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**THE UTILITY OF SOCIAL BEHAVIOR RATING SCALES FOR CHILDREN WHO
ARE DEAF AND HARD OF HEARING**

by

Francina Marie Silvey

**An Independent Study
submitted in partial fulfillment
of the requirements for the
degree of:**

Master of Science of in Deaf Education

**Washington University School of Medicine
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Abstract: This independent study provides an overview of the social-emotional and theory of mind development of children birth through high school and evaluates the utility of social-emotional rating scales in the classroom for children who are deaf and hard of hearing.

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ABBREVIATIONS

SRS	Social Responsiveness Scale
ToM	Theory of Mind
BSEQ	Bayley Social-Emotional Questionnaire

INTRODUCTION AND REVIEW OF THE LITERATURE

Teachers and other professionals working with children who are deaf and hard of hearing frequently observe that these children have atypical social behaviors compared to normal hearing peers. That is, they often fail to follow the typical social skill development time line (Schum, 1991). Hearing impairment can greatly impact a child's social and emotional skill development, the relationships with peers as well as academic performance (Moeller, 2007).

There are a number of ways teachers and other professionals can identify children that are at risk for developing or already have social behavior problems. Some methods of identifying children with or at risk for behavior problems include rating scales and checklists completed by teachers, doctors and parents or caregivers. When used correctly these social skill assessments can help teachers and professionals design and implement intervention strategies (Elliott, Frank, Gersham & Beddow, 2008). While there is no specific behavior rating scale developed for children who are deaf or hard of hearing, there are behavior rating scales available that may prove to be beneficial for use with this population.

This literature review will discuss the impact of hearing loss on children's social skill development. It will outline typical social skill development, discuss the correlation between language and theory of mind and describe how behavior rating scales might be used to address the development of social skills among children who are deaf or hard of hearing. This review will address supported research that a hearing impairment can affect a child across multiple developmental domains including social emotional development, Theory of Mind, academic performance, language and cognitive development.

SOCIAL SKILLS

Social skills are the tools developed through childhood that individuals use to get along with others in a variety of interactions and situations. Social skills include things such as showing interest in others, asserting needs, showing consideration and sympathy and communicating effectively. They begin developing at birth and continue to develop throughout childhood and adolescence (Matsy, 2006).

The social skills a child has can positively or negatively affect academic performance, social relationships with friends and family, and involvement in extracurricular activities. Social skills, much like language skills are typically learned incidentally. These skills are learned through a child's everyday interactions with other children, teachers, babysitters, coaches and family members ("Social skills: promoting," 2002). They involve many different body systems including the visual and auditory systems, language, problem solving and psychological systems. All of these body systems need to function together for any one system to be successful (Matsy, 2006). When evaluating a child's social skills and preparing to design intervention strategies it is important to understand typical social skill development

SOCIAL SKILL DEVELOPMENT

Social emotional skills begin developing as soon as an infant can watch and listen to his or her surroundings. These skills continue to develop as infants experiment with gestures and early smiles and are reinforced by parent interactions ("Emotional and social," 2010). Parent interactions and loving relationships give children a sense of comfort and encouragement. These interactions help infants, toddlers and children develop the social emotional skills needed to be

successful in developing friendships and becoming a socially competent person (“Social emotional development:,” 2010).

During the first 12 months of life an infant is developing rapidly across multiple developmental domains, including their social skills as infants learn who they are from experiences in their environment. They learn social skills through everyday interactions with communication partners such as parents, relatives, siblings and caregivers (“Social emotional development:,” 2010). From birth to three months of age, babies become interested in other people and learn to recognize their parents. For example, an infant is usually comforted by a smile from a familiar adult and shows pleasure in response to social interaction. At about three to six months, an infant will likely initiate some sort of social interaction with a familiar caregiver. This can include behaviors such as spontaneous smiling, laughing and giggling. Infants around six to nine months of age start to develop a wider range of emotional behaviors and develop a stronger preference for familiar family members. Typically, infants six to nine months of age start to distinguish family members from strangers and respond to voice and gestures by seeking out sound. Around nine to twelve months infants become more aware of themselves and their ability to make things happen, and they begin to initiate interaction with other people. Infants at this stage begin to show intense feelings for parents, show affection to familiar people and express negative feelings (“Social and emotional,” 2010).

The second year of life is a time for a toddler to begin developing self-awareness. This is an important time for social-emotional growth as toddlers begin to recognize themselves by image, show pride in accomplishments, express negative feelings, imitate adult behaviors, play independently and engage in more exploration (“Social and emotional,” 2010). This discovery stage helps toddlers understand that they are separate and independent from others and that the

thoughts and feelings of others may be different than their own. At this stage, toddlers and children begin to develop empathy, an understanding of feelings which is a very important social skill. Toddlers also begin to learn sharing behaviors which are important as children develop and engage in more group activities and become involved in social situations (“Social emotional development:,” 2010).

The third year of life is all about play, developing interests and more exploration. This is an important time for preschoolers to learn to play with other preschoolers and children in different social situations. Throughout this year children begin to talk about their feelings and become more independent, and they need to participate in real-life experiences in order to develop these play and social skills and the language associated with those skills (“Social emotional development:,” 2010).

Around age four or five, children become more aware of themselves as individuals and they become more interested in having relationships with other children (“Social and emotional,” 2010). This is an important stage for the development of social skills, as some understanding of moral reasoning begins to develop. Children’s play skills also become more complex as they engage in more pretend and imaginative play. Children at this age start to develop an awareness of themselves, some understanding of good versus bad behavior and the concept of fairness and also begin to express more awareness of others’ feelings (“Social and emotional,” 2010).

