ANALOG OBSERVATION OF PARENT-CHILD COMMUNICATION

WITH CHILDREN WHO ARE DEAF OR HARD OF HEARING

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ABSTRACT

Children who are deaf or hard of hearing often have behavior problems, such as

social immaturity, conduct problems, and hyperactivity (Meadow-Orlans, 1990). Parent-

child communication has been implicated in several studies as a causal factor (Meadow-

Orlans, 1990). However, there have been no empirical studies that address the functional

relation between parent-child communication and behavior problems with deaf and hard

of hearing children. Before any functional relation can be explored, a valid and reliable

instrument for assessing parent-child communication in dyads with children who are deaf

or hard of hearing must be developed. This set of studies included the development,

refinement, and evaluation of the psychometric properties of an analog observation

instrument to assess parent-child communication in dyads including deaf or hard of

hearing children. In study 1, a communication questionnaire was developed and

distributed to parents of deaf children, deaf adults, and professionals working with deaf

and hard of hearing children. Respondents gave examples of situations, topics, and

behaviors associated with parent-child communication problems in this population. In

study 2, role play analog situations and behavior categories developed from study 1 were

reviewed by experts. Experts rated the analog situations for their ability to elicit parent-

child communication problems and the behavioral categories on the degree to which they

reflect parent-child communication problems. Five analog situations and three behavior

categories were selected for the Parent-Child Analog Situation Observation (P-CASO).

In study 3, fifty-two parent-child dyads were given the P-CASO, the Child Behavior

Checklist (Achenbach, 1992), and a demographics questionnaire. Videotapes of the

communications were transcribed and coded for caregiver "directives," caregiver "continuations," and caregiver-child "eye contact." The internal consistency, convergent validity, and discriminative validity of the P-CASO were examined. Results indicate that the P-CASO has good internal consistency and good interrater reliability. The instrument also demonstrated moderate discrimination between dyads using "spoken English only" and dyads using "at least some signs." Correlations between Child Behavior Checklist T-scores and P-CASO behavior category Total Scores were not statistically significant and failed to lend support to the hypothesis that parent-child communication and behavior problems with deaf and hard of hearing children are functionally related.

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CHAPTER 1

INTRODUCTION

Numerous studies have reported emotional and behavioral problems among

children who are deaf or hard-of-hearing. Children who are deaf or hard-of-hearing have

been shown to exhibit high rates of conduct problems, hyperactivity, and social

interaction difficulties (see Meadow-Orlans, 1990, for a review). Also, numerous

scholars have suggested that children who are deaf or hard-of-hearing of parents with

normal hearing have difficulty communicating with their parents. It has been suggested

that there is a functional relation between communication problems and the behavior

problems of children who are deaf or hard-of-hearing (Meadow, 1980; Meadow-Orlans,

1990; Stokoe & Battison, 1981). Before this functional relation can be explored,

however, a valid instrument for assessing parent-child communication in dyads with

children who are deaf or hard-of-hearing must be developed. Without a valid measure of

parent-child communication, it will be difficult to determine if it is an important

contributor to behavior problems or to measure improvements in it.

In the present investigation, a number of goals were achieved, including: (a) the

development of a Website questionnaire to identify situations associated with

problematic parent-child communication; (b) the development and refinement of a set of

content valid analog situations for eliciting communication in parent-child dyads with

deaf or hard-of-hearing children; (c) the development of a behavioral coding system to

use with the analog situations; (d) the examination of the internal consistency of

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the analog situations; and (e) the examination of the convergent and discriminative validity, and the interrater reliability of the obtained measures.

Hearing Loss: Definitions and Epidemiology

Introduction to Hearing Loss

Hearing impairment[1] refers to a hearing loss (measured in decibels) in one (unilateral) or both (bilateral) ears of an individual. Decibel loss is plotted across a range of speech sounds (250 Hertz, 500 Hertz, 1,000 Hertz, 2,000 Hertz, and 4,000 Hertz), and then averaged to yield a summary decibel loss (American National Standards Institute, 1970). This decibel loss number is then categorized as mild, moderate, moderately-severe, severe or profound (see Table 1) for classification purposes. The State of Hawai'i criteria for classification as hard-of-hearing is a 26-70 decibel loss, on average, in the better ear[2]. The criteria for classification as deaf is a 71 decibel or greater loss, on average, in the better ear, coupled with an inability to process linguistic information via the auditory channel.

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[1] "Hearing impairment," while technically correct, is not a culturally sensitive term and has, wherever possible, been replaced by "deaf or hard of hearing."

[2] Pure Tone Average, or PTA, is the average amount of hearing loss, in decibels, averaged across several frequencies, ranging from a low of 250 Hz, or cycles per second, to a high of 8000 Hz.

Table 1

Degree of Hearing Loss Described Categorically

Category	Average decibel loss
Normal	Under 27 dB loss, ANSI
Mild	From 27 to 40 dB loss, ANSI
Moderate	From 41 to 55 dB loss, ANSI
Moderately-severe	From 56 to 70 dB loss, ANSI
Severe	From 71 to 90 dB loss, ANSI
Profound	91dB loss and above, ANSI

Note. Source is Katz, J. (1985). *Handbook of clinical audiology, 3rd edition.*
Baltimore: Williams and Wilkins. dB = decibels; ANSI = American National Standards
Institute.

Epidemiology

Being identified as deaf or hard-of-hearing is not uncommon. Serrano-Miranda,
states that there are over 21 million deaf and hard-of-hearing people in the United States,
of whom, nearly 2 million, or about 1 in 10, is categorized as deaf (Serrano-Miranda,
1999). Over 90% of deaf children have parents with normal hearing (e.g., Rawlings &
Jenesma, 1977; Vaccari & Marschark, 1997). Serrano-Miranda points out that the

percentage of deaf children who are growing up within a household where the caregivers have normal hearing is around 82% (Serrano-Miranda, 1999).

Data on children and adolescents ages 3 through 17 from the National Center for Health Statistics (1994) suggests that: (a) of those with hearing loss, 54% are male; (b) the prevalence of hearing loss among Black and Hispanic Americans is twice the rate of White Americans (National Center for Health Statistics, 1994); (c) prevalence of hearing loss declines as family income increases (Holt & Hotto, 1994); and (d) hearing impairment is diagnosed at birth (congenital) about 70% of the time (Holt & Hotto, 1994).

Behavior Problems Associated with Hearing Loss

A number of epidemiological studies were conducted in the 1970s to identify prevalence rates of emotional and behavioral problems among children and adolescents who are deaf or hard-of-hearing (e.g., Altshuler, 1974; Meadow, 1980; Schlesinger & Meadow, 1972). For the purpose of this introduction, these problem behaviors can generally be described as conduct, hyperactivity, and social interaction problems (see Meadow-Orlans, 1990 for a review). Prevalence rates for behavior problems among deaf or hard-of-hearing youth have been reported to be between 8% (Holt & Hotto, 1994) and 31% (Schlesinger & Meadow, 1972). The most commonly cited prevalence rate of behavior problems in children and adolescents who are deaf or hard-of-hearing is approximately 22% (Altschuler, 1974; Freeman, Malkin & Hastings, 1975; Hirshoren & Schnittjer, 1979; Schnittjer & Hirshoren, 1981; Vernon, 1969). These rates are

comparable to those listed for school-aged children in the United States (APA, 1994) and include behaviors such as impulsivity (Chess & Fernandez, 1980) and social immaturity in communication (Meadow-Orlans, 1990). According to annual survey data from seventy-eight children who are deaf or hard-of-hearing at the Hawai'i Center for the Deaf and the Blind in Honolulu, Hawai'i, children who are deaf or hard-of-hearing in Hawai'i comprise a percentage of the population that is three to four times higher than the national average for emotional and behavioral problems (Allen, 1994). Since that time, the referral rate for mental health services for emotional and behavioral problems has risen dramatically. At the Hawai'i Center for the Deaf and the Blind, which educates about half of the State of Hawai'i's deaf or hard-of-hearing children, more than 50% of the students have been referred for a mental health evaluation. The high prevalence rate of and the proposed causal mechanisms for emotional and behavior problems in deaf or hard-of-hearing children and adolescents in Hawai'i give rise to the current investigation.

Causes of Emotional and Behavioral Problems

Causes of emotional and behavioral problems among children who are deaf or hard-of-hearing can be classified under two general models: a biological model and a family dynamic model.

The Biological Model

The biological model posits that deafness, itself, is a sufficient explanation for the social, behavioral, and developmental problems faced by children who are deaf or hard-of-hearing (Paul & Jackson, 1993). According to this model, the inherent limits of

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hearing impairment on language acquisition and sensory processing result in naturally

occurring social interaction problems which inhibit social learning, eventually leading to

emotional and behavioral problems (Paul & Jackson, 1993). A related view within this

model recognizes that the biological insults that result in hearing loss (e.g., meningitis)

are also primarily responsible for the emotional and behavioral (and neuropsychological)

problems that ensue (e.g., Trybus, 1985). However, other biological determinants, such

as degree of hearing loss, gender, and age, have also been found to be associated with

behavior problems in children and adolescents who are deaf or hard-of-hearing (Meadow,

1980; Meadow-Orlans, 1990). Additionally, the hearing status of the parents has also

been found to predict behavior problems in children who are deaf or hard-of-hearing

(e.g., van Eldik, Veerman, Treffers, & Verhulst, 2000).

The Family Dynamic Model

The family dynamic model, held by most researchers and theorists, posits that it is

the parents' adaptation to their deaf or hard-of-hearing child that is the best predictor of

behavior problems (Calderon & Greenberg, 1993; Lederberg, 1993; Meadow, 1980;

Meadow-Orlans, 1990; Montanini-Manfredi, 1993; van Eldik, et al., 2000; Wood, 1991).

As an extension of McCubbin and Patterson's (1983) stress and adaptation model, the

family's attitudes, beliefs, cultures, support services, hearing status (of parents) and

experiences with the system are the resources they use to help them decide on the

primary mode of communication they will use with their child at home (Greenberg,

Calderon, & Kusche, 1984; Meadow-Orlans, 1990) and the level of communicative

competence both they and their deaf or hard-of-hearing child obtain (e.g., Greenberg, 1980a, 1980b). Numerous studies have shown that parent-child communication is functionally related to family functioning (e.g., Watson, Henggler, & Whelan, 1990), and most importantly, the prevalence of emotional and behavior problems in deaf or hard-of-hearing children (e.g., van Eldik, Veerman, Treffers, & Verlhust, 2000; see Meadow-Orlans, 1990 for a review).

Communication Problems Within the Family

Embedded within the family dynamic model is the notion that parent-child communication problems are important causal factors in the emergence of behavior problems in children who are deaf or hard-of-hearing (Meadow-Orlans, 1990). Research investigating parent-child communication with children who are deaf or hard-of-hearing indicates that parents' choice of communication mode (manual versus spoken language), parents' and child's communicative competence, and parents' interactive behaviors with their children who are deaf or hard-of-hearing are associated with language development and social maturity, both in the children and their parents (Meadow-Orlans, 1990; Swisher, 1992; Vaccari & Marschark, 1997; van Eldik, et al., 2000).

Parents' hearing status. Studies have shown significant group differences in behavioral and academic outcomes as a function of parent's hearing status (Meadow-Orlans, 1990). Meadow, Greenberg, Erting, and Carmichael (1981), for example, compared interactions among deaf and hearing preschoolers and their deaf and hearing mothers, using simultaneous signed and spoken communication versus spoken English

only (i.e., four groups). They found deaf-deaf and hearing-hearing dyads to be quite similar in their ability to converse. In contrast, deaf child-hearing mother dyads' using spoken English had conversations that were shorter, with less elaboration, with a greater tendency for the mother to initiate the conversational bouts, and for the child using spoken English to avert her or his gaze, compared to the deaf child-hearing parent dyads using sign language and spoken English in combination to communicate. Group means were not reported, but analysis of variance results were significant for all the aforementioned variables at $p < .01$ or $p < .001$ (Meadow, et al., 1981). Similar results were found by Prendergast and McCollum (1995), Henggler and Cooper (1983), and Wedell-Monig and Lumley (1980), in terms of the impact of mother's hearing status on parent-child communication. Additionally, at least two studies have reported a prevalence of emotional and behavioral disturbance twice as high among deaf children with hearing parents compared to those with deaf parents (Sinkkonen, 1994; Stokoe & Battison, 1975; van Eldik, et al., 2000; see Vaccari & Marschark, 1997 for a review).

Parents' communication mode. Communication mode (e.g., spoken English, American Sign Language (ASL), cued speech, etc.) has been found to have a significant impact on parent-child communication (Meadow-Orlans, 1990). Greenberg, et al. (1984), for example, compared 12 dyads of normally hearing mothers and their deaf or hard-of-hearing 3 to 5 year olds who had received early intervention in total communication with 12 similar dyads who had not received early intervention services. Although there were no differences in the total amount of communication (total number of words exchanged)

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as well as in number of initiations by group (intervention versus control), control mothers more often used forceful directives than did the intervention mothers (ES = 1.98), interrupted their children significantly more often (t[22] = 2.56, p < .05) and displayed an overall lower frequency of communication across analog situations and free play (t[22] = 2.4, p < .05). In contrast, the early intervention mothers more often communicated when they had their child's visual attention (t[22] = 2.53, p < .05) and used more signs (E.S. = 1.83). Furthermore, the children of the mothers who participated in the early intervention programs asked a significantly higher percentage of follow-up questions than did the comparison children (t[22] = 2.4, p < .05), exhibited more spontaneous communications (t[22] = 2.2, p < .05), and showed higher gratification in their interactions with their mothers (t[22] = 2.2, p < .05). More recent studies have reached similar conclusions (e.g., Desselle, 1994; Prendergast & McCollum, 1996), although not all implicate parent's linguistic mode, directly (e.g., Vaccari & Marschark, 1997). Vaccari and Marschark (1997) noted that the parents' ability to use ASL in communications with their deaf or hard-of-hearing children, traditionally considered an important predictor of such communication outcome variables as coordinated visual attention and elaboration of communication bouts, was more "superficial" than important. They found that hearing parents of deaf children found alternative, often nonverbal communication strategies, and it was not the strategy chosen, but rather the effectiveness of that strategy that predicted the outcomes mentioned above. They concluded that quality of communication (i.e.,

effectiveness) within the dyad predicts successful parent-child communication, and not the parent's ability to sign.

Quality of communication. Quality of communication refers to the ability of the individual to effectively and appropriately express and discuss his/her thoughts, feelings, and needs with other family members. Relevant variables include but are not limited to communication method, communication competence, initiation of communication, elaboration, directiveness of the parent, and coordinated visual attention. Jamieson's review of the literature (1995) notes that studies published between 1972 and 1994 consistently showed that language growth is facilitated by parental behaviors that permit the child's focus of attention to determine topic selection, provide contingent responses related to the topic, and include good visual communicative turn-taking. It follows that these behaviors are functionally related to behavior problems in deaf and hard-of-hearing children (Meadow-Orlans, 1990; Sinkkonen, 1994; van Eldik, et al., 2000).

Parental directiveness. At least 10 studies have demonstrated the tendency of parents with normal hearing to be more directive with their children who are deaf or hard-of-hearing than parents who are deaf or hard-of-hearing with their children who are deaf or hard-of-hearing or parents with normal hearing with their children with normal hearing (see Appendix A) (Meadow-Orlans, 1990). Wedell-Monig and Lumley (1980), for example, analyzed the interaction between mothers and their young children by coding communication behaviors across several analog situations, captured by videotape. They found an inverse relation between the number of attempts to initiate interaction by

one member of the dyad and the number of attempts to initiate interaction by the other member. Among the dyads in which both the parent and the child had normal hearing, the controlling member could be either and often alternated over the course of the interaction. Among the deaf child-hearing mother dyads, however, the mother was always more dominant than her child (see Jamieson, 1995; Mather, 1990 for reviews). This finding has been replicated (Cheskin, 1981, 1982; Greenberg, et al., 1984; Lederberg & Everhart, 1998, 2000; Musselman & Churchill, 1993; Power, Wood, Wood, & MacDougall, 1990), but contradicted by Cassie and Cole (1993) and Tanksley (1993). Numerous studies have noted a functional relationship between variables such as parental directiveness in communication (irrespective of communication mode) and quality of communication (Meadow-Orlans, 1990), as well as other important variables such as extending the conversational bout with continuations (Rodriguez & Lana, 1996) and maintaining good eye contact during conversations (Lederberg & Everhart, 1998; Swisher, 1992).

Communication elaboration. Greenberg (1980) describes communication elaboration as the advancement of interaction by adding new information that functions to continue or expand a conversation. Communication between a parent and his or her deaf or hard-of-hearing child is considered more competent to the degree to which conversations are expanded by both the child and the parent (Greenberg, 1980; Greenberg, et al., 1984; Prendergast & McCollum, 1996; Rodriguez & Lana, 1996). Greenberg found a higher percentage of mutual elaborations among mother-child dyads

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with high communication competence (as opposed to low communication competence), regardless of communication mode (oral or simultaneous sign and speech). Similarly, Meadow et al. (1981) found elaboration to differ significantly among dyads, with deaf child-oral mothers exhibiting a significantly lower percentage of mutually elaborated conversational bouts compared to deaf children with deaf mothers, hearing children and hearing mothers, and deaf children with hearing mothers using simultaneous signed and spoken communication ($F = 6.7$, $p < .01$). The functional relationship between communication elaboration and quality of communication has been extended by such researchers as McCarthy (1999), who found that high communication dyads, that is, dyads in which both the parent and child were deaf or hearing, or dyads in which the hearing parent used signs or signs and speech to communicate with her or his deaf child "scaffolded" their communications effectively (i.e., elaborated, expanded, or built upon the other's statements), which resulted in higher rates of higher-order, shared problem-solving.

Eye contact in communication. Deaf and hard-of-hearing children use their vision to gather both language input and information about their environment. The degree to which they maintain eye contact with their conversational partner depends in large part on the information that the partner provides as the partner and larger environment are often in competition for the deaf or hard-of-hearing child's attention (Swisher, 1992). If the parent is not facilitating communication by coordinating her or his eye gaze with that of the deaf or hard-of-hearing child, communication is not likely to be of much use to the

child, who will look to other sources for information (Swisher, 1992). Lederberg and

Everhart (1998) conducted a longitudinal study with 20 deaf and 20 hearing children with

hearing parents when the children were 22 months and again at 3 years of age.

Compared to their hearing peers, the deaf children did not visually attend to much of their

mothers' communication, and therefore received much less information from their

mothers about the things they were looking at in their environment. Implicit in this study

is the notion that deaf and hard-of-hearing children will look at their mothers' and

fathers' faces with ever-reducing frequency should their attempts to gain information

from their parents with coordinated eye gaze not result in information being imparted.

This has been called "communication frustration" by some researchers (e.g., Meadow-

Orlans, 1990) and is hypothesized to result in less and less eye contact and parent-child

communication over time (Lederberg & Everhart, 1998; Meadow-Orlans, 1990;

Schlesinger & Meadow, 1972; Swisher, 1992).

The Need for an Instrument to Assess Parent-Child Communication in Dyads with Deaf

or Hard-of-Hearing Children

The functional relation between the hearing status of the child and parent-child

communication behaviors (e.g., the mothers' tendency to be dominant) has been difficult

to demonstrate consistently or even investigate because no valid, specific assessment

strategies have been developed for use with parent-child (deaf or hard-of-hearing) dyads.

Thus, there is no way to measure important aspects of parent-child interaction with deaf

children, which is seen as a significant research problem (Roberts, 2001). The task is

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complicated by the likelihood that parent-child communication patterns are likely to vary across developmental levels or age. Furthermore, researchers have not identified those situations or topics that most reliably elicit communication problems in dyads of parents and their deaf or hard-of-hearing children. This has made it impossible to develop clinic-based assessment strategies.

Assessment of Parent-Child Communication

A variety of methods have been employed to investigate parent-child communication, including self-report questionnaires, rating scales, and direct observations. While many of these assessment instruments claim to be reliable and valid (see Foster & Robin, 1997), there have been very few designed specifically for use with children who are deaf or hard-of-hearing and their parents. Those that exist (e.g., Greenberg, 1980a; Schlesinger & Meadow, 1972) have not been subjected to psychometric evaluation and have not been standardized.

Questionnaires and Rating Scales

Questionnaires and rating scales have been used to assess family communication patterns (e.g., Family Environment Scale, Moos & Moos, 1983), and specific components of parent-child interactions, such as cohesion and conflict (e.g., Conflict Behavior Questionnaire, Prinz, Foster, Kent, & O'Leary, 1979; Parent-Adolescent Communication Scale, Barnes & Olson, 1985). The Issues Checklist (Foster & Robin, 1988), for example, has been used with parents and teens to identify topics of conversational disagreement, the frequency with which these topics arise, and the intensity of anger

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reported per discussion (Foster & Robin, 1988). They have also been used to assess parent-child communication with children who are deaf or hard-of-hearing (Meadow-Orlans, 1990), to identify potential causal or "target" variables for observation (e.g., Desselle, 1994) and to explore the relationship between independent variables, such as communication mode, and family interactions, and dependent variables such as child psychological adjustment (Schlesinger & Meadow, 1972; Watson, et al., 1990). While questionnaires and rating scales have provided valid information about family communication patterns among normally hearing as well as deaf and hard-of-hearing children; and while they are easy to administer and clinically useful, they do not target specific aspects of communication, such as directives, initiations, continuations, and sustained eye contact, which have been deemed important for children who are deaf and hard-of-hearing (Greenberg, 1980; Meadow-Orlans, 1990; Swisher, 1992).

Observations

A number of observational methods have been used to assess general (e.g., maternal dominance, Campbell, Breaux, Ewing, Szumowski, & Pierce, 1986) and specific (e.g., conversation initiations, Rodriguez & Lana, 1996) communication behaviors that occur during the course of observation of parent – child dyads (Barkley, Karlsson, Strzelecki, & Murphy, 1984; Breiner & Forehand, 1981, 1982; Cunningham & Barkley, 1978; Durkin, Rutter, & Tucker, 1982; Gordon, Burge, Hammen, Adrian, Jaenicke, & Hiroto, 1989; Nelson, 1981; Prinz, et al., 1979; Prinz & Kent, 1978; Robin & Foster, 1989) including dyads comprised of children who are deaf or hard-of-hearing and

their parents (e.g., Cassie & Cole, 1993; Day, 1986; Goss, 1970; Greenberg, 1980,

Greenberg, et al., 1981; Henggler & Cooper, 1983; Schlesinger & Meadow, 1972;

Swisher, 1992; Tanksley, 1993; Tomasello & Todd, 1983; Wedell-Monig & Lumley,

1980) (see Meadow-Orlans, 1990 for a review).

Naturalistic observation. Naturalistic observation (e.g., free play at home or in

play room) has been shown to be a powerful, valid, and reliable method of assessing

parent-child interactions with deaf and hard-of-hearing children (see Meadow-Orlans,

1990 for a review). However, naturalistic observation is too expensive to use in everyday

clinical assessment. Expense (e.g., money and time) involved in transportation time,

videotaping, observation, and coding has been a factor in the paucity of applied clinical

research involving unstructured or free play observations (Mash & Terdal, 1997),

including those involving deaf and hard or hearing children and their parents (Greenberg,

1980b). Secondary limitations include pragmatic concerns, such as ease of

administration, scoring or coding, and interpretation (Mash & Terdal, 1997).

Additionally, several parent and child behaviors (e.g., child noncompliance) measured

during free play conditions, even in the clinic, have marginal validation (Roberts, 2001).

Analog observations. Analog observations usually include a task, or a structured

play activity, contrived to elicit behaviors of interest and to closely resemble, or be an

"analog" for, the natural environment or situation. Analog observation studies have

occurred in clinic settings and have involved the coding of maternal and child

interactions in free play, parent-directed play and parent-directed chore conditions (see

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Roberts, 2001, for a review). In general, the parent-child analog observation literature is limited by psychometric underdevelopment, cumbersome behavioral micro-coding, small sample sizes, and limited consideration for content validity in the development of analog situations (Roberts, 2001).

Parents and their children who are deaf or hard-of-hearing have been observed in structured interactions designed to examine mother-child communication behaviors (e.g., Greenberg, et al., 1984; Henggler & Cooper, 1983; McCarthy, 1999; Musselman, Lindsay, & Wilson, 1988; Power, et al., 1996; Rodriguez & Lana, 1996). Results from analog studies in this population have been found to be similar to those obtained using in-home, naturalistic observation methods (Caro-Martinez, Lurier, & Handen, 1994; Greenberg, et al., 1984; Henggler & Cooper, 1983). In all of these studies, researchers found group differences in communication to be consistent across structured and naturalistic observations, though no specific correlation coefficients were presented in any of the studies. Parent-directed play analogs have not been as effective as parent-directed chore analogs in predicting child behavior in the home (Roberts, 2001). Additionally, poor parent instruction-giving during parent-directed play has been found to be an important predictor of child behavior (Roberts, 2001). McCarthy (1999) for example, found that analog problem-solving tasks were effective in eliciting parent-child communication. McCarthy discovered that, compared to parents in "low communication" dyads, parents in "high communication" dyads exhibited a higher number of functions (e.g., enumeration, checking progress), "scaffolded" their

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interactions more often, and experienced rich communicative exchanges during teaching interactions, resulting in more independent problem-solving by their children at posttest. Scaffolding occurs when each new statement is built upon the previous statement to increase understanding, continuity, and shared leadership. In summary, analog observation increases the probability that behaviors of interest will be elicited, thus increasing the internal validity of the research. Analog observation also increases cost-efficiency by reducing travel, observation, and recording time requirements and associated costs (Haynes & O'Brien, 2000).

The goal of this research program was to develop and validate a clinically useful, cost-efficient and developmentally appropriate analog observation instrument to assess parent-child communication in ethnically diverse dyads of children who are deaf or hard-of-hearing and their parents.[3]

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[3] Primary caregivers are typically the mothers, but sometimes the primary caregiver is the father, or particularly in Hawai'i's multi-ethnic environment, an aunt or other extended family member. In this research report, "parent" is used inclusively.

