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THE IMPACT OF HEARING IMPAIRMENT UPON  
COMMUNICATION APPREHENSION AND SELF-DISCLOSURE

THESIS

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Fulfillment of the Requirements

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The present study used a variety of procedures to investigate which selected communication factors interfered in the interpersonal communication process between hearing-impaired and hearing persons.

Three hypotheses were tested and all of them were confirmed.

The results of the analyses of responses to the variables revealed that hearing-impaired subjects had greater communication problems when interpersonally interacting with hearing targets than with deaf targets. The hearing subjects reported a higher level of state communication anxiety and an overall lower level of self-disclosure when interacting with deaf targets than with hearing targets.

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## CHAPTER I

### INTRODUCTION

Much communication is founded on a person's ability and willingness to reveal himself or herself to others. Through the use of verbal language, individuals are constantly processing and developing their thoughts, ideas, and impressions to others as well as to themselves. In order to do so, it is of vital importance that an individual have his or her auditory sense intact. It is through the use of this sense that thoughts from all directions of life are experienced and the higher cognitive skills of life's complexities are understood. This is what makes verbal communication so powerful.

A key aspect of communication appears to be one's willingness to reveal interpersonal information to others about oneself as well as not fear the prospect of orally communicating with others. This "act of revealing personal information to others" has been defined as self-disclosure (Jourard & Lasakow, 1958). Self-disclosure allows the initial establishment of a relationship to become formulated as well as to keep the interpersonal information flowing from sender to receiver. A person engaging in lower than "normal" self-disclosive behaviors would alter the information flow and terminate the relationship much sooner. Thus, the low

self-discloser would be apprehensive when communicating with others (McCroskey, 1977). Oral communication apprehension (OCA) has been defined as an "individual's level of fear or anxiety associated with either real or anticipated communication with others" (McCroskey, 1977). An individual with a high level of oral communication apprehension would feel threatened and inhibited about communicating with other people, thus, withdrawing from the social situation (McCroskey, 1976). This lack of self-disclosure and high communication apprehension appear to be two constructs which inhibit effective communication between persons.

A third construct which could also impede the communication process between individuals and is interrelated to oral communication apprehension is anxiety. Freud defined anxiety as an "unpleasant affective state of the human organism" (Spielberger, 1972, p. 23). Spielberger (1971) theorized anxiety by distinguishing between two types of anxiety: transitory state anxiety and a relatively more stable trait anxiety" (p. 66). State anxiety was referred to as a "complex emotional reaction evoked in an individual who interpreted a specific stressful situation as personally threatening (Spielberger, 1971, p. 67). Trait anxiety, on the other hand, was referred to as a "relatively stable individual differences in anxiety proneness" (Spielberger, 1971, p. 14) as in the case of an individual suffering from oral communication apprehension. In a dyadic setting, a person

feeling a high level of state anxiety toward the other person would readily alter the flow of interpersonal information and become apprehensive when communicating with that specific other.

Because people are highly dependent on their senses, they have the potential to experience many facets of human existence. According to Myklebust (1964), individuals received "information through their senses to only build their world of perception and conception: of memory, imagination, thought, and reason" (p. 1). Obviously, the auditory sense becomes of primary importance in the development of interpersonal communication relationships for hearing-impaired individuals. Myklebust (1964) stated that "because the total experience was reduced, there was an imposition on the balance and equilibrium of all psychological processes" (p. 1). Hearing deficits limit the experiential intake of hearing impaired persons as well as increase the uncertainty about verbalized information resulting in a change in the overall interpersonal behavior of deaf individuals.

This modified interpersonal behavior is often not noticeable until hearing-impaired individuals attempt to orally communicate or receive aural messages. It is at this point that interaction between hearing-impaired and hearing individuals has the potential to be altered because the handicap of the hearing-impaired individual is made salient in the relationship. This salience can produce stress on



the part of non-handicapped interactants and a desire to terminate the interaction. Marinelli and Kelz (1973) reported that when non-physically handicapped individuals interacted with physically handicapped individuals, non-handicapped subjects experienced more anxiety and terminated their interactions much sooner (Kleck, 1966). After the interaction, Kleck (1966) reported that the non-handicapped subjects experienced emotional discomfort. Although these studies have focused upon the effects of physical handicaps on interpersonal communication, Hurt and Cook (1979) recently reported a similar anxiety effect for hearing subjects when they were interacting with a deaf target.

Clearly, such undesirable interpersonal encounters have a negative impact on hearing-impaired interactants, as well. Schroedel and Schiff (1972) concluded that when hearing-impaired people encountered negative interpersonal interactions, they incorporated negative attitudes toward deafness and toward themselves. Presumably this loss of self-esteem would cause a hearing-handicapped individual to reduce such an anxiety by avoiding communication, resulting in an unwillingness to self-disclose and high communication apprehension. This unwillingness to reveal oneself and be anxious about orally communicating with others intensifies deaf persons' inhibitions when attempting to enter the mainstream of society.

### Purpose of the Study

The purpose of the study was to identify how certain interpersonal communication factors: oral communication apprehension, state communication anxiety, and self-disclosure are affected by hearing impairments, and how they alter the way hearing-impaired and hearing individuals communicate with each other.

### Review of the Literature

Educational programs for the hearing-impaired focus not only on teaching academic subjects but also on teaching developmental processes of self-concept. Even though the abnormally low amounts of self-disclosure, high communication apprehension, and high levels of state communication anxiety have been referred to as "handicaps" of interpersonal communication, persons experiencing these disorders are not necessarily physically handicapped. It is only when persons are deprived of their auditory sense that severe and profound difficulties in decoding and encoding communication messages become heightened. Mindel and Vernon (1971) defined deafness as a "person's loss of sufficient hearing which rendered an understanding of conversational speech impossible in most situations with or without a hearing aid" (p.x). Consequently, a deaf person would not only have a hearing disorder but also have a verbal communication problem, thus increasing the likelihood that the interpersonal communication handicaps mentioned above would be present. At the same time, these communication

disorders alter hearing-impaired individuals' experiences and learning processes which inevitably affect their educational achievement and social adjustment.

#### Educational Development of the Deaf

According to Myklebust (1964), human beings mature in three different ways: "physically, mentally, and emotionally" (p. 57). While the causes of deafness have been scientifically studied, much of the research has evolved on the specific intellectual abilities and disabilities of the hearing-impaired.

Much of the research done with the educational development of the hearing impaired has found them to be lagging three to four years behind non-hearing-impaired persons in terms of educational achievement. According to Keotitz (1976), and Freeman, Malkin, and Hastings (1975), hearing-impaired students had lower problem solving skills than hearing students and their creativity was very limited. Singer and Levahan's (1976) results suggested "greater concreteness and lack of originality" of deaf students when compared to the responses of their hearing peers. Singer and Levahan's study was done using twelve- and thirteen-year-old hearing-impaired students to determine the imagination content of these students. Singer and Levahan further compared the responses of the deaf students to those of hearing child three to five years younger and found the hearing-impaired students' imagination content to be equivalent to that of non-hearing-impaired students who were three to five years younger. Most of these studies attributed hearing-impaired

pupils' educational deficits to their lack of language.

Templin (1950) defined what it meant to be deaf in relation to language. After doing a substantial amount of research, Templin (p. 115) concluded that deaf students' vocabularies were more restricted in terms of the number of words than those of hearing students and were not as colorful. Also the few idiomatic expressions the hearing-impaired knew were learned in a structured setting such as a classroom (p. 61). Conley (1976) also found that the hearing-impaired scored significantly lower than hearing pupils on idiom tests.

An explanation was given by Kates, Kates, and Michael (1962) explaining why deaf persons were verbally deficient. Kates et al. stated that deafness interfered with the process of attaching the correct verbal symbol to its corresponding nonverbal category. Deaf individuals' lack of categorization was due to the lack of verbal representations of these processes and not to their inability to categorize (Kates et al., 1962). Receptively, the deaf individuals appeared to have the cognitive skills necessary to categorize. Apparently, hearing impairment interfered in deaf persons' abilities to verbalize categories.

While most research appeared to be concerned with the verbal output of the deaf, Piaget (1969, p. 86) emphasized that language does not precede thinking. A child is quite capable of developing his or her thinking or cognitive skills without verbal language. Kates et al. (1962) argued that if

language was not the determiner of thought, it did "influence and modify these processes which came about through the use of words." And because deafness retarded the learning of connecting the nonverbal categories to the words, the hearing-impaired child appeared similar to a younger child (Kates et al., 1962). What appeared most difficult for hearing-impaired subjects to learn were those concepts associated with abstractions which were not as readily observed as concrete objects.

Oleron (1953) suggested that deaf children had difficulty categorizing objects on a conceptual basis. Oleron stated that the hearing-impaired operated on a "perceptual level close to the inherent and obvious properties of the objects being sorted" (p. 308). When performing concrete tasks, hearing-impaired children appeared equal to hearing children. The hearing-impaired subjects fell behind hearing subjects in terms of correct categorizations when the tasks became more abstract. Oleron believed that because deaf children were incapable of functioning at a more complex intellectual level, the development of their abstract thinking abilities was inhibited.

The above authors have been dealing with abstract and concrete intellectual processes. Kates et al. (1962) defined these two different levels of thinking. The abstract view involved the "ability to go beyond the giving of objects and their perceptual qualities to some more general principle

of ordering." On the other hand, the concrete view involved "attention being given solely to the immediate reality of the objects themselves and a failure to go beyond this reality." Kates et al. (1962) stated that because of their hearing deficiency, deaf persons function at concrete levels much like those of their younger hearing counterparts.

In support of the concept of hearing-impaired individuals' inability to conceptualize abstractions, McAndrew (1948) studied the behavior rigidity and social isolation of deaf, blind, and hearing students and concluded that the hearing-impaired individuals were more concrete in their behavior because they were more rigid and isolated than the blind and hearing subjects. Templin (1950) also studied abstract intellectual processes of the deaf and found them to be inferior to hearing subjects (p. 32). Templin emphasized, however, that it would not be reasonable to state that deafness influenced all types of abstract reasoning (p. 51).