Many changes begin to occur in a child’s life around the age of six. During this age of middle childhood, six to nine years old, the child begins to join new social groups and begins to develop independence or a sense of self outside the boundaries of their family network. As their social emotional skills continue to grow during this stage, children begin developing a greater sense of right versus wrong as well as an awareness about their place in the world and of the

future. Children at this age also devote more attention to building and maintaining friendships and begin to act more nurturing with younger children (DeBord, 1996).

A child or adolescent around nine to thirteen years of age will demonstrate more emotions including moodiness and anxiety. Adolescents begin to develop an increased awareness of their own thoughts, which enables them to make their own decision and judgments. This increase in abstract and logical thinking helps to further develop perspective taking, an important social skill with communication partners. Adolescents at this age begin to join more social networks and heavily rely on the social rules their new social networks impose. Adolescents age sixteen through eighteen begin to develop their sense of self based on their interactions in social networks, personal values and ideas. They often appear moody and unhappy and struggle with the emotions of wanting to become independent apart from their family social network (DeBord, 1996).

THEORY OF MIND

When evaluating a child's social skill performance it is important to consider all the aspects of a child's development including Theory of Mind. Theory of Mind (ToM) is the understanding of feelings and the mental states of self and others. It includes belief, desire and knowledge; the things that help us to understand and predict others' behavior. Over time, ToM develops from previous social experiences, much like the development of language. Precursors to ToM development include joint attention, recognition that people have different perspectives, use of mental state words and pretend play which are all language based skills (Miller 2010).

Joint attention and communicative intents are the first precursors to the development of ToM. This includes the ability of an infant to attend to a communication partner. At around six

to twelve months of age infants use joint attention behaviors such as eye gaze, point following and an alternation of gaze between a person and an object (Miller, 2010).

As early as the second year of life, the action of pretend play, another precursor to ToM development begins to develop and is very important to the social development of children. Pretend play requires children to understand the difference between real-life and fiction. For example, a child that demonstrates the ability to use pretend play will dress up and pretend to be a fire fighter or a doctor, imitating appropriate actions and using relevant language and vocabulary (Miller, 2010).

Another precursor to the development of ToM includes a toddler's ability to use words to describe mental states. As this begins to present itself around three years of age, a toddler will begin to use mental state words such as "maybe," "I know," etc. in social situations. A toddler begins to think about their own feelings and beliefs and begins to communicate those feelings and beliefs to others (Miller, 2010).

The final precursor to the development of ToM is the ability to understand that other communication partners have different perspectives and interpretations. For example, when two people are facing one another across a table, a picture that is flat on the table will appear right-side up to them and upside down to the other person. The ability to understand that a communication partner will not always see the same thing is an essential skill for successful communication. These behaviors typically develop around thirty-seven to forty-eight months of age (Miller, 2010).

LANGUAGE AND THEORY OF MIND

Throughout the first years of life the development of ToM and language are intertwined, and it is important that children have a good language foundation in order to develop ToM (Miller 2010).

The aspects of language including pragmatics, syntax and vocabulary develop together as part of natural and normal development. Pragmatics, the ability to use and interpret language appropriately in social settings is a skill required for a child to understand others' beliefs and intentions (Astington & Jenkins, 1999). Semantics, or word meaning relates to ToM because one must have the vocabulary before one can use mental state words such as "think," "know," and "maybe." Syntax, or grammar and sentence structure is related to ToM as one must be able to use those mental state words in an appropriate manner with varying complexity to convey meaningful ideas to others. These language skills typically develop within the first 5 years of a child's life (Miller, 2010).

A study by Astington and Jenkins (1999) looked into the relationship between language and ToM development. This study consisted of fifty-nine normal hearing children with an average age of around three years. These children were tested three times at the beginning, middle and end of their time in nursery school. The children's language was assessed using the Test of Early Language Development and ToM was assessed using the following tasks: a change in location, unexpected contents and an appearance-reality task. The change in location task consisted of a doll used to act out the scenario and an object. The examiner executes the following actions using the doll while the child watches the entire task. A doll comes to the play area with an object and puts it down. The doll then leaves the play area and the examiner moves object is moved to another location. The doll returns to the play area and the child is asked

where the doll will look for the object. The unexpected contents task required the children to identify a familiar box for example a first aid kit, and name objects they think would be in the box. The examiner opened the box and revealed objects that are not associated with the familiar box and the examiner then closed the box and asked the child what should be inside. The standard appearance-reality task required the children to label an object that appeared to be something it is not. For example, the examiners had a pen that looked like a snake; the children were asked what the object looked like, and what their friend would say the object is. The children's responses were awarded points on a zero to nine scale based on the ToM tasks and the sum of the points represented a raw score.

The results of this study identified a direct relationship between language competence and ToM, as changes in children's ToM were predicted by their language competence. As assessed by the Test of Early Language Development the children's language scores increased over time along with ToM performance, which is consistent with the idea that language is essential to ToM development. Astington and Jenkins (1999) noted that language plays a fundamental role in the development of Theory of Mind, in which linguistic ability is required for successful performance on ToM tasks and that syntax development lays the groundwork needed to succeed in false-belief tasks.

IMPACT OF DEAFNESS ON SOCIAL EMOTIONAL DEVELOPMENT

Children who are deaf or hard of hearing with lower language functioning may also have lower ToM abilities because ToM performance is so closely related to the development of language skills (Woolfe, Want, & Siegal, 2002). The development of social emotional skills in typically hearing children starts as soon as an infant can watch and listen to her surroundings at

birth ("Social emotional development:," 2010). What happens to a child that is born deaf or hard of hearing?