CHAPTER 2

STUDY 1

Generation of Situations and Codes for Analogue Observation of

Parent-Child Communication Problems in Families with a Child who is

Deaf or Hard-of-hearing

Goals

The goals of study 1 were to develop and refine a set of communication

questionnaires to gather information about parent-child communication problems in

families from different ethnic backgrounds with children who are deaf or hard-of-

hearing; to link the questionnaires to a web site from which to administer them and

compile data; to gather preliminary information from stakeholders regarding perceived

causes of communication problems in families with children who are deaf or hard-of-

hearing; and to generate age-appropriate analogue situations and behavior codes to elicit

and measure communication behavior among dyads of parents and their deaf or hard-of-

hearing children.

Method

Participants

One hundred six individuals responded to a request for participants to complete a

communication questionnaire (see Appendices B1, B2), of whom 70 were professionals

working with deaf or hard-of-hearing individuals, 17 were parents of deaf or hard-of-

hearing individuals (some of whom were deaf or hard-of-hearing, themselves), and 19

were deaf or hard-of-hearing adults. Of these 106, twenty individuals also responded to a follow-up e-mail (see Appendix C-4) requesting additional information. Ninety original responses were returned via email and 16 were returned via regular mail. All of the follow-up letters and responses were sent and received via email. The participants represented a cross-section of ages, areas/regions of residence in the United States, degrees of hearing loss, and language preferences, consistent with demographic information (Allen, 1994) (see Table 2).

Table 2

Description of Participants in Study 1

	Deaf	Parents	Professionals
Number of Participants	19	17	70
Age			
20 or less	2	3	---
31 to 40	6	6	---
41 to 50	4	4	---
51 to 60	4	3	---
61 to 70	3	2	---
Degree of Hearing Loss[a]			
None	0	12	---
Mild	1	1	---
Moderately Severe	3	0	---
Severe	5	0	---
Profound	9	4	---
Language used when growing up			
American Sign Language	3	---	---
Signed Exact English	1	---	---
Pidgin Sign Language	2	---	---
Gestures	1	---	---
Spoken English (Oral)	12	---	---

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Table 2 (continued)

	Deaf	Parents	Professionals
Language used in school			
American Sign Language	3	---	---
Total Communication (signs and speech)	6	---	---
Spoken and Written English	10	---	---
Relationship to deaf or hard-of-hearing child			
Mother	---	11	---
Father	---	2	---
Other Relative	---	2	---
Other Caregiver	---	2	---
Profession			
Teacher	---	---	39
Counselor	---	---	3
Psychologist	---	---	1
Professional's Hearing Status (missing=1)			
Deaf	---	---	5
Hard-of-hearing	---	---	10
Normal Hearing	---	---	54
Other[b]	---	---	25
Missing	---	---	1

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Table 2 (continued)

	Deaf	Parents	Professionals
Number of Years Working With Deaf and Hard-of-hearing Children			
1 to 3 years	---	---	2
4 to 6 years	---	---	5
7 to 10 years	---	---	7
11 to 20 years	---	---	20
More than 20 years	---	---	36

[a] Missing information from one participant; [b] nearly all "other" professionals were school administrators.

Deaf and hard-of-hearing adults and teenagers in Hawai'i were excluded from direct sampling as they were potential participants in the Study 3. Of the 300 email invitations sent, nearly one third were returned due to incorrect or expired addresses. Of the remaining 200 apparently received by the addressee, 90 responses (45%) were received. Of the 100 invitations sent by regular mail, 16 responses were received, several coming from forwarded copies of one invitation. Factoring in all variables, the response rate can best be estimated as approximately 27% or 106 responses out of 400 invitations sent.

Recruitment

Participants were recruited from a national sample of deaf teenagers and adults, parents of deaf individuals, and professionals working with deaf and hard-of-hearing individuals, including teachers, counselors, psychologists, and allied health professionals. Participants were recruited from the fifty United States, Canada, and Puerto Rico, via electronic mail (heretofore referred to as "email") and regular mail. The request for participants (see Appendices B-1 and B-2) was sent to email and regular mailing addresses of individuals heading state and regional schools for the deaf or hard-of-hearing and training programs for teachers of the deaf and hard-of-hearing, obtained from the *American Annals of the Deaf* (1999). The letter requesting participation described the purpose of the study, the content of the questionnaire, and informed consent procedures (see Appendices B-1 and B-2). Prospective participants were invited to "pass along" the questionnaire to other appropriate and potentially interested individuals.

Prospective participants who received their invitations via email were invited to click on a link at the bottom of the email to go directly to the website where the questionnaire was posted. Once they finished responding to the questionnaire items, participants clicked the "submit" button to send their responses electronically to the email box of the principal investigator.

Instruments

Three separate but similar questionnaires were developed to be completed by Deaf adults (or teenagers), parents of deaf children, and professionals working with deaf

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and/or hard-of-hearing children (see Appendices C-1 through C-3). They were designed

primarily to obtain anecdotal information describing situations and/or discussion topics

that resulted in communication problems among parent-child dyads in which the child

was deaf or hard-of-hearing (Part B). The questionnaires were also designed to gather

basic demographic information required to describe the respondent sample (Part A), and

to elicit participants' attitudes and beliefs about the causes of communication problems in

these dyads (Part C). This latter design goal was addressed with the inclusion of seven

Likert-type items, taken from Schlesinger and Meadow (1972), designed to assess

respondents' attitudes and beliefs concerning potential sources of communication

problems in parent-child dyads.

Content Analysis

A complete description of the content analysis method employed is located in

Appendix D. The content analysis was intended to provide descriptive information

concerning the "What?" "Where?" "When?" "Why?" and "Who?" of parent-child

communication problem situations. Six research team members each categorized 18

responses, in writing, into the aforementioned categories. Team members then paired off

and exchanged their responses and categories to check reliability (which was not done

blindly). Six discrepancies in codes were identified and discussed by the team until

consensus was reached. Because some of the responses to the original email lacked

specific anecdotal information, making content analysis difficult, individualized, follow-

up emails were sent in instances where further elaboration was required. In these follow-

up emails, participants were asked to recall and describe a specific memorable incident or anecdote, to elicit a higher level of detail to assist with the development of analog situations (see Appendix C-4). Responses to the follow-up emails (n=20) were coded by the principal investigator using the same qualitative analysis techniques (Bradbard, Endsley, & Mize, 1992) and checked by the co-investigator (E. K.) for reliability.

Armed with these results, each of the six research team members was assigned the task of creating 10 analog situations; two were assigned to create analog situations for ages 3 - 5, two were assigned to ages 6 – 10, and two to ages 11 – 17. The sixty analog situations generated were reviewed by research team members including Deaf community members and research assistants during several research team meetings. The sixty were then reduced to 41 using several exclusionary criteria, including: 1) analog situations that were identical; 2) analog situations that were deemed unrealistic by Deaf community members and/or research assistants; and 3) analog situations that did not generate adequate interaction during role-play.

Results

Data Reduction

Study 1 yielded two sets of data. The first, the qualitative data set, was comprised of written responses to the request for "specific situations that create the most communication problems for parents and their children who are deaf or hard-of-hearing," including responses to the follow-up request for specific anecdotes, a breakdown of which is provided in Table 3.

Table 3

Qualitative Analysis of Anecdotes Describing Communication Problems for Parents and

Children who are Deaf or Hard-of-hearing

		Frequency	
		(n=106)	(n=20)
Category	Response	initial (%)	follow-up (%)
Who?	Hearing, non-signing parent	75 (71)	17 (85)
	Child	24 (23)	2 (10)
	Teacher or parent	2 (2)	0 (0)
	Sibling	4 (4)	1 (5)
	Family in general	1 (1)	0 (0)
What?	Limited/Lack of sign skills	28 (28)	15 (43)
	Abstract-hypothetical	11 (11)	3 (9)
	Isolation/Exclusion	10 (10)	1 (3)
	Homework	8 (8)	1 (3)
	Inappropriate Attention-getting	8 (8)	0 (0)
	Abstract-emotional	7 (7)	1 (3)
	Rules/Discipline	6 (7)	3 (9)
	Denial	4 (4)	0 (0)
	Family Mediation	4 (4)	1 (3)
	Parental Adjustment	4 (4)	3 (9)
	Logistics	3 (3)	0 (0)

Table 3 (continued)

Category	Response	Frequency (n=106) initial (%)	(n=20) follow-up (%)
What?	Abstract-expectations	2 (2)	3 (9)
	Abstract-values	2 (2)	1 (3)
	Assumed understanding	2 (2)	3 (9)
	Parent unable to read to child	1 (2)	0 (0)
	Self-expression	1 (1)	0 (0)
Where?	Home	7 (30)	11 (55)
	Community	4 (17)	4 (20)
	Social Situations/Team Sports	4 (17)	3 (15)
	Family Gatherings	3 (13)	0 (0)
	Meals	3 (13)	1 (5)
	Car	1 (4)	1 (5)
	Everywhere/ In all situations	1 (4)	0 (0)
When?	Planning activities	6 (43)	7 (64)
	All the time	4 (29)	0 (0)
	After School	1 (7)	1 (9)
	Dinner	1 (7)	2 (18)
	First learning to sign	1 (7)	0 (0)
	Nighttime	1 (7)	0 (0)

Table 3 (continued)

Category	Response	Frequency (n=106) initial (%)	(n=20) follow-up (%)
When?	In Meeting at School	0 (0)	1 (4)
Why?	Parent Has Weak Signing Skills	45 (71)	15 (65)
	Disregard for Disability[a]	10 (16)	4 (17)
	Culture (Deaf vs. Hearing)	2 (3)	1 (4)
	Environmental/Situational	2 (3)	0 (0)
	General Parenting Problem	2 (3)	0 (0)
	Child Not Responding	1 (2)	3 (13)
	No/Little Communication	1 (2)	0 (0)

Note. Not all responses contained information that could be coded into all five categories. Similarly, some responses contained more than one code in a given category and some respondents did not respond to this item. Thus, the frequency columns do not add up to 106 (Frequency-A) or 20 (Frequency B) in every category; Percentages are rounded to the nearest whole percent. As a result, some of the percent columns totals add up to more than 100; [a] Disregard for Disability includes parental denial of communication difficulty, parental failure to understand communication needs of deaf or hard-of-hearing child, parental rejection of child's desire/need to participate in the Deaf community, and parental disinterest.

The overriding themes that emerged were that most participants saw the limited

sign language skills of parents as a major source of communication difficulty across

situations, and that problems arose across a wide variety of issues, topics, and situations,

common in everyday interactions and consistent with the literature on problematic

parent-child communication that does not involve deaf or hard-of-hearing children (e.g.,

Forehand, et al., 1997) (see Appendix E for examples of responses).

The second set of data came from the seven Likert-items designed to assess

respondents' attitudes and beliefs concerning potential sources of communication

difficulty in parent-child dyads. This data set was used to provide content validity

information to assist in the selection of behavioral codes for Study 3. The results from

the Likert-type items were aggregated across the three groups (i.e., parents, professionals,

and deaf adults) to identify the items with the highest percentages of "very important"

endorsements. Differences between deaf adults', parents', and professionals' responses

were assessed using 2 x 3 chi-square analyses (see Table 4).

Table 4

Chi Square Analyses of Perceived Causes of Communication Problems Among Parents

and Their Deaf or Hard-of-hearing Children

Communication Problem	Important vs. Unimportant[a]	Profess.	Parents	Deaf	χ^2
Child's speech	Important	59	13	15	$\chi^2 (2) = 0.82$,
reading ability	Unimportant	10	4	3	n.s.
(n=104)					
Child's oral speech	Important	55	11	10	$\chi^2 (2) = 4.58$,
ability (n = 100)	Unimportant	12	5	7	n.s.
Parents' use of	Important	56	14	14	$\chi^2 (2) = 0.14$,
speech (n = 104)	Unimportant	13	3	4	n.s.
Parents' use of	Important	67	15	15	$\chi^2 (2) = 5.13$,
signs (n = 104)	Unimportant	2	2	3	$p < 0.08$, n.s.
Parent communi-	Important	66	14	13	$\chi^2 (2) = 14.16$,
cates/interprets for	Unimportant	1	3	5	$p < 0.001$
child (n = 102)					

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Table 4 (continued)

Communication Problem	Important vs. Unimportant[a]	Profess.	Parents	Deaf	X^2
Parent initiates	Important	59	11	15	$\chi^2(2) = 3.02$,
most or nearly all	Unimportant	9	5	3	n.s.
communication					
(n = 102)					
Parent and child	Important	65	16	16	$\chi^2(2) = 0.67$,
eye contact/gaze	Unimportant	4	1	2	n.s.
(n = 104)					

Note. The number of respondents to each question varied as a function of missing observations. [a] Important and Unimportant categories were derived by collapsing the "very important" and "important" categories into one Important category, and the "very unimportant" and "somewhat unimportant" categories into one Unimportant category, to eliminate empty cells.

In general, results were consistent across groups. However, professionals working with deaf children were more likely than deaf adults and parents of deaf children to see "parents communicating or interpreting for their child" as "very or somewhat important." Based upon column percentages representing the percentage of participants

responding "very or somewhat important," results also suggest that parents' use of signs (or failure to use signs) (93%), parent-child eye contact (or lack of eye contact) (93%), and parent's tendency to communicate or interpret for the child (91%) were considered strong predictors of parent-child communication problems.

Analog Situations

Based on the content analysis, and with the assistance of deaf adults and experts in the field of parent-child communication with deaf or hard-of-hearing children, the research team developed a set of 41 analog situations that were likely to be reflective of and elicit communication problems[4] (e.g., poor eye contact, parental directives, infrequent continuations) in parent-child dyads with children who are deaf or hard-of-hearing.

Research team members including experts from the Deaf community met six times over the course of 2 months. During these meetings, the wording of analog situation instructions and conversion to ASL equivalent instructions were considered. Dyads of deaf or hard of hearing team members and research assistants were formed and engaged in role-play with prospective analog situations. This was followed by team

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[4] For example, responses to the questionnaire might suggest that problems commonly occur when parents are discussing the scheduling of events for the coming day or weekend. A scenario could be developed in which parents are instructed to ask their children about plans for the afternoon. Conversely, older children may be instructed to ask their parents about plans for the weekend.

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discussions and where appropriate, revisions of analog situations. All 41 final analog situations were agreed upon by consensus.

Considerations in the development of the instructions for the analog situation included: 1) open-ended wording; 2) use of only as much instructional specificity as necessary to generate dyadic communication; 3) elimination of cultural bias and consideration of Deaf cultural issues[5]; and 4) consideration for developmental differences in language ability and modes of communication. This last consideration necessitated the creation of pools of analog situations for separate age/developmental groups (e.g., ages 3-5, 6-10, and 11-17)[6], in addition to a pool of analog situations appropriate for all ages. Interpreters and deaf experts assisted with the wording and sign language of the analog situation instructions. The 41 initial analog situations are listed in Appendix F.

Behavior Codes

Results from the Likert-type items regarding perceived causes of communication

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[5] Deaf culture is a subculture of American culture, with its own language and cultural practices. Deaf cultural issues which will be relevant during scenario construction include the use of pictures and other visual materials, ensuring semantic equivalence of translations into ASL, and involving Deaf individuals, highly qualified interpreters, and experts in Deaf studies in the construction and revision process.

[6] These developmental/age groupings are based upon recommendations by several experts in deaf education and development of children who are deaf or hard of hearing, particularly as they relate to linguistic development.

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problems between deaf and hard-of-hearing children and their parents are described in

Table 5.

Table 5

Chi Square Analyses of Respondents' Ratings of Potential Causes of Parent-Child

Communication Problems Between Deaf or Hard-of-hearing Children and Their Parents

Communication Problem	"Very important"	"Somewhat important"	"Somewhat unimportant"	"Very unimportant"	χ^2
Child's speech reading ability	46	41	16	1	$\chi^2(3) = 51.92$ $p < 0.001$
Child's oral speech ability	35	41	19	5	$\chi^2(3) = 31.68$ $p < 0.001$
Parents' use of speech	50	34	14	6	$\chi^2(3) = 45.54$ $p < 0.001$
Parents' use of Signs	91	6	3	4	$\chi^2(3) = 216.85$ $p < 0.001$

Table 5 (continued)

Communication Problem	"Very important"	"Somewhat important"	"Somewhat unimportant"	"Very unimportant"	χ^2
Parent initiates all or nearly all communication	56	29	13	4	$\chi^2(3) = 61.21$ $p < 0.001$
Parent communicates/ interprets for the child	70	23	7	2	$\chi^2(3) = 112.98$ $p < 0.001$
Parent & child eye contact/gaze	83	14	6	1	$\chi^2(3) = 169.92$ $p < 0.001$

Note. The number of subjects responding in each item are identical to those listed in Table 4. It was determined that running Hobermann's standard residuals was inappropriate for testing the responses due to the a priori assumption regarding the distribution of expected responses (i.e., cell sizes were not expected to be equal).

Results indicated that all of these communication issues were seen as problematic by the respondents. Of the seven communication problems listed, "parents' use of signs," "parent-child eye contact," and "parent communicating or interpreting for the child" were given "very important" endorsements by the largest percentage of respondents. Based on these results, input from deaf community members and experts, and literature review results, nine potential target behaviors were identified as being associated with communication problems in parent child dyads with children who are deaf or hard-of-hearing. These target behaviors were "maternal directives," "repetitions," "initiations," "continuations," "terminations," "visual turn-taking," "coordinated eye gaze," "eye contact," and "parent's use of signs," (see Appendix G). Of these, only the first eight were included along with the 41 analog situations for expert review. "Parent's use of signs" was not included for expert review as this was seen as unnecessary given strong support in the literature, study 1 data, and expert opinions concerning its value in predicting parent-child communication problems in dyads of children who are deaf or hard-of-hearing and their parents.

Discussion

Results from the initial study provided a foundation for the development of age-appropriate analog situations and behavior codes to elicit and measure communication behavior among dyads of parents and their deaf or hard-of-hearing children. Results from the communication questionnaires are consistent with literature reviews (e.g.,

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Meadow-Orlans, 1990). Many professionals, parents of deaf children, and deaf adults believe that problematic parent-child communications are associated strongly with the parents' inability to sign or weak signing skills, poor parent-child eye contact, and the parent communicating for the child. The issues and topics reported to be associated with problematic communication covered a broad range, from abstract to concrete. The reasons given by respondents for the problematic parent-child communication focused on poor parental adaptation to the child's hearing loss (e.g., none or poor signing skills, disregard for disability).

These findings were translated into P-CASO analog situations and behavior categories, on the bases of role play, expert review and pilot tests, consistent with principles of content validation. As such, this study addressed the "limited attention" given to content validity in previously developed instruments to assess parent-child communication with deaf or hard-of-hearing children (Roberts, 2001).

The P-CASO includes behaviors that have been hypothesized to be related to communication problems among parents and their deaf and hard-of-hearing children (Greenberg, 1980; Greenberg, et al., 1984; Meadow-Orlans, 1990; Musselman, et al., 1993; Rodriguez & Lana, 1996; Tanksley, 1993; Vaccari & Marschark, 1997).

CHAPTER 3

STUDY 2

Refinement of the Analog Situations and Behavior Codes for Use in the

Parent-Child Analog Situation Observation (P-CASO)

Goals

The goals of study 2 were to refine and select five of the best analog situations

(chosen for their ability to elicit problematic communication behaviors in dyads in which

these behaviors are preexisting), and three of the best behavior codes (chosen for ease of

coding and the degree to which they reflect problematic communication), for inclusion in

the final P-CASO, using role play, expert review and pilot testing.

Method

Participants

Role Play. Research team members included four undergraduate research

assistants, two graduate student research assistants, six deaf community members and

three sign language interpreters.

Expert Review. Six experts with at least twenty years of experience in the fields

of deaf education and/or assessment and treatment of communication problems in

children who are deaf or hard-of-hearing and their families, served as reviewers of the

analog situations (see Table 6).

Table 6

Description of Expert Reviewers

Reviewer Number	Gender	Profession	Hearing Status
1	Male	Teacher	Deaf
2	Female	Speech Pathologist	Hearing
3	Male	Retired Administrator	CODA (hearing)
4	Female	Administrator	Hard-of-hearing
5	Female	Teacher	Hearing
6	Male	Teacher	Hearing

Note. CODA refers to the term, "Child of Deaf Adult" and describes a person who grows up in a household where sign language is the primary mode of communication.

As can be seen in Table 6, experts came from several professions, though all but one were educators or former educators turned program administrators. Expert reviewers represented deaf, hard-of-hearing, and hearing viewpoints, and all were fluent in American Sign Language (ASL) and Signed English.

Pilot Test. Four parent-child dyads were included in the pilot test. The parents included two mothers, a foster mother, and a father, with varying degrees of sign language/communication skills. The children varied in their degree of hearing loss, gender, and preferred mode of communication. Pilot test participants (parents) were

recruited informally from the sample of parents of children attending the Hawaiʻi Center

for the Deaf and the Blind in Honolulu, Hawaiʻi. None of the dyads selected for the pilot

test would have been eligible for Study 3. Two children were selected because they fell

just outside the age range (one was about to turn 3 and one had just turned 18). Another

child was deemed appropriate because she was only recently identified as having a

hearing loss and therefore her parents were just learning about deafness and

communication issues. The last pilot test participant was a student in foster care with a

signing foster parent.

Instruments

Experts were each given a packet containing a VHS videotape with the 41 analog

situations, interpreted into American Sign Language by an experienced ASL interpreter,

along with rating scales for the analog situations and behavior categories (see Appendices

H-1 and H-2), and written instructions to expert reviewers (see Appendix H-3). These

rating scales had been used in previous research and found to be an effective means of

promoting content validity in the development of analog situations (Oliveira-Berry &

Mokihana, 2002).

Procedures

The 41 analog situations and eight behavior codes were refined and

administration procedures were developed through role play exercises involving dyads of

Deaf adults, the researcher, and research assistants (pretending to be the parents and deaf

or hard-of-hearing children). Six expert reviewers were given packets including rating

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scales for the refined 41 analog situations and the 8 behavior codes. Five analog

situations and three behavior codes were selected for inclusion (with "language use") in

the final P-CASO. After conducting four pilot tests, no changes were made to the

instrument. Administration procedures, the recruitment letter, and the telephone contact

script (see Appendices I, J, and K) were refined.

Role Play. Research team members and deaf adults took turns being the parent

and the child in role playing the analog situations. Role play dyads were administered

one of the 41 analog situations and encouraged to communicate using whatever means

necessary, including paper and pencil, spoken English, sign language, gestures, etc. Role

play was also an integral component in the refinement of the wording and signing of

general instructions and specific P-CASO instructions and prompts to address ethnic,

cultural, developmental and linguistic factors as a means of increasing the content

validity of the data gathered in Study 3. Finally, role play allowed for the continued

refinement of the general administration procedures to be used by the Research Assistant

administering the P-CASO (see appendix I).

Expert Review. Packets containing a videotape with the forty-one interpreted

analog situations, and a set of rating scales for the analog situations and the eight possible

behavior codes were hand-delivered to experts for review. No changes were made to the

analog situations from experts' ratings and comments. Five of the top eight analogs were

appropriate for all ages and were selected for inclusion in the final instrument. Reviews

of the behavior codes were used to select three behaviors for further refinement. Expert

reviewers were instructed to complete their reviews within two weeks of receipt of the packets, and were reimbursed for their participation (as noted in Appendix H-3).

Pilot Test. Pilot test dyads were administered the P-CASO analog situations in their final form, consisting of a brief introduction, informed consent procedures, an explanation of the P-CASO and expectations regarding their participation. The pilot test familiarized team members with administration procedures, including set up of equipment, positioning of participants in relation to the camera, and the final administration procedures script (see Appendix I).

After administration of the pilot test, participants were asked to provide feedback to the research team regarding the ability of the analog situations to elicit communication and the degree to which their interactions during the pilot test were reflective of their day-to-day communications with their deaf or hard-of-hearing child in the home. Their comments indicated that no further refinement of the analog situations was necessary. A P-CASO scoring manual (see Appendix L) and code sheet (see Appendix M) were finalized and then aggregated with the administration procedures (see Appendix I), a procedural checklist (see Appendix N), and the final analog situations (see appendix O), completing the packet of materials.

Results

Data Analysis

Ratings by the experts were aggregated and averaged, yielding means for each rating scale, for each of the 41 analog situations and 8 behavior codes.

Analog situations. For the analog situations, only experts' ratings on analog

situations' "ability to elicit parent-child communication and related behaviors" and the

degree to which the analog situations were "reflective of typical parent-child

communication between parents and their deaf or hard-of-hearing children" were used in

the analysis as these two criteria were seen as critical for content validity. Analog rating

means, standard deviations, and ranks are listed in Table 7.

Table 7

Mean Rating Scores and Average Rankings of Analog Situations Aggregated Across

Expert Reviewers

Analog Situation	Age Group	Mean Rating Score	Standard Deviation	Average Rank
1*	3-5	3.00	1.19	11.17
2	3-5	2.75	1.29	16.17
3	3-5	1.82	1.25	23.00
4.	3-5	2.67	1.30	17.33
5	3-5	2.50	1.09	17.33
6	3-5	2.08	1.31	23.83
7	3-5	2.17	1.27	21.67
8	3-5	2.75	1.29	13.33
9*	3-5	3.17	1.19	7.60
10	3-5	2.58	1.38	20.50
11*	3-5/all ages	2.83	1.19	11.16
12	6-10	2.18	1.40	20.40
13	6-10	2.58	1.31	13.67
14	6-10	2.25	1.29	20.33
15	6-10	2.70	1.34	13.60
16	6-10	2.17	1.40	23.17

Table 7 (continued)

Analog Situation	Age Group	Mean Rating Score	Standard Deviation	Average Rank
17	6-10	2.33	1.37	18.50
18	6-10	2.75	1.29	13.50
19	6-10	2.17	1.34	22.67
20	6-10	2.75	1.42	9.17
21	6-10/all ages	2.67	1.44	11.17
22	6-10/all ages	2.75	1.22	9.33
23	6-10/11-17	2.25	1.14	17.00
24	6-10/11-17	2.67	1.30	13.50
25	6-10/11-17	2.75	0.97	13.17
26	6-10/11-17	2.58	1.08	11.83
27	11-17	1.83	1.11	27.67
28*	11-17	3.00	1.35	11.80
29	11-17	2.67	1.44	12.33
30	11-17	2.25	1.60	17.83
31	11-17	2.42	1.56	17.67
32	all ages	2.67	1.37	13.67
33*	all ages	2.83	1.14	9.60
34*	11-17/all ages	2.83	1.47	9.50
35	11-17/all ages	2.50	1.68	17.17

Table 7 (continued)

Analog Situation	Age Group	Mean Rating Score	Standard Deviation	Average Rank
36	11-17/all ages	2.75	1.42	11.17
37*	all ages	2.83	1.11	8.16
38*	all ages	2.83	1.11	8.16
39*	all ages	2.92	1.00	6.16
40	all ages	2.75	0.87	11.67
41	all ages	2.50	1.17	16.50

* connotes analog situations with the highest mean rating scores.