The research cited above indicates that as far as certain intellectual abilities were concerned, hearing-impaired persons fell behind three to four years from their hearing counterparts in most aspects. The intellectual tests which hearing-impaired subjects excelled in were non-language tests such as those involving visual perception (Hiskey, 1956). Watts (1979) thought that the development of deaf children's cognitive skills were totally unaffected by their verbal fluency or non-fluency. Collective support from Myklebust (1964, p. 108)

and Watts (1979) has been given to the idea that hearing-impaired children's inferior performance on intellectual tasks was not an outcome of their language deficiency but rather an experiential deficit due to their hearing loss.

#### Social and Emotional Development of the Deaf

While a vast amount of research has been concerned with the intellectual development of the hearing-impaired individuals, little attention has been focused on the social and emotional adjustment of the deaf. Myklebust (1964) discussed the variable of commonality identification as the basis of personality development. Myklebust stated that "identification was the unconscious development of feelings and attitudes similar to those of the peers" (p. 116). The use of spoken words in order to reveal identification of one's self toward others plays a significant role in this process. In turn, audition is needed in the successful development of feelings of commonality identification. In this regard, audition is a physical sensory mechanism which permits individuals to gather information from their environment and formulate the thoughts, ideas and impressions of their experiences necessary to establish interaction with others.

Scott and Powers (1978, p. 56) stated that "interpersonal communication took place only when one person's communication behavior was founded on the knowledge of another's attitudes, beliefs, and values." Meadow (1969) found that hearing-impaired children of hearing-impaired parents showed a "more positive self-image" than did deaf children of hearing parents.

Presumably, deaf children seemed to relate better to those persons who were hearing-impaired rather than to the deviant people in their lives, the hearing people.

It appears that when deafness is present, the monitoring of thoughts, ideas, feelings, and impressions towards oneself and others becomes a laborious task. In comparing deaf students to their hearing counterparts, Rainer (1976) and Buchara (1980) found hearing-impaired students to be immature and lacking in empathy. Altshuler (1974) observed that deaf adolescents thirteen and fourteen years of age continued to "blame others for their misdeeds and lacked the kind of camaraderie and mutual interests typical of hearing adolescents" (p. 370). Houchins, Ross, and Schwartz (1975) did a study investigating thirty adolescent hearing-impaired students' self-concepts regarding their ability to use expressive language. Houchins et al. defined a positive self-concept as a "desirable trait aiding the student in all facets of developments" (p. 572). The results of their investigation revealed conflicts between the perceived and real-self and ideal-self of the deaf subjects regarding their verbal ability when interacting with hearing persons. The hearing-impaired subjects' desired self-concept did not correlate with their present self-concept. The study also revealed that after six to twelve years of school, deaf students were not satisfied with their expressive language. Relative to this, Blanton and Nunnally (1964), and Schroedel and Schiff (1972), found



that hearing-impaired individuals perceived themselves more negatively than did their hearing counterparts. This outcome may be due to deaf persons' awareness that the major encoding modality of interpersonal communication is the use of intelligible speech while manual signing is a secondary encoding mode and not normally understood by the majority of hearing people. This poses a strain on hearing-impaired individuals' expectations of what others in their social environment perceive them to be. Scott and Powers (1978, p. 105) discussed a person being in a "state of stress" when vast incongruities existed between personal and ideal identity.

Craig (1964) found deaf subjects inaccurately predicting how they would be perceived by others when determining self-concept differences between hearing and deaf children. Intrinsically, the deaf children appeared to want to be accepted by the hearing children despite their differences. For this reason, it was perhaps more acceptable for the hearing-impaired children to think of themselves ideally as hearing persons rather than realistically as deaf persons.

Lyon (1934), using the Thurstone Personality Schedule, found deaf subjects "poorly adjusted" when compared to nondeaf subjects. Levine (1963) and Rousey (1971) spoke about the isolation and adjustment problems the hearing-impaired experienced. When discussing dyadic relations, Gregory (1938) found deaf subjects less able to form social relationships when compared to the hearing subjects. Mindell and Vernon (1971)

summarized the effect of deafness on social situations by stating that the specific problems brought about by deafness triggered an "emotional, social, and psychological isolation" (pp. 18-19). Therefore, it appears that a hearing impairment does not only affect individuals' intellectual capacity but also their total social development as fully functioning individuals in a predominantly hearing society.

There is a subgroup within the deaf community referred to as the hard-of-hearing. Newby (1964) defined deaf persons as being "those in whom the sense of hearing was nonfunctional for the ordinary purposes of life," while the hard-of-hearing individuals were not as "deaf" and "their sense of hearing although defective, was functional with or without a hearing aid" (p. 306). In most cases, the hard-of-hearing individual's verbal capacity was more easily understood than that of a deaf person. Treacy (1964, p. 210) investigated the social maturity between hard-of-hearing and deaf children. The investigation revealed that while the deaf subjects were at lower levels of maturity, the hard-of-hearing subjects were within the "average range" of social maturity. On the topic of social competence, the deaf group regressed with age while the hard-of-hearing group increased their ability to form social relationships. A relationship between "intelligence and social maturity" and "social maturity and educational attainment" was also found.

Myklebust (1964) did a study comparing the emotional

adjustment of hard of hearing and deaf adults. When compared to the hard-of-hearing subjects, the deaf adults showed "greater emotional disorder" because they were "largely unaware of deafness as a handicap" (p. 125). Myklebust also stated that the deaf subjects "lacked insight and understanding of the significance of hearing" (p. 260), while the hard-of-hearing subjects assessed deafness to be a greater handicap and showed more "depression" concerning their hearing deficit. The reason given for this difference between the two subject groups was that hard-of-hearing individuals had experienced more audible sounds through the use of hearing aids and thus were more aware of the importance of audition. The deaf subjects, on the other hand, experienced more emotional disorders because of their inability to perceive of hearing as a useful sensory mechanism.

Faced with deafness for the rest of their lives, acceptance of being an apparent deviant in a hearing society is an internal conflict each hearing-impaired individual must confront. While some may accept their sensory deprivation, research has indicated that a vast number of the deaf population were unable to accept their deficit. Rousey (1971) discussed "deafness against unwelcomed feelings" such as "isolation, turning against the self, regression, repression, and sublimation" which seemed likely to permeate within the deaf population. Deafness appeared to be a valid reason for the hearing-impaired individual to use these defense mechanisms.

Rousey further surmised that deaf persons experienced "major anxieties" when deciphering perceptions others had of them. According to Rousey (1971), deaf persons thought they would more than likely be penalized for not hearing, and that their anticipated punishment would pressure them to develop major anxieties. Because of this "anticipation of suffering" (Freud, 1971) and an attempt to avoid anticipated penalties, hearing-impaired persons in dyadic settings with hearing persons would not reveal as much about themselves. An outcome of this anticipation of suffering would also be that hearing-impaired individuals would experience high levels of state communication anxiety, and thus, low levels of self-disclosure when interacting with hearing persons. The converse would occur for hearing persons, who would experience low levels of self-disclosure and high state communication anxiety when interacting with hearing-impaired persons, unable to receive or orally transmit messages.

#### Oral Communication Apprehension

McCroskey (1977) defined communication apprehension as an "individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons." In previous research, it was observed that some individuals were more orally apprehensive than others. It was this apprehension that had a "negative impact on their lives" (McCroskey, 1970, 1976). Communication apprehension appears to also restrict the flow of information in an interpersonal relationship.

McCroskey (1977) clearly differentiated two kinds of communication apprehension: state and trait. State communication apprehension was defined as a specific type of apprehension dealing with a given oral communication situation. The most common example was stage fright which was the "fear or anxiety a person experienced when communicating orally in a situation where other individuals were in a position to observe and evaluate the communication attempt" (McCroskey, 1977). Lerea (1946) reported that persons experiencing stage fright had a limited verbal output, a limited vocabulary, and a marked increase in the number of speaking errors. This was referred to as an "intrinsic anxiety reaction" (Lerea, 1956). McCroskey (1977) emphasized that most people experienced stage fright at one time or another in their lives and that it would be abnormal not to do so.

While state communication apprehension is a normal occurrence in one's life, trait communication apprehension is not. McCroskey (1977) stated that it was characterized by "fear or anxiety with respects to many different types of oral communication encounters, from talking to a single person or within a small group to giving a speech before a large crowd."

Individuals with high levels of trait communication apprehension usually feel apprehensive about all verbal communication encounters. Since a hearing impairment interferes with the transmission and reception of verbal messages, a deaf individual would have a valid rationale for experiencing

this fear or anxiety when orally communicating in front of others. Again the anticipation of being punished for not correctly verbalizing would instill this apprehension to avoid all types of oral communication encounters. Schroedel and Schiff (1972) suggested that the negative attitudes deaf people had toward deafness may have reflected negative experiences they had when verbalizing to others. In this sense, it can be assumed that their communication apprehension would be high. Wheelless (1971) suggested that the cause of oral communication apprehension happened during the development of a person's early childhood years. This can account for the negative values toward the hearing deficit which presumably are experienced and learned by the hearing-impaired individuals in their childhood years and who have come to accept and incorporate these values. These negative attitudes which deaf individuals have shown toward their disability is perhaps illustrative of their feelings of repulsion toward their handicap, which has only given them negative feedback. This, in turn, reflects upon their incomplete emotional adjustment in terms of accepting their deafness.