Children who deaf or hard of hearing are often delayed in language development as compared to normal hearing peers because they have been deprived of language-based experiences (Mason & Mason, 2007). As a result, children with lower language levels often develop poor social skills and poor self-esteem and often have difficulty overcoming those perceptions in the future (Moeller, 2007).

One study looked at a sample of thirty children who are deaf or hard of hearing three to twelve years old with cochlear implants and thirty children with normal hearing. The children with cochlear implants were identified early and received amplification via cochlear implant or hearing aid between the ages of 2 months and 4.6 years. These children completed a battery of ToM tasks and the results showed that overall ToM performance of the younger children with cochlear implants was not significantly different than their normal hearing peers. The results suggest that the ToM development in the early implanted children was not very delayed if at all. Earlier amplification provides more access to sound which in turn promotes a greater acquisition of spoken language (Remmel & Peters, 2008) and a greater performance on ToM tasks. With universal newborn hearing screenings, the outlook for children with all degrees of a hearing impairment looks good. There is increasing evidence that early-identified infants that are deaf or hard of hearing progress in speech and language at rates that are greater than their later-identified peers (Moeller, Tomblin, Yoshinaga-Itano, Connor, & Jerger, 2007). These findings are important to consider because they make a great case for identifying children who are deaf or hard of hearing early and providing them with services as soon as possible to insure these children have a better opportunity to develop typical social skills, ToM and all areas of

development to attempt to match typical growth trend. Early identification is the best-case scenario; however some children are still being identified and provided with amplification later which can lead to a decreased performance on ToM tasks and lower language ability and can affect a child's relationships with his or her peers.

One impact of social skill development that has been looked at is the interaction between normal hearing children and children who are deaf or hard of hearing. A study conducted by Vandell and George in 1981 consisted of observations of thirty two children (sixteen deaf or hard of hearing and sixteen with normal hearing) ages forty one to sixty four months on two occasions over a period of two weeks. The children were randomly paired and instructed to play with toys in the playroom and were videotaped for fifteen minutes. The examiners looked at how the children interacted with each other in different groups, i.e. a deaf or hard of hearing child and a child with normal hearing. The results showed that the average social interaction for a paired set of hearing children was 560 seconds. The children who are deaf or hard of hearing paired with other children who were deaf or hard of hearing had an average social interaction time of 222 seconds, whereas the mixed group (one hearing child, and one deaf or hard of hearing child) demonstrated an average social interaction time of 149 seconds. The children that were deaf or hard of hearing interacted less both with their normal hearing peers and with other children who were deaf or hard of hearing. Vandell and George (1981) noted that the children who were deaf or hard of hearing were found to have interest and skill in interaction but lacked the language skills needed to communicate with their normal hearing peers. The language skills necessary for successful communication include things such as use of appropriate vocabulary, staying on topic and following a conversation. Vandell and George also noted that the hearing children did not vary their interaction strategies to accommodate the deaf or hard of hearing peers.

Children that develop poor social skills and poor self-esteem have difficulty overcoming those perceptions as they grow into adulthood. A more recent study in 2004 by Bain, Scott and Steinberg, examined the socialization experiences of thirty eight deaf or hard of hearing adults who grew up using spoken language. The participants took part in an open-ended interview in which their social experiences were discussed naturally. Most of the participants from this study noted they felt some sort of social isolation for three reasons. They reported their social isolation was due to limitations in communication with their hearing peers, missing information in social, work and academic settings, and a sense of being very different.

Research with children who are deaf or hard of hearing supports the idea that language experience affects ToM development (Rommel & Peters, 2008). It is understood that due to the lack of experiential and background knowledge, children who are deaf or hard of hearing are often delayed in ToM development which has a large impact on their social-emotional development (Moeller, 2007). Many aspects of ToM are learned incidentally through everyday experiences, but a child who is deaf or hard of hearing will miss out on a lot of the natural learning experiences a typically hearing peer would have. For example, a child with normal hearing will be able to develop and overhear more language in noisy conditions, whereas a child who is deaf or hard of hearing will struggle in everyday noisy situations (Moeller, 2007). Language is the means through which children learn the mental states and beliefs of others, as well as communicative intents and learn how ideas and perspectives of others are often different than their own (Woolfe, et al., 2002). ToM performance can be negatively affected when there is a communication barrier and language delay.

In 2002, Lundy conducted a study examining the age and expressive language skills of deaf and hard of hearing children in relation to ToM development using four false-belief ToM

tasks. Lundy sampled thirty four deaf and hard of hearing children between the ages of five and ten years old. Ten of the children had cochlear implants, and the remaining twenty four utilized other amplification accommodations. The children's language abilities were measured using the *Language Proficiency Profile*. The children completed four different ToM tasks including a change-in-location, appearance-reality, unexpected contents and misleading picture. The first three tasks have been described earlier in this review. The misleading task required the children to look through a six page book. The first page of the book showed a picture of what looked to be like a pair of ears and the children were asked to identify what the picture was a part of. For example, the children were shown a picture of just a pair of dog ears. Following the children's response the examiner displayed the whole picture revealing a dog. The fifth page showed a picture of what appeared to be a picture of cat's ears but the ears were actually flower petals. The children were then referred back to the picture of what appeared to be a pair of cat ears and the children were asked, "What did you first think this was a picture of?" and "What would your friend think this was a picture of?" A child with ToM would respond that their friend would also think the picture would be a cat, and a child who has not obtained this level of ToM would say their friend would think it was a flower.