Analog situation rankings were averaged across raters and compared to the mean rating score to confirm selection based upon assumption of interval-level data. Results indicated that ratings ranged from a low of 1.82 to a high of 3.17. Only nine analog situations received ratings of 2.83 or better, and all of these were among the top ten analog situations by ranking.

Behavior codes. Behavior code mean ratings and average ranking are listed in Table 8.

Table 8

Mean Rating Scores and Average Ranking of Behavior Category Codes Aggregated

Across Expert Reviewers

Behavior	Mean Rating	Rating Standard Deviation	Average Ranking
"Initiations"	3.08	1.24	4.17
"Continuations"	2.67	1.23	4.33
"Repetitions"	3.33	1.07	3.00
"Terminations"	2.42	1.24	5.17
"Directives"*	3.67	.78	2.00
"Eye Contact"	3.08	1.38	3.67
"Coordinated Eye Gaze"	3.25	1.22	3.83
"Visual Turn Taking"*	3.42	1.16	2.50

* connotes behavior category codes with the highest mean rating scores and average rankings.

Behavior category code rankings were averaged across raters and compared to the mean rating scores to confirm selection based upon assumption of interval-level data. Results indicated that "directives" was seen as the behavior most reflective of parent-child communication problems and the easiest to code during observation as it received the highest rating and ranking. "Repetitions" received a high rating and ranking as well. Additionally, all three visual behaviors received ratings of greater than 3.0, with "visual turn-taking" receiving the second highest ranking of all eight behaviors.

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The final analog situations and behavior category codes selected for inclusion in the P-CASO are listed in Table 9, along with their average rankings.

Table 9

Final P-CASO Analog Situations and Behavior Codes with Average Rankings

Final Analog Situations	(ave. rank)	Final Behavior Categories	(ave. rank)
-Plan a fun weekend activity	(8.2)	Communication Mode	(NA)[a]
-Discuss present child wants		"Directives"	(2.0)
for her/his birthday	(6.2)	"Continuations"	(4.3)
-Draw a picture together	(11.2)	"Eye contact"	(3.7)
-Plan child's next			
birthday party	(8.2)		
-Discuss newspaper article,			
picture, or comic strip	(9.6)		

Note. [a] Communication mode was selected for inclusion in the final P-CASO without expert review. Abbreviations: NA=Not applicable.

Discussion

Through role play, expert review, and pilot tests, five analog situations and three behavior categories were selected for inclusion in the final P-CASO. Based on average rankings and ratings from our expert reviewers, with consideration for ease of administration and developmental level of the child participants, five 3-minute analog

situations were selected as being the most likely to elicit parent-child communication behaviors. Experts' ratings and rankings also provided content validation for the behavior categories.

The joint drawing task and newspaper reading task selected for inclusion in the P-CASO are similar to tasks that have been employed by other researchers examining interactions between deaf children and their parents(e.g., Cheskin, 1981; Greenberg et al., 1984; Rodriguez & Lana, 1996) and non-deaf children and their parents (Roberts, 2001). The other analog situations (e.g., planning activities) were novel, both for dyads of deaf children and their parents and dyads of non-deaf children and their parents.

"Directives" earned the highest ratings by the expert reviewers, a finding that is consistent with the literature (e.g., Meadow-Orlans, 1990). Of the three visual behaviors that were highly rated by the expert reviewers, "coordinated eye gaze" and "visual turn taking" were not considered appropriate by the research team members since they required a stimulus upon which both parties must be focused for a period of time (Swisher, 1992), and only two of the five P-CASO analog situations require "visual turn-taking" and "coordinated eye gaze." Therefore, "eye contact" was selected for inclusion in the P-CASO for its mean rating score and measurability.

Although it received lower ratings from the expert reviewers in this study, "continuations," was selected for inclusion in the P-CASO for three reasons: 1) it is a positive communication behavior (associated with scaffolding per McCarthy, 1999), whereas the other behaviors (initiations, repetitions, and terminations) are considered

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negative (Meadow-Orlans, 1990); 2) it could be defined precisely; and 3) to obtain

evidence regarding the importance and measurability of "continuations" in predicting

parent-child communication problems with this population; particularly since our expert

reviewers' opinions differed from those offered in published reports (e.g., McCarthy,

1999; Meadow, et al., 1981; Rodriguez & Lana, 1996).

The behavior codes selected for inclusion in the P-CASO have been used

extensively in previous studies involving dyads of deaf children and their parents (see

Appendix A) as well as studies involving non-deaf children and their parents (see Foster

& Robin, 1997 and Mash & Terdal, 1997 for reviews).

CHAPTER 4

STUDY 3

Psychometric Evaluation of the P-CASO

Goals

The goals of this study are to evaluate the internal consistency, convergent

validity, discriminative validity, and interrater reliability of the P-CASO.

Method

Participants

Fifty-two dyads of children who are deaf or hard-of-hearing and their primary

caregivers, from diverse ethnic groups, were recruited from a population of

approximately 600 children identified as deaf or hard-of-hearing living in Hawai'i and

those newly referred for evaluation and found to have a hearing loss. Dyads including

children living on Oahu and attending either the Hawai'i Center for the Deaf and the

Blind (HCDB) or a school other than HCDB made up the majority of the sample (N =

47). The remaining dyads lived on a Hawaiian island other than Oahu and were recruited

when the child's triennial evaluation conducted on Oahu coincided with data collection.

Eligibility. In order to determine hearing status, records from the Hawai'i Center

for the Deaf and the Blind (HCDB) were reviewed[7]. HCDB conducts the initial and

follow-up (i.e., triennial) hearing, speech-language, cognitive, educational and other

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[7] JS, an examiner for HCDB, was given permission by the Department of Education to

review HCDB records for the sole purpose of determining child eligibility.

evaluations of all deaf and hard-of-hearing children referred by the State of Hawaii, Department of Education for special education evaluations. Based on these records, children were eligible to participate if their audiogram revealed a bilateral hearing loss. A child was classified as deaf or hard-of-hearing based on parent-report. In addition to the bilateral hearing loss inclusion criterion, three exclusion criteria were applied: 1) children diagnosed[8] as having a severe disability that significantly limited the child's ability to communicate (e.g., Autistic Disorder)[9]; 2) children whose parents used a language other than English or a signed equivalent (i.e., signed English, ASL) as their primary mode of communication; and 3) families that lived on a Hawaiian island other than Oahu[10]. Deaf or hard-of-hearing children whose parents didn't use English as a first language were excluded because of the difficulty involved in translation and back translation.

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[8] A review of the child's HCDB mental health record alerted the investigators of any such diagnoses

[9] In order to complete the observational measure, it was necessary for both child and parent to understand the analog observation task instructions. Instructions were written so that a normally developing (e.g., cognitive function) 3 year-old child would be able to understand the instructions.

[10] Children and their families from the neighbor islands whose triennial evaluation at HCDB coincided with data collection were recruited.

Recruitment. Four methods of recruitment were used. First, the parents of eligible children attending the Hawai'i Center for the Deaf and the Blind at the time of data collection were contacted by JS, a clinical evaluator for the school. Of the 80 children attending the Hawai'i Center for the Deaf and the Blind, only twenty-two were eligible to participate based upon the criteria outlined previously. Six out of twenty-two families contacted agreed to participate.

A second method of recruitment was the random selection of potential participants from a confidential and comprehensive list of children (ages 3 to 17 years) identified as deaf and hard-of-hearing living in Hawaii. This list was derived from a statewide database of all children identified as having a hearing loss. Approximately half of the families on the list had outdated addresses and/or phone numbers. The assistance of school principals was requested (see Appendix P) when addresses and phone numbers were found to be outdated, though, in general, principals declined to or were unable to provide current student telephone contact numbers and addresses. Thirty-three out of eighty families contacted agreed to participate.

Families were also recruited from a list of children who had undergone their triennial evaluation conducted by HCDB since January 2000. Eight out of 24 families contacted agreed to participate.

The final method of recruitment was snowball sampling (i.e., participants were asked for the names/phone numbers of other eligible families that may be interested in participating). After completing the study procedures, the research team member asked

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participant dyads if they knew of any other eligible families that may be interested in

participating. Five out of eight families contacted agreed to participate.

Of the families that were successfully contacted, those that declined participation most

often explained their decline was a result of time constraints or feeling uncomfortable

about being videotaped.

Description of the sample. Of the fifty-two child participants, thirty (58%) were

male, ranging in age from 3 to 17 years (mean = 10.0, SD = 4.1; see Table 3). Nearly

sixty percent were identified as hard-of-hearing while the remaining 40% were identified

as deaf. The children had their hearing loss identified at a mean age of 2.8 years (SD =

2.8) and a portion (n = 15) of the child participants had other unspecified disabilities in

addition to being deaf or hard-of-hearing. Based on parent report, the ethnic

backgrounds of the majority of parents (n = 40, 77%) and children (n = 42, 81%) were

non-Caucasian (e.g., Hawaiian, Japanese, or mixed ethnicity).

Among participant parents, 32 (65%) were between the ages of 31 and 50 years,

41 (79%) were mothers, and 4 (8%) were deaf or hard-of-hearing. These figures are

comparable to what have been reported in other studies (Koester & Meadow-Orlans,

1990).

Table 10

Demographic Description of Participant Dyads in Study 3

Group	Variable	N	Percent	Mean	SD
Children:					
	Age			9.6	4.10
	3-5 years	7	(13.5%)		
	6-12 years	29	(55.8%)		
	13-17 years	16	(30.8%)		
	Gender				
	Male	30	(57.7%)		
	Female	22	(42.3%)		
	Ethnic Identity [a]				
	Caucasian	8	(15.4%)		
	Hawaiian/Part Hawaiian	23	(44.2%)		
	Japanese	4	(7.7%)		
	Other (e.g., other Pacific Islander)	5	(9.6%)		
	Mixed [b]	3	(5.8%)		
	Hearing status				
	Deaf	21	(40.4%)		
	Hard-of-hearing	31	(59.6%)		

Table 10 (continued)

Group	Variable	N	Percent	Mean	SD
Children: (continued)					
	Age hearing loss was identified			2.6	2.76
	Birth	13	(25.0%)		
	1-3 years	23	(44.2%)		
	4-6 years	12	(23.1%)		
	7-11 years	4	(7.7%)		
	Preferred mode of communication [a]				
	America Sign Language (ASL)	15	(29.4%)		
	Oral/spoken English	30	(58.8%)		
	Pidgin sign language	1	(2.0%)		
	Signed English	2	(3.9%)		
	Simultaneous (i.e., sign and spoken)	3	(5.9%)		
	Other identified disabilities				
	No	36	(69.2%)		
	Yes	16	(30.8%)		
	Disabilities that affect communication	6[c]	(11.5%)		

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Table 10 (continued)

Group	Variable	N	Percent	Mean	SD
Parents:					
	Age				
	21-30 years	11	(21.2%)		
	31-40 years	20	(38.5%)		
	41-50 years	14	(26.9%)		
	51-60 years	6	(11.5%)		
	61-70 years	1	(1.9%)		
	Ethnic Identity				
	Caucasian	14	(23.1%)		
	Hawaiian/Part Hawaiian	23	(42.3%)		
	Japanese	5	(9.6%)		
	Other (e.g., other Pacific Islander)	5	(9.6%)		
	Mixed [b]	5	(9.6%)		
	Hearing status				
	Normal	48	(92.3%)		
	Deaf or Hard-of-hearing	4	(7.7%)		

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Table 10 (continued)

Group	Variable	N	Percent	Mean	SD
Parents: (continued)					
	Relationship to child				
	Mother	41	(78.8%)		
	Father	7	(13.5%)		
	Other (i.e., step-mother, grandmother)	4	(7.7%)		

Note. N = 52 unless otherwise specified. With the exception of child's age and gender, all information was based on the demographic sheet completed by the child's parent. [a] Information based on incomplete data. [b] Mixed = More than one ethnicity, not including Hawaiian. [c] All six subjects were included in the final sample after it was determined that their additional disability did not have a noticeable effect on parent-child communication based upon parent report and researchers' observations.

Parent-Child Analog Situation Observation

The Parent-Child Analog Situation Observation (P-CASO) is an observational analog instrument designed to assess communication between a parent and his/her child who is deaf or hard-of-hearing. The instrument consists of one practice and four test analog situations (see Appendix O) intended to elicit communication behaviors reflective of parent-child communication in dyads with deaf and hard-of-hearing children and their parents, and an administration and scoring manual. Role play, expert review, and pilot testing were employed in studies 1 and 2 as methods of content validation (per Haynes &

O'Brien, 2000). The P-CASO includes ASL, signed English and written English versions of the analog situations (a videotape of signed versions), a procedural checklist and supporting documents, and a coding manual (see appendices O, N, K, M, & L), as developed in studies 1 and 2.

Behavior codes. A "directive" is defined as a verbal or nonverbal command, demand, suggestion, and/or request, the function of which is to direct the conversation or the attention of the communication partner, or to illicit a specific behavioral compliance request.

A "continuation" is defined as a verbal or nonverbal behavior that is in response to an "initiation"[11] or "continuation" of the communication partner, including a response to a question, suggestion, and/or tangential "initiation" (introducing a topic that is conceptually related to the current topic of discussion and can be anticipated by a third party observer) that is used to actively promote or expand an interaction or conversational bout.

"Eye contact" is defined as the length of time that both members of the dyad simultaneously look at each other's eyes (i.e., both members must be visually focused on the communication partner's eyes at the same time regardless of the presence or absence of communication). Mode of communication (e.g., spoken English, sign language) was also recorded.

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[11] "Initiations"-unsolicited communications that begin communication (i.e., a conversational bout), either parent- or child-initiated (Rodriguez & Lana, 1996).

Coder training. A total of 4 coders were trained according to a coding manual developed for use with the P-CASO (see Appendix L). To begin training, all coders familiarized themselves with the coding manual. Next, the coders participated in 16.5 hours of training, including discussion of issues presented in the manual (e.g., general rater skills), rating practice scenarios, and refining definitions so there was consistency across coders. Changes discussed during training were incorporated into the manual.

Coders independently coded at least five P-CASO pilot or practice scenarios with good agreement (i.e., a criterion rate of .80 or more for each behavior coded) prior to independent coding of the P-CASO videotapes.

Coding. The videotapes were coded using the operational definitions described above and in the coding manual (see Appendix L). Interactions were coded for discrete and continuous communication behaviors as well as language mode. The coders used time intervals of 30 seconds, starting with the first 30 seconds of Minute 1 (i.e., 0" to 30") and coding the first 30 seconds of each minute thereafter (i.e., 1'00" to 1'30" and 2'00" to 2'30"). Each analog situation had three (3) 30-second intervals coded for each behavioral category. Frequencies of coded behaviors obtained from the three intervals were summed to obtain total scores (total frequency for "directives" and "continuations" and total duration for "eye contact") for each code for each analog situation.

For dyads in which one or both members of the dyad used sign language to communicate, the communication was interpreted by a certified sign language interpreter.

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The interpretations were audio-taped and coders viewed the videotapes while listening to the audio-taped interpretation when coding.

Inter-rater agreement. Thirteen (25%) of the tapes were coded by two different coders to assess inter-rater agreement. Two coders viewed and scored the target videotape independently and their codes were compared in two ways. First, for the discrete variables (i.e., directives and continuations), the number of agreements divided by the number of agreements plus disagreements was used to estimate inter-rater agreement as a percentage. Each dyad coded a total of 12 30-second intervals for both directives and continuations. If a rater's 30-second time interval behavior count was within 1 behavioral unit of the comparison time interval count (i.e., the total number of occurrences recorded by the second rater), it was considered as an agreement.

The second method of estimating inter-rater agreement was used with the eye-contact behavioral category. Each dyad had a total of 12 30-second intervals for eye-contact. Pearson correlations were used to determine inter-rater agreement across time intervals. Raters' 30-second time interval duration scores within 3 seconds of each other were considered in agreement.

Procedures

All families, with the exception of families recruited via snowball sampling, first received a letter (see Appendix J) outlining the research study[12]. Within a week of the

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[12] The letter reviewed confidentiality, risk and benefits, specific requirements of participation, and notification of a follow-up telephone contact.

letter being mailed, follow-up phone contact was made. Following a telephone script (see Appendix K), all families were contacted by EK, a graduate student coordinator, or JS who answered any questions/ concerns the parent had and, upon agreement to participate, scheduled a 1-hour interview with the child and his/her primary parent at one of three locations (HCDB, University of Hawaii- Manoa, or Leeward Community College). All families were asked if the child regularly used an interpreter in school to determine the need for an interpreter on the day of the study procedures. If the regular use of a school interpreter was reported or requested, an interpreter was present throughout the study procedures. The evening before the scheduled interview, the assigned research team member called the family to remind them of the appointment.

Upon arriving at the study location, participants were greeted by a research team member and escorted to a table and chairs set up for videotaping. Once seated, the research team member followed an administration procedures script (see Appendix I) to present the purpose/procedures of the study and the consent form (see Appendix Q) to the dyad. If the parent agreed to participate after reading and discussing the consent form, the parent and child (when possible) signed the consent form.

Analog observation. The participant dyad first completed the P-CASO (see Appendix I). Parent-child dyads were seated at a rectangular table (3 feet by 6 feet). A video camera was mounted on a tripod between 8 and 10 feet from the dyad. The video camera was adjusted to record the space between and including the two participants. Videotaping began once the instructions for the P-CASO were presented to the dyad and

was terminated when the dyad completed the last of four test analog situations. Total P-CASO recording time averaged approximately 24 minutes per dyad.

The research team member administered the P-CASO in a standardized fashion. General instructions were read according to a procedural script (see Appendix I). Before starting the test analog situations, a practice situation was presented. During the practice situation, the dyad was able to become familiar with the observational task and ask questions to clarify any unclear instructions before starting the test situations. All analog situations were presented in the dyad's preferred mode of communication (i.e., spoken English and/or Signed English or ASL). Following the presentation of each topic, the dyad had 3 minutes to discuss the subject matter. The dyadic interaction was videotaped and later scored according to the coding system developed for use with the P-CASO (described below). In two instances, a child participant moved out of the camera's view during P-CASO administration. In these two instances, missing data were replaced with the child's means (for "directives," "continuations," and "eye contact") for the purpose of data analysis.

Self-Report Questionnaires. Following the completion of the P-CASO, parents were asked to complete several self-report questionnaires. Standardized instructions accompanied each questionnaire. Participants completed a brief demographic questionnaire (see Appendix R), and an abbreviated version of the Child Behavior Checklist (Achenbach, 1991) as well as several additional communication questionnaires that were part of an unpublished master's thesis and are not discussed in this report.

Questionnaires were briefly introduced (see Appendices S and T) providing an overview of the instruments and clarification of vocabulary used in the instruments (i.e., words such as "talk" and "say" include all communication that occurs within the dyad).

Parents were encouraged to respond candidly to all items. They completed the questionnaires at the interview table while the child read, colored, watched television, and/or played outside. Research assistants followed a checklist (see Appendix N) to assist in completing all procedural steps. At the conclusion of the study, families received a $40.00 family-participation stipend[13].

Data Reduction. For the P-CASO, each 30-second videotape segment of each parent-child interaction (12 segments for each dyad) was viewed several times by a research assistant. Frequency counts were made for parent "directives" and "continuations," and the duration of "eye contact" between the parent and child were obtained for each 30-second segment, based on a coding manual developed for this purpose (see Appendix L). Frequency counts for "directives" and "continuations," and duration measures for "eye contact" were reduced in two ways; they were summed within each analog situation to obtain total scores for each behavioral category for each analog situation, and they were summed across all 12 time segments to obtain Total Scores for each behavioral category, for the P-CASO as a whole. In addition, the child's mode of communication was documented during P-CASO administration as being either "spoken English," "sign language," or "a combination of spoken English and sign language." Due

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[13] Family stipends were possible thanks to a grant from the Sidney Stern Memorial Trust.

to the small number of subjects (n = 5) falling into the combination category, child's mode of communication was recoded into "spoken English" (n = 34) and "at least some signs" (n = 18) for statistical analyses.

For the Child Behavior Checklist (CBC), responses were inputted into the computerized scoring program (Achenbach, 1991) and a printout of the results was generated. T-scores, or standardized behavior problem scores with a mean of 50 and a standard deviation of 10 were generated and inputted into the data base. Only the total T, Internalizing T, Externalizing T, and eight subscale T scores were included for analysis.

Results[14]

Child Behavior Checklist

Means and standard deviations of Child Behavior Checklist results from the study sample are listed in Table 11, below.

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[14] Two hypotheses from the original proposal were deleted because they were deemed inappropriate given the acquired data set.

Table 11

Means and Standard Deviations of T-scores for Child Behavior Checklist

Scale/Index	Mean T-score	Standard Deviation
Withdrawn	55.37	7.03
Somatic Complaints	54.90	7.04
Anxious/Depressed	54.15	6.91
Social Problems	56.71	8.27
Thought Problems	58.33	7.76
Attention Problems	57.69	8.30
Delinquent Behavior	56.52	7.12
Aggressive Behavior	55.54	7.54
Total Score	54.15	10.16
Internalizing	51.69	10.75
Externalizing	52.83	10.31

Note. The CBC T-scores were standardized with a mean of 50 and a standard deviation of 10 on all scales/indices (Achenbach, 1991).

As can be seen in Table 11, the study sample exhibited slightly more problem behaviors than the standardization sample. However, these mean T-scores did not differ from the standardization sample to a statistically significant degree (Achenbach, 1991)

Interrater Reliability

Inter-rater agreement for the P-CASO ranged from 0.75 to 1.00 (mean = 0.92) for

"directives," from 0.67 to 1.00 (mean = 0.92) for "continuations," and from 0.86 to 0.99

(mean = 0.95) for "eye contact." There was one reliability check that fell below the 0.80

criterion for both "directives" and "continuations." In this instance, the coder was re-

trained (i.e., reviewing and discussing discrepancies between coder and reliability-check

partner) and the data from the P-CASO administration was re-coded (and reliability

checked to be above 0.80) before it was entered into the database.

Internal Consistency

Internal consistency of the P-CASO was evaluated three different ways. First,

correlations among the frequency counts for "directives" and "continuations" and the

duration counts for "eye contact" were computed within each analog situation to estimate

internal consistency across time within analog situations. Second, for each behavior

category, each of the 12 30-second segment scores was correlated with the total score for

all analog situations (obtained by adding up all twelve scores). In terms of classic

reliability (item-total) theory, each 30-second segment score was considered an item

contributing to the target behaviors total score. Finally, the internal consistency of the P-

CASO was estimated by looking at alpha coefficients for each behavior category. The

twelve 30-second segment scores for "directives" and "continuations" and twelve

30-second segment duration scores for "eye contact" were also used for this analysis. [15]

Correlations between time segments within analog situations. Results from the analysis of internal consistency across time within analog situations are summarized in Table 12.

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[15] For "directives" and "continuations," complete (using all 12 time intervals) and revised (using only those time intervals with statistically significant item-total correlations, i.e., $p<.05$) item-total correlations and internal consistency alphas are reported.

Table 12.

Pearson correlations for P-CASO "directives" and "continuations" frequency and "eye contact" duration 30-second segment total scores within analog situations

Analog Situation	Behavior Category	Correlation coefficients		
		T1 and T2	T1 and T3	T2 and T3
Birthday Present	Directives	.29*	.51**	.26
	Continuations	.10	.21	.25
	Eye Contact	.62**	.41**	.47**
Draw a Picture	Directives	.15	.09	.35*
	Continuations	.28*	.09	.47**
	Eye Contact	.27*	.35*	.53**
Birthday Party	Directives	.18	-.07	.32*
	Continuations	.39**	.31*	.20
	Eye Contact	.58**	.41**	.58**
Newspaper Topic	Directives	.31*	.25	.39**
	Continuations	.32*	.07	.27*
	Eye Contact	.29*	.34*	.36**

* $p \leq .05$; ** $p \leq .01$; Abbreviations: P-CASO=Parent-Child Analog Situation Observation; T1 = first 30-second segment of analog situation; T2 = second 30-second segment of analog situation; T3 = third 30-second segment of analog situation.

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Although the number of significant correlation coefficients between 30-second segments varied, the average Pearson correlations between time segments remained consistent. Between segments 1 and 3, the average Pearson correlation was 0.39; between segments 1 and 2, 0.37, and between segments 2 and 3, 0.39. Both within and across analog situations, "eye contact" was the most stable behavior category of parent-child interaction as all 12 correlation coefficients for "eye contact" were statistically significant with an average correlation coefficient of 0.43. In contrast, "directives" and "continuations" were somewhat less stable both within and across analog situations as only 6 of the 12 correlations for both "directives" and "continuations" were statistically significant, with average Pearson correlation coefficients of 0.26 and 0.25, respectively.

Behavior category 30-second time segment and Total Score correlations. Results from this analysis of internal consistency of the three behavior categories also suggest that "eye contact" was the most consistent behavior across time and analog situations (see Table 13).