This communication handicap carries over into the school setting. Hurt and Preiss (1978) stated that the educational environment rewarded students for verbal behavior which was disadvantageous for a highly communication apprehensive student who would attempt to avoid as much interaction as possible. It was not surprising to discover that the teacher's

expectation of the apprehensive pupil was not as high as the low apprehensive student (McCroskey & Daly, 1976). Research done regarding the achievement levels of the high and low communication apprehensive students revealed that high communication apprehensives had lower achievement levels in the traditional educational system than the low apprehensives and that high apprehensives preferred large lecture halls to small classes where interaction would be inevitable (McCroskey & Andersen, 1976). Even though high communication-apprehensives prefer large classes, which are prevalent in the present educational system, it does not alleviate their problem to the point of achieving higher scores.

In most of the research, high communication-apprehensive persons have been looked upon negatively. McCroskey and Richmond (1976) reported that high-apprehensives were perceived as less attractive, less sociable, less influential, and less desirable to become potential opinion leaders. In still another study, McCroskey, Daly, Richmond, and Falcione (1977) found a positive association between low self-esteem and high oral communication apprehension. This relationship may in part be due to the fact that people with high communication apprehension tended to perceive other high communication-apprehensive persons less favorably than those with low communication apprehension (McCroskey, Daly, Richmond, Cox, 1975). Deaf persons experiencing negative reactions when orally communicating would presumably acquire a low self-concept, which would be

followed by avoidance of and withdrawal from such communication experiences, resulting in high communication apprehension.

Freimuth (1976) reported a negative relationship between communication apprehension and communication effectiveness. The higher the communication apprehension reported by senders, the lower the comprehensibility of their messages. Jordan and Powers (1978) verified that apprehension affected oral performance. The higher the communication apprehension of the deaf individuals, the less comprehensible they appear to hearing receivers.

While most of the research has been done with trait communication apprehension, Richmond (1978) attempted to find a relationship between trait and state communication apprehension during the acquaintance process. The results showed that state communication apprehension was a stronger predictor of interpersonal perceptions than trait communication apprehension, especially during the later stages of the acquaintance process. The results also indicated that as a person's level of state communication apprehension increased, the individual was perceived less favorably by others (Richmond, 1978).

#### State Communication Anxiety

The assumption which is being formulated within the context of this paper is that hearing-impaired and hearing individuals interacting with one another will report higher levels of state communication anxiety. Freud (1966) regarded



anxiety as "something felt, an unpleasant affective state or condition" (p. 9). In relation to communication situations, Sullivan (1966) also defined anxiety as an "intensely unpleasant state of tension arising from experiencing disapproval in interpersonal relations" (p. 9). These definitions implied that anxiety was not situation-free but rather dependent upon the situation.

State anxiety was referred to by Spielberger (1972) as a "complex emotional reaction" brought forth by the individual's perceiving of specific situations as personally threatening." If a person interpreted a situation to be threatening, regardless of any present danger, Spielberger (1972) assumed that the individual would respond with an elevated state anxiety feeling (p. 31). This state anxiety would be intensified by feelings of tension and apprehension as well as a heightened arousal of the autonomic nervous system activity (Spielberger, 1972, p. 31).

Generally, the literature regarding the social and intellectual development of the hearing-impaired argues that hearing-impaired individuals would perceive a dyadic communication setting with hearing persons as personally threatening. By perceiving or anticipating such situations as threatening, hearing-impaired persons would experience a high level of state communication anxiety. Conversely, hearing persons in a dyadic situation with hearing-impaired persons, would also experience a high level of state communication anxiety

because of the saliency of the hearing-impaired persons' communication handicap.

According to Spielberger (1972, p. 44), the duration of this state communication anxiety reaction depended upon persons' interpretation of communication situations as threatening. Also, such recurring stressful experiences caused individuals to develop defense mechanisms which helped them reduce this feeling of state anxiety. Thus, it can be argued that as the state communication anxiety of hearing-impaired or hearing individuals increased, the amount of time spent interacting with one another would decrease, as would the desire for future interactions. In order to reduce this feeling of heightened state communication anxiety, the deaf and hearing persons would also become low self-disclosers and high apprehensives when interacting in social situations.

#### Self-Disclosure and the Deaf

It has been suggested above that because of the social and intellectual consequences of a hearing impairment, deaf persons' levels of self-disclosure would be low. Jourard, who was responsible for much of the research done in self-disclosure, defined it as "the act of revealing personal information to others (Jourard & Lasakow, 1958). Cozby (1973) has defined it as "any information which Person A communicated verbally to Person B." Wheelless (1976, 1977) defined self-disclosure as "any message about the self that a person communicated to another." The function of self-disclosure, according to Scott and Powers (1978, pp. 183-184),

was to "make each other aware of one another's identities." They discussed the idea of reciprocity of trust when disclosing information about oneself to another which allowed the discloser to feel safe.

The research which has been done in the area of self-disclosure has taken many directions. The research has varied from the reciprocal nature of self-disclosure, done by Jourard (1961) in reference to his "dyadic effect," to Cozby's (1973) research, which found there were no sex differences in self-disclosive behavior. In a study done by Jourard and Lasakow (1958), the general findings were that liking a person led to disclosure of oneself to that person and disclosure from another led to greater liking of the discloser. Gilbert's (1977) study of self-disclosure and self-esteem indicated that the low self-discloser was liked better than the high self-discloser. Thus, the research presented investigated different correlates of self-disclosure.

Another variable which has been observed to be positively related to self-disclosure is trust. Deutsch (1958) and Mellinger (1956) agreed that persons who distrusted others would not as readily disclose information about themselves to those others. Wheelless and Grotz (1977) found that the higher the trust between individuals, the more they would disclose to each other. A follow-up study by Wheelless (1978), found that self-disclosing to another person was positively related to the perceived trustworthiness of that individual.

These results indicate that trust appeared to be a crucial element needed in developing and maintaining positive interpersonal relationships with others.

Cozby (1973) discussed Jourard's curvilinear relationship of self-disclosure, and stated that individuals who were "poorly adjusted" were characterized by either high or low disclosure relative to others in the social environment. Persons who were high self-disclosers would constantly reveal themselves to everyone in the environment and thus be perceived by others as being maladjusted because of their preoccupation with themselves. On the other hand, persons who never disclosed information about themselves would be incapable of establishing close interpersonal relationships. As assumed previously, deaf individuals' anticipated fear of being penalized for not "measuring up" to hearing persons' expectations in terms of the effective transmission and reception of verbal messages would result in hearing-impaired persons becoming abnormally low self-disclosers. In other words, the less said, the less it became likely that hearing-impaired persons would be negatively reacted to by hearing persons, thus lessening the "anticipation of suffering" (Freud, 1971).

Wheless (1976) defined five variables of self-disclosure which are incorporated within the context of the present study. The five dimensions of self-disclosure are (a) intent to disclose, (b) amount of disclosure (duration and frequency),

(c) valence of disclosure (positive or negative), (d) control and depth of disclosure, and (e) honesty and accuracy of disclosure.

Intent. Wheelless (1976) suggested that individuals' intent to disclose information about themselves was reflected by their conscious decision to disclose such information. It can be argued that the hearing-impaired individuals would have a greater intent of disclosing personal information to their deaf counterparts than to their hearing ones. The reason would be that the hearing-impaired individuals would experience a lower degree of state communication anxiety with their deaf counterparts. The hearing persons, on the other hand, would experience a higher degree of state communication anxiety with hearing-impaired individuals, thus lessening their intentions of disclosing information about themselves. The hearing subjects would have greater intentions of disclosing information about themselves to their hearing counterparts than to their deaf ones.

Amount. Amount referred to how much information individuals were willing to disclose about themselves (Wheelless, 1976). It is reasonable to postulate that individuals possessing a high degree of state communication anxiety and oral communication apprehension would tend to disclose less than individuals with a lower degree of state communication anxiety and oral communication apprehension.

On the basis of the relationships assumed, it can also be postulated that because of their similarities, hearing-impaired

persons disclose greater amounts of information to hearing-impaired individuals than to hearing ones. The communication modality which allows hearing-impaired individuals to disclose greater amounts of information to their deaf counterparts is total communication, which involves the combined use of speech and manual signs. Hearing individuals who are unable accurately to receive messages from most hearing-impaired persons or be accurately understood by hearing-impaired persons would limit their amounts of disclosure and disclose greater amounts to their hearing counterparts.

Valence. The valence of individuals' self-disclosure refers to the positiveness or negativeness of the information that individuals reveal about themselves (Wheless, 1976). Given the discussion above regarding lowered self-concepts and fear of negative reactions, it seems likely that deaf persons disclose more positive information about themselves to their hearing counterparts than to their hearing-impaired ones.

Depth/Control. Wheless (1976) suggested that individuals who scored high on the control dimension of self-disclosure were better able than low-control individuals to regulate the depth and intimacy of their disclosures. Since low state apprehensive individuals disclose more information than individuals with a high level of state apprehension, it can be postulated that low apprehensive persons would have more experience controlling the depth of information being disclosed.

On the basis of the suggested relationship, it may also be implied that the depth of information being disclosed between deaf individuals would be greater than with hearing individuals since state communication anxiety is reduced. The depth of information being disclosed by hearing persons can be assumed to be greater with hearing individuals than with hearing-impaired ones for the same reason.

Honesty. The honesty of self-disclosure dealt with the accuracy of the information which individuals disclosed about themselves (Wheless, 1976). The assumption employed in this study is that deaf individuals would disclose more honestly to other hearing-impaired individuals than to hearing ones. The hearing persons would not disclose as honestly to their hearing-impaired counterparts as they would to their hearing counterparts.

Generally speaking, one would be led to assume that because of similarities and identification purposes, the deaf individuals would self-disclose more to other hearing-impaired persons like themselves. On the other hand, the hearing individuals would self-disclose more to other hearing persons like themselves.

#### Hypotheses

Given the research and issues discussed above, the following hypotheses were designed to assess the impact of hearing

loss on oral communication apprehension, state communication anxiety, and self-disclosure.