The results of this study for all four ToM tasks were as follows: none of the five year old children passed (0%), three of the seven year old children passed (75%), seven of the nine year olds passed (78%) and all of the nine and ten year old children passed (100%). Lundy noted that the findings of this study support the findings of previous researchers who noted a delay in young child who is deaf or hard of hearing and their acquisition of ToM. Lundy found that only the children older than seven years of age could pass the ToM tasks, whereas normal hearing children typically begin to pass these tests between four and five years old. Lundy's research

found evidence that children with a language delay exhibit more difficulties acquiring ToM following the same developmental time-line as compared to their normal hearing peers (Lundy, 2002).

CONSEQUENCES OF SOCIAL SKILL DELAY

Poor social skill development or lack of social skills can be detrimental to a student's academic performance as well as to personal and family relationships. In addition, children with poor social skills may often demonstrate signs of depression, aggression and anxiety ("Social skills: promoting," 2002). These behaviors can negatively affect a child's performance in school and greatly impact their peer relationships.

Often children who are deaf or hard of hearing deal with issues of peer rejection. Children who are deaf or hard of hearing in mainstream education often have fewer friends and feel rejected or neglected more often than their hearing peers, leading them to feel isolated and lonely (Wauters & Knoors 2007). Children that feel rejected by their peers are at risk for poor academic performance and dropping out of school (Nunes & Pretzlik, 2001).

Language delays and communication barriers can make social learning very difficult for children who are deaf or hard of hearing (Moeller, 2007). A study completed by Flook, Repetti & Ullman (2005) analyzed the relationship between the lack of peer acceptance and academic performance for a sample of 248 fourth grade normal hearing children. This three year longitudinal study sought to determine if there was a link between children's peer acceptance in the classroom and academic performance. A teacher report measure was filled out following a likert scale. Teachers rated the children on eight items that assessed how well liked the child was, the extent to which he or she was disliked, number of good friends, popularity among peers,

exclusion from play activities, and the extent to which a child would not be picked by his or her peers for group activities. The results of that study indicated that children who were perceived by their teachers as lacking acceptance by their peers demonstrated poorer academic performance. The authors concluded that the relationships with peers are important because they contribute not only to social development, but also to cognitive, emotional and academic growth (Flook, Repetti, & Ullman 2005).

Another study that looked at the impact of delayed social skills in a school environment was completed by Wauters and Knoors in 2007. They examined a sample of 18 children who are deaf or hard of hearing and 344 normal hearing peers in a cooperative school environment in which children were asked to rate and nominate their classmates. In the peer ratings task, the children were asked to rate each classmate on how much they liked to play with him or her. The researchers used a visual scale which allowed the children to indicate how much they liked to play with the classmate. The visual scale included a happy face which represented the child liked to play with the classmate, a sad face which meant the child did not like to play with the classmate, and the neutral face which meant the child had no preference or did not want to play with the classmate. The peer nominations task measured peer group functioning in individual children or how well the children thought their peers interacted in the classroom. Children were asked fifteen questions for which they could nominate their classmates based on social interaction. The nomination questions had the format of, "Which three classmates are your friends?" Based on the peer nominations, a score for social impact and preference was calculated. Social impact refers to the visibility of a child in the classroom and the social preference refers to how much a child is liked by his classmates based on the number of positive and negative nominations from the first task.

The results showed the children who are deaf or hard of hearing demonstrated an increased number of socially withdrawn behaviors and differed from their hearing peers in social competencies as reported by their normal hearing peers. The results also showed these children scored lower on prosocial behaviors which included things such as empathy, sense of caring and cooperation with peers. The normal hearing peers rated the children who are deaf or hard of hearing as less cooperative and less helpful than their other normal hearing peers. The socially withdrawn behaviors that were rated included things such as being shy and quiet in the classroom. The children who were deaf or hard of hearing were without many friendships as compared to their hearing peers (Wauters & Knoors, 2007).

The social behaviors of children who are deaf or hard of hearing are closely matched to those of children with autism as measured on some false-belief ToM tasks. False-belief refers to the ToM ability to recognize and understand that others can have beliefs about things that are wrong and things that are different. Research completed by Peterson (2004) supports the belief that children with cochlear implants are often as delayed in ToM development as children with autism and deaf peers. A study completed by Peterson (2004) examined the ToM development in children who are deaf or hard of hearing with cochlear implants. Peterson sampled fifty two Australian children ages four to twelve years of age; forty three children who are deaf or hard of hearing and nine children with autism. The age of implantation for the children who are deaf or hard of hearing ranged from two to five years of age. Each child completed a battery of false belief tasks. Peterson found similar results between the deaf and hard of hearing children and the children with autism and discussed the similarities in delays between the groups and found that both groups were delayed in language functioning. For example, children with autism are often lacking in the domains of language, imagination and socialization, and for the children who are

deaf or hard of hearing, conversation and language is often problematic for communication as well. Both groups are lacking the language based experiences needed to develop good social skills.

BEHAVIOR RATING SCALES

Behavior rating scales assess children's social behaviors in order to identify children who are at risk or have social behavior problems and to determine the developmental stage of a child. Rating scales and inventories are versatile assessment tools and are the most common method for quantifying both parent and teacher reports. Ratings of behavior are an efficient way to determine specific behaviors that may need intervention, and they also provide a sense of frequency for the behaviors (Elliott, et al., 2008).

Behavior rating scales can quantify a child's social-emotional behaviors and determine if the child's behaviors are typical, atypical or determine the level of severity of a social impairment however they do not identify the source of aberrant behavior. There are many underlying causes for atypical behavior and many variables that could cause a child to score low on some rating scales. The variables of atypical behavior can include, low cognitive functioning, attention deficit disorder, unstructured home environments or the child could just be having a bad day at the time of teacher or parent report.