Table 13

Correlations Between Frequency and Duration Scores and Alpha Coefficients for

Derived Scales Using 30-second Segments and Total Scores for the Behavior Categories

Behavior Category	Correlation Range	Alpha Coefficient
"Directives"		
Original	0.20 to 0.71	0.68
Modified [a]	0.29 to 0.72	0.70
"Continuations"		
Original	0.14 to 0.70	0.65
Modified [b]	0.31 to 0.66	0.69
"Eye Contact"	0.46 to 0.79	0.80

Note. Alpha coefficients are Cronbach alpha coefficients. Each 30-second time interval was considered an "item" contributing to the target behavior's total score; [a]- "directives" without Analog Situation 1, Time 2 and Analog Situation 2, Time 2; [b]- "continuations" without Analog Situation 4, Time 3.

Thirty-second time segment and Total Score correlations for duration scores for "eye contact" were generally high, suggesting good internal consistency. Correlations between for each 30-second segment and the Total Score for "eye contact" ranged between 0.46 and 0.79. All twelve correlation coefficients were statistically significant.

As a result, all original time segments were used to calculate the Total Score for "eye contact" used to examine the convergent and discriminative validity of the P-CASO.

"Directives" was a less consistent measure with lower correlations between frequency scores for the 30-second segments and the Total Score (ranging between 0.20 and 0.71). A modified score for "directives" was derived combining only those 30-second segment frequency totals that were significantly correlated with the Total Score for "directives" (10 of the 12 intervals), improving the item-total correlations somewhat (see Table 13). Because of the minimal increase in the alpha coefficient of the "directives" measure, though, all original time segments were included in the calculation of the Total Score for "directives" used to examine the convergent and discriminative validity of the P-CASO.

Correlations between frequency scores for the 30-second segments and the Total Score for "continuations" in this analysis ranged from 0.14 to 0.70. Removal of the one 30-second segment frequency total that was not statistically significant from the Total Score for "continuations" improved the item-total correlations, raising the lowest correlation coefficient to above 0.30. However, because the improvement in the alpha coefficient of the Total Score for "continuations" was minimal, all original time segments used to calculate the Total Score for "continuations" were retained to examine the convergent and discriminative validity of the P-CASO.

Alpha coefficients. Alphas were derived for the three original behavior measures as well as for modified versions of two of these measures ("directives" and

"continuations") based upon removal of certain 30-second segment totals from the analysis as noted above (see Table 13). Alpha coefficients of 0.80, 0.65, and 0.68 were obtained for "eye contact," "continuations," and "directives," respectively, using all 12 30-second segments for each.

Convergent Validity

Total scores for "directives" "continuations" and "eye contact" were correlated with the Total, Internalizing and Externalizing T-scores, and eight subscale T-scores from the Child Behavior Checklist (CBC) (see Table 14).

Table 14

Correlations Between P-CASO Behavior Category Total Scores and CBC Total,

Internalizing, Externalizing and Subscale T-scores

CBC	P-CASO		
	"Directives"	"Continuations"	"Eye Contact" [b]
Total T	.04	-.07	-.10
Internalizing T	.01	-.26	-.06
Externalizing T	.06	-.09	-.18
Withdrawn	.00	-.22	-.25
Somatic Complaints	-.14	-.16	-.05
Anxious/Depressed	-.06	-.18	-.17
Social Problems	.11	-.03	-.07
Thought Problems	.01	-.17	-.17
Attention Problems	.05	.03	-.19
Delinquent Behavior	.03	-.17	-.23
Aggressive Behavior	.01	-.08	-.20

[a] Due to some missing data in terms of eye contact, the "n" for these correlation

coefficients was 51. For "directives" and "continuations," the "n" was 52.

Abbreviations: P-CASO = Parent-Child Analog Situation Observation; CBC=Child

Behavior Checklist.

Results indicate no significant correlations between any of the P-CASO and CBC measures. Correlation coefficients ranged from 0.00 to -0.14 for "directives," from .03 to -0.26 for "continuations," and from -0.06 to -0.25 for "eye contact."

Discriminative Validity

T-tests were utilized to examine differences on P-CASO behavior category mean Total Scores and CBC index and subscale mean T-scores as a function of communication mode during P-CASO administration, and effect sizes were obtained (see Table 15).

Table 15

Differences in Means of P-CASO and CBC Measures by Communication Mode

("Spoken English Only" Versus "At Least Some Signs")[a]

Instrument/Measure	Speech Mean	Signs Mean	Mean Difference	t-value	p value
P-CASO Total Scores					
Directives	17.82	22.56	4.74	1.69	0.10
Continuations	15.26	14.33	0.93	0.51	0.62
Eye Contact	76.48	125.39	48.91	4.79*	< 0.001
CBC T-scores					
Total	55.21	52.17	3.04	0.98	0.33
Internalizing	52.56	50.06	2.50	0.95	0.35
Externalizing	54.21	50.22	3.99	1.34	0.19
Withdrawn	55.97	54.22	1.75	0.85	0.40
Somatic Complaints	55.26	54.22	1.04	0.50	0.62
Anxious/Depressed	55.38	51.83	3.55	2.33*	0.03[b]
Social Problems	57.62	55.00	2.62	1.09	0.28
Thought Problems	59.00	57.06	1.94	0.99	0.33
Attention Problems	59.03	55.17	3.86	1.62	0.11
Delinquent Behavior	57.62	54.44	3.18	1.55	0.13
Aggressive Behavior	56.32	54.06	2.26	1.03	0.31

Table 15 (continued).

Note. Degrees of Freedom ranged from 44.41 to 50 as a function of unequal variances in some of the analyses; Mean differences compared versus "at least some signs" groups; [a] "n" for "spoken English only" of "Speech" group was 34, "n" for "at least some signs" or "Signs" group was 18; [b] The mean difference on the Anxious/Depressed subscale would not be statistically significant with Bonferroni correction as the alpha for each t-test would have to be lowered to 0.01 to bring the overall alpha level back to 0.05.

* Statistically significant at p < .05, two-tailed; Abbreviations: P-CASO = Parent-Child Analog Situation Observation; CBC = Child Behavior Checklist.

As expected, total "eye contact" differed significantly as a function of communication mode with dyads using at least some sign language having a total "eye contact" duration mean of 125.39 while dyads using oral communication only had a duration mean of 76.48. The "at least some signs" group averaged approximately 22.6 "directives" overall compared to the "spoken English only" group's 17.8, and both groups had nearly identical mean "continuations" totals. Additionally, the "spoken English only" group had a significantly higher "anxious/depressed" subscale T-score than did the "at least some signs" group.

Discussion

The purpose of the current study was to examine the internal consistency, convergent validity, discriminative validity, and interrater reliability of the P-CASO for use with parents and their children who are deaf or hard-of-hearing.

Reliability of P-CASO

The P-CASO demonstrated good interrater reliability for "eye contact," "directives," and "continuations," with mean correlation coefficients of 0.95, 0.92, and 0.92, respectively. Further, interrater reliability was maintained, with negligible observer drift over the course of the one-year data gathering and coding process. Acceptable levels of interrater reliability have typically not been achieved in prior research involving the coding of parent-child interactions in analog situations with deaf and hard-of-hearing children and their parents (Nicholas, Geers, & Rollins, 1999). Coders noted that coding every statement in the dyadic interaction assisted with reliability; a technique which has been used in previous studies (e.g., Power et al., 1990; Rodriguez & Lana, 1996). Additionally, the high level of interrater reliability maintained in this study was aided by eight hours of coder training and a comprehensive coding manual which provided the necessary specific and comprehensive operational definitions of the three behavior categories. This was the first study to demonstrate that parent-child interactions with deaf children can be coded with a high degree of interrater reliability.

Moderate temporal stability statistics were obtained for the behavior categories being coded, overall, as participant dyads exhibited consistent communication behaviors within analog situations, over the 3 minute duration of each analog situation. Correlation coefficients ranged from 0.07 to 0.47 for "continuations, from -0.07 to 0.51 for "directives," and from 0.27 to 0.62 for "eye contact."

Cronbach alpha coefficients calculated for each behavior category across the four

analog situations suggested that "eye contact" was the most internally consistent measure

of parent-child communication (alpha = 0.80). Cronbach alpha coefficients for

"directives" and "continuations" of 0.68 and 0.65, were indicative of moderate internal

consistency of these behavior categories across the four analog situations. This was the

first study to evaluate the temporal stability of parent-child communication behaviors as

well as the internal consistency of an analog observation assessment instrument for use

with dyads of parents and their deaf or hard-of-hearing children.

Correlations of P-CASO Scores with CBC T-scores

The finding of no significant correlations between behavior problems and

problematic parent-child communication among deaf and hard-of-hearing children was

unexpected. Numerous researchers have argued that parents' maladaptive

communication behaviors are functionally related to the emergence and persistence of

behavior problems in deaf children (Calderon & Greenberg, 1986; Lederberg, 1993;

Meadow, 1980; Meadow-Orlans, 1990; Montanini-Manfredi, 1993; Wood, 1991; van

Eldik, et al., 2000). The hypothesized functional relation between behavior problems and

parent-child communication problems in dyads including deaf children formed the basis

for the use of the CBC for the analysis of the convergent validity of the measures derived

from the P-CASO. The absence of a significant association between CBC T-scores and

P-CASO Total Scores provided evidence contrary to this hypothesis. However, sample

composition (a majority of participant dyads included hard-of-hearing children) and the

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use of a single measure of behavior problems (as opposed to using both parent and teacher report forms), two of several methodological considerations, may be partly responsible for this finding.

Differences in Mean P-CASO and CBC T- Scores as a Function of Communication Mode

The finding that mean "eye contact" Total Scores differed between dyads using sign language and dyads using spoken English provides evidence supporting the content validity of the P-CASO, as one would expect differences in "eye contact" as a function of communication mode (Meadow-Orlans, 1990). However, there were no other statistically significant differences in P-CASO Total Scores and CBC T-scores as a function of communication mode; a result which runs contrary to hypothesized relationships among these variables (Altshuler, 1974; Eleweke & Rodda, 2000; Goss, 1970; Greenberg, 1980; Greenberg, et al., 1984 Henggler & Cooper, 1983; Lederberg & Everhart. 1998; Mather, 1990; Meadow, 1980; Meadow, et al., 1981; Meadow-Orlans, 1990; Musselman, et al., 1988; Rodriguez & Lana, 1996; Schlesinger & Meadow, 1972). Again, sample composition and the use of a single measure of behavior problems may have been at least partially responsible for these results.

General Discussion

The overarching goal of this research project was to develop a content-valid analogue behavioral observation instrument to assess parent-child communication with deaf and hard-of-hearing children and their parents. This goal was met over the course of three studies.

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Summary of Results

Results from study 1 suggest that most participants saw the limited sign language skills of parents as an important predictor of parent-child communication behavior with deaf and hard-of-hearing children and their parents, across issues, topics, and situations, common in everyday interactions (consistent with Forehand, et al., 1997). Additionally, many of the assumptions regarding communication problems in dyads of deaf and hard-of-hearing children and their parents (e.g., Meadow-Orlans, 1990) were supported by ratings and anecdotal evidence from parents, professionals, and deaf adults. Communication problems that received "very important" ratings from participants included parents' failure to use signs, poor parent-child eye contact, and parents communicating or interpreting for their child.

In study 2, expert reviewers' ratings were used to select five analog situations and three behavior categories appropriate for use with deaf and hard-of-hearing children ages 3 through 17, and their parents. Cooperative, problem-solving activities, which consistently received high ratings by the expert reviewers and were selected for inclusion in study 3, have been used in recent analog observation studies with deaf and hard-of-hearing children and their parents (e.g., McCarthy, 1999; Rodriguez & Lana, 1996).

Results from study 3 provided evidence as to the internal consistency and validity of behavioral measures derived from the P-CASO. Interrater reliability correlation coefficients were greater than 0.90 for all three of the behavior categories in the P-CASO. Temporal stability of these behaviors across time segments within analog situations in the

parent-child dyadic interactions was moderate with correlation coefficients ranging from 0.07 to 0.62. Similarly, Cronbach alpha coefficients of greater than 0.65 were obtained for all three behavior categories being coded, indicating moderate internal consistency in the measurement of communication behaviors across the four analog situations.

Significant correlations between measures of parent-child communication tapped by the P-CASO and behaviors tapped by the CBC were anticipated but not revealed in an analysis of convergent validity. These results call into question the assumptions made in previous literature reviews regarding the association between parent-child communication problems and emotional and behavior problems with deaf and hard-of-hearing children (Meadow-Orlans, 1990).

Finally, significant differences in mean scores on both P-CASO behavior category totals and CBC index and subscale T-scores as a function of communication mode used during P-CASO administration were anticipated, but not obtained. Only "eye contact" differed significantly as a function of communication mode, lending discriminative validity support for the measurement of "eye contact" in assessing parent-child communication behaviors with children who are deaf or hard-of-hearing. The absence of any other significant differences in mean CBC and P-CASO measures as a function of communication mode also runs contrary to hypothesized relationships among these variables (e.g., Eleweke & Rodda, 2000; Meadow-Orlans, 1990; Musselman, et al., 1988; Rodriguez & Lana, 1996).

Development and Content Validity of the P-CASO

The development of the P-CASO involved the use of methods to engender content validity. These methods included getting input from parents of deaf children, deaf adults, and professionals working with deaf and hard-of-hearing children across the United States, Canada, and Puerto Rico via a web-based and mail-out questionnaire, as well as role play, expert review, and pilot tests using prospective analog situations. However, it is still possible that the P-CASO's development may have been hampered by methodological concerns. It may have been more appropriate to select more specific behaviors, such as "solicit a choice response" (Meadow, et al., 1981); to examine combinations of communication behaviors, such as "communication complexity" (Greenberg et al., 1984; Rodriguez & Lana, 1996) or "maternal power" (Power et al., 1990); to use ratings rather than frequencies to evaluate communication behaviors (Greenberg, 1980; Schlesinger & Meadow, 1972); or to examine communication in terms of its function in social interaction (Greenberg, 1980; Meadow et al., 1981).

Similarly, other results may have been obtained if different analog situations had been used. For example, the use of age-specific analog situations may have been more effective in eliciting communication behaviors of interest, such as "directives." However, using ratings from expert reviewers, and in the interest of ease of administration, analog situations were selected that would be appropriate for children and adolescents, ages 3 through 17.

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Additional Considerations

Sample size. The 52 dyads that participated in study 3 were adequate for statistical analysis of functional associations between P-CASO and other measures, yielding associations in the expected directions but insignificant effect sizes.

Sample composition. The characteristics of the samples in study 3 may have contributed to the lack of significant results in the validity studies. First, sampling was non-random due to the significant number of returned invitations, disqualifications, cancellations, and refusals. Many participants who were eligible, yet refused, cited scheduling problems and concern over being videotaped as primary reasons for refusal. Further, several methods of non-random sampling had to be used (e.g., snowball sampling, convenience sampling) to obtain an adequate sample for statistical analysis. The participation pattern suggests that parents who had trouble communicating with their deaf or hard-of-hearing child, either because they didn't know how to sign or their child had poor communication skills, often chose not to participate in the study. As a result, the modal child participant of this potentially biased sample had good communication skills, suggesting limited heterogeneity of the sample on this variable. If true, this would help to account for the lack of association between the P-CASO behavior category scores and the CBC T-scores. Additionally, while previous research studies have included deaf children, the preponderance of children in the study 3 sample used speech, which indicated increased hearing ability. Research has shown that speech and hearing abilities are inversely related to child behavior problems (Vostanis, De Feu, & Warren, 1997).

Single versus multiple reporters. The use of a single measure of behavior

problems (the CBC-parent report form) would help to account for the lack of association

between the P-CASO behavior category scores and the CBC T-scores. Research has

consistently shown that reporters of behavior problems in children are often in

disagreement (e.g., Mash & Terdal, 1997), necessitating behavioral data from multiple

sources and reporters when possible (Achenbach, 1991).

Reactivity. Parents and children may have been responding to the videotape

equipment in a classic example of reactivity. Parents and children may have behaved in

ways they thought were desired by the researcher because of the presence of the camera.

This may have increased systematic error variance, or variance that can be accounted for

by reactivity, thereby reducing unsystematic error variance, which could be attributable

to a variable of interest, such as "mode of communication." However, use of a one-way

mirror may have been helpful in reducing the potential impact of reactivity.

Communication mode versus communication competence. There were no

significant differences on either the P-CASO behavior category scores or CBC T-scores

as a function of communication mode. It may be that communication competence (or

how well the individuals in the dyad communicate in whatever mode they choose), which

was not examined in this study, accounts for a significant portion of the variance in

parent-child communication problems and behavior problems in this population (e.g.,

Greenberg, 1980a, 1980b; Henggler & Cooper, 1983; Meadow et al., 1981; Meadow-

Orlans, 1990). Other researchers have estimated competence using a rating scale

developed by Schlesinger and Meadow (1972) (e.g., Greenberg, 1980). However, this scale has never been validated or standardized, counter-indicating its use in the present research (Roberts, 2001).

Biological model versus family dynamic model. Parents' mode of communication was explored as a potential factor predicting parent-child communication problems. Consistent with the family dynamic model, parent-child communication problems were hypothesized to be functionally related to emotional and behavior problems in deaf and hard-of-hearing children (Meadow-Orlans, 1990). In the examination of the P-CASO's discriminative validity, communication behaviors did not vary significantly as a function of communication mode, providing evidence contrary to the family dynamic model. In the examination of the P-CASO's convergent validity, communication behaviors did not correlate significantly with emotional and behavioral problems, again, contrary to the family dynamic model. It could be that the P-CASO measured parent-child communication well, but that parent-child communication may not be a major source of variance in behavior problems of deaf and hard-of-hearing children, as is held by biological model proponents such as Paul and Jackson (1993) and Trybus (1985).

Future Research

This research was developed out of the need for an instrument to assess parent-child communication with deaf and hard-of-hearing children and their parents because such an instrument did not exist. With the P-CASO, clinicians and researchers will be able to examine the relationship between parent-child communication and other child and

family outcomes, including but not limited to child and adolescent emotional and behavior problems, academic and/or developmental progress, and family cohesiveness, in families with deaf or hard-of-hearing children. Before applied research can be entertained, however, additional validity and reliability data needs to be generated on the P-CASO.

Future studies using the P-CASO should include larger, more heterogeneous samples to generate greater variance in dependent measures, which will strengthen the validity of identified functional relations. Larger, more heterogeneous samples will also increase the statistical power of analyses and promote generalizability of findings for children and adolescents who are deaf or hard-of-hearing, and more accurately reflect the heterogeneity of the population (Meadow-Orlans, 1990).

Multiple measures of associated constructs (such as behavior problems) should also be employed to promote internal validity and assess convergent validity. Additionally, a careful collection of demographic information, such as age of identification of the hearing loss, degree of hearing loss, cause of hearing loss, and presence of additional disabilities would permit an examination of the functional relations among these predictor variables, P-CASO behavior category Total Scores, and important clinical outcome variables such as behavior problems, academic and/or developmental progress, and family cohesiveness, as has been called for by other researchers (e.g., Nicholas, Geers, & Rollins, 1999).

Future psychometric studies involving the P-CASO should examine predictive validity and treatment utility (per Nicholas, et al., 1999) to explore the instrument's value in applied situations. Additionally, the use of frequency counts and duration scores for the P-CASO behavior categories was somewhat cumbersome. The use of ratings of the behavior categories, instead of frequency and duration measures, may be more cost-effective and may make it easier to examine predictive validity and treatment utility.

Furthermore, future validation studies of the P-CASO should consider measuring "communication competence" rather than "communication mode." Previous studies have suggested and the results of this research support the contention that communication mode is not, in and of itself, significantly associated with communication problems in dyads of deaf or hard-of-hearing children and their parents (e.g., Tanksley, 1993). "Communication competence" may be the key construct in future research examining variability in parent-child communication and emotional and behavior problems among deaf and hard-of-hearing children.

Finally, as it was designed for clinical use, an exploration of the P-CASO's treatment utility will be necessary. Evaluating the P-CASO's ability to effect treatment decisions and outcome is important in establishing the instrument's potential for clinical use (Haynes, 2001). It is hoped that a revised version of the P-CASO will become the newest instrument in the core battery of assessment instruments used to evaluate children who are deaf or hard-of-hearing.

Appendices

Appendix A

Parent-Deaf or Hard of Hearing Child Communication:

Review of Studies Using Coding of Videotaped Observations

Reference	Subjects	Methods	Coding	Results
Schlesinger & Meadow, 1972	40 HI children ages 2-4 and mothers.	20 min., semi-structured mother-child interaction. 10 min. free play, 10 min. tasks.	M-codes=flexible, infrequent, didactic, permissive, creative, encouraging, non-intrusive, able to get child's cooperation, enjoyment of child, relaxed, body language. C-codes=buoyant or happy, enjoys inter-action, compliant, shows pride in mastery, creative, relaxed, frequent movement, independent, attentive, curious.	When deaf child's communic. competence is low, mothers much more likely to appear inflexible, controlling, didactic, intrusive, and disapproving. Their children appear less happy, to enjoy interaction with their mothers less, to be less compliant, less creative, and to show less pride in mastery. Children's capabilities/behaviors exert significant influenct on inter-action style of mother, which is reciprocal, cumulative, and pervasive.

Reference	Subjects	Methods	Coding	Results
Prendergast & McCollum, 1995	8 deaf-deaf & 8 hearing-deaf parent-child dyads, ages 3-5.	Assessing mutual attention using 3 different invitation sequences.	C-codes=look at mother's face, look at another person, look away from interaction. M-codes=use of manual communic., point, direct attention getting, other.	Deaf-deaf dyads had significantly more episodes of mutual attention. Deaf mothers more active and deaf toddlers more responsive.
Day, 1986	5 deaf toddlers ages 3-5 and their mothers.	Evaluation of communication expressions of toddlers during free play w/ toys & daily activities. Over 3 hours per child.	C-codes=requests, responses, conversat. devices, performatives, and uninterpretable.	No differences in quantity of communicative interaction between dyads where parent uses manual communication.
Power, Wood, Wood, & McDougall, 1990	7 deaf children ages 2-5 paired w/ familiar & unfamiliar deaf and hearing	Analog assessment w/ 5 min. instruct- ional task, 15 min. play/separation. Examination of	Modality codes=sign, speech, gesture, sign/ speech, speech/vocal., Gesture. Codes=total speech, vocal, use of	Oral children more often use understandable speech while sign/speech children more often use signs. No differences in total vocalizations, gestures

Reference	Subjects	Methods	Coding	Results
Power, Wood, Wood, & McDougall, 1990 (continued)	children and adults.	use of speech, Vocalization, gesture, and sign as a function of communication method and skill level.	voice, use of gestures unimodal & bimodal.	or bimodal messages. Within Groups, high communication competence children & parents used more bimodal.
Wedell-Monig & Lumley, 1980	6 hearing-deaf 6 hearing-hearing parent-child dyads; children ages 21-29 months.	Four assessments, two months apart. Each 45-min. session included 15 min. free-play. Mother instructed to play w/ child as if at home. Used split-screen to code parent and child separately.	M-codes=reward, reprimand, social speech, imitation, hold/ carry/lead, restrict, punish. C-codes= vocalize, vocal demand, and whimper/cry. Interact codes=offer, gesture, clap, laugh, call attention, touch, approach, manipulate shared object, take, withdraw, look. Other codes=no. of visual	Mothers of deaf were most active members of the dyads; deaf children least active. Deaf child dyads used more visual and physical modalities. Mothers of deaf more Dominant. Over time, hearing parents of deaf children made fewer and fewer attempts to initiate interaction. Deaf children were not less responsive to their mothers, but they were more passive in the absence of stimulation.

Reference	Subjects	Methods	Coding	Results
Wedell-Monig & Lumley, 1980 (continued)			behaviors, vocal behaviors, physical behaviors, and other attempts to interact.	
Greenberg, Calderon, & Kusche, 1984	24 hearing parent-deaf child dyads, ½ of whom receiving early intervention (EI) in total communication. Children ages 3-5.	30 min. session at home, including 15 min. free play, a puzzle task, & jointly drawing picture of a person. Attempting to sample information seeking, gaining another's attention, requesting others to act, teaching (explaining) & discussing objects, as well as affective dimensions of approval & dis-	M-codes=Directives, questions, statements, child see, child not see. C-codes=spontaneous or elicited, compliance, affect. Interaction codes=bout complexity, topic, initiator, & elaboration. Other codes= mode of delivery, maternal directiveness, gratification, & attentiveness.	Comparison mothers used more forceful directives & Interrupted more often than EI mothers. EI mothers more often communicated when they had child's attention. EI dyads displayed more simultaneous communication, while comparison group displayed more gestures and speech. EI children displayed more frequent & spontaneous communications. EI parents & children displayed more affect in communications. During free play, EI dyads had longer & more complex

Reference	Subjects	Methods	Coding	Results
Greenberg, et al., 1984 (continued)		approval. Also assessed modality.		interactions, but there was no difference between groups in average no. of bouts. EI dyads had longer interactions, while comparison dyads had more bouts that did not develop or last as long.
Cassie & Cole, 1993	5 deaf & 6 hearing 1-3 year olds, educated orally, & mothers.	30 min. of every day play activities. 1st 10 min. of each session was tran- scribed. Exploring directiveness of mothers.	M-codes=directiveness & non-directiveness. Other codes=total no. of communication turns & no. of child responses to mother initiations.	No difference in no. of directive vs. non-directive communications between parents of hearing & parents of deaf. Children whose parents were more directive exhibited More limited language abilities.
Tanksley, 1993	8 mild-moder- ately HI & 8 normals, ages 1-3, matched for receptive & expressive lang. skills.	20 min. of every day play at home, school, or clinic. Two random blocks of 5 min. were coded for interaction patterns.	M & C codes=calling, greeting, requesting, repair, expansion, reply, imitation, labeling & repeating.	No differences between mothers of HI and matched normals in interaction patterns when children matched for expressive & receptive language skills.