- H<sub>1</sub>: The oral communication apprehension of deaf subjects will be greater than the oral communication apprehension of non-deaf subjects.
- H<sub>2</sub>: There will be a significant interaction effect on state communication anxiety between subjects' hearing loss and communication targets' hearing loss.

More specifically stated,

- H<sub>2a</sub>: The state communication anxiety of deaf subjects communicating with non-deaf targets will be significantly greater than the state communication anxiety of deaf subjects communicating with deaf targets.
- H<sub>2b</sub>: The state communication anxiety of hearing subjects communicating with deaf targets will be significantly greater than the state communication anxiety of hearing subjects communicating with hearing targets.

Because self-disclosure is a multidimensional construct, multivariate hypotheses were derived to test its relationship to subjects' and communication targets' hearing loss.

- H<sub>3</sub>: There will be a significant interaction effect between subjects' hearing loss and communication targets' hearing loss on a linear combination of the five self-disclosure variables.

More specifically stated,

- H<sub>3a</sub>: Deaf subjects will report a significantly higher score on a linear combination of five self-disclosure variables when communicating with a deaf target than will hearing subjects.



H<sub>3b</sub>: Hearing subjects will report a significantly higher score on a linear combination of five self-disclosure variables when communicating with a hearing target than will deaf subjects.

## CHAPTER II

### METHODS

#### Subjects

The subjects were 100 students enrolled within the Houston Independent School District. The subjects consisted of 50 hearing-impaired students and 50 hearing students. The hearing-impaired subjects were chosen from the Regional Day School Program for the Deaf located on the campus of a junior high school in Houston, Texas. The hearing subjects were also chosen from the same junior high school in Houston, Texas. Their ages ranged from 13 to 15 years of age, and, as a total group, there were 54 males and 46 females. The subject pool consisted of seventh, eighth, and ninth graders.

#### Variable Measurement

The variables which were examined were oral communication apprehension, state communication anxiety, and self-disclosure. The variables were measured using standardized self-report measures which were administered to all subjects. Each item was scored using a five step Likert-type scale ranging from strongly agree to strongly disagree. The questionnaire packet given to all subjects is reported in Appendix A.

#### Oral Communication Apprehension

The subjects completed McCroskey's (1970) twenty-item Personal Report of Communication Apprehension for middle-school

students (PRCA-7) to assess their reported feelings about communicating in various situations. The PRCA-7 has been utilized in numerous studies and has consistently shown internal reliabilities near or exceeding .87 (McCroskey, 1970). Alpha reliability estimates for the current data yielded .91.

#### State Communication Anxiety

Spielberger's (1970) State-Trait Anxiety Inventory (STAI) was used to measure the subjects' perceptions of their reported state communication anxiety (STATE) toward interacting with the assigned target person. Half of each subject group received as target person for the state communication anxiety measure a deaf target and half received a hearing target. The present study yielded alpha reliability estimates of .86.

#### Self-Disclosure

In the present study, all five variables of self-disclosure were examined. Half of each subject group received as target person for the self disclosure measure a deaf target and the other half received a hearing target. The dimensions of intent, amount, valence, depth, and honesty were measured using a self-report procedure developed by Wheelless (1976). Each dimension of self-disclosure was assessed by the three scales having the highest factor loading on that dimension (c.f., Wheelless, 1976). The internal reliability estimates in the Wheelless study were .72 for intent,

.61 for amount, .64 for valence, .62 for depth, and .74 for honesty. Alpha reliability estimates obtained in the present study were .61 for intent, .72 for amount, .73 for valence, .75 for depth, and .66 for honesty.

Because the PRCA-7 and self-disclosure terminology was too difficult for the hearing-impaired subjects to comprehend, scales with the same conceptual ideas were written in simpler language. As stated previously in Chapter I, academically the hearing-impaired students lagged three to four years behind their hearing counterparts in terms of educational achievement. The state communication anxiety scale was not changed, but simplified definitions were placed in parenthesis beside each scale item. Both subject groups received the same state communication anxiety scale.

Because all of these testing procedures utilized Likert-type scaling techniques, the data analyses discussed in Chapter III employed parametric statistical procedures. These procedures are consistent with previous use of the scales and recommendations of the authors who developed the scales (c.f., McCroskey, 1977; Wheelless, 1976).

#### Procedure

Testing of the Hearing Subjects. The hearing subjects were chosen from a junior high student council as well as from randomly selected homerooms. A student council meeting was called before school to inform the students of the activity they would be participating in. Demographic data such as age,

sex, and educational level were collected at the end of the meeting, as well as each subject's homeroom number and teacher. As soon as the students completed the requested information on cards, permission slips were given to subjects to be taken home and returned to school with their parents' signatures.

After all of the permission slips were collected, the subjects were scheduled to complete the given scales during their homeroom or guidance period, which was approximately thirty minutes in length. The day prior to testing, all of the homeroom teachers received hall passes and written instructions informing them where to send students participating in the experiment. As soon as attendance was taken in each of the homerooms the following morning, the subjects were given their hall passes and instructed by homeroom teachers where to report. As the subjects arrived in the testing room, study packets including the PRCA-7, STAI, and self-disclosure scales were given to them. When all of the subjects were present, instructions were given and the Likert-type response pattern from "strongly agree" to "strongly disagree" was explained. Also, the term self-disclosure was basically defined. The Likert-type response pattern and the definition of self-disclosure were written on the board for the subjects' use. The subjects then proceeded to complete their packets. Subjects who were not able to attend on the day of testing were instructed to come the next morning

during their homeroom period to the specified testing rooms. Notices and hall passes were again given to homeroom teachers. Subjects continued to come to the instructed room during their homeroom period until all subjects had completed the questionnaire packet.

Testing of the Hearing-Impaired Subjects. The hearing-impaired subjects were tested over a period of a month. Two weeks prior to testing, a meeting before school educators of the deaf was called. The purpose of this meeting was to inform them of the survey the hearing-impaired students would be involved in. Also, recommendations of students whom they felt could handle this particular type of testing were requested. Handouts of the scales the hearing-impaired subjects would respond to were given to the teachers of the deaf. These specialized teachers, in turn, explained to the hearing-impaired subjects what each scale involved. In order to collect demographic data, the hearing-impaired subjects were given a form which requested their names, age, sex, and degree of hearing loss: hard of hearing or deaf. Subjects' degree of hearing loss was verified by checking their individualized educational plan from their record folders. As soon as permission slips were collected, testing commenced. Subjects were requested to come to the testing room by twos. When they arrived, the Likert-type response pattern which was written on a poster board was explained to the hearing-impaired subjects and taped to the board for the subjects'

use. The total communication approach was used when reading each scale item to the subjects. Since testing took place at a round table with subjects facing each other, a chart tablet was placed in the middle of the table so that subjects could not influence each other's responses. Testing of all three measurements per subject was done approximately over a two-day period. The PRCA-7 was given on the first testing day and the self-disclosure and STAI scales were given on the second testing day. The two subjects being tested at the same time had the same target person for the latter two questionnaires.

## CHAPTER III

### RESULTS

Tests of the hypotheses were performed using a variety of appropriate univariate and multivariate procedures to be discussed below. For all tests of significance, alpha was set to .05.

#### Intercorrelations Among Variables

In order to determine the direction and magnitude of interrelationships among the seven dependent variables (OCA, STATE, and five self-disclosure variables), simple Pearson product-moment correlations were computed. The results of these analyses (shown in Table 1) indicated that all of

TABLE 1

	OCA	STATE	INTENT	AMOUNT	DEPTH	VALENCE	HONESTY
	1	2	3	4	5	6	7
1	-	.28*	-.62	-.51	-.64	-.25	-.11
2		-	-.56	-.48	-.73	-.41	-.08
3			-	.42	.61	.36	.31
4				-	.83	.21	.46
5					-	.73	.52
6						-	.09

\*Correlations  $\leq$  -.19 or  $\geq$  .19 are significant.



the variables were sufficiently intercorrelated to justify the use of multivariate procedures where appropriate for tests of the self-disclosure hypothesis. Further, it is interesting to note that the correlation between OCA and STATE, while significant, was not meaningful ( $r^2=.08$ ) in terms of the amount of shared variance between the two variables. This outcome is consistent with previous research reported by McCroskey (1977) and reconfirms the notion that OCA and STATE are relatively orthogonal variables, tapping two independent types of communicative anxiety.

#### Manipulation Check

Of the hearing-impaired subjects used in this study, 22 were originally classified as "hard-of-hearing" and 28 were classified as "deaf." Because the hearing impaired subjects were severely handicapped, a manipulation check was performed to determine if this classification procedure had a differential impact on a linear combination of the self-disclosure and communication apprehension variables. In order to investigate this question, Hotelling's  $T^2$  procedure was used to test for the difference between the centroids (multivariate means) of the two groups of hearing-impaired subjects. The results of this analysis indicated no significant difference between the centroids of the two groups ( $T^2=.17$ ; hard-of-hearing  $\bar{x}=.41$ ; deaf  $\bar{x}=.43$ ). As a result, both groups were collapsed and treated as a single classification group in all subsequent analyses in order to facilitate the minimization of error variance.

### Tests of the Apprehension Hypotheses

The hypotheses tests relating to the apprehension measures reported below occur in the order in which the hypotheses are organized in Chapter I, as do all of the hypotheses discussed in the chapter.

H1. In order to test Hypothesis 1, that deaf subjects would report a higher degree of OCA than would hearing subjects, a one-way analysis of variance was performed to permit comparison with the mean OCA score of deaf subjects with hearing subjects. The results of this analysis confirmed H1 ( $F=73.12$ ,  $df=1,98$ ;  $\eta^2=.43$ ; Hearing OCA  $\bar{x}=49.54$ ; Deaf OCA  $\bar{x}=70.36$ ). Clearly, the deaf subjects reported a higher level of oral apprehension about communicating with generalized others than did the hearing subjects. This is a previously undemonstrated phenomenon, and, given the relatively high degree of variance accounted for in OCA by the hearing level of subjects, these results indicate that treatment of OCA might be a valuable first step in intervention strategies designed to assist the hearing impaired.