PURPOSE

It is important to consider all domains of a child's development and this is especially true for children who are deaf or hard of hearing. While their language ability is clearly affected, it is not the only area to be impacted by a hearing loss. The use of objective tools allows professionals to rate specific behaviors of children and thereby provide a sense of how children who are deaf or hard of hearing rank on social-emotional abilities along typical social

development. The ultimate goal of educating children who are deaf and hard of hearing is to provide these children with direct instruction to help guide them to mainstream school success. It is especially important to consider the social skill development of a child that is deaf or hard of hearing because as the research cited in this review demonstrates, children who are deaf or hard of hearing with a language delay are often at risk for peer rejection and lower academic performance. If specific social skills can be identified as weak, a teacher may be able to remediate the behaviors thereby leading the child on a path of development that is closer to typical development which can help the child have better success in the mainstream.

Although there are no behavior rating scales developed for children who are deaf or hard of hearing, it may be beneficial to use some that have been normed on other populations. The main goal of educating children who are deaf and hard of hearing is to teach them the spoken language skills they need so they can successfully mainstream into school settings with their typically hearing peers, then their behaviors should be rated and compared to those behaviors of typically developing children. On the other hand, as previously cited in this review, children who are deaf and hard of hearing may demonstrate behaviors similar to children with autism and perform similarly on ToM false-belief tasks. As such, one could also make a case that it is appropriate to use a scale developed for children with autism as reported from cited studies that found children who are deaf or hard of hearing and children with autism performed similarly on some ToM false-belief tasks. This paper will evaluate two behavior rating scales; one for typically developing infants and toddlers and one for children with autism ages four to eighteen years of age.

REVIEW OF RATING SCALES

BAYLEY SCALES OF INFANT-TODDLER DEVELOPMENT

The Bayley Scales of Infant-Toddler Development Third Edition is used to identify infants with a developmental delay. The Bayley was standardized on 1,700 infants, toddlers and pre-schoolers between one and forty two months of age. Norms were established using samples that did not include disabled, premature, and other at-risk children. The Bayley is used to describe the current developmental functioning of infants and to assist in diagnosis and treatment planning for infants with developmental delays. It measures three areas of development: cognitive, motor and behavioral. The practitioner can obtain quantitative and qualitative information to compare the child to his or her peers. This scale can also be used to monitor a child's progress over time and is a comprehensive developmental assessment battery with many subtests. The subtests of the Bayley include the following; cognitive, language, motor, social-emotional questionnaire and adaptive behavior scales. For the purpose of this review, the Social-Emotional subtest of the Bayley will be addressed in detail.

The source of the Social-Emotional questionnaire of the *Bayley-III* is the *Greenspan Social-Emotional Growth Chart*. The *Bayley Social-Emotional Questionnaire (BSEQ)* was designed to be used as a measure to determine the mastery of early social-emotional abilities and skills, monitor healthy social and emotional functioning, establish goals for early intervention planning, monitor progress in early intervention programs and detect deficits with any social-emotional skills.

The *BSEQ* is a 35-item questionnaire that covers a range of functional milestones of emotional development and is to be completed by the child's parent or primary caregiver. A parent or caregiver completes the form rating their child's behaviors using a behavior frequency scale. The responses are recorded on a scale from 0-5 points, "can't tell" to "all of the time."

The BSEQ is organized in a developmental sequence of functional emotional milestones in six stages. The organization of the scale is as follows:

Table 2 - Functional Emotional Milestones		Age in months	# of questions
Stage 1	Self-regulation and interest in the world	0-3	11
Stage 2	Engages in relationships	4-5	2
Stage 3	Uses emotions in interactive purposeful manner	6-9	2
Stage 4a	Uses series of interactional emotional signals or gestures to communicate	10-14	2
Stage 4b	Uses series of interactional emotional signals or gestures to solve problems	15-18	4
Stage 5a	Uses symbols or ideas to convey intentions or feelings	19-24	3
Stage 5b	Uses symbols or ideas to express more than basic needs	25-30	4
Stage 6	Creates logical bridges between emotions and ideas	31-42	7

(Bayley, 2006, pg 7-9)

STRENGTHS

The *BSEQ* is very user friendly and not overwhelming to complete as there are only 35 behaviors on which to report. The language and format of the scale makes it easy to read and follow. Parents with various educational backgrounds will be able to follow this scale and rate their child's behaviors.

This play-based assessment is great to use when observing and reporting social-emotional behaviors on infants and toddlers because the observations in this natural unstructured environment provide a more representative score of the true nature of a child's social emotional skills. The results of structured assessments are difficult to interpret because the situations are too contrived and do not represent the true nature of a child's social-emotional skills. This play-based assessment is versatile as it is easy to utilize in a variety of settings. For example, it can be utilized on home visits by a parent educator or coach as well as in a day care setting.

The social-emotional behaviors are listed in a developmental sequence that is helpful for parents and teachers to anticipate the social-emotional developmental milestones that should occur next in the child. This is also helpful as it allows an educator to monitor progress over time and to determine appropriate goals in early intervention settings.

As noted in the Rimmel and Peters study in 2004, good outcomes are demonstrated in regards to ToM and language development for early identified children who are deaf and hard of hearing. The *BSEQ* developed for infants and toddlers could be used to assess the social-emotional development of a deaf or hard of hearing child. The earlier a child is identified with a social impairment and intervention is put in place, the greater chance the child has to develop social skills closer to what is typical of their hearing peers. The impact of the language and social skill delay may be minimized if identified and remediated early.