Reference	Subjects	Methods	Coding	Results
Meadow, Greenberg, Erting, & Carmichael, 1981	28 deaf child-hearing mother dyads (14 oral & 14 simultaneous communication); 7 deaf child-deaf mother dyads signing, 14 hearing child-hearing mother dyads using spoken English.	Dyads engaged in free play & shared refreshments. Mothers left room after explaining departure to child. 8.5 min. recorded. Exploring nature of interaction differences by group.	M- & C-codes=imitate, reference present obj., agree, command, attention, solicit choice response, behavior request, reference to self & other, register approval & disapproval, questions, instructions, reference to absent person/object/event, & other. Also coded complexity, frequency, elaboration, initiation, duration, topic, & total.	Deaf child-deaf mother & hearing child-hearing mother dyads very similar to each other, & notably different from deaf child-hearing mother dyads, who spent signif. less time interacting, had fewest child-initiated bouts, & most non-elaborated bouts, particularly those using oral communication. Children in hearing parent-hearing child dyads & deaf parent-deaf child dyads able to carry on conversations about themselves, their mothers, & non-present objects & events.
Cheskin, 1981a	3 deaf child-hearing mother dyads in parent-infant programs.	Naturalistic observations at home, most sessions were unstructured.	M-codes=quantity of speech, mean length of utterance, incidence of Declarative, Y-N, Wh-,	High percentage of repetitions (42%). Mothers used simplified & redundant speech. Although mothers made many

Appendix A (continued)

Reference	Subjects	Methods	Coding	Results
Cheskin, 1981a (continued)	Children ages 1.6 to 2.1 years.	Mother occasionally engaged in a specific task (e.g., puzzle). Verbal behaviors recorded by observer in written form. Exploring maternal directiveness	tag, & rising questions, declarative, imperative, & interrogative sentences & incomplete & one-word sentences, redundancy of speech, & repetitions.	attempts to teach oral speech, they missed many opportunities, asking too many Y-N questions, & too quickly supplying correct answers rather than allowing their children to engage in verbal exploration & problem-solving.
Cheskin, 1981b	Same as Cheskin, 1981a.	Same as Cheskin, 1981a.	M-codes=by function; controlling child's behavior, prodding, eliciting, describing, & engaging in incidental conversations.	Neither prodding nor eliciting comprised a high percentage of maternal speech. Most utterances were controlling, describing, or incidental. Percentage of maternal utterances that actively involved the children in verbal exchange averaged less than 25%.

Appendix A (continued)

Reference	Subjects	Methods	Coding	Results
Henggler & Cooper, 1983	15 deaf & 15 hearing pre-schoolers & their mothers.	27 min. interaction divided into 3 periods; 1-5 min. warm-up, 15 min. free play, & 7 min. teaching period where mothers instructed to teach child to assemble a series of models. Exploring mother-Child interaction.	M-codes=out of contact, attentive observation, direct command, indirect command, question, request, & reward. C-codes=out of contact, attentive obser-vation, comply & respond.	No signif. differences in quantity of M-C interaction. Tendency for deaf child-hearing mother dyads to interact less extensively than hearing mother-hearing child dyads. During free play, hearing mothers of hearing children seen to spend more time in verbal/nonverbal play than hearing mothers of deaf children children, who issued signifi-cantly more indirect commands during the teaching task. Deaf child-hearing mother dyads were less responsive & less compliant than hearing mother-hearing child dyads. Deaf children w/ hearing mothers complied less & responded less to commands & questions.

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Reference	Subjects	Methods	Coding	Results
Rodriguez & Lana, 1996	5 profoundly deaf & 8 hearing children, ages 4 to 5, & 7 adults.	Four 10-min. analog situations, including playing & cooperative activities (e.g., puzzles).	M- & C-codes=initiated turns, continued turns, terminated turns, & complex interactions.	Deaf children typically made every effort to adapt to their communication partners. Complexity & continued turns were associated w/ familiarity Of partner. Adults, both hearing & deaf, are generally more directive in their inter- action with children & determine the child's mode of response.
Musselman & Churchill, 1993	34 dyads of mothers & deaf preschoolers.	Longitudinal study of maternal conver- sational control & commun. compe- tence. Children divided into high & low competence Groups after first yr. data were analyzed. Gains after second yr.	Evaluated & coded commun. competence of the children & maternal commun. control.	Maternal response control interacts w/ commun. level & commun. mode to predict differential gains in both the high & low conmpetence groups. Turn control bore no relationship to receptive gains.

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Reference	Subjects	Methods	Coding	Results
Musselman & Churchill, 1993 (continued)		evaluated as a function of mater- nal conversational control using video- tape analysis of naturalistic obser- vation of parent- child interactions.		
Lederberg & Everhart, 1998	20 deaf & 20 hearing 1-3 yr. olds & their hearing mothers.	Videotape coding of parent-child free-play interactions.	P & C commun. mode, child attending to mother's commun.	Mothers of deaf used more visual commun. than mothers of hearing, but still primary commun. through speech. Deaf children received much less commun. due to failure to visually attend to mother's commun.

Appendix B-1

Request for Participants-Regular Mail - Study 1

Aloha,

My name is Jeffrey Stern and I am doing research at the University of Hawai'i on parent-child communication with children who are deaf or hard of hearing. I am trying to get information from parents, professionals, adults, and teenagers about problems in communication between parents and children who are deaf or hard of hearing.

Attached are three versions of a **short** questionnaire, which **takes about 5 minutes to complete.** This information will be used to develop situations to study parent-child communication. **No names are requested.** At any time, you may choose not to return the questionnaire.

One (1) name will be randomly selected from all participants who return a completed questionnaire. The person selected will receive $50.00. If you'd like to be considered for the $50.00 drawing, please send your name and address, on a separate sheet of paper, along with your completed questionnaire. Your name & address will be kept separate and destroyed after the drawing.

The information you provide will help strengthen communication between parents and their children who are deaf or hard of hearing. Please take a few minutes to help with this research. This questionnaire is also available online at http://www.aloha.net/~acctmir. Please pass this on to anyone you know who may be interested in participating. **Thank you in advance!**

Please choose the questionnaire based on which of the following you identify with most (e.g., I am a...):

A. Parent of a child who is deaf or hard of hearing

B. Child, teenager or adult who is deaf or hard of hearing

C. Professional who works with children who are deaf or hard of hearing and their families

Appendix B-2

Request for Participants-Electronic Mail - Study 1

Aloha,

My name is Jeffrey Stern and I am doing research at the University of Hawai'i on parent-child communication with children who are deaf or hard of hearing. I am trying to get information from parents, professionals, adults, and teenagers about problems in communication between parents and children who are deaf or hard of hearing.

The links below will take you to a **short** questionnaire that **takes about 5 minutes to complete**. The information you provide will be used to develop situations to study parent-child communication. **No names are requested.** At any time, you may choose not to submit the questionnaire.

One (1) name will be randomly selected from all participants who submit a completed questionnaire. If you wish to be considered in the drawing and have completed a questionnaire, send a separate email with your name and address to jstern@hawaii.edu. The person selected will receive $50.00. All names and addresses will be deleted after the drawing.

The information you provide will help strengthen communication between parents and their children who are deaf or hard of hearing. Please take a few minutes to help with this research. Please also forward *this message to anyone you know who may be interested in participating.* **Thank you in advance!**

Please choose one of the following that you identify with most (e.g., "I am a ...):

A. Parent of a child who is deaf or hard of hearing

B. Child, teenager or adult who is deaf or hard of hearing

C. Professional who works with children who are deaf or hard of hearing and their families

Appendix C-1

Communication Questionnaire-Parent's version

A. Please answer the following questions by checking the answer that best describes your position:

1. Are you deaf or hard of hearing?
   - ☐ Yes
   - ☐ No

2. How old are you?
   - ☐ 20 or Less
   - ☐ 21-30
   - ☐ 31-40
   - ☐ 41-50
   - ☐ 51-60
   - ☐ 61-70
   - ☐ 71 and up

3. What is your relationship to the child who is deaf or hard of hearing?
   - ☐ Mother
   - ☐ Step-Mother
   - ☐ Other Relative
   - ☐ Father
   - ☐ Step-Father
   - ☐ Other Caregiver

4. What is the degree of hearing loss of the child who is deaf or hard of hearing (unaided, in the better ear)?
   - ☐ Mild
   - ☐ Moderate
   - ☐ Moderately-Severe
   - ☐ Severe
   - ☐ Profound
   - ☐ Other

5. What is the preferred mode of communication of the child who is deaf or hard of hearing? (Please check only the child's primary mode of expressive communication).
   - ☐ American Sign Language (ASL)
   - ☐ Signed Exact English (SEE)
   - ☐ Signed English Spoken English or other spoken language
   - ☐ Pidgin Sign Language
   - ☐ Fingerspelling
   - ☐ Cued Speech
   - ☐ Gestures
   - ☐ Oral/Spoken English
   - ☐ Other

6. Does this child have any other developmental disabilities besides the hearing loss?
   - ☐ Yes   ☐ No

7. If yes to # 6 above, does this child's other disability (ies) interfere with communication?
   - ☐ Yes   ☐ No   ☐ N/A

8. In which setting is this child who is deaf or hard of hearing being educated?
   - ☐ School for the Deaf
   - ☐ Self-contained classroom (HI) in a public school
   - ☐ Regular-education-mainstreamed
   - ☐ Home school
   - ☐ Other

Appendix C-1 (continued)

B. *Below, please describe specific situations that create the most communication problems for you* and your child who is deaf or hard of hearing. Please think about who, what, where and when as you respond (For example, "I have not been able to help with homework because I do not sign." or, "I have to repeat myself several times when I ask my child to do the dishes.").

_____
_____
_____
_____
_____
_____

C. Please check how important each of the following is in predicting communication problems: (We understand that the importance may depend on the degree of hearing loss of the child.)

1. The child's speech reading ability.
     ☐ Very Important
     ☐ Somewhat Important
     ☐ Somewhat Unimportant
     ☐ Very Unimportant

2. The child's oral speech ability.
     ☐ Very Important
     ☐ Somewhat Important
     ☐ Somewhat Unimportant
     ☐ Very Unimportant

3. The parents' use of speech to communicate with the child.
     ☐ Very Important
     ☐ Somewhat Important
     ☐ Somewhat Unimportant
     ☐ Very Unimportant

4. The parents' use of signs.
     ☐ Very Important
     ☐ Somewhat Important
     ☐ Somewhat Unimportant
     ☐ Very Unimportant

5. The parent communicates/interprets for the child in conversations with others.
     ☐ Very Important
     ☐ Somewhat Important
     ☐ Somewhat Unimportant
     ☐ Very Unimportant

6. The parent initiates & continues most or nearly all communication with the child.
   - ☐ Very Important
   - ☐ Somewhat Important
   - ☐ Somewhat Unimportant
   - ☐ Very Unimportant

7. Parent & child eye contact/gaze during communication.
   - ☐ Very Important
   - ☐ Somewhat Important
   - ☐ Somewhat Unimportant
   - ☐ Very Unimportant

Would you like to receive feedback regarding the results of this study?

   - ☐ Yes
   - ☐ No

THANK YOU FOR PARTICIPATING IN THIS RESEARCH!!

Appendix C-2

Communication Questionnaire-Deaf and Hard of Hearing Version

A. Please answer the following questions by checking the answer that best describes your position.

1. How old are you?
   - ☐20 or Less ☐21-30 ☐31-40
   - ☐41-50 ☐51-60 ☐61-70 ☐71 and up

2. What is your ethnic background?
   - ☐African American
   - ☐Caucasian
   - ☐Chinese
   - ☐Filipino
   - ☐Hawaiian/Part Hawaiian
   - ☐Japanese
   - ☐Mixed
   - ☐Native American
   - ☐Other Pacific Islander

3. What is your degree of hearing loss? (if you don't know, leave blank)
   - ☐Mild ☐Moderate ☐Moderately-Severe
   - ☐Severe ☐Profound ☐Other

4. How did you communicate with your parents when you were growing up? (main form only)
   - ☐ American Sign Language (ASL)
   - ☐ Signed Exact English (SEE)
   - ☐ Signed English Spoken English or other spoken language
   - ☐ Pidgin Sign Language
   - ☐ Fingerspelling
   - ☐ Cued Speech
   - ☐ Gestures
   - ☐ Oral/Spoken English
   - ☐ Other

5. What language was used the most in your classroom during elementary school years?
   - ☐ American Sign Language (ASL)
   - ☐ Total Communication (Signs and spoken English, together)
   - ☐ Spoken/written English only-I read lips
   - ☐ Another spoken language besides English
   - ☐ Cued Speech
   - ☐ Other

B. Below, please describe specific situations that create the most communication problems for you and your child who is deaf or hard of hearing. Please think about who, what, where and when as you respond (For example, "I have not been able to help with homework because I do not sign." or, "I have to repeat myself several times when I ask my child to do the dishes.").

_____
_____
_____
_____
_____
_____

C. Please check how important each of the following is in predicting communication problems: (We understand that the importance may depend on the degree of hearing loss of the child.)

1. The child's speech reading ability.
   □ Very Important
   □ Somewhat Important
   □ Somewhat Unimportant
   □ Very Unimportant

2. The child's oral speech ability.
   □ Very Important
   □ Somewhat Important
   □ Somewhat Unimportant
   □ Very Unimportant

3. The parents' use of speech to communicate with the child.
   □ Very Important
   □ Somewhat Important
   □ Somewhat Unimportant
   □ Very Unimportant

4. The parents' use of signs.
   □ Very Important
   □ Somewhat Important
   □ Somewhat Unimportant
   □ Very Unimportant

5. The parent communicates/interprets for the child in conversations with others.
   □ Very Important
   □ Somewhat Important
   □ Somewhat Unimportant
   □ Very Unimportant

6. The parent initiates & continues most or nearly all communication with the child.
    ☐ Very Important
    ☐ Somewhat Important
    ☐ Somewhat Unimportant
    ☐ Very Unimportant

7. Parent & child eye contact/gaze during communication.
    ☐ Very Important
    ☐ Somewhat Important
    ☐ Somewhat Unimportant
    ☐ Very Unimportant

Would you like to receive feedback regarding the results of this study?
    ☐ Yes   ☐ No

THANK YOU FOR PARTICIPATING IN THIS RESEARCH!!

Appendix C-3

Communication Questionnaire-Professional's Version

A. Please answer the following questions by checking the answer that best describes your position.

1. Are you deaf or hard of hearing?

    ☐ Yes
    ☐ No

2. How long have you been working with children who are deaf or hard of hearing and their parents?

    ☐ Less than 1 year
    ☐ 1-3 years
    ☐ 4-6 years
    ☐ 7-10 years
    ☐ 11-20 years
    ☐ More than 20 years

3. What is your professional field?

    ☐ Counselor
    ☐ Dormitory House Parent
    ☐ Psychiatrist
    ☐ Psychologist
    ☐ Social worker
    ☐ Speech-Language Pathologist
    ☐ Teacher
    ☐ Other

4. What is your ethnic background?
    ☐ African American
    ☐ Caucasian
    ☐ Chinese
    ☐ Filipino
    ☐ Hawaiian/Part Hawaiian
    ☐ Japanese
    ☐ Mixed
    ☐ Native American
    ☐ Other Pacific Islander

Appendix C-3 (continued)

B. Below, please describe specific situations that create the most communication problems for you and your child who is deaf or hard of hearing. Please think about who, what, where and when as you respond (For example, "I have not been able to help with homework because I do not sign." or, "I have to repeat myself several times when I ask my child to do the dishes.").

_____
_____
_____
_____
_____
_____

C. Please check how important each of the following is in predicting communication problems: (We understand that the importance may depend on the degree of hearing loss of the child.)

2. The child's speech reading ability.
   - ☐ Very Important
   - ☐ Somewhat Important
   - ☐ Somewhat Unimportant
   - ☐ Very Unimportant

2. The child's oral speech ability.
   - ☐ Very Important
   - ☐ Somewhat Important
   - ☐ Somewhat Unimportant
   - ☐ Very Unimportant

3. The parents' use of speech to communicate with the child.
   - ☐ Very Important
   - ☐ Somewhat Important
   - ☐ Somewhat Unimportant
   - ☐ Very Unimportant

4. The parents' use of signs.
   - ☐ Very Important
   - ☐ Somewhat Important
   - ☐ Somewhat Unimportant
   - ☐ Very Unimportant

5. The parent communicates/interprets for the child in conversations with others.
   - ☐ Very Important
   - ☐ Somewhat Important
   - ☐ Somewhat Unimportant
   - ☐ Very Unimportant

6. The parent initiates & continues most or nearly all communication with the child.
    ☐ Very Important
    ☐ Somewhat Important
    ☐ Somewhat Unimportant
    ☐ Very Unimportant

7. Parent & child eye contact/gaze during communication.
    ☐ Very Important
    ☐ Somewhat Important
    ☐ Somewhat Unimportant
    ☐ Very Unimportant

Would you like to receive feedback regarding the results of this study?
    ☐ Yes   ☐ No

THANK YOU FOR PARTICIPATING IN THIS RESEARCH!!

Appendix C-4

Follow-up Letter to Communication Questionnaire

Dear _____

Aloha and thank you for participating in our research on parent-child communication with deaf or hard of hearing children. You have provided us with valuable information and we would like to ask for just a few more minutes of your time.

Could you recall a memorable incident/anecdote in which you witnessed or experienced difficulty in parent-child communication? As you recall this scene, please provide as much detail in describing the situation as possible (e.g., who was present, where the event occurred, what time it was, what the communication was about and what the communicators said and did while communicating).

We would greatly appreciate any additional information you can provide.

Thank you very much for your further participation.

Sincerely,

Jeffrey D. Stern, MA
Principal Investigator

Appendix D

Instructions for Content Analysis of Open-Ended

Question in Communication Questionnaire

1. Identification of topics and situations

    a. Research assistants will be given a comprehensive list of study 1 participants'
responses to the open-ended question , "Please describe examples of situations
and/or discussion topics that pose communication problems for parents and
their deaf or hard of hearing child(ren).

    b. Research assistants will search each response for keywords associated with
discussion topics that present communication problems in parent-child dyads.
Words such as "problem," "difficult," "trouble," and "can't" are usually
followed by a topic or issue which is indicated as a problem in parent-child
communication.

    c. Using Bradbard, et al. (1992) as a model, research assistants will look for
topics grouped under the following categories: (a) when the communication
takes place (e.g., weekdays, weekends); (b) where the communication takes
place (e.g., at the dinner table, in the family room); (c) topics of conversation
(e.g., friends, school work, chores); (d) types of communication by the child
(e.g., asking questions, describing) and the parent (asking questions, making
requests); and (e) person who initiates the conversation (e.g., child, mother).

d. Research assistants will code each response for each of the five categories above. Responses should receive as many category codes as can be identified in each. If research assistants are unable to identify codes for specific categories, those categories will be left blank as to that response.

e. In instances where the research assistants are unsure of coding, the category codes and responses will be set aside for review by the research team for consensus coding.

Appendix E

Examples of responses of participants in Study 1

Professional – "My students describe being extremely frustrated in family situations when they miss something and the other family member says, 'Never mind,' or 'Nothing.'"

Professional – "Hearing parents must stop all activity (e.g., washing dishes, sewing, working in the yard, etc.) to focus on communicating with the child, which is unnatural."

Parent – "We have trouble in all areas of communication because we do not know all signs yet. Our daughter gets mad because we don't understand what she wants or is trying to say."

Deaf – "What probably sticks out most in my mind is that my parents didn't realize how much I didn't hear when they talked to each other, my siblings, or other people. For example, when I was about nine or ten years old, I saw a suitcase by the front door and wondered why it was there. My mom said that my dad was going on a business trip and they had been talking about it for weeks. I remember being real upset—so much so that I was crying because they hadn't told me. That was a real eye opener for my mom and she seeked help from my audiologist and speech therapist as to suggestions to make sure I understood casual conversation. They learned that I couldn't just eavesdrop on a conversation and take in information. After that, my parents made sure that they told me directly what was important for me to know, or involved me in their conversations with themselves and others."

Appendix F

Initial Pool of Analog Situations

Ages 3-5

1. Read a book together
Age level – 3-5; 6-10
Props – A picture book appropriate for the age group
Instructions: Here are some books. I'd like you to chose one book and read it together.

2. Draw a picture
Ages – 3-5 or all ages
Props – paper and crayons or pens
Instructions   (to child): Draw a picture. It can be a picture of anything. (to parent):
Pretend your child has brought this picture home from school and is showing it to you
and talk about it with her/him.

3. Cartoon character
Ages-3-5; 6-10
Instructions: Children often have a favorite cartoon character. Please talk about your
child's favorite cartoon character and why s/he likes the character.

4. House drawing
Ages-3-5
Props- Two (2) big pieces of white paper, pencils, colored crayons, and pens.
Instructions: Together, please draw a picture of your home or a picture of your family.

5. Free play
Ages-3-5
Props- box with toys, blocks, leggos, crayons, and paper.
Instructions: Please play for a few minutes with the things in this box.

6. Helping others
Ages- 3-5; 6-10
Instructions: Please talk about the importance of helping others and how to be helpful.

7. Sharing with others
Ages- 3-5; 6-10
Instructions: Please talk about sharing and why it is important to share with others.

Appendix F (continued)

8. Books (select a book and read together)
Ages- 3-5
Instructions: I'd like you two to read together. Here are some books for you to choose from. Together, select one book to read. Once you've chosen a book, feel free to start reading.

9. Verbally assisting child in assembling a puzzle
Ages- 3-5
Instructions: Here is a puzzle for you to work on. Please put as many pieces together as you can.
(to parent): You're welcome to help ___(child's name)___as much as you like, except you cannot physically point to, touch or move the pieces.

10. Group of toys around which to interact
Ages- 3-5
Instructions: I have a box of toys for you (referencing both parent and child) to play with. Together, please explore what toys we have in the box.

11. Drawing a picture together
Ages- 3-5 or all ages
Instructions: I have a box of color pens/crayons and some paper. With this material, I'd like you to draw me a picture. Please work together to decide what to draw and then draw that picture together.

12. Tell story together-turn taking
Age level – 6-10; 11-17
Props – Picture card from Children's Apperception Test
Instructions: Here is a picture. I want the two of you to make up a story about the picture, together. I want you to take turns. For example, whoever goes first could start by telling how the story begins, like "Once upon a time..." Then you could switch and whoever goes second could describe what's happening right now in the story. Then you could switch again and describe what will happen next, or what will happen in the future. You can switch story-tellers as often as you like.

13. Discuss a controversial chore
Age level – 6-10; 11-17
Instructions: Most parents become frustrated when their children forget or refuse to do a chore that they've been asked to do. Many children don't like to do certain chores. Pick one chore that is a problem at home and discuss it.

14. Plan a menu for a special dinner for the family.
Age level – 6-10; 11-17
Instructions: I want the two of you to plan a menu for a meal to be prepared at home.

15. Talk about a school problem
Ages-6-10; 11-17
Instructions: Parents and children often talk about problems that happen in school.
Please talk about a recent problem that "A" had or is having in school. ("A" is child's name)

16. Things that make you happy or sad
Ages-6-10
Instructions: Please talk about things that make you happy or things that make you sad.

17. Expensive activity
Ages- 6-10; 11-17
Instructions: I'd like you two to talk to each other as if you (to the child) have just asked her/him (point to parent) if you can do an expensive activity for your next birthday (e.g., invite 20 friends to Hawaiian Waters Adventure Park).

18. Child wants a pet
Ages-appropriate for all ages, but better for 6-10
Directions: Your child wants to get a family pet. Please discuss this subject together.

19. Choosing friends
Ages-6-10; 11-17
Instructions: Please talk about how you choose your friends.

20. Hated self-care activities
Ages- 6-10
Instructions: There are many self-care activities, such as brushing teeth, or going to bed early, that parents want their children to do that their children don't like doing. Choose a self-care activity that you don't like and discuss it with each other.

21. House rulesAges- 6-10, but possible for all ages
Instructions: Please come up with a rule in your house. Discuss this rule, why it is in place, and why it is important.

Appendix F (continued)

22. Favorite friend
Ages- 6-10, but possible for all ages
Instructions (to parent): Ask your child who her or his favorite friend in school is. Talk about this best friend. For example, what makes this friend so special? What do they like to do together?

23. Favorite place
Ages- 6-10; 11-17
Instructions: Everyone has a favorite place where they like to spend private time. I like to go to the
beach. Please talk with each other about your favorite place to go to.

24. Problem-solution
Ages- 6-10; 11-17
Instructions: Please choose a recent issue or problem that you wish to talk about.
(If more clarification is needed suggest the following: This issue may be a behavior problem, an academic problem or just a misunderstanding between the two of you that one or both of you wish to discuss.)

25. School classes
Ages- 6-10; 11-17
Instructions: Please discuss any school or extracurricular activity (child's name) is involved in and enjoys.

26. Fire Escape Plan
Ages- 6-10; 11-17
Instructions: It is very important to have a fire escape plan for your home in case there is a fire. Together, plan a fire escape route for your household.

27. Discuss war
Ages– 11-17
Instructions (to both parent and child): When countries go to war, people are often killed, bombs are often dropped, and people often have strong feelings about it. Please discuss war.

28. Dating
Ages-11-17
Instructions: Most teenagers and even pre-teens think and talk about dating with their parents. Please discuss the issue of dating.

29. Plans w/ friends-parents disapprove
Ages-11-17
Instructions: Please discuss an activity that you would like to do with your friends that your parents would not like you to do, such as going to a rock concert without an adult chaperon.

30. Drugs
Ages-11-17
Directions: There's a lot of talk on TV nowadays about drugs. Many parents and children have questions and concerns about drugs. Please discuss your questions and concerns related to drugs.

31. New and good
Ages- 11-17
Instructions: Every day, at least one new thing happens and one good thing happens to each of us. Find out what was NEW and GOOD about each of your days.

32. Recent misunderstanding
Ages- 11-17, but possible for all ages
Instructions: Try to recall a misunderstanding or argument the two of you recently had and discuss this disagreement or argument.

33. Newspaper article
Ages- 11-17
Props- a newspaper article of interest, a newspaper
Instructions (to parent): Look through this newspaper and find an article of interest (wait for parent to
identify an article)....
Okay, discuss this article with your son/daughter. Find out what s/he thinks about it and why.

34. Conflict of interest
Ages- 11-17
Instructions: There is a family event the same night and time as ___(child's name)__ best friend's birthday party. You (point to the child) want go to your best friend's party. You (point to the parent) want ____(child's name___ to attend the family gathering. Please try to resolve this conflict of interest.