H2. The results of the 2X2 analysis of variance testing hypothesis that there would be a significant interaction between degree of communication target hearing loss (hearing-HT; deaf-DT) and subjects degree of hearing loss (hearing-HS; deaf-DS) on STATE confirmed the second hypothesis ( $F=43.24$ ,  $df=1,96$ ;  $\eta^2=.11$ ; HSHT  $\bar{x}=45.28$ ; HSDT  $\bar{x}=52.24$ ; DSHT  $\bar{x}=65.36$ ; DSDT  $\bar{x}=41.36$ ). Use of t-procedure to test the a priori

differences between cell means indicated that DSHT condition was significantly higher than the STATE means of the remaining three conditions. Further analyses indicated that the STATE mean for the HSDT condition was significantly lower than the mean for the DSHT condition, but significantly higher for the two remaining conditions.

#### Tests of the Self-Disclosure Hypotheses

The hypotheses related to self-disclosure were tested using a two-by-two factorial multivariate analysis of variance (MONOVA) procedure, with the two classes of subjects' hearing loss and communication targets' hearing loss serving as the independent variables. Because of the correlations between the anxiety variables and five dimensions of self-disclosure, both OCA and STATE were treated as simultaneous covariates in the analysis.

The results of the MANOVA test confirmed the third hypotheses ( $F=7.80$ ;  $df=5.92$ ;  $\eta^2=.39$ ) with the two independent variables contributing approximately 61 percent of the variance to the linear combination of the self-disclosure variables. This is a substantial effect size and demonstrates the importance of these two independent variables on certain aspects of the interpersonal communication process, a phenomenon not previously investigated by researchers concerned with the communication problems of the hearing-impaired. In order to further explore the source of the multivariate interaction effect, cell comparisons were made among each

of the group centroids (multivariate means). The results of these comparisons, together with the univariate mean for each disclosure variable and its standardized discriminant coefficients, are summarized in Table II.

TABLE II  
SUMMARY OF RESULTS FOR THE  
INTERACTION EFFECT

Variables	Hearing Subjects		Deaf Subjects		F (1.94)	P	Disc <sup>b</sup>
	Hearing Target $\bar{x}$	Deaf Target $\bar{x}$	Hearing Target $\bar{x}$	Deaf Target $\bar{x}$			
Intent <sup>a</sup>	10.96	10.68	7.20	11.12	5.57	.020	.87
Amount	7.40	7.12	5.96	8.56	8.72	.004	.06
Valence <sup>a</sup>	9.00	10.00	12.08	11.60	15.04	.001	.58
Depth	7.04	6.64	5.72	8.84	19.94	.001	.22
Honesty	10.44	10.60	9.48	9.64	.34	.558	.03
Centroid	.77 <sub>x*</sub>	.39 <sub>xy</sub>	-1.57 <sub>xyz</sub>	.41 <sub>xyz</sub>			

a. Univariate means adjusted for significant covariate.

b. Standardized discriminant coefficient.

\*. Means with same letter in the subscript are significantly different.

As can be seen in Table II, deaf subjects interacting with a hearing communication target reported a significantly lower composite of self-disclosure centroid than all of the other conditions. An examination of the univariate means and discriminant coefficients indicated that deaf subjects in this

condition reported lower intent, amount, and depth of disclosure scores than subjects in the other conditions, but also reported a more positive direction in the valence of the disclosures which they were willing to make. Subjects in the remaining three conditions, on the other hand, reported higher intent, amount, and depth of disclosure scores, but a more negative direction in the valence of the disclosures which they were willing to make. It is also interesting to note that the disclosure centroids in the conditions where hearing levels of targets and subjects were congruent were significantly greater than the centroids where subject and target hearing levels were incongruent. This result has profound implications for the development of effective interpersonal relationships between hearing-handicapped and non-handicapped persons which will be discussed in Chapter IV.

## CHAPTER IV

### DISCUSSION

The purpose of this study was to reveal which communication factors: oral communication apprehension, state communication anxiety, or self-disclosure interfered in the interpersonal communication process between hearing-impaired and hearing subjects. The results of the analyses of responses to these variables revealed that hearing-impaired subjects presented greater communication problems when interpersonally relating to hearing targets than did hearing subjects when interpersonally relating to deaf targets. The degree of hearing loss of the hearing-impaired subjects did not prove to be a significant difference in the hearing-impaired subjects' communicating responses to hearing targets.

Hearing-impaired subjects reported experiencing higher levels of oral communication apprehension than did hearing subjects. If that is the case, deaf education programs which attempt to teach speech development to hearing-impaired students before alleviating the students' high level of oral communication apprehension have the potential to deter hearing-impaired students from learning to speak intelligibly. This is consistent with Jordan and Powers' (1978) finding which verified that apprehension affected oral performance. The

hearing-impaired subjects' anticipation of receiving negative reactions for not correctly verbalizing would reinforce this inclination to avoid all types of oral communication encounters.

As a consequence, the hearing-impaired subjects' reported higher levels of oral communication apprehension could affect their academic achievements in a mainstreamed classroom setting. Research done regarding the achievement levels of high and low apprehensive students revealed that high communication apprehensives had lower achievement levels in the traditional educational system than did low apprehensives (McCroskey & Andersen, 1976). This finding is consistent with McCroskey & Daly's (1976) research which reported that teachers' expectations regarding high apprehensive pupils were not as high as those regarding low apprehensive students. Thus, the achievement levels of hearing-impaired subjects are potentially minimized when they suffer from high levels of oral communication apprehension.

In terms of the variable of state communication anxiety, the hearing-impaired subjects reported a higher level of state communication anxiety when interacting with hearing targets than with deaf targets. Potentially, hearing-impaired subjects perceived a dyadic interpersonal communication setting with hearing targets as being more threatening than one with deaf targets. These results support the argument previously stated relating to hearing-impaired subjects' increased "state of stress" resulting from their inability to completely transmit

and receive verbal messages. This higher level of state communication anxiety reported by hearing-impaired subjects when interacting with hearing targets may have been potentially created by the negative encounters hearing-impaired subjects experienced with hearing individuals. This is consistent with Schrodel and Schiff's (1972) finding which suggested that the negative attitudes deaf persons had toward deafness may have reflected negative experiences hearing-impaired individuals had when verbalizing to others. Thus, the results of such interactions prompted hearing-impaired subjects to avoid interpersonal communication situations with hearing persons.

It should be noted that there is no direct evidence which links the reported level of state communication anxiety of the hearing-impaired subjects to their overall educational development, but educational development can be affected by the specific persons with whom the deaf may interact. State communication anxiety or oral communication apprehension, or both, however, when not alleviated prior to teaching speech production to hearing-impaired students can result in inhibiting the attainment of intelligible speech.

In terms of social development, when the problems of hearing loss, and high levels of oral communication apprehension and state communication anxiety are combined with the associated low self-concept (McCroskey, 1977), hearing-impaired individuals' desire not to maintain long-term relationships with hearing persons become heightened. The result is a



situation where hearing-impaired individuals simply avoid most dyadic communication situations with hearing persons.

Another possible outcome of hearing-impaired subjects' higher levels of state communication anxiety could be an increase in their aggressive behavior toward the targets of the anxiety (Spielberger, 1966). An example of this increased aggressive behavior occurred when one of the hearing-impaired subjects who was dissatisfied with and anxious about a teacher of the deaf solved the dilemma by aggressively stating, "Tomorrow, I will bring a knife and cut you."

Conversely, the hearing subjects reported a higher level of state communication anxiety to deaf targets than to hearing targets. The hearing subjects' reported high levels of state communication anxiety when interacting with deaf targets is similar to the results reported by Hurt and Cook (1979), who argued that the anxiety was a consequence of the salience of the handicap produced by deviations in the speech production of the hearing-impaired targets used in this study. A further possible consequence of hearing-impaired subjects' retarded social and educational development (Rainer, 1976), and their concrete behavior resulting from their rigidity and social isolation (McAndrew, 1948) was the deaf subjects' reported lower levels of intent, amount, and depth of disclosures to the hearing communication targets than to the deaf communication targets. Hearing-impaired subjects did report, however,

more positive disclosures to hearing targets than to deaf targets. Perhaps the hearing-impaired subjects' anticipation of negative feedback from the hearing community (Rousey, 1971), led them to over-emphasize positive disclosures to the hearing targets. These results occurred even when the effects of oral communication apprehension and state communication anxiety were co-varied from the self-disclosure variables. The over-emphasis of positive disclosures to hearing targets potentially has an effect on distorting the accuracy of hearing-impaired subjects' perceptions of themselves as hearing-handicapped individuals. This distortion effect was evidenced when a hearing-impaired subject disclosed to the author of this study, a hearing individual, "I am not deaf; I have wrong lip."

These potentially distorted perceptions and restricted disclosures by hearing-impaired individuals also affect hearing persons' perceptions of the hearing-handicapped. In essence, hearing persons may get only unrealistic, albeit positive, information about hearing-impaired persons. This restricted data base limits the possibility of developing effective interpersonal relationships (Scott & Powers, 1978).

It should not be concluded on the basis of the above arguments that responsibility for the failure of the development of effective relationships lies only with the hearing-impaired. Such a conclusion is not only misleading, but also potentially damaging to the hearing-handicapped. As was

pointed out in the preceding chapter, lower reported willingness to disclose occurred in both conditions where hearing levels of subjects and targets were incongruent. The reasons for effects of the incongruency on the interpersonal behavior of the hearing-impaired have been discussed above. In the case of the hearing subjects, the reasons are not so well documented. Thompson and Siebold (1978) have suggested and demonstrated that non-handicapped persons exhibited considerably more negative cues when interacting with the handicapped. It appears that much of this negative behavior originates in a lack of experience with the handicapped. Solutions are not easy, if this is the problem, but the severity of the effect demands the attention of communication researchers and scholars.