LIMITATIONS

A disadvantage of the *BSEQ* is that it was developed to be completed by a parent or caregiver. Parents and caregivers sometimes show bias towards their child and may not be objective enough to properly rate their child on some behaviors.

One could argue that the *BSEQ* is not appropriate to use on children who are deaf and hard of hearing because it was not normed on a sample of children who are deaf and hard of hearing. However, if it is the ultimate goal to mainstream these children and their social-emotional skills should be compared to typically developing children.

Another limitation of the *BSEQ* is the length of the form is simple with only thirty five items to report on. There are a limited number of test items to report on a wide age range the test is designed for. For example, there are only thirteen questions to report on an infant from birth to six months. Also, the behavior frequency scale is limited and may make it difficult to monitor progress over time as it is a 5-point scale. A child may show more progress than could be rated on the form. For example at the beginning of the school year a child could demonstrate a behavior “none of the time” but as the school year moves on the child could be demonstrating emerging skill in that behavior. However, the child may not be demonstrating that skill enough to be rated on the next step on the scale of “some of the time.” That could be an issue when trying to monitor the child’s progress over time as small changes are difficult to report on the form.

SOCIAL RESPONSIVENESS SCALE

The *Social Responsiveness Scale (SRS)* is a 65-item questionnaire that covers interpersonal behaviors, communication, and the repetitive/stereotypic behaviors that are

characteristics of autism spectrum disorders. This scale was developed in 2005 for children between the ages of 4 and 18. The purpose of the SRS is to establish a presence and severity of autism spectrum social impairments in settings where qualification of services must be made. The scale was standardized on 1636 ratings obtained from several samples of children of the general population 4-18 years of age. This scale is useful for screening and clinical application purposes and is useful for measuring response to intervention over time. Its reliance on natural observations by parents, teachers and other care professionals allows it to be applied easily (Constantino, 2007).

The scale is completed by a teacher or parent who is familiar with the child's behavior and developmental history. It was designed to be completed within the natural peer context. For example, this form should be completed in a natural play-based setting where a child can work and play with his or her peers. It can be completed with 15 to 20 minutes of observation and scoring can be completed in 5-10 minutes. Responses are recorded using a likert scale ranging from one to four points, where a response of 1 represents "not true", and "almost always true" is worth 4 points.

The organization of the *SRS* is important to mention because the interpreter of the forms can identify areas of weakness and report to the child's teacher on specific behaviors that are of concern. The *SRS* is organized in five domains or subscales as outlined below:

Table 1

Five Treatment Subscales *SRS*

1. **Social Awareness:** Ability to pick up on social cues; items in this category represent sensory aspects of reciprocal social behavior.
2. **Social Cognition:** Ability to interpret social cues once they are picked up; this category represents the cognitive-interpretive aspects of reciprocal social behavior.
3. **Social Communication:** Includes expressive social communication; this category represents the "motoric" aspects of reciprocal social behavior.
4. **Social Motivation:** The extent to which a respondent is generally motivated to engage in social-interpersonal behavior; elements of social anxiety, inhibition, and empathic orientation are included among these items.
5. **Autistic Mannerisms:** Includes stereotypical behaviors of highly restricted interests characteristic of autism.
(Constantino, 2007, p.17)

By developing good social skills children gain the ability to make good choices that will strengthen their interpersonal relationships and promote success at home and at school.

Furthermore, possessing good social skills can result in self-advocacy and personal responsibility and greater success in school (“Social skills: promoting,” 2002). Therefore, it is important to identify any gaps in the development of social-emotional skills among school-age children so those lacking skills can be remediated.

STRENGTHS

There are many potential benefits of using the *SRS* in the deaf and hard of hearing population. A benefit of the *SRS* is that a parent or teacher can each report on the child and give a more complete picture of the child’s social behaviors. The two forms can complement each other as it is important to look at a child’s behaviors both at home and at school to identify how the child behaves in different settings. This is important to consider because a child may act differently at home than at school therefore the forms completed by the teacher and the parent can be compared to each other to determine if there are any discrepancies or gaps in the child’s social emotional development as reported on the two forms.

The *SRS* is user-friendly and the language of the test items is very straightforward and easy to read making it simple for a teacher to utilize in the classroom. It is also very easy for parents with a variety of educational backgrounds to complete as the language of the forms is simple and concise.

This form was designed to determine the degree of a social impairment, therefore a classroom teacher can use this form as a guide to determine severity and develop intervention strategies for those behaviors. It is important to have some quantifying measure of the degree of

a social impairment because this provides a teacher with more information about the whole child when determining services and/or mainstream readiness. A child with a severe social impairment may not be ready to mainstream.

The teacher can also use this form to monitor the child's progress over time in response to intervention strategies. The *SRS* gives quantitative information as opposed to strictly subjective information thus making it easy to monitor and report on a child's progress over time. At school, the form can be filled out by teachers in a variety of settings: in group instruction, during special activities, on the playground, at gym and at lunch. A teacher filling out the *SRS* at school has the opportunity to report on the child's behaviors across a wide range of peer activities and settings. The child's parents can fill out the *SRS* at home and take into account information observed from different settings as well. For example, parents can report on the child's behaviors at home, community events, the grocery store, family gatherings, birthday parties and even at different religious or worship centers.

