxiety Related Disorders (SCARED)
Child Version—Pg. 1 of 2 (To be filled out by the CHILD)

Name: ________________________________
Date: ________________________________

Directions:
Below is a list of sentences that describe how people feel. Read each phrase and decide if it is “Not True or Hardly Ever True” or “Somewhat True or Sometimes True” or “Very True or Often True” for you. Then for each sentence, fill in one circle that corresponds to the response that seems to describe you for the last 3 months.

<table>
<thead>
<tr>
<th></th>
<th>0 Not True or Hardly Ever True</th>
<th>1 Somewhat True or Sometimes True</th>
<th>2 Very True or Often True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When I feel frightened, it is hard to breathe.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2. I get headaches when I am at school.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>3. I don’t like to be with people I don’t know well.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4. I get scared if I sleep away from home.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>5. I worry about other people liking me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>6. When I get frightened, I feel like passing out.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>7. I am nervous.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>8. I follow my mother or father wherever they go.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>9. People tell me that I look nervous.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>10. I feel nervous with people I don’t know well.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>11. I get stomachaches at school.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>12. When I get frightened, I feel like I am going crazy.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>13. I worry about sleeping alone.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>14. I worry about being as good as other kids.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>15. When I get frightened, I feel like things are not real.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>16. I have nightmares about something bad happening to my parents.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>17. I worry about going to school.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>18. When I get frightened, my heart beats fast.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>19. I get shaky.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>20. I have nightmares about something bad happening to me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Question</td>
<td>0 Not True or Hardly Ever True</td>
<td>1 Somewhat True or Sometimes True</td>
<td>2 Very True or Often True</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td>------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>21. I worry about things working out for me.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>22. When I get frightened, I sweat a lot.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>23. I am a worrier.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>24. I get really frightened for no reason at all.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>25. I am afraid to be alone in the house.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>26. It is hard for me to talk with people I don’t know well.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>27. When I get frightened, I feel like I am choking.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>28. People tell me that I worry too much.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>29. I don’t like to be away from my family.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>30. I am afraid of having anxiety (or panic) attacks.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>31. I worry that something bad might happen to my parents.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>32. I feel shy with people I don’t know well.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>33. I worry about what is going to happen in the future.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>34. When I get frightened, I feel like throwing up.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>35. I worry about how well I do things.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>36. I am scared to go to school.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>37. I worry about things that have already happened.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>38. When I get frightened, I feel dizzy.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>39. I feel nervous when I am with other children or adults and I have to do something while they watch me (for example: read aloud, speak, play a game, play a sport.)</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don’t know well.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>41. I am shy.</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
SCORING:
A total score of $\geq 25$ may indicate the presence of an Anxiety Disorder. Scores higher than 30 are more specific.
A score of 7 for items 1, 6, 9, 12, 15, 18, 19, 22, 24, 27, 30, 34, 38 may indicate Panic Disorder or Significant Somatic Symptoms.
A score of 9 for items 5, 7, 14, 21, 23, 28, 33, 35, 37 may indicate Generalized Anxiety Disorder.
A score of 5 for items 4, 8, 13, 16, 20, 25, 29, 31 may indicate Separation Anxiety Disorder.
A score of 8 for items 3, 10, 26, 32, 39, 40, 41 may indicate Social Anxiety Disorder.
A score of 3 for items 2, 11, 17, 36 may indicate Significant School Avoidance.
REFERENCES


Craig, D., Graesser, C., Sullins, J., & Golson, B. (2004). Affect and learning: An exploratory look into the role of


BIOGRAPHICAL SKETCH

Jennifer J. Vogel-Walcutt

Born May 11, 1976 in St. Louis Park, Minnesota

EDUCATION

Ph.D. (2007-expected) Developmental Psychology, Florida State University, Tallahassee, Florida


RESEARCH EXPERIENCE

University of Central Florida (2006-Present)
Position: Director of Research – CREATE Division
Duties: Organization and Mentoring – Working with faculty in the school of film and digital media to create a strong research foundation and to promote grant writing, empirical research, and publications; Establish and Maintain Connections to Teachers and Schools – Working with various schools in Orange county to help identify areas of need for teacher quality, classroom management, student engagement, and student success; Reading Skills and Children with Significant Cognitive Impairments – Managing the TAILS FSU project through the continuation of the research described with FSU using a randomized treatment control group research design; NSF Physics MMOG for Education – Working with an interdisciplinary team of researchers and game developers to create a Massive Multiplayer On-line Game to use as a vehicle for physics education.

Florida State University (2005-2006)
Position: Program Manager
Duties: Reading Skills and Children with Significant Cognitive Impairments – Conduct ongoing research relating to the study of how children with significant cognitive impairments learn to read, investigating the level of reading skills they are able to attain, and working with teachers to test a new reading program for use with this population.

PROSE Lab (2004-2005)
Position: Research Assistant
Duties: Independent Lab Research – Conduct ongoing research relating to the study of synthetic environments and their impact on learning. Manage a team of research
assistants to write grants, develop projects, collect data, complete analysis, and publish findings; **National Science Foundation Catalyst Grant** – Lead a team of researchers to complete a meta-analysis comparing traditional educational methods to technology enhanced methods

**Florida Center for Reading Research (2004-2006)**  
Position: Research Assistant  
Duties: **Volunteer Reading Programs** – Working with a team of researchers to complete a meta-analysis comparing outcome data for reading programs used with at-risk children that utilize volunteers for tutoring

**HANDS Lab (2002-Present)**  
[http://pegasus.cc.ucf.edu/~psych/hands](http://pegasus.cc.ucf.edu/~psych/hands)  
Position: Lab Director  
Duties: **Independent Lab Research** – Conduct ongoing research relating to the social, emotional, educational adjustment, and family dynamics of children who are Deaf. Manage a team of research assistants to develop projects, collect data, complete analysis, and publish findings; **Orange County Economic Development Grant** – Lead a team of researchers and external company teams to alter a virtual reality FCAT learning tool to include gaming attributes such as score keeping and rewards. Data collected to compare achievement scores between groups using the program with and without gaming attributes; **Camp Hear Me** - Conducted independent research investigating the social and emotional development of deaf children; **VREAL Project – FCAT Improvement** – Conducted a program evaluation for Veridian Information Solutions regarding their virtual reality project for deaf children; **VREAL Project – Life Skills Education** – Conducted a program evaluation for Veridian Information Solutions regarding their virtual reality pilot project for deaf children.

**FUNDED RESEARCH**


**Vogel, J.** (2003, April). Support for a program evaluation for a virtual reality system to improve academic skills in deaf children ($5,000), General Dynamics.

**Vogel, J.** (2006, October). Support for researching the use of a new phonics-based reading program (TAILS) developed at Florida State University for use with children with significant cognitive impairments ($20,000), Florida State University, Florida Department of Education.

89
Vogel, J. (2007, January). Continued support for researching the use of the TAILS reading program for use with children with significant cognitive impairments ($42,757), Florida State University, Florida Department of Education.

PUBLICATIONS


MANUSCRIPTS IN PREPARATION