What this study indicates, based on the results, is that a treatment program is essentially needed to alleviate the interpersonal communication problems hearing-impaired individuals may experience. It should be noted that altering hearing-impaired individuals' self-disclosure and minimizing their oral communication apprehension and state communication anxiety levels are not going to solve all of the communication problems of deaf persons. However, developing such a program to alleviate the communication problems investigated in this study will serve as a primary step to help hearing-impaired individuals better equip themselves with interpersonal communication strategies which will enable them to function better in a predominantly hearing society.

### Treatment Program

The treatment program must draw upon the interpersonal communication behaviors of non-deaf persons, but the critical factor inherent in the success of such a program will be the extent to which it is focused on the specifics of the interpersonal communication problems of the hearing-impaired persons. The objectives of the treatment program will be to train hearing-impaired subjects to cope with the different types of interpersonal systems functioning within the hearing world, as well as to help them understand the importance of human relations. It will also be important that hearing-impaired subjects be trained how to cope with all types of people when interpersonally relating to others. In reference to the above objective, it is especially important that hearing-impaired subjects become aware of and learn how to deal with hearing people within their environment who may experience a high level of state communication anxiety around them, as evidenced by the responses of hearing subjects in the present study.

If hearing-impaired individuals are to achieve social and economic equality within the mainstream of society, the primary steps to attain these goals are going to have to be taken by the hearing-impaired persons themselves. And if hearing-impaired individuals are to become change agents, it is imperative that they become aware of their interpersonal communication problems, as well as the communication difficulties

they may encounter with non-deaf people. After recognizing their own interpersonal communication problems and those of others within their environments, communication strategies can then be developed to help hearing-impaired subjects achieve social and economic equality.

One way in which hearing-impaired subjects can attempt to achieve economic equality is to know how to handle job interviews. If hearing-impaired subjects experience high levels of oral communication apprehension and state communication anxiety and are abnormally low self-disclosers, the chances of getting a job are minimized. By alleviating the above constructs in a treatment program, hearing-impaired subjects can perhaps better manage the interview so that their future employer can receive the pertinent employment information. Educators of the deaf, school counselors, and employment counselors must not only identify the problems hearing-impaired subjects may encounter during job interviews but must also identify and develop strategies that help reduce the interpersonal communication barriers and increase the hearing-impaired subjects' probabilities of getting hired. Therefore, research identifying the developmental communication processes of hearing-impaired subjects, as well as interaction studies between deaf and non-deaf subjects, is crucially needed. Also, further research is needed involving interaction studies between hearing-impaired employees and hearing employers.

In addition to a treatment program, there are other approaches to alleviate the aforementioned interpersonal communication problems of hearing-impaired students. Unlike their hearing counterparts, hearing-impaired students need consistent training in understanding the importance of human relations when interpersonally communicating with different types of individuals. It may be assumed that such a program warrants inclusion as a regular part of the educational curriculum, with a detailed program of instruction, in order to alleviate the interpersonal communication problems hearing-impaired subjects experience when relating to hearing people. One of the primary objectives of the educators of the deaf is to prepare hearing-impaired students to become fully functioning adults within a hearing society. Therefore, interpersonal communication classes of instruction for hearing-impaired and hearing students provided at all age levels would help the hearing-impaired experience actual interactions with hearing people and make them aware of the different communication strategies used to handle different types of communication situations with the hearing environment. Teaching the hearing-impaired subjects communication strategies which they can successfully use in different types of interpersonal relations will heighten their self-concept and alleviate the communication problems which are deterring them from confidently relating to hearing persons.

APPENDIX A

This instrument is composed of twenty (20) statements concerning feelings about communicating with other people. Indicate the degree to which the statements apply to you by marking whether you (5) strongly agree; (4) agree; (3) are undecided; (2) disagree; (1) strongly disagree. Work quickly and just record your first impression.



1. While participating in a conversation with a new acquaintance, I feel very nervous.
2. Talking with people is one of my favorite pastimes.
3. I have no fear of facing an audience.
4. I look forward to expressing my opinions at meetings.
5. I look forward to an opportunity to speak in public.
6. I find the prospect of speaking mildly pleasant.
7. When communicating, my posture feels strained and unnatural.
8. I enjoy meeting and talking with new people.
9. I am tense and nervous while participating in group discussions.
10. Although I talk fluently with friends, I am at a loss for words on the platform.
11. My hands tremble when I try to handle objects on the platform.
12. I prefer not to talk to people unless I know them well.
13. I always avoid speaking in public if possible.
14. I am fearful and tense all the while I am speaking before a group of people.
15. My thoughts become confused and jumbled when I speak before an audience.
16. Conversing with people who hold positions of authority causes me to be fearful and tense.
17. I feel relaxed and comfortable while speaking.
18. I enjoy preparing a talk.
19. I face the prospect of making a speech with complete confidence.
20. I would enjoy presenting a speech on a local television show.

- \_\_\_ 1. When I meet someone new, I feel very nervous.
- \_\_\_ 2. Talking with people is one of my favorite things.  
(I love talking to people.)
- \_\_\_ 3. I am not afraid of talking in front of people.
- \_\_\_ 4. I like to tell others what I think when I go to meetings.
- \_\_\_ 5. I would like to talk in front of people.
- \_\_\_ 6. It makes me happy sometimes to talk to others.
- \_\_\_ 7. When communicating, my body feels stiff (unnatural).
- \_\_\_ 8. I enjoy meeting and talking with new people.
- \_\_\_ 9. I am very nervous when I take part in group talks.  
(group discussions)
- \_\_\_ 10. I can talk a lot with my friends, but I don't know what to say when I have to talk in front of a lot of people.
- \_\_\_ 11. My hands are nervous when I try to talk in front of people.
- \_\_\_ 12. I don't like to talk to people unless I know them well. (I don't like to talk to strangers.)
- \_\_\_ 13. I don't ever like to speak in public.
- \_\_\_ 14. I am fearful and nervous when I am talking before a group of people.
- \_\_\_ 15. I become confused when I talk before a group of people.
- \_\_\_ 16. Talking with people who hold positions of authority (principal, vice-principal, policeman, etc.) makes me feel fearful and nervous.
- \_\_\_ 17. I feel relaxed and comfortable when I talk.
- \_\_\_ 18. I enjoy preparing a talk (speech or report).
- \_\_\_ 19. I know "I can" make a speech in front of people.  
(self-confident)
- \_\_\_ 20. I would like to say a speech on T.V.

Please indicate how accurately each of these words or statements describe how you think you would feel interacting-communicating with a deaf person.

Remember:

(5) strongly agree; (4) agree; (3) are undecided; (2) disagree;  
(1) strongly disagree

When communicating with a deaf person, I would (FEEL)

- \_\_\_ 1. secure (safe; not afraid)
- \_\_\_ 2. calm (peaceful; quiet; not excited)
- \_\_\_ 3. tense (very nervous)
- \_\_\_ 4. regretful (feel sorry afterwards)
- \_\_\_ 5. at ease (quietly relaxed; comfortable)
- \_\_\_ 6. upset
- \_\_\_ 7. worry over possible misfortunes (worry that something might go wrong)
- \_\_\_ 8. rested
- \_\_\_ 9. anxious (troubled; worried)
- \_\_\_ 10. comfortable (feel good or relaxed)
- \_\_\_ 11. nervous
- \_\_\_ 12. self-confident (very sure of myself; "I can.")
- \_\_\_ 13. jittery (to be nervous)
- \_\_\_ 14. "high-strung" (to be very sensitive; very nervous)
- \_\_\_ 15. relaxed (quietly at ease)
- \_\_\_ 16. content (satisfied; happy)
- \_\_\_ 17. worried
- \_\_\_ 18. "over-excited" and "rattled" (very, very excited; hyper)
- \_\_\_ 19. joyful
- \_\_\_ 20. pleasant (friendly; easy to get along with)

Please indicate how accurately each of these words or statements describe how you think you would feel interacting-communicating with a hearing person.

Remember:

(5) strongly agree; (4) agree; (3) are undecided; (2) disagree;  
(1) strongly disagree

When communicating with a hearing person, I would (FEEL)

- \_\_\_ 1. secure (safe; not afraid)
- \_\_\_ 2. calm (peaceful; quiet; not excited)
- \_\_\_ 3. tense (very nervous)
- \_\_\_ 4. regretful (feel sorry afterwards)
- \_\_\_ 5. at ease (quietly relaxed; comfortable)
- \_\_\_ 6. upset
- \_\_\_ 7. worry over possible misfortunes (worry that something might go wrong)
- \_\_\_ 8. rested
- \_\_\_ 9. anxious (troubled; worried)
- \_\_\_ 10. comfortable (feel good or relaxed)
- \_\_\_ 11. nervous
- \_\_\_ 12. self-confident (very sure of myself; "I can.")
- \_\_\_ 13. jittery (to be nervous)
- \_\_\_ 14. "high-strung" (to be very sensitive; very nervous)
- \_\_\_ 15. relaxed (quietly at ease)
- \_\_\_ 16. content (satisfied; happy)
- \_\_\_ 17. worried
- \_\_\_ 18. "over-excited" and "rattled" (very, very excited; hyper)
- \_\_\_ 19. joyful
- \_\_\_ 20. pleasant (friendly; easy to get along with)

Please mark the following statements to reflect how you communicate with a deaf person. Indicate the degree to which the following statements reflect how you communicate with this person by marking whether you (5) strongly agree; (4) agree; (3) are undecided; (2) disagree; (1) strongly disagree. Record the number of your response in the space provided.