Finally, the information from the combined reports can assist the child's teacher in developing lessons to work on improving social behaviors. For a child that has a low raw score in the communication domain with low scores on items such as, "is able to communicate his or her feelings to others" and "is emotionally distant," a teacher may chose to develop lessons that target emotions and feelings. A low raw score in the domain of social awareness on items such as "expressions on his or her face don't match what he or she is saying" and "walks in between two people who are talking," might lead a teacher to develop lessons to target what is acceptable behavior in social situations, working on pragmatics and manners. A teacher may also develop lessons to target facial expressions and provide practice identifying feelings and emotions based on facial recognition exercises. The *SRS* can help teachers identify areas of social behavior that

need direct attention and determine goals and implement strategies and lessons to remediate inappropriate social behaviors as well as help them monitor progress in a quantifiable way.

LIMITATIONS

While it is desired to have both a parent and a teacher fill out a rating form, this is not always feasible. A teacher in the classroom could have a better opportunity to witness some behaviors in certain situations than a parent would. For example, on the item a child “gets teased a lot,” a teacher might be able to provide a more representative score for that item because it is probably more observable in the classroom than at home. A parent may have more opportunity than a teacher to observe other behaviors because of the different social settings a child is exposed to when at home or out in the community with parents and siblings. For example, “seems overly sensitive to sounds, textures or smells” may be something that has more opportunity to present itself or to be observed at home with the parents.

While parental input can be valuable, the interpreter of the scale must be aware that parents may show bias towards their child as the forms are filled out from very subjective observations. Also, parents are basing their observations on what they observe and they may not be aware of what typical behaviors are in typically developing children.

The 1-4 likert scale of the form can make it difficult to monitor progress over time. Because the scale only ranges from “not true” to “almost always true” it may be difficult to report on small changes over time. If the forms are filled out two times per school year, a child may have made progress in one area of social development but not enough to check the next box on the form, and therefore it could look as if the child has made no progress.

Another limitation of the *SRS* is it could be time consuming for a teacher to complete one form for each child in the classroom two or more times per school year. The form is to be completed in 15-20 minutes but it could take up a lot of time during the school day for a teacher with five or six children in the classroom to report on each child. Although the form is short it is still time consuming to report on all children.

One could argue that it is inappropriate to use the *SRS* on children who are deaf and hard of hearing because one would not want to compare them to children with autism. However, given the fact that there are similarities in ToM and language of children with autism and children who are deaf or hard of hearing and the relationship between language, ToM and social skills, the use of this rating scale could be appropriate. Identifying the degree of a social impairment can help teachers and other professionals make decisions about the child's readiness to mainstream as well as quantify the degree of a social skill impairment.

DISCUSSION

UTILITY FOR DEAF OR HARD OF HEARING STUDENTS

The general finding of this review is that the *Social Responsiveness Scale* and the *Bayley Social-Emotional Questionnaire* can be useful to determine social behavior differences in a classroom for children who are deaf or hard of hearing. The *BSEQ* will identify an infant or toddler with a social skill delay and the *SRS* will identify the severity of a social impairment for children that are four to eight years of age. If used properly rating forms can guide the teacher to determine the severity of a social impairment and thereby develop and implement intervention strategies as well as providing a means for monitoring a child's progress over time.

As mentioned before the information collected from the *BSEQ* and the *SRS* can be used to identify gaps in the social-emotional development of children who are deaf or hard of hearing. These forms can also provide teachers with information needed to develop lesson plans to target the child's lacking social-emotional skills. For example, if a child is struggling in the social-emotional skill domain of "social communication" a teacher could develop a role-playing lesson in which the students take turns communicating and using appropriate language for greetings and general conversation. Universal Newborn Hearing Screenings allow for early diagnosis and intervention which is designed to address the whole child. As such, the *BSEQ* could be a valuable tool in tracking social development from an early age in order to minimize delays.

Due to the fact that there is currently no social emotional rating scale for children who are deaf or hard of hearing, the *SRS* may be appropriate to use for children who are deaf and hard of hearing even though it was developed to be used on children with autism. Previously cited studies demonstrated a correlation between the social skills of children with autism and children who are deaf or hard of hearing. While the *SRS* scores children in relation to the social impairments that define autism, it does not diagnose autism. If a child that is deaf or hard of hearing scores similarly to a child with autism it does not mean they have autism merely they have similar social difficulties or impairments. The goal of targeting and monitoring these behaviors is to prepare children who are deaf or hard of hearing for mainstream with his or her peers.

SUGGESTIONS FOR FURTHER STUDY

It is important to address all the domains of a child's development, including a child's social emotional development. A child with atypical social behaviors is at risk for poorer

academic performance and peer rejection. In order to truly have a useful social behavior tool for children who are deaf or hard of hearing, it is suggested that the *SRS* and the *BSEQ* be normed on a sample of these children so that this scale could provide teachers with information regarding typical behavior for this population. Sampling children who are deaf and hard of hearing using the *SRS* and the *BSEQ* and developing different norms could help in determining the severity of the social impairment as compared to other children that are deaf or hard of hearing. That information might then be compared to typically developing children's social skill development in order to help teachers determine how large the gap is between other children who are deaf or hard of hearing and also determine how large the gap is compared to their typically hearing peers.

CONCLUSION

The goal of this review was to identify the importance of evaluating a child's social behaviors and to examine the utility of social-emotional rating scales for children who are deaf or hard of hearing. It was also the goal of this study to evaluate two social-emotional rating scales developed for different age levels and determine the potential utility for children who are deaf or hard of hearing.

It is very important to evaluate a child's social behaviors because a hearing impairment can affect a child's social skill development and the lack of social skills can in turn affect their academic performance and peer relationships. Using social-emotional rating scales can help teachers and other professionals identify a social impairment and provide the quantitative information which can be used to develop and implement lessons in the classroom aimed at remediating atypical social behaviors.