Appendix F (continued)

35. Differing values
Ages-11-17
Instructions: Often, parents have values with which their children don't agree. For example, some parents don't believe their children should be allowed to go out on a school night. Please think of a value that your parent has that you do not agree with and discuss this difference of opinion.

36. Common disagreement
Ages- 11-17
Instructions: Parents and their children often disagree. What issue do the two of you disagree about most often? Please discuss this issue and try to come up with a solution.

37. Weekend activity
Ages- Appropriate for all ages
Instructions: Please plan a fun weekend activity that you would like to do together.

38. Plan a party
Ages- Appropriate for all ages
    Instructions: Please plan (child's name) next birthday party together.

39. What child wants for birthday or Christmas
Age level – appropriate for all ages, but better for ages 4 and up.
Instructions: Children often tell their parents what they want for Christmas or for their birthday. Discuss a present your son/daughter would like for Christmas or for her/his birthday this year.

40. Tonight's meal
Ages-appropriate for all ages
Instructions: My daughter is always asking me, "What's for dinner?" Please talk about what's for dinner tonight. If you haven't already planned tonight's dinner, try to plan it together.

41. Favorite story/movie
Ages-appropriate for all ages
Instructions- Children and adults often have favorite stories or movies that they like to hear or watch over and over again. Please talk about your favorite stories or movies and discuss why they are your favorites.

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Appendix G

Behavior Codes and Initial Definitions

Behavior	Reference	Operational Definition
Directives	Greenberg, Calderon, & Kusche, 1984	Direct directives include demands and commands. Indirect directives include suggestions and requests. Attempts to get attention also qualify as directives. Directives are usually parent-initiated in parent-hearing impaired child communication dyads and are, by definition, associated with maternal directiveness (Meadow-Orlans, 1990)
Repetitions	Greenberg, 1980	Repetitions involve one member of the dyad repeating a word or series of words, in sign, gesture, or spoken language, in order to clarify or iterate a communication. Repetitions are indicative of miscommunications in dyads in that they are necessary to ensure that the expressed and received communication are identical. They are often used to correct a miscommunication.
Initiations	Rodriguez & Lana, 1996 Greenberg, 1980	Initiations refer to unsolicited communications which begin conversational bouts. A new bout, or topic of conversation, is either child- or parent-initiated.
Continuations (or elaborations)	Rodriguez & Lana, 1996 Greenberg, 1980	Continuations refer to communications which are in response to initiations or continuations of others. Continuations are communications that advance the interaction by

Behavior	Reference	Operational Definition
Continuations (continued)		adding information that functions to continue and expand the bout. Communications which merely answer questions or actions that follow requests are not considered continuations. A bout continued by both participants signifies reciprocal or shared control of the bout.
Sustained eye contact	Swisher, 1992	Sustained eye contact is part of a constellation of three visual contact behaviors that have been studied in parent-child dyads involving deaf or hard of hearing children. The other two related behaviors are coordinated eye gaze and visual turn-taking. Together, these terms refer to a pattern of eye contact appropriate to a given context. In one on one communication, sustained eye contact is appropriate whereas in reading a book, visual turn-taking is the critical behavior.
Terminations	Meadow-Orlans, 1990	Verbal or nonverbal behavior that is used to intentionally end or stop an interaction or conversational bout on a single topic, including a "yes/no" response to a question.
Coordinated eye gaze	Swisher, 1992	Coordination of visual focus between the speaker and the respondent so that both individuals are attending visually to the relevant stimulus (e.g., the person speaking, object of

Appendix G (continued)

Behavior	Reference	Operational Definition
Coordinated Eye Gaze (continued)		adding information that functions to discussion) at the same time, consistent with the topic about which the dyad is communicating.
Visual Turn-Taking	Swisher, 1992	The speaker begins/continues communication only after the respondent has finished looking at the target of communication (e.g., waiting for the child to look up from a picture book before explaining what the picture is about) and has returned her/his visual focus to the speaker.
Caregiver's Use Of Sign Language	Schlesinger & Meadow, 1972	Primary mode of communication used during dyadic interaction. Primary mode of communication can be reduced to oral/spoken English, sign language (any type) or a combination of these two modes.

Appendix H-1

Analog Situations Rating Scales

1. <u>Read a book together-</u>Age level – 3-5 or 6-10
Props – A picture book appropriate for the age group
Instructions: Here are some books. I'd like you to chose one book and read it together.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

2. <u>Draw a picture-</u>Ages – 3-5 or all ages
Props – paper and crayons or pens
Instructions   (to child): Draw a picture. It can be a picture of anything.
(to parent): Pretend your child has brought this picture home from school and is showing it to you and talk about it with her/him.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

3. Cartoon character-Ages-3-5; 6-10
Instructions: Children often have a favorite cartoon character. Please talk about your child's favorite cartoon character and why s/he likes the character.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

4. House drawing-Ages-3-5
Props- Two (2) big pieces of white paper, pencils, colored crayons, and pens.
Instructions: Together, please draw a picture of your home or a picture of your family.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

5. Free play-Ages-3-5
Props- box with toys, blocks, leggos, crayons, and paper.
Instructions: Please play for a few minutes with the things in this box.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

Appendix H-1 (continued)

6. Helping others-Ages- 3-5 or 6-10
Instructions: Please talk about the importance of helping others and how to be helpful.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

7. Sharing with others-Ages- 3-5 or 6-10
Instructions: Please talk about sharing and why it is important to share with others.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

8. Books (select a book and read together)-Ages- 3-5
Instructions: I'd like you two to read together. Here are some books for you to choose from. Together, select one book to read. Once you've chosen a book, feel free to start reading.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

Appendix H-1 (continued)

9. Verbally assisting child in assembling a puzzle-Ages- 3-5
Instructions: Here is a puzzle for you to work on. Please put as many pieces together as you can.
(to parent): You're welcome to help ____(child's name)____ as much as you like, except you cannot
physically point to, touch or move the pieces.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

10. Group of toys around which to interact-Ages- 3-5
Instructions: I have a box of toys for you (referencing both parent and child) to play with. Together, please
explore what toys we have in the box.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

11. Draw a picture together-Ages- 3-5, or all ages
Instructions: I have a box of color pens/crayons and some paper. With this material, I'd like you to draw
me a picture. Please work together to decide what to draw and then draw that picture together.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

12. Tell story together-turn taking-Age level – 6-10 or 11-17
Props – Picture card from Children's Apperception Test
Instructions: Here is a picture. I want the two of you to make up a story about the picture, together. I want you to take turns. For example, whoever goes first could start by telling how the story begins, like "Once upon a time..." Then you could switch and whoever goes second could describe what's happening right now in the story. Then you could switch again and describe what will happen next, or what will happen in the future. You can switch story-tellers as often as you like.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

13. Discuss a controversial chore-Age level – 6-10 or 11-17
Instructions: Most parents become frustrated when their children forget or refuse to do a chore that they've been asked to do. Many children don't like to do certain chores. Pick one chore that is a problem at home and discuss it.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

14. Plan a menu for a special dinner for the family.-Age level – 6-10 or 11-17
Instructions: I want the two of you to plan a menu for a meal to be prepared at home.
Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

15. <u>Talk about a school problem</u>-Ages-6-10; 11-17
Instructions: Parents and children often talk about problems that happen in school. Please talk about a recent problem that "A" had or is having in school. ("A" is child's name)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

16. <u>Things that make you happy or sad</u>-Ages-6-10
Instructions: Please talk about things that make you happy or things that make you sad.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

17. <u>Expensive activity</u>-Ages- 6-10; 11-17
Instructions: I'd like you two to talk to each other as if you (to the child) have just asked her/him (point to parent) if you can do an expensive activity for your next birthday (e.g., invite 20 friends to Water Adventure Park).

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	·2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

Appendix H-1 (continued)

18. <u>Child wants a pet-</u>Ages-appropriate for all ages, but better for 6-10
Directions: Your child wants to get a family pet. Please discuss this subject together.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

19. <u>Choosing friends-</u>Ages-6-10; 11-17
Instructions: People choose their friends for different reasons. Please talk about why you choose your friends.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

20. <u>Hated self-care activities-</u>Ages- 6-10
Instructions: There are many self-care activities, such as brushing teeth, or going to bed early, that parents want their children to do that their children don't like doing. Choose a self-care activity that s/he (the child) doesn't like to do and discuss it.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

21. House rules-Ages- 6-10, but possible for all ages
Instructions: Please come up with a rule in your house. Discuss this rule, why it is in place, and why it is important.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

22. Favorite friend-Ages- 6-10, but possible for all ages
Instructions (to parent): Ask your child who her or his favorite friend in school is. Talk about this best friend. For example, what makes this friend so special? What do they like to do together?

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

23. Favorite place-Ages- 6-10; 11-17
Instructions: Everyone has a favorite place where they like to spend private time. I like to go to the beach. Please talk with each other about your favorite place to go to.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

24. <u>Problem-solution</u>-Ages- 6-10; 11-17
Instructions: Please choose a recent issue or problem that you wish to talk about.
(If more clarification is needed suggest the following: This issue may be a behavior problem, an academic problem or just a misunderstanding between the two of you that one or both of you wish to discuss.)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

25. <u>School classes</u>-Ages- 6-10; 11-17
Instructions: Please discuss any school or extracurricular activity (child's name) is involved in and enjoys.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

26. <u>Fire Escape Plan</u>-Ages- 6-10; 11-17
Instructions: It is very important to have a fire escape plan for your home in case there is a fire. Together, plan a fire escape route for your household.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

27. Discuss war-Age level – 11-17

Instructions (to both parent and child): When countries go to war, people are often killed, bombs are often dropped, and people often have strong feelings about it. Please discuss war.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

28. Dating-Ages-11-17

Instructions: Most teenagers and even pre-teens think and talk about dating with their parents. Please discuss the issue of dating.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

29. Plans w/ friends-parents disapprove-Ages-11-17

Instructions: Please discuss an activity that you would like to do with your friends that your parents would not like you to do, such as going to a rock concert without an adult chaperon.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

30. Drugs-Ages-11-17
Directions: There's a lot of talk on TV nowadays about drugs. Many parents and children have questions and concerns about drugs. Please discuss your questions and concerns related to drugs.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

31. New and good-Ages- 11-17
Instructions: Every day, at least one new thing happens and one good thing happens to each of us. Find out what was NEW and GOOD about each of your days.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

32. Recent misunderstanding-Ages- 11-17, but possible for all ages
Instructions: Try to recall a misunderstanding or argument the two of you recently had and discuss this disagreement or argument.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

Appendix H-1 (continued)

33. Newspaper article-Ages- 11-17
Props- a newspaper article of interest, a newspaper
Instructions (to parent): Look through this newspaper and find an article of interest (wait for parent to identify an article)....Show the article to your son/daughter, then discuss this article with your son/daughter.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

34. Conflict of interest-Ages- 11-17
Instructions: There is a family event the same night and time as ___(child's name)__ best friend's birthday party. You (point to the child) want go to your best friend's party. You (point to the parent) want ___(child's name___ to attend the family gathering. Please try to resolve this conflict of interest.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

35. Differing beliefs/opinions-Ages-11-17
Instructions: Often, parents have beliefs or opinions with which their children don't agree. For example, some parents don't believe their children should be allowed to go out on a school night. Please think of a value that your parent has that you do not agree with and discuss this difference of opinion.
Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

Appendix H-1 (continued)

36. <u>Common disagreement</u>-Ages- 11-17
Instructions: Parents and their children often disagree. What issue do the two of you disagree about most often? Please discuss this issue and try to come up with a solution.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

37. <u>Weekend activity</u>-Ages- Appropriate for all ages
Instructions: Please plan a fun weekend activity that you would like to do together.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:
Comments:

38. <u>Plan a party</u>-Ages- Appropriate for all ages
Instructions: Please plan (child's name) next birthday party together.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

39. <u>What child wants for birthday or Christmas</u>-Age level – appropriate for all ages, but best for ages 4 +.
Instructions: Children often tell their parents what they want for Christmas or for their birthday. Discuss a present your son/daughter would like for Christmas or for her/his birthday this year.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

40 <u>Tonight's meal</u>-Ages-appropriate for all ages
Instructions: My daughter is always asking me, "What's for dinner?" Please talk about what's for dinner *tonight. If you haven't already planned tonight's dinner, try to plan it together.*

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication between parents and their Deaf/Hof H children	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

41. <u>Favorite story/movie</u>-Ages-appropriate for all ages
Instructions- Children and adults often have favorite stories or movies that they like to hear or watch over and over again. Please talk about your favorite stories or movies and discuss why they are your favorites.

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of Administrations	1	2	3	4	5
Ability to elicit parent-child communication and related behaviors (see definitions)	1	2	3	4	5
Reflective of typical parent-child communication *between parents and their Deaf/Hof H children*	1	2	3	4	5
Instructions (what to do) are clear in English and ASL.	1	2	3	4	5

Comments:

Appendix H-2

Behavioral Definitions and Rating Scales

Rater: _____

Instructions: Rate each behavior on the two dimensions listed below.

Directives -- Directives include commands, demands, suggestions, and requests, embedded in the communication, the function of which are to direct the conversation or the attention of the communication partner, or to elicit a specific behavioral compliance response. (Score=frequency)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Repetitions – Repetitions involve repetition of a verbal or nonverbal behavior that is intended to correct a real or perceived miscommunication or misunderstanding, or to prevent miscommunication or misunderstanding, within a conversational bout, pertaining to a single topic. (Score=frequency)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Initiations – Initiations refer to verbal or nonverbal behavior that is used in an attempt to elicit a certain response or conversational bout, pertaining to a single topic. (Score=frequency)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Continuations – Continuations refer to verbal or nonverbal behavior that is used to continue or expand an interaction or conversational bout, pertaining to a single topic. (Score=frequency)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Terminations – Terminations involve verbal or nonverbal behavior that is used to intentionally end or stop an interaction or conversational bout on a single topic. (Score=frequency)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Sustained eye contact - Members of the dyad maintain eye contact (i.e., member's eyes are focused on the eyes of the other member of the dyad) for X seconds. Once one or both partners look away, eye contact is broken and timing is stopped. Scoring begins again when a mutual gaze has been re-established between the dyad. (Score = duration)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Coordinated eye gaze- Coordination of visual focus between the speaker and the respondent so that both individuals are attending visually to the relevant stimulus (e.g., person speaking, object of discussion) at the same time, consistent with the topic about which the dyad is the communicating. (Score = duration)

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Visual turn-taking- The speaker begins/continues communication only after the respondent has finished looking at the target of communication (e.g., waiting for the child to look up from a picture before explaining what the picture is about) and has returned his/her visual focus to the speaker. (Score = frequency rating-the number of times this sequence occurs).

Ratings:

	Needs Work	Sufficient	Good	Great	Perfect
Ease of coding in direct observations	1	2	3	4	5
Reflective of problematic parent-child communication	1	2	3	4	5

Comments:

Appendix H-3

Expert Reviewer Instructions

1) There are eight (8) behavior codes to be evaluated. These behaviors are defined for you and you are being asked to rate each behavioral code on a) <u>the ease with which an observer can observe and identify the behavior, in "real time," during a parent-child interaction</u> (e.g., if you were working with a family, how easy would it be for you to observe and reliably code the behavior?); and b) <u>the degree to which the behavior reflects the most common communication problems you have witnessed in your observations of parent-child dyads</u>. For example, if you believe that parental directives are the biggest problem, and are *very reflective of communication difficulties in these dyads, you would* give it a high rating whereas if you believe that continuations (i.e., failure to continue conversations) is a hallmark of poor parent-child communication, you would give that behavior a high rating. Additional comments are very welcome. Again, <u>you are being asked to rate the behaviors along the dimensions listed above. You are not being asked to rate the definitions.</u>

2) The written English and ASL videotape of the analog situations should be evaluated together. It may be most efficient if you read the analog situation and observe the ASL interpretation of the respective analog situation at the same time. Then, after considering the analog, rate it along the scales described below (see #3)

3) Each analog situation will be rated along the following 4 dimensions: 1) <u>ease of administration</u> (i.e., how easily the participants can understand and do what is being

asked of them?); 2) <u>ability to elicit communication behaviors</u> (i.e., the degree to which the analog situation will elicit the behaviors as they are defined in Section 1); 3) <u>how reflective is the analog situation of typical parent-child communication</u> (i.e., the degree to which the analog situation is typical of the kinds of communication (difficulties) that exist between these dyads; 4) <u>instructions are clear in English and ASL</u> (i.e., ability of both parents and deaf or hard of hearing children to understand instructions in both English and ASL. A tape with Signed English instructions will also be prepared for the research, but you are only being asked to look at the ASL tape.

It is possible that some analogs will be better at eliciting some behaviors than others. Please note this in your comments. We are trying to find out which analogs are the best at consistently eliciting problematic communication behaviors in those dyads in which communication problems (and therefore, the behaviors) are pre-existing. Again, the analogs were selected because they were reported to elicit problems. Your expertise is being requested to help us select those situations that occur most often and cause the most communication difficulty for parent-child dyads in which the child is deaf or hard of hearing.

If you have any questions or concerns, feel free to give me a call at 735-8236.

Again, thank you very much for your help with this research!!!!

Appendix I

Parent-Child Analog Situation Observation (P-CASO) Administration Procedures

Upon entry of participants: "Hi, Mr./Mrs. _____ and __(child's name)__ . Thank you for coming today. If you'll follow me (lead parent and child to chairs by camera), please sit here. Before we get started, I wanted to review with you the purpose of the study and what you can expect to happen today. The purpose of the study is to learn more about parent-child communication in families with a deaf or hard of hearing child. This information will help us to better understand how parents and their deaf or hard-of-hearing children communicate with one another. You will be asked to do two things. First, I will be videotaping you and your son/daughter communicating, and second, you (to parent) will be asked to fill out several questionnaires while you son/daughter can keep busy with toys, drawing, or whatever. Both tasks, together, will take about an hour. You'll be given $40.00 after you complete the questionnaires. Do you have any questions or concerns at this point?"

If yes... provide information relevant to inquiry.

If no..."I'd like to give you a moment to read over the consent form." (Hand form to parent). The material in the consent form is pretty much the same as what I've told you over the telephone and in the letter I sent home. If you have any questions, let me know. (Walk away to give parent privacy).

(Once parent has read consent form). "Any questions or concerns?" If yes...provide information relevant to inquiry.

If no..."If you are willing to participate in today's study, please sign the consent form on the back page."

"As I mentioned before, the video-taped portion of the study is first. I will be giving you instructions to discuss some everyday concerns that parents and children often have. First, I will present you with a topic to discuss. Then I will leave the room so that you can discuss the topic. After three minutes, I will return and present the next topic for the two of you to discuss. Please remember that there are no right or wrong ways of doing this and that you are encouraged to communicate as you normally do. Before we start videotaping, I want to make sure that you understand what we will be doing so I have a topic for you to practice with. Do you have any questions before I tell you the topic?"

If yes...provide information relevant to inquiry. If no, present practice analog situation to dyad.

Appendix I (continued)

Upon completion of practice analog situation: "That was great. Just remember, this is just pretend. You don't have to make a real plan, unless you want to. These are just role-play situations. But if you want to make real plans, you can. Do you have any questions I can answer before we get started? Because once we start this next topic, I will be unable to answer any questions until after you have finished the videotaped portion of this study. (If yes, answer accordingly, provide further information as needed). If no, "Just to remind you, there are no right or wrong answers and you are encouraged to communicate as naturally as possible."

Upon completion of the P-CASO: "That was the end of the video-taped portion of the study. Just to remind you, this videotape will remain confidential and once it has been coded by the research team, it will be erased. Now we have some written questions we would like you to read and answer. While you're completing the questionnaires, (child's name) can play with toys, read books, play cards, and/or draw until you're finished." (give demographics and behavior checklist questionnaires along with communication scales). "These are the questionnaires we have for you to complete. Please read the instructions before answering each set of questions. Feel free to take your time responding. There are no right or wrong answers, so please answer as honestly as possible. Let me know when you're done and I'll be here with your son/daughter if you have any questions about the questionnaires as you proceed."

Upon completion of questionnaires: "Thank you so much for participating today. We are almost through. Before we say good bye, though, I'd like to take a moment to ask you a couple of questions about your participation today." (refer to debriefing questionnaire).

1. What did you think about the videotape task?
2. How would you rate your ability to communicate with your child?
3. What key elements do you believe are necessary to effectively communicate with your child?
4. If at all, how will participation in today's study effect your current communication strategies?"

"Do you have any questions or concern that I can address at this time?" (respond accordingly) "Before you go, again I'd like to thank you for your time and energy. We really appreciate it. Here is your $40.00. It's our way of saying "thanks" to families who participate. If you'd please write and sign your name on this ledger (have parent sign for cash). Thank you. From you, we will learn a lot about communication in families with a deaf or hard of hearing child."

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"If you'd like some information regarding family sign language classes and other strategies and services to support families with deaf or hard of hearing children, I have information here, if you'd like." (Provide documents if requested). "Thank you very much Mr./Mrs. _____ and _(child's name)_." (lead participants to exit).

Appendix J

Request for Participants - Study 3

Dear Mr. and Mrs. _____;

Aloha! My name is Jeffrey Stern and I work at the Hawai'i Center for the Deaf and the Blind (HCDB). I am writing to you today to invite you to participate in a research project. The purpose of the project is to learn about parent-child communication in families with children who are deaf or hard of hearing in Hawai'i.

Participation will involve a 15 to 20 minute interview with you and your child. In the interview, you and your child will be asked to solve a problem, develop a plan, or perform a task, as a team. I will be videotaping the interview. However, the videotape will be used only for research purposes and will be erased once it has been evaluated. The tape will only be viewed by members of the project team. All team members have been trained to make sure your right to privacy is protected. I will also be asking you to fill out several short questionnaires which will require about 30-40 minutes to complete. You are not obligated to participate. However, if you do participate, you will be reimbursed for your time and effort with $40.00. Your participation will help us to better understand how parents communicate with their children who are deaf or hard of hearing in Hawai'i.

I will be calling your home in about a week to see if you are interested in participating. We will arrange to do the interview at the Hawai'i Center for the Deaf and the Blind at your local school, or at the University of Hawai'i at Manoa, and at a time that is convenient for you. Again, the whole process will take less than one hour of your time.

If you have any questions or would like to know more about the research, feel free to call me at the Hawai'i Center for the Deaf and the Blind at 735-8236. Otherwise, I'll speak to you soon.

Mahalo,

Jeffrey D. Stern, M.A., Project Director   Telephone: 735-8236
Psychological Examiner, Hawai'i Center for the Deaf and the Blind
Doctoral Student, University of Hawai'i at Manoa

Appendix K

Telephone Contact Script - Study 3

Date: _____
Participant # _____
RA initials _____

"Hi, may I speak to _____ (child's mother) or _____ (child's father)?" (if either parent is unavailable, state your name and inform the person that you are calling from the Hawai'i Center for the Deaf and the Blind and the University of Hawai'i on behalf of a research project on parent-child communication involving children who are deaf or hard of hearing and that a letter was mailed to the parents of the hearing impaired child explaining the research project and inviting them to participate; find out what would be a good time to reach either parent).

Hello, my name is _____ and I am a research assistant on the parent-child communication study being conducted at the Hawai'i Center for the Deaf and the Blind, through the University of Hawai'i . A letter was sent home to you regarding the study and inviting you to participate. Did you receive the letter?

If no: "I'm sorry you didn't receive the letter. May I confirm your mailing address?" (confirm address, if incorrect, let the prospective participant know you will be mailing the letter again). If address is correct, say, "Well, we sent it to the correct address. May I go over the letter with you now, or can I call you back at a more convenient time?" (Try to review the letter, specifically cover the points about purpose, participation requirements, confidentiality, and reimbursement).

If yes: "Great! Did you have any questions?" (If yes, answer questions using the following:

Purpose: The purpose of the study is to learn more about parent-child communication in families with a deaf or hard of hearing child. The results will help us to better understand how parents and their children who are deaf or hard of hearing communicate with one another, and will identify ways in which we can help parents and their children who are deaf or hard of hearing to communicate better.

Participation: During the course of a regular triennial evaluation, or before or after an IEP, or any other time the parents are willing to come to the Hawai'i Center for the Deaf and the Blind or another location, they (the parent and child) will be asked to respond to four analog situations. Some situations will require them to solve problems, others will prompt them to discuss some topic. This "interview" will be videotaped. Afterwards, the parent will be asked to complete a few very short questionnaires (30-40 minutes total) which ask about communication. Total time required will be less than one hour in all.

Confidentiality: All information will be kept strictly confidential. Only the RA and the PI will be present during the interview. The videotapes will be stored in a locked cabinet at the University of Hawai'i at Manoa. They will only be viewed by the PI, research assistants, and trained coders. The coders will be viewing the content of the tapes and coding certain behaviors as they occur, such as turn-taking, and use of different modes of communication, such as speech and sign language. Once coded by three trained coders, the tape will be erased and recycled. No names will ever be used, only identification numbers.

Risks & Benefits: There are no known risks to participation. You may feel a bit uncomfortable during the interview if you are having trouble communicating with your child, but the interview was designed to be "like home-talk," so it shouldn't create any more discomfort than some of your difficult conversations at home. Benefits include involvement in research that can help parents and children who are deaf or hard of hearing to communicate better, learning more about how you and your child communicate, and the $40.00 family participation stipend which you will receive upon completion of the interview and questionnaires.

"You are eligible to participate in the interview. Can we schedule an appointment for the interview at the Hawai'i Center for the Deaf and the Blind?" Somewhere else?

Make arrangements to conduct the interview with those who are eligible and willing. Secure and confirm an interview place, date, and time, with the proper Department of Education or University of Hawai'i personnel. Make arrangements for a follow-up telephone call one or two days before the appointment. Individuals who express the desire not to participate should be thanked for their time and reminded that they can change their mind at any time. Remind them that the telephone number to contact the principal investigator (Jeffrey D. Stern, M.A.) is 735-8236 and that they may also contact the project director, Dr. Stephen Haynes, at the University of Hawai'i at 956-8108.