Scale Items:

- \_\_\_ 1. When I am self-disclosing, I am consciously aware of what I am revealing.
- \_\_\_ 2. When I reveal my feelings about myself, I consciously intend to do so!
- \_\_\_ 3. When I express my personal feelings, I am always aware of what I am doing and saying.
- \_\_\_ 4. I often talk about myself.
- \_\_\_ 5. I often discuss my feelings about myself.
- \_\_\_ 6. My statements of my feelings are usually brief.
- \_\_\_ 7. On the whole, my disclosures about myself are more negative than positive.
- \_\_\_ 8. On the whole, my disclosures about myself are more positive than negative.
- \_\_\_ 9. I usually discuss negative things about myself.
- \_\_\_ 10. I often disclose intimate personal things about myself without hesitation.
- \_\_\_ 11. Once I get started, my self-disclosures last a long time.
- \_\_\_ 12. Once I get started, I intimately and fully reveal myself in self-disclosures.
- \_\_\_ 13. My self-disclosures are completely accurate reflections of who I really am.
- \_\_\_ 14. I am not always honest in my self-disclosures.
- \_\_\_ 15. I always feel completely sincere when I reveal my own feelings and experiences.

## Scale Items:

- \_\_\_ 1. When I tell other people how I feel, I know what I am saying.
- \_\_\_ 2. I want to talk about myself.
- \_\_\_ 3. When I tell others how I feel, I know what I am saying and doing.
- \_\_\_ 4. Most of the time, I talk about myself.
- \_\_\_ 5. I talk about my feelings most of the time.
- \_\_\_ 6. I say very little about myself.
- \_\_\_ 7. Most of the time, I say more bad than good things about myself.
- \_\_\_ 8. Most of the time, I say more good than bad things about myself.
- \_\_\_ 9. Most of the time, I say bad things about myself.
- \_\_\_ 10. Most of the time, I tell private things (secrets) about myself.
- \_\_\_ 11. Once I get started, I talk about myself for a long time.
- \_\_\_ 12. Once I get started, I tell everything there is to tell about myself. (fully reveal myself)
- \_\_\_ 13. All of the things I say about myself are true.
- \_\_\_ 14. I am not always honest when I talk about myself.
- \_\_\_ 15. I always feel very, very honest (completely sincere) when I talk about how I feel.

Please mark the following statements to reflect how you communicate with a hearing person. Indicate the degree to which the following statements reflect how you communicate with this person by marking whether you (5) strongly agree; (4) agree; (3) are undecided; (2) disagree; (1) strongly disagree. Record the number of your response in the space provided. Work quickly and just record your first impression.



Scale Items:

- \_\_\_ 1. When I am self-disclosing, I am consciously aware of what I am revealing.
- \_\_\_ 2. When I reveal my feelings about myself, I consciously intend to do so!
- \_\_\_ 3. When I express my personal feelings, I am always aware of what I am doing and saying.
- \_\_\_ 4. I often talk about myself.
- \_\_\_ 5. I often discuss my feelings about myself.
- \_\_\_ 6. My statements of my feelings are usually brief.
- \_\_\_ 7. On the whole, my disclosures about myself are more negative than positive.
- \_\_\_ 8. On the whole, my disclosures about myself are more positive than negative.
- \_\_\_ 9. I usually discuss negative things about myself.
- \_\_\_ 10. I often disclose intimate personal things about myself without hesitation.
- \_\_\_ 11. Once I get started, my self-disclosures last a long time.
- \_\_\_ 12. Once I get started, I intimately and fully reveal myself in my self-disclosures.
- \_\_\_ 13. My self-disclosures are completely accurate reflections of who I really am.
- \_\_\_ 14. I am not always honest in my self-disclosures.
- \_\_\_ 15. I always feel completely sincere when I reveal my own feelings and experiences.

Scale Items:

1. When I tell other people how I feel, I know what I am saying.
2. I want to talk about myself.
3. When I tell others how I feel, I know what I am saying and doing.
4. Most of the time, I talk about myself.
5. I talk about my feelings most of the time.
6. I say very little about myself.
7. Most of the time, I say more bad than good things about myself.
8. Most of the time, I say more good than bad things about myself.
9. Most of the time, I say bad things about myself.
10. Most of the time, I tell private things (secrets) about myself.
11. Once I get started, I talk about myself for a long time.
12. Once I get started, I tell everything there is to tell about myself. (fully reveal myself)
13. All of the things I say about myself are true.
14. I am not always honest when I talk about myself.
15. I always feel very, very honest (completely sincere) when I talk about how I feel.

APPENDIX B

The raw data collected on the fifty hearing-impaired subjects are presented in the following pages. The test scores reported are as follows: pure tone frequency average of air conduction at 500 Hz, 1000 Hz, and 2000 Hz for the right and left ears, speech reception threshold (SRT) given the best ear for acquiring speech production, and the onset of deafness.

SUBJECT	RIGHT EAR					LEFT EAR					SRT Best ear	Onset of deafness		
	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz			2000 Hz	3 frequency average
	1	70	65	70	68	100	110	110	110	100			110	110
2	85	90	100	92	85	95	100	93	85	95	100	93	Right	Congenital
3	65	70	65	67	50	70	60	60	50	70	60	60	Left	Congenital
4	90	90	75	85	85	105	100	97	85	105	100	97	Right	Congenital
5	95	100	85	93	85	85	70	80	85	85	70	80	Left	Congenital
6	80	90	75	82	65	65	65	65	65	65	65	65	Left	Congenital
7	80	100	105	95	85	110	110	102	85	110	110	102	Right	Congenital
8	55	60	65	60	50	60	70	60	50	60	70	60	Right	Adventitious
9	15	60	65	47	10	50	50	37	10	50	50	37	Left	Congenital
10	70	85	85	80	75	85	90	83	75	85	90	83	Right	Adventitious
11	35	35	50	40	40	50	65	52	40	50	65	52	Right	Congenital
12	80	95	95	90	75	90	85	83	75	90	85	83	Left	Congenital
13	55	105	130	97	75	75	105	85	75	75	105	85	Right	Congenital
14	85	100	110	98	90	85	95	90	90	85	95	90	Left	Congenital
15	95	106	106	102	95	106	95	99	95	106	95	99	Left	Congenital

SUBJECT	RIGHT EAR						LEFT EAR						SRT Best ear	Onset of deafness
	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz	2000 Hz	3 frequency average		
	16	50	65	70	62	50	60	70	60	60	70	60		
17	110	110	110	110	60	55	50	55	55	50	55	55	Left	Congenital
18	95	106	110	104	95	110	110	105	110	110	105	105	Right	Congenital
19	110	120	120	117	125	120	125	120	120	125	123	123	Right	Congenital
20	80	80	80	80	105	105	105	105	105	105	105	105	Right	Congenital
21	100	110	110	107	85	110	110	110	110	110	102	102	Left	Congenital
22	55	60	50	55	40	45	60	48	45	60	48	48	Left	Congenital
23	50	65	65	60	70	70	75	72	70	75	72	72	Right	Congenital
24	85	100	100	95	80	80	105	88	80	105	88	88	Left	Congenital
25	90	100	110	100	95	100	110	102	100	110	102	102	Right	Congenital
26	105	110	110	108	100	110	110	107	110	110	107	107	Left	Congenital
27	90	100	110	100	90	100	105	98	100	105	98	98	Left	Congenital
28	80	95	85	87	100	110	110	107	110	110	107	107	Right	Adventitious
29	105	105	105	105	105	105	115	108	105	115	108	108	Right	Congenital
30	80	80	75	78	90	105	85	93	105	85	93	93	Right	Congenital

SUBJECT	RIGHT EAR					LEFT EAR					SRT Best ear	Onset of deafness		
	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz			2000 Hz	3 frequency average
31	75	55	60	63	65	75	65	68	65	75	65	68	Right	Congenital
32	95	100	100	98	15	70	85	57	15	70	85	57	Left	Adventitious
33	100	110	110	107	90	100	100	93	90	100	100	93	Left	Congenital
34	70	75	70	72	85	95	105	95	85	95	105	95	Right	Congenital
35	90	110	110	103	100	110	110	107	100	110	110	107	Right	Congenital
36	105	110	110	108	100	105	110	105	100	105	110	105	Left	Congenital
37	65	75	65	68	75	75	65	72	75	75	65	72	Right	Congenital
38	120	120	120	120	110	110	110	110	110	110	110	110	Left	Congenital
39	85	95	85	88	70	75	85	77	70	75	85	77	Left	Adventitious
40	110	110	110	110	120	120	120	120	120	120	120	120	Right	Congenital
41	80	95	110	95	85	100	110	98	85	100	110	98	Right	Congenital
42	80	95	80	85	75	95	75	82	75	95	75	82	Left	Congenital
43	105	105	95	102	90	90	100	98	90	90	100	98	Left	Congenital
44	80	75	100	85	100	65	60	75	100	65	60	75	Left	Adventitious
45	95	110	110	105	85	100	110	98	85	100	110	98	Left	Adventitious <sup>6</sup>

SUBJECT	RIGHT EAR					LEFT EAR					SRT Best Ear	Onset of deafness		
	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz	2000 Hz	3 frequency average	500 Hz	1000 Hz			2000 Hz	3 frequency average
46	90	105	110	102	95	110	110	105	110	110	110	105	Right	Congenital
47	75	100	105	93	80	100	95	92	100	95	95	92	Right	Congenital
48	90	100	110	100	85	110	110	102	110	110	110	102	Right	Congenital
49	60	75	55	63	55	75	105	78	75	105	105	78	Right	Congenital
50	5	5	40	17	110	110	110	110	110	110	110	110	Right	Congenital

	N	Right ear	Left ear
Males	27	$\bar{x} = 88.67$ $sd = 8.19$	$\bar{x} = 86.55$ $sd = 21.18$
Females	23	$\bar{x} = 84.52$ $sd = 25.77$	$\bar{x} = 89.74$ $sd = 22.78$
Group	50	$x = 86.75$ $sd = 26.99$	$x = 87.98$ $sd = 31.11$



The table presents the description of the fifty hearing-impaired subjects used in the present study. An analysis of the mean pure tone frequency averages for speech frequencies (500 Hz, 1000 Hz, 2000 Hz) and standard deviations of the right ear ( $\bar{x} = 86.75$ ;  $sd = 26.99$ ) and left ear ( $\bar{x} = 87.98$ ;  $sd = 31.11$ ) reveal the group to be homogenous and appropriately enrolled in an educational program for the deaf. The intra-group differences between hearing-impaired males and females are not significant, given the means of the right ear ( $M\bar{x} = 88.67$ ;  $F\bar{x} = 84.52$ ) and the left ear ( $M\bar{x} = 86.55$ ;  $F\bar{x} = 89.74$ ). Given the onset of deafness, forty-three subjects are congenitally deaf and seven subjects are adventitiously deaf. It is evident that the majority of the fifty hearing-impaired subjects were born deaf, while only seven became deaf later in life through illness or accident.