In terms of the social-emotional rating scales, the *Bayley Social-Emotional Questionnaire* and the *Social Responsiveness Scale* were found to be easy and straightforward scales to use when reporting on a child's social-emotional skills. The *BSEQ* was found to be a good option for rating an infant or toddler's social-emotional skills due to the simple format and developmental timeline as presented on the rating form. The *SRS* was found to be a good option to use when examining social-emotional skills of children ages four to eighteen years of age due to the organized nature of the rating form assessing five different domains of social-emotional development. These domains of the rating scale can provide teachers with information regarding specific social-emotional behaviors to target in the classroom.

The use of these scales for the deaf or hard of hearing population can be useful in the classroom as they identify and quantify social impairments for infants and children. Identifying a child that is deaf or hard of hearing with a social impairment is important so that intervention strategies can be put into place as soon as possible to help the child develop social skills which are better aligned to the normal growth trend of social skill development. Addressing the social skills of a child who is deaf or hard of hearing can provide great outcomes for the child that extends beyond their language and the development of play skills; a child with good social-emotional skills may have greater ToM performance, better academic performance and an overall increase in self-esteem, all of which are essential for overall well-being.

REFERENCES

- Emotional and social development: birth to 3 months.* (2010). Retrieved from <http://www.healthychildren.org/English/ages-stages/baby/Pages/Emotional-and-Social-Development-Birth-to-3-Months.aspx>
- Astington, J., & Jenkins, J. (1999). A longitudinal study of the relation between language and theory-of-mind development. *American Psychological Association, Inc*, 35, 1311-1319.
- Bain, L., Scott, S., Steinberg, A. (2004). Socialization experiences and coping strategies of adults raised using spoken language. *Journal of Deaf Studies and Deaf Education*, 9 (1).
- Bayley, N. (2006). *Bayley scales of infant and toddler development*. San Antonio, TX: Harcourt Assessment.
- Constantino, J., Gruber, C. (2007). *Social responsiveness scale manual*. Los Angeles, CA: Western Psychological Services.
- DeBord, Karen. (1996). *Parenting teens*. Retrieved from: <http://www.ces.ncsu.edu/depts/fcs/pdfs/fcs422.pdf>
- DeBord, K. (1996). *Childhood years: ages six through twelve*. Retrieved from <http://www.ces.ncsu.edu/depts/fcs/pdfs/fcs465.pdf>
- Elliott, S. N., Gresham, F. M., Frank, J. L., & Beddow, P. A. (2008). Intervention validity of social behavior rating scales: features of assessments that link results to treatment plans. *Assessment for Effective Intervention*, 34 (1), 15-24.
- Flook, L., Repetti, R.L., Ullman, J. (2005). Classroom social experiences as predictors of academic performance. *Developmental Psychology*, 41 (2), 319-327.
- Lundy, J.E.B. (2002). Age and language skills of deaf children in relation to theory of mind development. *Journal of Deaf Studies and Deaf Education*, 7, 41-56.

Mason, A., & Mason, M. (2007). Psychologic impact of Deafness on the child and adolescent.

Primary Care: Clinics in Office Practice, 34, 407-426.

Matsy, J., Schwab, Y. (2006, January). *Ask the expert: social skills*.

Retrieved from http://www.nyufaces.org/files/articles/january_0.pdf

Miller, C. (2010). Developmental relationships between language and theory of mind.

American Journal of Speech-Language Pathology, 15, 142-154.

Moeller, M. P. (2007). Current state of knowledge: psychosocial development in children with hearing impairment. *Ear & Hearing*, 28, 729-739.

Moeller, M.P., Tomblin, B., Yoshingaga-Itano, C., Connor, C., Jerger, S. (2007). Current state of knowledge: language and literacy of children with hearing impairment. *Ear & Hearing*, 28, 740-753.

Social skills: promoting positive behavior, academic success, and school safety. (2002).

Retrieved from Retrieved from

http://nasponline.org/resources/factsheets/socialskills_fs.aspx

Social emotional development: birth to 12 months. (2010). Retrieved from

http://main.zerotothree.org/site/PageServer?pagename=ter_key_supporting_social_emotional_development0to12

Social emotional development: 12 to 24 months. (2010). Retrieved from

http://main.zerotothree.org/site/PageServer?pagename=ter_key_supporting_social_emotional_development12to24

Nunes, T., Pretzlik, U. (2001). Deaf children's social relationships in mainstream schools.

Deafness and Education International, 3 (3).

Peterson, C. (2004). Theory-of-Mind development in oral deaf children with cochlear implants of conventional hearing aids. *Journal of Child Psychology and Psychiatry*, 45 (6), 1096-1106.

Social and emotional development. (2010). Retrieved from <http://www.pbs.org/wholechild/abc/social.html>

Rommel, P., Peters, K. (2009). Theory of Mind and language in children with cochlear implants. *Journal of Deaf Studies and Deaf Education*, 14 (2), 218-236.

Schum, R.L., (1991). Communication and social growth: A developmental Model of Social Behavior in Deaf Children. *Ear and Hearing*, 12 (5).

Vandell, D.L., George, L.B. (1981). Social interaction in hearing and deaf peers. *Child Development*, 52, 627-635.

Wauters, L., Knoors, H. (2008). Social integration of deaf children in inclusive settings. *Journal of Deaf Studies and Deaf Education*, 13 (1), 21-36.

Woolfe, T., Want, S., Siegal, M. (2002). Signposts to development: Theory of Mind in deaf children. *Child Development*, 73 (3), 768-778.