Appendix L

Parent-Child Analog Situation Observation (P-CASO) Coding Manual

I.   Introduction

The Coding Manual is intended to be used with the videotaped data and the Coding
Sheets constructed for use with in the Parent-Child Communication Study. The
Manual provides the basis for rating behaviors elicited by analog situations presented
to parent-child dyads. The Manual provides specific information regarding each item
to be coded. It is important that the coder be familiar with the content of this Coding
Manual before starting to code data. When coding data, the coder should reference
the manual every time coding occurs.

II.   Overview

The measurement of behaviors that arise in the course of parent-child communication
has been researched for decades. The present study joins the ongoing efforts to further
understand parent-child communication in families with a child who is deaf or hard of
hearing.

This manual describes how to measure and record behaviors observed during parent-
child communication. Three behaviors will be coded for each dyadic interaction. The
target behaviors were selected based on both a literature review and expert review.
The feedback from six expert reviewers was used to select the following: 1) practice
and test analog situations presented to each parent-child dyad and 2) target behaviors
that would be most indicative of the quality of parent-child communication. The
dyads are given three minutes to discuss each of the five analog situations presented.
Each three-minute test segment will be coded for the three identified behaviors (i.e.,
directives, continuations, and eye-contact).

III.   Current Study

Each parent-child dyad was presented a total of 5 analog situations intended to
stimulate conversation between the parent and child. The first analog situation
presented was a practice scenario in which the dyad became familiar with the
instrument's instructions. The remaining four analog situations (i.e., test analogs)
make up the actual P-CASO and will be coded. The instructions for each analog
situation were videotaped and played for the participant dyad. Instructions were

presented simultaneously in spoken English and either signed English or American Sign Language. Following the presentation of each analog situation, the dyad was left alone for three minutes to communicate about the topic presented.

For each of the four test analog situations, the coder will rate the communication for directives, continuations, and eye contact. For those dyads communicating in sign language, an interpreter's voice will translate what the dyad is saying. In these instances, the coder will listen to the audiotape while watching the videotape.

IV.   Instructions To Raters

1. Rate one behavior at a time

The coder starts with the first behavioral category and reviews the videotape (with accompanying audiotape when applicable) for behaviors corresponding to the first target behavior. Only after the rater has completed coding the first behavioral category for the target scenario should the coder begin to code the next behavior for that scenario.

2. Read behavioral definition before coding respective behavior

It is recommended that the coder read each behavioral description entirely in the Manual before committing a code. Careless errors may result when coders code an item from reading only the item name on the coding sheet. It is important that the coder continually refer to the manual, even after becoming familiar with the manual.

3. Review video in its entirety before rating

Coders are not to rate any of the behaviors until the entire 3-minute communication episode has been reviewed once through. For those dyads communicating in ASL, this includes listening to the audiotaped translation. The coder is encouraged to review the video tape as many times as necessary before assigning a final code for each behavioral category.

4. Transcribe the videotape

Coders will find coding greatly facilitated if a transcript can be read while watching the video tape. Only those portions of the videotape that are coded

need to be transcribed. Communications that are unclear can be marked as "(uncodeable)". The transcript then accompanies the tape if more than one coder is coding the data. The coder will code based strictly on the transcript (i.e., start and stop time, words to be coded). For this reason, extra care should be taken when making the original transcript.

5. Take notes

It is recommended that the coder take notes while reviewing the video tape. The practice of taking notes has been found to enhance the accuracy of coding in two ways. First, taking notes can serve as a reminder to the coder of information that is relevant to rating target behaviors. Second, taking notes helps keep the coder focused on what is occurring on the video tape. The coder should not attempt to do any other tasks while reviewing and coding the videotapes.

6. Use Coding Sheet correctly

We have developed a Coding Sheet that can be easily read by persons doing data entry. When using this Coding Sheet, it is important to clearly record the desired numerical code in its corresponding location on the Coding Sheet. It is strongly recommended that codes be written in pencil and to avoid making stray marks on the Coding Sheet. It is crucial that coders **review** their coding sheets to ensure that the necessary identifying information has been filled in (e.g., participant #, analog situation) and that **every behavioral category** has been coded for (i.e., even if "0").

    a. Some **behaviors may receive two codes** (e.g., directives and continuations). Multiple (i.e., two) coding of the same behavior is likely to happen because the overlap in operational definitions between directives and continuations.

    b. **Behaviors that occur simultaneously** (i.e., a verbal expression and a gesture) and serve to accomplish the same goal (e.g., saying "Look" while pointing at target object) are coded as one behavior

Some behaviors may be uncodable. An **uncodable behavior** is any behavior, verbal or nonverbal, that **appears to warrant a code but cannot be scored according to the operational definition** provided for each target behavior. Uncodable behaviors include communication that is unintelligible (e.g., an unknown sign, unable to hear or understand speaker, person signing moves

Appendix L (continued)

out of camera shot) or so vague (e.g., "Hmm") that it cannot be categorized based on definitions provided. Each uncodable behavior is recorded as a "999". Uncodable behaviors are reported in total for each scenario.

7. Watch portions of videotape even if they are not coded

When the rater has completed the scoring of a target time interval, it is strongly recommended that the rater watch the uncoded portion of the video before coding the next time interval. By watching the uncoded portion of the video, the rater will know the context in which the communication is occurring when (s)he starts coding the next time interval.

V. Specific guidelines for rating behavior items

1. Coding Procedures

The coder's task is to code participant behaviors that occur during the parent-child communication bout using the guidelines and examples below. Each test scenario will be coded as follows:

    i. Only a portion of the 3-minute communication bout will be coded for the first two behaviors (i.e., directives and continuations). The coder will be using time intervals of 30 seconds, starting with the first 30 seconds of Minute 1 and coding the first 30 seconds of each minute thereafter (i.e., Minute 2 and Minute 3).

    ii. Timing will begin upon the first verbal or nonverbal communication between parent and child.

    iii. When coding for target behaviors, the coder will use a digital stopwatch to identify the appropriate start and stop times for coding. The three target time intervals are as follows: 0"-30" seconds, 1'00" to 1'30", and 2'00" to 2'30". If a behavior starts before the 30' mark, it is coded, even if the behavior goes past the 30-second time interval.

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    iv. Code each behavioral category in its entirety before coding the next behavioral category (e.g., code for all directives in a scenario before coding for continuations)

    v. Each scenario will have three (3) 30-second interval codes for directives, three (3) 30-second interval codes for continuations, and three (3) 30-second interval times for eye-contact

    vi. Once the behavior has been coded for the scenario, add the interval scores for each behavior and enter the total in its respective total column (i.e., "Total Directives", "Total Continuations", "Total Time")

    vii. Record scores in their respective place on the Coding Sheet. As there are four analog situations per dyad, each participant dyad will have a total of 16 directive scores (i.e., 12 30-second intervals and 4 Total Directive parent scores), 16 continuations scores (i.e., 12 30-second intervals and 4 Total Continuation parent scores), and 16 eye-contact scores (i.e., 12 30-second intervals and 4 Total Eye-contact scores).

    viii. In the event that the recording is longer than three minutes, **code only the first three minutes** of the communication

    ix. Upon completion, the coder will record the mode of communication used by the parent (i.e., oral communication, sign language, a combination of oral and sign)

2. General operational definitions of target behaviors

The coder must be familiar with the following operational definitions before coding any data. In this section, a general definition is provided for each behavior. Below the definitions, more detailed explanations and examples are provided for each scenario.

    i. **Directives:** verbal or nonverbal commands, demands, suggestions, and requests, embedded in the communication, the function of which are to direct the conversation or the attention of the communication partner, or to elicit a specific behavioral

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ii. compliance response. Note, if a parent taps the child (e.g., on the arm) to get that child's attention before starting the communication, this is <u>not</u> considered a directive. *Only the parent communication behaviors will be coded.*

Of note, in the Deaf and Hard of Hearing population, communication is facilitated when communication partners look at each other during communication. Consequently, tapping someone to gain their attention before initiating communication is culturally appropriate for people who are Deaf or Hard of Hearing. Because it is culturally appropriate, appropriate tapping or waving to gain a communication partner's attention is <u>not</u> considered a directive. More extreme means by which to gain a communication partner's attention (e.g., grabbing their face, tapping forcefully) are not appropriate and, therefore, are considered directives.

iii. **Continuations:** communications that are in response to initiations or continuations of others. Continuations are verbal or nonverbal behaviors, including responses to questions, suggestions, and tangential initiations (introducing a topic that is conceptually related to the current topic of discussion and can be anticipated by a third party observer) that are used to actively promote or expand an interaction or conversational bout. *Only the parent communication behaviors will be coded.*

iv. **Eye contact:** the length of time that both members of the dyad simultaneously look at each other's eyes. In order for a behavior to be scored, both members must be visually focused on his/her communication partner's eyes at the same time. To receive a score for eye contact, the dyad can be actively communicating or merely maintaining eye contact. Eye contact will be measured with a digital stop-watch. Each time-interval should be measured 3 times, the average of which is recorded as the final eye-contact score for the corresponding time interval. All recorded times are to be rounded to the nearest second.

ANALOG SITUATION 1

Description: Discuss what the child wants for his/her next birthday.

Directives:

Directives include verbal or nonverbal commands, demands, suggestions, and requests,

embedded in the communication, the function of which are to direct the conversation or

the attention of the communication partner, or to elicit a specific behavioral compliance

response.

General rules:
1. If a directive has been repeated consecutively, the behavior is scored as 1 directive. For example, if the mother suggests, "football, football, football", she receives a score of 1 directive for this behavior.
2. If a directive has been repeated but does not occur consecutively, each differing directive behavior is scored 1. For example, if a mother suggests, "Fish, football, fish", she receives a score of 3 for directives.
3. If a child's attentional focus shifts away from his/her communication partner, this is considered a termination. Consequently, any communication following this is part of a new bout. For example, if a father suggests, "the beach" and the child then turns away from the father. When the father regains the child's visual attention and repeats "the beach", the sequence of behaviors receives a score of 2 for directives.
4. Even if the parent did not complete the communication, if the communication qualifies as a directive, a score of 1 is given to this behavior. For example, a mother says, "Tell me...You draw the sun over here." Even though she changed her expression, "Tell me" and "You draw" are each scored as 1 directive.
5. Pointing intended to guide the child's attention is considered a directive. This does NOT include pointing that references an object of discussion or self-talk.

6. Attempts to physically guide the child (e.g., holding the child's hand so that she cannot leave the table) are considered directives.

7. Behaviors **NOT** considered to be directives (Remember, in order for a behavior to be coded a directive, the behavior must <u>direct</u> the conversational bout or attention of the communication partner):

    a. Open-ended questions (e.g., questions that start with who, what, why, when, how)

    b. Behaviors that occur during "self-talk" (i.e., when the parent is thinking aloud)

    c. Behaviors that encourage communication (e.g., "Huh?", prompting partner to respond or to continue communicating)

    d. Communication intended to clarify what the child has said (e.g., "Oh. You mean a bridge."; child says, "I want to go to the beach by our house," and parent responds, "You want to go to Kailua Beach?")

    e. A sentence <u>cannot be given a score of more than 1 directive</u>, even if multiple directives are used in the one sentence (e.g., sentences with "and" or "or" that string multiple directives). Note: If a parent's sentence is interrupted, the sentence is still considered one sentence.

Behaviors/vocalizations may include some or all of the following:

1. Commands/demands

    a. Child says, "I want my all my friends to come". → Mom says, "Tell me their names."

    b. Child says, "I want to go to Disneyland." → Mom says, "Don't ask for things you know we can't afford"

    c. Looking at the child, conveying a message so that the child performs the expected behavior.

2. Suggestions

    a. "What about a bike?"
    b. "What do you think about going on to the beach?"
    c. "I thought you might want a puppy?"
    d. "Would you rather have a white one or a black one?"
    e. "What about a cheaper toy?"

3. Requests

     a. "Can you tell me what you want for your birthday?"
     b. "Can you explain which one your talking about?"
     c. "Can you be more specific about which one you want?"

Continuations:

Continuations refer to communications that are <u>in response to initiations or continuations</u>

<u>of others</u>. Continuations include verbal or nonverbal behaviors, including responses to

questions, suggestions, and tangential initiations (introducing a topic that is conceptually

related to the current topic of discussion- for example, while discussing a toy, the

communication partner asks where the toy can be purchased) that are used to <u>actively</u>

<u>promote or expand</u> an interaction or conversational bout.

    General rules:
      1. Identify each "bout" within the scenario. A bout is a communication
      sequence that occurs between communication partners. All bouts consist
      of an initiation and a termination. An example of the most basic "bout" is
      the following:

      Mother: "Did you see the dog?"   (initiation)
      Son: "Yes."   (termination)

      2. Longer bouts include continuations that function to add to and advance
      the communication. An example of a longer bout is the following:

      Mother: "What was that?"   (initiation)
      Son: "A dog. But he was a lot smaller than Buster, yeah?"
      (continuation)

Mother: "Yeah. And it was white. What color is Kimo?" (continuation)
Son: "Brown."   (continuation)
Mother: "Yes. You're right!"   (termination)

3. Identify the topic of each conversational bout before coding for continuations within the bout. This will facilitate the coder's ability to identify initiations, continuations, and terminations.
4. Verbal or nonverbal behaviors that function to prompt one's communication partner to continue are considered continuation. For example, summarizing the discussion by making a list and counting the list items on her fingers. At the end of the summary, the mother points to her next finger, signaling the child to produce another item to add to the list. Or, a parent says, "Go ahead." Or "Go on." When a the child has not yet responded to the parent's communication. Both of these behaviors are considered continuations.
5. Communication intended to clarify what the child has said is considered a continuation. This can include communications such as "Huh?", "What?", or repetitions phrased as a question (e.g., "Yesterday?")-example

Child: repeats an unfamiliar gesture and says, "Cage"
Father: "Oh. You mean a bridge."   (continuation)
Child: "Yes. A bridge."   (termination)

Child: "I want to go to the beach by our house." (initiation)
Parent: "You want to go to Kailua Beach?"   (continuation)

Even if the parent is not able to complete his/her sentence (e.g., interrupted by the child), the behavior can still be coded as a continuation if it meets the criteria for continuations

Child: "I want to go to the pool."   (initiation)
Parent: "But what..."*   (continuation)
Child: (interrupts) "No. I want to go to the pool."   (termination)

* "what" (like "who", "when", "where", "why", "how") would
   encourage further discussion of the conversational topic.

6. When scoring **responses to questions**, the response must function to encourage (i.e., actively promote) continuation of the current conversational bout.

7. When labeling the responses of the child, a less strict criteria for continuations is applied. Just as with parents, "Yes", "No", and "I don't know" or any variations of these responses (e.g., "Umhmm", "Nah"), when not elaborated on, are considered terminations. However, if the child adds new and additional information to a response of "Yes", "No", or "I don't know", it is considered a continuation-example

Parent:	"Do you want to go to grandma's house?"	(initiation)
Child:	"No. It was boring."	(continuation)
Parent:	"What was boring?	(continuation)

Also, if the child provides the correct information, it is considered a continuation- example

Mother:	"What color is this?"	(initiation)
Child:	"Green."	(continuation)
Mother:	"And what is the color green?"	(continuation)

8. Behaviors **NOT** considered to be continuations (Remember, in order for a behavior to be coded a continuation, the behavior must <u>advance</u> the conversational bout):

"Yes", "No", and "I don't know" responses (without any additional communication that encourages communication). These responses are terminations- example

| Child: | "What about going to Maui?" |
| Father: | "No. Too expensive." |

Nodding while the communication partner is speaking
Repetition of what one's communication partner has said. Repetitions tend to clarify or acknowledge the communication of a partner, not add to or expand the conversational bout- example

| Child: | "I make the castle" | (initiation) |
| Mother: | "You make the castle" | (repetition) |

Initiations
The conversational bout must have been initiated before any behavior can be coded as a continuation
Re-initiations (i.e., re-introducing an original conversational topic following the presentation of an unrelated topic)-example

Father:	"What do you want to do?"	(initiation)
Child:	"Hey. Where did she go?"	(termination/initiation)
Father:	"She went outside. So what do you want to do over the weekend?"	(term./re-initiation)

Repetitions of one's self
A behavior must be in response to an initiation or continuation of the communication partner
Terminations

Behaviors/vocalizations may include some or all of the following:

1. Responses to questions

    a. "I don't know. Maybe we should ask Daddy?"
    b. "That's a good question. What do you think?"
    c. "Yes. We could do that, but I don't know Alana could come."

2. Suggestions

    a. "Or what about getting one Sega game and if you're really good, at the end of the school year we'll get you the second one."
    b. "What about asking Dad if he'd be willing to take you shopping for it?"
    c. "Would you rather have, a blue Razor or a red one?"
    d. "Do you think, Aunty Patty should bring Buster (the family dog)?"

3. Tangential initiations

    a. "Did you see the other toy that Jared was playing with?"
    b. "I was just talking to Kainoa's mom about that toy. Have you seen Kainoa's toy?"
    c. "Remember last year, when Grandma and Grandpa got you a bike?"
    d. "That was a nice shirt your sister got for you last year. What did you get for her again?"

Eye contact:

Eye contact refers to the length of time that both members of the dyad simultaneously look at each other's eyes. In order for a behavior to be scored, both members must be visually focused on his/her communication partner's eyes at the same time. To receive a score for eye contact, the dyad can be actively communicating or merely maintaining eye contact. If the participant's eyes cannot be seen (e.g., participant holds up his hand, blocking his vision of the camera), do not code behavior for eye contact. Looking at the area between the dyad may assist in coding for eye contact.

ANALOG SITUATION 2

    Description: Together, decide on a picture to draw and draw the picture together

Directives:

Directives include verbal or nonverbal commands, demands, suggestions, and requests,

embedded in the communication, the function of which are to direct the conversation or

the attention of the communication partner, or to elicit a specific behavioral compliance

response.

Appendix L (continued)

General rules:
1. If a directive has been repeated consecutively, the behavior is scored as 1 directive. For example, if the mother suggests, "football, football, football", she receives a score of 1 directive for this behavior.
2. If a directive has been repeated but does not occur consecutively, each differing directive behavior is scored 1. For example, if a mother suggests, "Fish, football, fish", she receives a score of 3 for directives.
3. If a child's attentional focus shifts away from his/her communication partner, this is considered a termination. Consequently, any communication following this is part of a new bout. For example, if a father suggests, "the beach" and the child then turns away from the father. When the father regains the child's visual attention and repeats "the beach", the sequence of behaviors receives a score of 2 for directives.
4. Even if the parent did not complete the communication, if the communication qualifies as a directive, a score of 1 is given to this behavior. For example, a mother says, "Tell me...You draw the sun over here." Even though she changed her expression, "Tell me" and "You draw" are each scored as 1 directive.
5. Pointing intended to guide the child's attention is considered a directive. This does **NOT** include pointing that references an object of discussion or self-talk.
6. Attempts to physically guide the child (e.g., holding the child's hand so that she cannot leave the table) are considered directives
7. Behaviors **NOT** considered to be directives (Remember, in order for a behavior to be coded a directive, the behavior must <u>direct</u> the conversational bout or attention of the communication partner):
   a. Open-ended questions (e.g., questions that start with who, what, why, when, how)
   b. Behaviors that occur during "self-talk" (i.e., when the parent is thinking aloud)
   c. Behaviors that encourage communication (e.g., "Huh?", prompting partner to respond or to continue communicating)
   d. Communication intended to clarify what the child has said (e.g., "Oh. You mean a bridge."; child says, "I want to go to the beach by our house," and parent responds, "You want to go to Kailua Beach?")
   e. A sentence <u>cannot be given a score of more than 1 directive</u>, even if multiple directives are used in the one sentence (e.g.,

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sentences with "and" or "or" that string multiple directives). Note: If a parent's sentence is interrupted, the sentence is still considered one sentence.

Behaviors/vocalizations may include some or all of the following:

1. Commands/demands

    a. "Draw a tree."
    b. "Put that over here."
    c. "Don't color so hard."
    d. "Be careful."
    e. *Looking at the child, conveying a message so that the child performs the expected behavior.*

2. Suggestions

    a. "Do you want to use the blue pen?"
    b. "What about drawing the dog over here?"
    c. "Maybe we should make the lines lighter for this part of the picture."
    d. *"Did you forget to color the dress?"*
    e. "Shouldn't your sister be smaller than Daddy?"
    f. "Where are the teeth?" (implying that the drawing should have teeth)

3. Requests

    a. "Can you color this part in for me?"
    b. "Can you tell me what this is?"
    c. "Can you pass me the crayons."
    d. "Can you help me draw a flower?"

Continuations:

Continuations refer to communications that are <u>in response to initiations or continuations</u>

<u>of others</u>. Continuations include verbal or nonverbal behaviors, including responses to

questions, suggestions, and tangential initiations (introducing a topic that is conceptually

related to the current topic of discussion- for example, while discussing a toy, the

communication partner asks where the toy can be purchased) that are used to actively

promote or expand an interaction or conversational bout.

General rules:
1. Identify each "bout" within the scenario. A bout is a communication
sequence that occurs between communication partners. All bouts consist
of an initiation and a termination. An example of the most basic "bout" is
the following:

Mother:	"Did you see the dog?"	(initiation)
Son:	"Yes."	(termination)

2. Longer bouts include continuations that function to add to and advance
the communication. An example of a longer bout is the following:

Mother:	"What was that?"	(initiation)
Son:	"A dog. But he was a lot smaller than Buster, yeah?" (continuation)	
Mother:	"Yeah. And it was white. What color is Kimo?" (continuation)	
Son:	"Brown."	(continuation)
Mother:	"Yes. You're right!"	(termination)

3. Identify the topic of each conversational bout before coding for
continuations within the bout. This will facilitate the coder's ability to
identify initiations, continuations, and terminations.
4. Verbal or nonverbal behaviors that function to prompt one's
communication partner to continue are considered continuation. For
example, summarizing the discussion by making a list and counting the
list items on her fingers. At the end of the summary, the mother points to
her next finger, signaling the child to produce another item to add to the
list. Or, a parent says, "Go ahead." Or "Go on." When a the child has not
yet responded to the parent's communication. Both of these behaviors are
considered continuations.

Appendix L (continued)

5. Communication intended to clarify what the child has said is considered a continuation. This can include communications such as "Huh?", "What?", or repetitions phrased as a question (e.g., "Yesterday?")-example

Child:	repeats an unfamiliar gesture and says, "Cage"	
Father:	"Oh. You mean a bridge."	(continuation)
Child:	"Yes. A bridge."	(termination)

Child:	"I want to go to the beach by our house."	(initiation)
Parent:	"You want to go to Kailua Beach?"	(continuation)

Even if the parent is not able to complete his/her sentence (e.g., interrupted by the child), the behavior can still be coded as a continuation if it meets the criteria for continuations

Child:	"I want to go to the pool."	(initiation)
Parent:	"But what..."*	(continuation)
Child:	(interrupts) "No. I want to go to the pool."	(termination)

* "what" (like "who", "when", "where", "why", "how") would encourage further discussion of the conversational topic.

6. When scoring **responses to questions**, the response must function to encourage (i.e., actively promote) continuation of the current conversational bout.
7. When labeling the responses of the child, a less strict criteria for continuations is applied. Just as with parents, "Yes", "No", and "I don't know" or any variations of these responses (e.g., "Umhmm", "Nah"), when not elaborated on, are considered terminations. However, if the child adds new and additional information to a response of "Yes", "No", or "I don't know", it is considered a continuation-example

Parent:	"Do you want to go to grandma's house?"	(initiation)
Child:	"No. It was boring."	(continuation)
Parent:	"What was boring?	(continuation)

Also, if the child provides the correct information, it is considered a continuation- example

Mother:	"What color is this?"	(initiation)
Child:	"Green."	(continuation)
Mother:	"And what is the color green?"	(continuation)

8. Behaviors **NOT** considered to be continuations (Remember, in order for a behavior to be coded a continuation, the behavior must <u>advance</u> the conversational bout):
"Yes", "No", and "I don't know" responses (without any additional communication that encourages communication). These responses are terminations- example

Child: "What about going to Maui?"
Father: "No. Too expensive."

Nodding while the communication partner is speaking
Repetition of what one's communication partner has said. Repetitions tend to clarify or acknowledge the communication of a partner, not add to or expand the conversational bout- example

Child:	"I make the castle"	(initiation)
Mother:	"You make the castle"	(repetition)

Initiations
The conversational bout must have been initiated before any behavior can be coded as a continuation
Re-initiations (i.e., re-introducing an original conversational topic following the presentation of an unrelated topic)-example

Father:	"What do you want to do?"	(initiation)
Child:	"Hey. Where did she go?"	(termination/initiation)
Father:	"She went outside. So what do you want to do over the weekend?"	(term./re-initiation)

Repetitions of one's self
A behavior must be in response to an initiation or continuation of the communication partner

Terminations

Behaviors/vocalizations may include some or all of the following:

1. Responses to questions

   a. "Sure. And what else could go here?"
   b. "Well, what do <u>you</u> want to do."
   c. "No. But we can talk about it more and maybe I'll change my mind."

2. Suggestions

   a. "What about using red too?"
   b. *(When drawing a girl...)* "Maybe we can have the girl wear a lei."
   c. "Maybe we could call this 'Family Day'?"
   d. "Why don't you give a title to your nice drawing?"

3. Tangential initiations

   a. "Do you like swimming with Micah?"
   b. "Remember the last time we went to the beach?"
   c. "Where did we go the last time?" (referring to the last time the family visited the place depicted in the drawing)

Eye contact:

Eye contact refers to the length of time that both members of the dyad simultaneously look at each other's eyes. In order for a behavior to be scored, both members must be visually focused on his/her communication partner's eyes at the same time. To receive a score for eye contact, the dyad can be actively communicating or merely maintaining eye contact. If the participant's eyes cannot be seen (e.g., participant holds up his hand, blocking his vision of the camera), do not code behavior for eye contact. Looking at the area between the dyad may assist in coding for eye contact.

Appendix L (continued)

ANALOG SITUATION 3

Description: Plan the child's next birthday party

Directives:

Directives include verbal or nonverbal commands, demands, suggestions, and requests,

embedded in the communication, the function of which are to direct the conversation or

the attention of the communication partner, or to elicit a specific behavioral compliance

response.