## REFERENCES

- Altshuler, K. "The social and psychological development of the deaf child: their treatment, and prevention." American Annals of the Deaf, 1974, 119, 365-576.
- Blanton, R. L. and Nunnally, J. C. "Semantic habits and cognitive style processes in the deaf." Journal of Abnormal and Social Psychology, 1964, 68, 397-402.
- Buchara, G. H., Raphael, J., and Phelan, W. J. "Empathy development in deaf preadolescents." American Annals of the Deaf, 1980, 125, 38-41.
- Clevenger, T. J. "A synthesis of experimental research in stage fright." Quarterly Journal of Speech, 1959, 45, 134-145.
- Conley, J. E. "The role of idiomatic expressions in the reading of deaf children." American Annals of the Deaf, 1976, 121, 381-385.
- Cozby, P. "Self-disclosure: A literature review." Psychology Bulletin, 1973, 79, 73-91.
- Craig, H. "A sociometric investigation of the self-concept of the deaf child." American Annals of the Deaf, 1964, 110, 456-478.
- Deutsch, M. "Trust and suspicion." Journal of Conflict Resolution, 1958, 2, 250-256.
- Freeman, R. D., Malkins, S. F., & Hastings, J. "Psychosocial problems of deaf children and their families: A comparative study." American Annals of the Deaf, 1975, 210, 391-405.
- Freimuth, V. S. "The effects of communication apprehension on communication effectiveness." Human Communication Research, 1976, 2, 289-298.
- Gilbert, S. "Effects of unanticipated self-disclosure on recipients of varying levels of self-esteem: A research note." Human Communication Research, 1977, 3, 368-371.

- Gregory, I. "A comparison of certain personality traits and interests in deaf and hearing children." Child Development, 1938, 9, 277.
- Hiskey, M. "A study of intelligence of the deaf and hearing." American Annals of the Deaf, 1956, 101, 329.
- Houchins, R., Ross, L., & Schwartz, J. "An investigation of the self-concept of expressive language of thirty adolescent hearing impaired students using the Q-sort technique." American Annals of the Deaf, 1975, 120, 572-577.
- Hurt, H. T., & Preiss, R. "Silence isn't golden: Communication apprehension, desired social choice, and academic success among middle-school students." Human Communication Research, 1978, 4, 315-328.
- Hurt, H. T., & Cook, J. A. "The impact of communication handicapped students on high-school teachers' expectancies, interaction anxiety, and interpersonal perceptions in regular education classes." Communication Quarterly, 1979, 27, #2, 38-46.
- Jordan, W. J., & Powers, W. G. "Verbal behavior as a function of apprehension and social context." Human Communication Research, 1978, 4, 294-300.
- Jourard, S. M. "Age trends in self-disclosure." Merrill Palmer Quarterly, 1961, 7, 191-197.
- Jourard, S. M., & Lasakow, P. "Some factors in self-disclosure." Journal of Abnormal and Social Psychology, 1958, 56, 91-98.
- Kates, S. L., Kates, W., & Michael, J. "Cognitive processes in deaf and hearing adolescents and adults." Psychological Monographs, 1962, 76 (#551), 1-32.
- Kleck, R. "Emotional arousal in interactions with stigmatized persons." Psychological Reports, 1966, 19, 1226.
- Kleck, R. "Physical stigma and nonverbal cues emitted in face-to-face interactions." Human Relations, 1968, 21, 19-28.
- Koetitz, L. E. "Cognitive and psycho-social development in deaf children: A review of the literature." Education and Training of Mentally Retarded, 1976, 11, 66-72.

- Lerea, L. "A preliminary study of the verbal behavior of speech fright." Speech Monographs, 1956, 23, 220-233.
- Levine, E. S. "Studies in psychological evaluation of the deaf." Volta Review, 1963, 65, 496-512.
- Lyon, V. "The use of vocational and personality tests with the deaf." Journal of Applied Psychology, 1934, 18, 224.
- Marinelli, R. P., & Kelz, J. W. "Anxiety and attitudes toward visibly disabled persons." Rehabilitation Counseling Bulletin, 1973, 17, 198-205.
- McAndrews, H. "Rigidity and isolation: A study of the deaf and blind." Journal of Abnormal Psychology, 1948, 43, 476.
- McCroskey, J. C. "Measures of communication bound anxiety." Speech Monographs, 1970, 37, 269-277.
- McCroskey, J. C. "The effects of communication apprehension on nonverbal behavior." Communication Quarterly, 1976, 24, 39-44.
- McCroskey, J. C. "Oral communication apprehension: A summary of recent theory and research." Human Communication Research, 1977, 4, 78-96.
- McCroskey, J. C., & Andersen, J. F. "The relationship between communication apprehension and academic achievement among college students." Human Communication Research, 1976, 3, 73-81.
- McCroskey, J. C., & Daly, J. A. "Teachers' expectations of the communication apprehensive child in the elementary school." Human Communication Research, 1976, 3, 67-72.
- McCroskey, J. C., Daly, J. A., Richmond, V. P., & Cox, B. G. "The effects of communication apprehension on interpersonal attraction." Human Communication Research, 1975, 2, 51-65.
- McCroskey, J. C., Daly, J. A., Richmond, V. P., & Falcione, R. L. "Studies of the relationship between communication apprehension and self-esteem." Human Communication Research, 1977, 3, 269-277.
- McCroskey, J. C., & Richmond, V. P. "The effects of communication apprehension on the perception of peers." Western Speech Communication, 1976, 40, 14-21.

- McCroskey, J. C., Ralph, D. C., & Barrick, J. E. "The effect of systematic desensitization on speech anxiety." Speech Teacher, 1970, 19, 32-36.
- Meadow, K. P. "Self-image, family climate, and deafness." Social Forces, 1969, 47, 428.
- Mellinger, G. "Interpersonal trust as a factor in communicating." Journal of Abnormal and Social Psychology, 1956, 52, 304-309.
- Mindel, E., & Vernon, M. They Grow in Silence. Maryland: National Association of the Deaf, 1971.
- Myklebust, H. R. Psychology of Deafness. New York: Grune and Stratton, 1964.
- Newby, H. A. Audiology. New York: Meredith Corporation, 1972.
- Oleron, P. "Conceptual thinking of the deaf." American Annals of the Deaf, 1953, 98, 304-310.
- Piaget, J., & Inhelder, B. The Psychology of the Child. New York: Basic Books, Inc., 1969.
- Rainer, J. D. "Some observations on affect induction and ego development in the deaf." International Review of Psycho-Analysis, 1976, 3, 121-128.
- Richmond, V. P. "The relationship between trait and state communication apprehension and interpersonal perceptions during the acquaintance stage." Human Communication Research, 1978, 4, 338-349.
- Rousey, C. L. "Psychological reaction to hearing loss." Journal of Speech and Hearing Disorders, 1971, 36, 382-389.
- Schroedel, J., & Schiff, W. "Attitudes towards deafness among several deaf and hearing populations." Rehabilitation Psychology, 1972, 19, 59-70.
- Scott, M., & Powers, W. Interpersonal Communication: A Question of Needs. Boston: Houghton Mifflin Co., 1978.
- Singer, D. G., & Levahan, M. L. "Imagination content in dreams of the deaf." American Annals of the Deaf, 1976, 121, 44-48.

- Spielberger, C. D. Anxiety and Behavior. New York: Academic Press, 1966.
- Spielberger, C. D., & Gaudry, E. Anxiety and Educational Achievement. Australia: John Wiley & Sons, 1971.
- Spielberger, C. D. Anxiety: Current Trends in Theory and Research. New York: Academic Press, Inc., 1972.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. Manual for the State-Trait Anxiety Inventory. Palo Alto, California: Consulting Psychologist Press, 1970.
- Templin, M. C. The Development of Reasoning in Children With Normal and Defective Hearing. Minneapolis: University of Minnesota Press, 1950.
- Thompson, T. L., & Siebold, D. R. "Stigma management in normal-stigmatized interactions." Human Communication Research, 1978, 4, 231-242.
- Watts, W. J. "The influence of language on the development of quantitative, spatial, and social thinking in deaf children." American Annals of the Deaf, 1979, 124, 46-56.
- Wheeless, L. R. "Communication apprehension in the elementary school." Speech Teacher, 1971, 20, 297-299.
- Wheeless, L. R. "Self-disclosure and interpersonal solidarity: Measurement, validation, and relationships." Human Communication Research, 1976, 3, 47-60.
- Wheeless, L. R., & Grotz, J. "The measurement of trust and its relationship to self-disclosure." Human Communication Research, 1977, 4, 250-256.
- Wheeless, L. R. "A follow-up study of the relationship among trust, disclosure, and interpersonal solidarity." Human Communication Research, 1978, 4, 143-157.