General rules:
1. If a directive has been repeated consecutively, the behavior is scored as 1 directive. For example, if the mother suggests, "football, football, football", she receives a score of 1 directive for this behavior.
2. If a directive has been repeated but does not occur consecutively, each differing directive behavior is scored 1. For example, if a mother suggests, "Fish, football, fish", she receives a score of 3 for directives.
3. If a child's attentional focus shifts away from his/her communication partner, this is considered a termination. Consequently, any communication following this is part of a new bout. For example, if a father suggests, "the beach" and the child then turns away from the father. When the father regains the child's visual attention and repeats "the beach", the sequence of behaviors receives a score of 2 for directives.
4. Even if the parent did not complete the communication, if the communication qualifies as a directive, a score of 1 is given to this behavior. For example, a mother says, "Tell me...You draw the sun over here." Even though she changed her expression, "Tell me" and "You draw" are each scored as 1 directive.
5. Pointing intended to guide the child's attention is considered a directive. This does **NOT** include pointing that references an object of discussion or self-talk.
6. Attempts to physically guide the child (e.g., holding the child's hand so that she cannot leave the table) are considered directives.

7. Behaviors **NOT** considered to be directives (Remember, in order for a behavior to be coded a directive, the behavior must <u>direct</u> the conversational bout or attention of the communication partner):
    a. Open-ended questions (e.g., questions that start with who, what, why, when, how)
    b. Behaviors that occur during "self-talk" (i.e., when the parent is thinking aloud)
    c. Behaviors that encourage communication (e.g., "Huh?", prompting partner to respond or to continue communicating)
    d. Communication intended to clarify what the child has said (e.g., "Oh. You mean a bridge."; child says, "I want to go to the beach by our house," and parent responds, "You want to go to Kailua Beach?")
    e. A sentence <u>cannot be given a score of more than 1 directive</u>, even if multiple directives are used in the one sentence (e.g., sentences with "and" or "or" that string multiple directives). *Note: If a parent's sentence is interrupted, the sentence is still considered one sentence.*

Behaviors/vocalizations may include some or all of the following:

1. Commands/demands

    a. "Don't forget to invite Alex."
    b. "Tell me what kind of cake you'd like."
    c. "Show me what you mean."
    d. "You can't invite that many people."
    e. Looking at the child, conveying a message so that the child performs the expected behavior.
    f. "We are having the party at our house."

2. Suggestions

    a. "Would you like a magician?"
    b. "We can have the party at the pool or the beach."
    c. "What about having shave ice instead of ice cream."
    d. "We forgot to talk about when the party would start."
    e. "Maybe you could help pay for such an expensive gift."

3. Requests

    a. "Can you list out who you want to come?"
    b. "Can you consider how much that would cost?"
    c. "Can you think of where you want your party to be?"

Continuations:

Continuations refer to communications that are <u>in response to initiations or continuations</u>

<u>of others</u>. Continuations include verbal or nonverbal behaviors, including responses to

questions, suggestions, and tangential initiations (introducing a topic that is conceptually

related to the current topic of discussion- for example, while discussing a toy, the

communication partner asks where the toy can be purchased) that are used to <u>actively</u>

<u>promote or expand</u> an interaction or conversational bout.

General rules:
1. Identify each "bout" within the scenario. A bout is a communication sequence that occurs between communication partners. All bouts consist of an initiation and a termination. An example of the most basic "bout" is the following:

| Mother: | "Did you see the dog?" | (initiation) |
| Son: | "Yes." | (termination) |

2. Longer bouts include continuations that function to add to and advance the communication. An example of a longer bout is the following:

Mother:	"What was that?"	(initiation)
Son:	"A dog. But he was a lot smaller than Buster, yeah?" (continuation)	
Mother:	"Yeah. And it was white. What color is Kimo?"	(continuation)
Son:	"Brown."	(continuation)
Mother:	"Yes. You're right!"	(termination)

3. Identify the topic of each conversational bout before coding for *continuations within the bout. This will facilitate the coder's ability to* identify initiations, continuations, and terminations.

4. Verbal or nonverbal behaviors that function to prompt one's communication partner to continue are considered continuation. For example, summarizing the discussion by making a list and counting the list items on her fingers. At the end of the summary, the mother points to her next finger, signaling the child to produce another item to add to the list. Or, a parent says, "Go ahead." Or "Go on." When a the child has not yet responded to the parent's communication. Both of these behaviors are considered continuations.

5. Communication intended to clarify what the child has said is considered a continuation. This can include *communications such as* "Huh?", "What?", or repetitions phrased as a question (e.g., "Yesterday?")-example

Child:	repeats an unfamiliar gesture and says, "Cage"	
Father:	"Oh. You mean a bridge."	(continuation)
Child:	"Yes. A bridge."	(termination)

Child:	"I want to go to the beach by our house."	(initiation)
Parent:	"You want to go to Kailua Beach?"	(continuation)

Even if the parent is not able to complete his/her sentence (e.g., interrupted by the child), the behavior can still be coded as a continuation if it meets the criteria for continuations

Child:	"I want to go to the pool."	(initiation)
Parent:	"But what..."*	(continuation)
Child:	(interrupts) "No. I want to go to the pool."	(termination)

* "what" (like "who", "when", "where", "why", "how") would encourage further discussion of the conversational topic.

6. When scoring **responses to questions**, the response must function to encourage (i.e., actively promote) continuation of the current conversational bout.

7. When labeling the responses of the child, a less strict criteria for continuations is applied. Just as with parents, "Yes", "No", and "I don't know" or any variations of these responses (e.g., "Umhmm", "Nah"),

when not elaborated on, are considered terminations. However, if the child adds new and additional information to a response of "Yes", "No", or "I don't know", it is considered a continuation-example

Parent:	"Do you want to go to grandma's house?"	(initiation)
Child:	"No. It was boring."	(continuation)
Parent:	"What was boring?	(continuation)

Also, if the child provides the correct information, it is considered a continuation- example

Mother: "What color is this?"	(initiation)
Child: "Green."	(continuation)
Mother: "And what is the color green?"	(continuation)

8. Behaviors **NOT** considered to be continuations (Remember, in order for a behavior to be coded a continuation, the behavior must <u>advance</u> the conversational bout):
"Yes", "No", and "I don't know" responses (without any additional communication that encourages communication). These responses are terminations- example

Child: "What about going to Maui?"
Father: "No. Too expensive."

Nodding while the communication partner is speaking
Repetition of what one's communication partner has said. Repetitions tend to clarify or acknowledge the communication of a partner, not add to or expand the conversational bout- example

Child: "I make the castle"	(initiation)
Mother: "You make the castle"	(repetition)

Initiations
The conversational bout must have been initiated before any behavior can be coded as a continuation
Re-initiations (i.e., re-introducing an original conversational topic following the presentation of an unrelated topic)-example

Appendix L (continued)

Father: "What do you want to do?"   (initiation)
Child: "Hey. Where did she go?"   (termination/initiation)
Father: "She went outside. So what do you want to do over the
weekend?"   (term./re-initiation)

Repetitions of one's self
A behavior must be in response to an initiation or continuation of the
communication partner
Terminations

Behaviors/vocalizations may include some or all of the following:

1. Responses to questions

    a. "I told you already, we can't afford that so you have to think of a
        way to earn the money to pay for it."
    b. "No. You can have one or the other."
    c. "I realize that all your friends have one, but I just don't think it's
        safe."
    d. "Yes, but what about doing something with just the family."

2. Suggestions

    a. "What about using some of your own money to help pay for it?"
    b. "You could ask Grandma and Grandpa."
    c. "What about a new doll house."
    d. "Do you want a chocolate cake for your party?"

3. Tangential initiations

    a. "What did we get you last year?"
    b. "Do you know that Ikaika said you can borrow his?"
    c. "I haven't seen the bike we got you last year..."

Eye contact:

Eye contact refers to the length of time that both members of the dyad simultaneously look at each other's eyes. In order for a behavior to be scored, both members must be visually focused on his/her communication partner's eyes at the same time. To receive a score for eye contact, the dyad can be actively communicating or merely maintaining eye contact. If the participant's eyes cannot be seen (e.g., participant holds up his hand, blocking his vision of the camera), do not code behavior for eye contact. Looking at the area between the dyad may assist in coding for eye contact.

ANALOG SITUATION 4

Description: Selecting an article, picture, or comic strip from the newspaper and discuss this with the child.

Directives:

Directives include verbal or nonverbal commands, demands, suggestions, and requests,

embedded in the communication, the function of which are to direct the conversation or

the attention of the communication partner, or to elicit a specific behavioral compliance

response.

General rules:
1. If a directive has been repeated consecutively, the behavior is scored as 1 directive. For example, if the mother suggests, "football, football, football", she receives a score of 1 directive for this behavior.
2. If a directive has been repeated but does not occur consecutively, each differing directive behavior is scored 1. For example, if a mother suggests, "Fish, football, fish", she receives a score of 3 for directives.
3. If a child's attentional focus shifts away from his/her communication partner, this is considered a termination. Consequently, any communication following this is part of a new bout. For example, if a father suggests, "the beach" and the child then turns away from the

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father. When the father regains the child's visual attention and repeats "the beach", the sequence of behaviors receives a score of 2 for directives.

4. Even if the parent did not complete the communication, if the communication qualifies as a directive, a score of 1 is given to this behavior. For example, a mother says, "Tell me...You draw the sun over here." Even though she changed her expression, "Tell me" and "You draw" are each scored as 1 directive.

5. Pointing intended to guide the child's attention is considered a directive. This does **NOT** include pointing that references an object of discussion or self-talk.

6. Attempts to physically guide the child (e.g., holding the child's hand so that she cannot leave the table) are considered directives

7. Behaviors **NOT** considered to be directives (Remember, in order for a behavior to be coded a directive, the behavior must <u>direct</u> the conversational bout or attention of the communication partner):

    a. Open-ended questions (e.g., questions that start with who, what, why, when, how)
    b. Behaviors that occur during "self-talk" (i.e., when the parent is thinking aloud)
    c. Behaviors that encourage communication (e.g., "Huh?", prompting partner to respond or to continue communicating)
    d. Communication intended to clarify what the child has said (e.g., "Oh. You mean a bridge."; child says, "I want to go to the beach by our house," and parent responds, "You want to go to Kailua Beach?")
    e. A sentence <u>cannot be given a score of more than 1 directive</u>, even if multiple directives are used in the one sentence (e.g., sentences with "and" or "or" that string multiple directives). Note: If a parent's sentence is interrupted, the sentence is still considered one sentence.

Behaviors/vocalizations may include some or all of the following:

1. Commands/demands

    a. "Read this part to me."
    b. "Tell me what this is."
    c. "Look at this!"

    d. Looking at the child, conveying a message so that the child performs the expected behavior.

2. Suggestions

    a. "Is that Snoopy?"
    b. "Why don't you look at this first before we start talking about it?"
    c. "Would you rather read the article or have me tell you about it?"

3. Requests

    a. "Can you tell me how you think the article ends?"
    b. "Can you remember who the first president of the United States was?"
    c. "Please tell me what you think."

Continuations:

Continuations refer to communications that are in response to initiations or continuations of others. Continuations include verbal or nonverbal behaviors, including responses to questions, suggestions, and tangential initiations (introducing a topic that is conceptually related to the current topic of discussion- for example, while discussing a toy, the communication partner asks where the toy can be purchased) that are used to actively promote or expand an interaction or conversational bout.

General rules:
1.   Identify each "bout" within the scenario. A bout is a communication sequence that occurs between communication partners. All bouts consist of an initiation and a termination. An example of the most basic "bout" is the following:

| Mother: | "Did you see the dog?" | (initiation) |
| Son: | "Yes." | (termination) |

Appendix L (continued)

2. Longer bouts include continuations that function to add to and advance the communication. An example of a longer bout is the following:

| Mother: | "What was that?" | (initiation) |
| Son: | "A dog. But he was a lot smaller than Buster, yeah?" (continuation) | |

Mother:	"Yeah. And it was white. What color is Kimo?" (continuation)
Son:	"Brown."	(continuation)
Mother:	"Yes. You're right!"	(termination)

3. Identify the topic of each conversational bout before coding for continuations within the bout. This will facilitate the coder's ability to identify initiations, continuations, and terminations.

4. Verbal or nonverbal behaviors that function to prompt one's communication partner to continue are considered continuation. For example, summarizing the discussion by making a list and counting the list items on her fingers. At the end of the summary, the mother points to her next finger, signaling the child to produce another item to add to the list. Or, a parent says, "Go ahead." Or "Go on." When a the child has not yet responded to the parent's communication. Both of these behaviors are considered continuations.

5. Communication intended to clarify what the child has said is considered a continuation. This can include communications such as "Huh?", "What?", or repetitions phrased as a question (e.g., "Yesterday?")-example

Child: repeats an unfamiliar gesture and says, "Cage"
Father: "Oh. You mean a bridge."   (continuation)
Child: "Yes. A bridge."   (termination)

Child: "I want to go to the beach by our house."   (initiation)
Parent: "You want to go to Kailua Beach?"   (continuation)

Even if the parent is not able to complete his/her sentence (e.g., interrupted by the child), the behavior can still be coded as a continuation if it meets the criteria for continuations

Appendix L (continued)

Child: "I want to go to the pool."   (initiation)
Parent: "But what..."*   (continuation)
Child: (interrupts) "No. I want to go to the pool."   (termination)

* "what" (like "who", "when", "where", "why", "how") would
    encourage further discussion of the conversational topic.

6. When scoring **responses to questions**, the response must function to
encourage (i.e., actively promote) continuation of the current
conversational bout.
7. When labeling the responses of the child, a less strict criteria for
continuations is applied. Just as with parents, "Yes", "No", and "I don't
know" or any variations of these responses (e.g., "Umhmm", "Nah"),
when not elaborated on, are considered terminations. However, if the child
adds new and additional information to a response of "Yes", "No", or "I
don't know", it is considered a continuation-example

Parent: "Do you want to go to grandma's house?"   (initiation)
Child: "No. It was boring."   (continuation)
Parent: "What was boring?   (continuation)

Also, if the child provides the correct information, it is considered a
continuation- example

Mother: "What color is this?"   (initiation)
Child: "Green."   (continuation)
Mother: "And what is the color green?"   (continuation)

8. Behaviors **NOT** considered to be continuations (Remember, in order
for a behavior to be coded a continuation, the behavior must advance the
conversational bout):
"Yes", "No", and "I don't know" responses (without any additional
communication that encourages communication). These responses are
terminations- example

Child: "What about going to Maui?"
Father: "No. Too expensive."

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Nodding while the communication partner is speaking
Repetition of what one's communication partner has said. Repetitions tend to clarify or acknowledge the communication of a partner, not add to or expand the conversational bout- example

Child:	"I make the castle"	(initiation)
Mother:	"You make the castle"	(repetition)

Initiations
The conversational bout must have been initiated before any behavior can be coded as a continuation
Re-initiations (i.e., re-introducing an original conversational topic following the presentation of an unrelated topic)-example

Father:	"What do you want to do?"	(initiation)
Child:	"Hey. Where did she go?"	(termination/initiation)
Father:	"She went outside. So what do you want to do over the weekend?"	(term./re-initiation)

Repetitions of one's self
A behavior must be in response to an initiation or continuation of the communication partner
Terminations

Behaviors/vocalizations may include some or all of the following:

1. Responses to questions

    a. "No, try again because I don't think that's what it says."
    b. "I don't know. Maybe we could look it up on the internet when we get home, huh?"
    c. "I don't remember but we can look for it again in the article."
    d. "Yes! Did you learn all that in school?!"

2. Suggestions

    a. "Was the mom's fault or the son's fault?"
    b. "Why don't you share this article with your class tomorrow."
    c. "Would you like to hold the paper?"

3. Tangential initiations

      a. "What about that other time when…"
      b. "Did you know that Mommy knows this person?"
      c. "What do you think happened the next day?"

Eye contact:

Eye contact refers to the length of time that both members of the dyad simultaneously look at each other's eyes. In order for a behavior to be scored, both members must be visually focused on his/her communication partner's eyes at the same time. To receive a score for eye contact, the dyad can be actively communicating or merely maintaining eye contact. If the participant's eyes cannot be seen (e.g., participant holds up his hand, blocking his vision of the camera), do not code behavior for eye contact. Looking at the area between the dyad may assist in coding for eye contact.

Appendix M

Parent-Child Analog Situation Observation (P-CASO) Code Sheet

Participant Number_____

Coder_____

Date_____

Scenario 1

Directives (30-sec intervals): 1. _____   2. _____   3. _____   Total _____

Continuations: 1. _____   2. _____   3. _____   Total _____

Eye Contact: 1. _____   2. _____   3. _____   Total _____

Uncodable behaviors: 1. _____   2. _____   3. _____   Total _____

Scenario 2

Directives (30-sec intervals): 1. _____   2. _____   3. _____   Total _____

Continuations: 1. _____   2. _____   3. _____   Total _____

Eye Contact: 1. _____   2. _____   3. _____   Total _____

Uncodable behaviors: 1. _____   2. _____   3. _____   Total _____

Scenario 3

Directives (30-sec intervals): 1. _____   2. _____   3. _____   Total _____

Continuations: 1. _____   2. _____   3. _____   Total _____

Eye Contact: 1. _____   2. _____   3. _____   Total _____

Uncodable behaviors: 1. _____   2. _____   3. _____   Total _____

Appendix M (continued)

Scenario 4

Directives (30-sec intervals): 1. _____   2. _____   3. _____   Total _____

Continuations: 1. _____   2. _____   3. _____   Total _____

Eye Contact: 1. _____   2. _____   3. _____   Total _____

Uncodable behaviors: 1. _____   2. _____   3. _____   Total _____

Mode of Communication: Oral_____   Sign language_____   Combination_____

Appendix N

Parent-Child Analog Situation Observation (P-CASO) Procedural Checklist

☐ Consent form

☐ Practice Analog

☐ P-CASO

☐ Demographic Questionnaire

☐ CBCL

☐ FAD/FAM Questionnaire

☐ PCRI

☐ Debriefing Questionnaire

☐ Money to Parent-receipt

☐ Give Informational Packet

☐ Put ID number on every item

Notes:

Appendix O

Parent-Child Analog Situation Observation (P-CASO) Analog Situations

A. Weekend activity

Instructions: Please plan a fun weekend activity that you would like to do together.

1. What child wants for birthday

Instructions: Children often tell their parents what they want for their birthday. Discuss a present your child would like for her/his birthday this year.

2. Drawing a picture together

Props – a piece of paper and some colored pens, pencils, and/or crayons.

Instructions: I have a box of color pens/crayons and some paper. With this material, I'd like you to draw me a picture. Please work together to decide what to draw and then draw that picture together.

3. Plan a party

Instructions: Together, please plan your child's next birthday party together.

4. Newspaper article

Props- a newspaper

Instructions (to parent): Look through this newspaper and find an article, a picture, or a comic strip of interest (wait for parent to identify an article)....

Choose one to share with your child. Show the article, picture, or comic strip to your child and discuss it with him or her.

Appendix P

Letter to School Principals

Jeffrey D. Stern, MA
Parent-Child Analog Situation Observation Study
c/o Hawai'i Center for the Deaf and the Blind
3440 Leahi Ave.
Honolulu, HI 96815

Dear Sir or Madam,

My name is Jeffrey Stern and I am the psychological examiner on the diagnostic team at the Hawai'i Center for the Deaf and the Blind. I am also a graduate student in psychology at the University of Hawai'i at Manoa. I am currently in the process of preparing to recruit students who are deaf or hard of hearing and their parents to participate in my dissertation research.

Attached are a copy of the letter of support from Dr. LeMahieu and a copy of the letter I plan to mail to the parents of deaf or hard of hearing children on O'ahu, including one or more students attending your school. I am writing to you to ask for your support and assistance with two details.

From the Statewide Student Information Database, I have obtained a confidential list of names and addresses of students who are deaf or hard of hearing. This list is a printout to which only I have access. Unfortunately, some of the information in this database, such as addresses and telephone numbers, are no longer current. Therefore, it is very likely that a number of the recruitment letters (attached) are likely to be returned. In these instances, I'd like your assistance with getting these letters to the families, which will probably only involve asking the teachers to send them home with the children. This will ensure that all families selected for recruitment have an equal opportunity to participate in the study.

Second, as you will note in the recruitment letter, I am offering families their choice of locations for the interview and assessment. If they chose to have the session at your school, I'd like your permission to arrange for a room after school for one hour, to conduct the session.

If you have any questions, please call me at 735-8236. Otherwise, either I or my research associate Erin Kappenberg (also a graduate student in the psychology department working on this research project) will be calling you in the next several days to follow up. If you'd kindly refer us to the appropriate classified staff member at your school for assistance, we'd be very grateful.

Respectfully,

Jeffrey D. Stern, M.A.

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INFORMED CONSENT FORM

AGREEMENT TO PARTICIPATE IN RESEARCH

Title of Study: Analog observation of parent-child communication with children who are deaf or hard of hearing

Researchers:

Stephen N. Haynes, Ph.D., Principal Investigator	Telephone:	956-8212
Jeffrey D. Stern, M.A., Program Director	Telephone:	735-8236
Cynthia J'Anthony, Research Assistant		
Sara Digrazia, Research Assistant		
Erin Kappenberg, BA, Research Assistant		
Allison Parker, BA, Research Assistant		
Kaori Watanabe, Research Assistant		

Purpose:

The purpose of this project is to learn more about how parents communicate with their children. If you agree to be part of this project, you and your child will be asked to participate in a brief interview. During the interview, you and your child will be asked to solve a problem, develop a plan, or perform a task. This will take about 15 to 20 minutes. You will also be asked to complete the attached questionnaires. This information will remain confidential, and no names will appear on this form. The questionnaires will take a total of about 30 to 40 minutes complete. Your participation is voluntary and you may withdraw from the study at any time without consequence. You are encouraged to communicate with your child just as you do at home. You are also encouraged to respond to the questionnaire items as truthfully as possible.

Risks:

There are no known risks to your participation in this project. Again, all of the information you provide will be kept confidential, your name will not be attached to any of the information you give, and the videotape of the interview will be erased once it has been coded. If, however, you do experience concerns as a result of participating in this project, you may immediately stop your participation with no penalty or consequence.

Benefits:

You will be reimbursed $40.00 for completing the interview and questionnaires and for your time and effort. If you chose to discontinue at some point in the 1-hour process, the reimbursement will be prorated accordingly so that you receive some monetary compensation even when you chose not to continue in the study. In addition, the information you give in the questionnaires and your interview will help us to better understand how parents communicate with their children who are deaf or hard of hearing. This may help other families improve communication.

Consent Form:

I certify that I have read, and that I understand the foregoing, that I have been given satisfactory answers to my inquiries concerning project procedures and other matters and that I have been advised that I am free to withdraw my consent and to discontinue participation in the project or activity at any time without prejudice or consequence.

I herewith give my consent to participate in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the principal investigator, program director, or the institution, or any employee or agent thereof, from liability for negligence.

_____   _____
Parent's signature   Date

_____   _____
Child's assent (signature if possible)   Date

do not sign below this line
_____

_____   _____
Program Director/Research Assistant   Date

If you cannot obtain satisfactory answers to your questions or if you have complaints about your treatment in this project, please contact: Committee on Human Subjects, University of Hawai'i , 2540 Maile Way, Honolulu, HI 96822. Phone: 808-956-5007.

Appendix R

Demographics Questionnaire - Study 3

General Information

Please answer the following questions, then fill out the attached questionnaires. This packet will take about 30-40 minutes to complete. All information will be kept strictly confidential.

1. Are you deaf or hard of hearing?
    ☐ Yes   ☐ No

2. How old are you?
    ☐20 or Less   ☐21-30   ☐   31-40   ☐41-50   ☐   51-60
    ☐61-70   ☐71+

3. What is your ethnic background?
    ☐African American
    ☐Caucasian
    ☐Chinese
    ☐Filipino
    ☐Hawaiian/Part Hawaiian
    ☐Japanese
    ☐Mixed
    ☐Native American
    ☐Other Pacific Islander

4. What is your relationship to the child who is deaf or hard of hearing?
    ☐Mother   ☐Step-Mother   ☐Other Relative
    ☐Father   ☐Step-Father   ☐Other Caregiver

5. Is your child deaf or hard of hearing (according to eligibility criteria for special education)?
    ☐Deaf   ☐Hard of Hearing

6. At what age was your child's hearing loss first identified? _____ years

7. What is the preferred mode of communication of your child? (Please check only the child's primary mode of expressive communication).
    ☐ American Sign Language (ASL)
    ☐ Signed Exact English (SEE)
    ☐ Signed English Spoken English or other spoken language
    ☐ Pidgin Sign Language
    ☐ Fingerspelling
    ☐ Cued Speech
    ☐ Gestures
    ☐ Oral/Spoken English
    ☐ Other

8. Does this child have any other developmental disabilities besides the hearing loss?
    ☐ Yes ☐ No

9. If yes to # 8 above, does this child's other disability(ies) interfere with communication?
    ☐ Yes ☐ No ☐ N/A

10. In which setting is this child who is deaf or hard of hearing being educated?
    ☐ School for the Deaf
    ☐ Self-contained classroom (HI) in a public school
    ☐ Regular-education-mainstreamed
    ☐ A combination of settings (please specify_____)
    ☐ Home school
    ☐ Other

Appendix S

Introduction to Questionnaires

<u>Demographic sheet</u>

This questionnaire asks some basic questions about yourself and your child. This is so that we can describe the families that participated in the study.

<u>CBCL</u>

This questionnaire asks some questions about your child's behaviors and feelings over the past 6 months. Some of the questions may not apply to your child, but please try your best to answer all questions.

Remember to check all questionnaires for missing responses and kindly ask parent to respond as best as possible.

Appendix T

Introduction to Communication Questionnaires

Instructions:

The following 3 questionnaires ask about your relationship with your child (e.g., how you and your child communicate). Please answer all questions as best you can. Sometimes the wording may not be sensitive to the Deaf (for example, "talk" and "say" are used). In these cases, these terms all refer to communication between yourself and your child.

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