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Direct and Inferential Communication: An Investigation of the Development of Oral Communication Styles in Children Through Converging Methods

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DIRECT AND INFERENTIAL COMMUNICATION: AN INVESTIGATION OF THE DEVELOPMENT OF ORAL COMMUNICATION STYLES IN CHILDREN THROUGH CONVERGING METHODS

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of Lindenwood College in Partial
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Abstract

In an investigation involving 43 residents of a children's residential treatment facility, communication styles were determined through correlation of data from three converging measures. The participants received commands ranging from unspoken gestures to direct oral instructions. Communication styles were determined through three measures: Physical responses to seven commands (CT), written responses to a variation of the Zajonc line test (LT), and a psychometric instrument (DIPT).

The purpose of this study was twofold: To determine if communication style are observable and measurable, and to design a psychometric instrument specifically for this population, the Direct/Inferential Psychometric Test (DIPT), to measure direct and inferential communicative styles. The DIPT had good content validity and proved adequately reliable. It was significantly correlated with a measure of social desirability, but it was unrelated to behavioral measures of communication style. The behavioral measures (the CT and the LT) were significantly intercorrelated.

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CHAPTER I

Introduction

Human communication involves many components. Verbalizations, non-verbal signals, perception, discrimination, generalization, attenuation, semantics, pragmatics, voice tone and inflection, and emotional content to specify a few. When we communicate with another person, or with a group of people, it is probably one of the most complex functions that we perform. It is because of this complex nature that so many psychologists and psycholinguists have investigated the seemingly limitless facets of language that form the communication process.

It is believed that humans have communicated verbally for some one million to three million years (Brown, 1986). However, it is only in the last 100 years or so that scientific examinations of spoken language were undertaken. Many of these psychologists focused their attention on the structure of language. Slowly the scientists shifted their emphasis from the study of language structure to the cognitive aspects of communication. Presently, many of the current explorations examine the way people process language (Matlin, 1989).

When two or more people communicate, these elements become acutely connected. Depending on the context, we commonly refer to this as chatting, dialogue,

conversation, discussion, quibbling, quarreling, debating, arguing, or just plain talking. Herein lies the problem, most of the research to date has focused on the facets of communication as independent elements. Ideally what is needed is a single model that would pull many or all of these concepts together in one workable model.

The currently proposed models that attempt to explain the process of communication lack the rigorous employment of scientific methods, techniques, measurements, and observation. Many of these theories can be found in a variety of textbooks and self-help books. One such theory developed by Kappas (1975) will be described later in this paper. Many of these theories attempt to explain the process of communication. Furthermore, many of these models attempt to correct disturbed or dysfunctional communications. The question that these theories most commonly address is: What function or functions does language serve?

Klein (1987) states that language serves three purposes. For one, language is the vehicle that enables us to communicate with other people. We use language to communicate with our friends, family, and business associates. Without language imagine the difficulty we would encounter in conveying our ideas, thoughts, and feelings. It would be extremely difficult to enlist the service of others in meeting our needs. Conversely, much of

what we find amusing would lose its allure in the absence of language.

A second important function of language is the facilitation of the thinking process. Some psychologists think that language is of the utmost importance, contending that language is the basis of thought. John Watson (1924) fostered the simplistic theory that thought consisted of talking to ourselves. Today many psycholinguists would not agree with Watson, but most would support the concept of interrelatedness of language and thought. Additionally, language facilitates the processes of learning and problem solving by providing a system of interrelated symbols and rules (Klein, 1987).

Finally, language allows us to escape the bounds and limits of our memory storage system. Human beings possess the ability to create new language and spontaneous language. We are also able to create unique grammatically correct sentences which demonstrates the ability to use the rules of language. Additionally, humans can create an infinite number of new experiences and complex sentences, instead of merely imitating others.

Psycholinguists determined levels of language and focus their individual investigations in these areas. Phonemes, the smallest units of speech, are the lowest elements in this language hierarchy. Phonemes distinguish one utterance from another. For example, /b/ and /p/

distinguish "bitch" from "pitch." Grammar makes up the middle level of the language progression. The highest level of the language hierarchy is comprised of semantics, the study of language, and pragmatics, the use of language. These studies center on the topics of how humans learn language (Klein, 1987).

In an effort to understand the developmental process of language, scientists temporally turned their attention to the study of primates. Psycholinguists wanted to determine if primates could communicate with language. As is true with much of psychology there is a raging debate concerning primate communication due to the lack of conclusive evidence (Klein, 1987).

The purpose of the present study was to determine if children develop a communication style at a particular age or stage of development. This investigation is the outgrowth of a 1987 study, Direct And Inferential Communication: A Determination of Oral Communication Styles Through Converging Methods completed by myself and Michael G. Holler. In that study we confirmed the existence of two different communicational styles in adults: Direct and Inferential.

Individuals who are direct communicators use mostly verbal cues, and tend to approach the center of a message straightforwardly, as efficiently as possible, using a minimum of words. These people express ideas by saying

exactly what they mean, no more, no less. Yet, direct communicators also have a tendency to miss the extra verbal (or nonverbal) cues such as tone of voice and body language. In extreme situations direct communicators can miss up to two-thirds of the verbal content of a message. Oftentimes, inferential communicators perceive direct communicators as rude, interrupting, and blunt (Kappas, 1975).

Inferential communicators, on the other hand, tends not to approach the center of a message at all. Instead, the inferential communicator combines verbal and nonverbal cues to "imply" the meaning of the message. This situation requires that the listener interpret a set of "hints" to receive the message. In extreme situations inferential communicators suppress what they really want to say and often withdraw emotionally. Direct individuals frequently perceive their inferential counterparts as vague, wordy, and frustrating to listen to (Kappas, 1975).

The same converging-methods design used in the 1987 Hoerchler and Holler study is used in this investigation. Two of the measures were altered for use with children. A new true/false test designed especially for children and adolescents replaced the third psychometric measure. This process of developing a new valid and reliable psychometric instrument was the primary goal of the present study.

CHAPTER II

Review of the Literature

Language has concerned humans since the beginning of recorded time. History holds many tales of language related conflicts. Europe presents an excellent visual example of this notion. One need only look at a map to see language barriers drawn in the shape of border lines. Examples include: Russia, Germany, Hungary, Poland, England, France, and Spain. Each country sports its own ideals, its own language. It is important to remember that people are willing to wage war to preserve their culture and native language. Stated simply, communication remains a paramount aspect of human behavior.

The amount of research in the area of communication is overwhelming. Yet with all of this scientific attention no one has published research findings for a model that includes multiple communicational elements. Many college textbooks, on subjects from business, to management, to the various fields of psychology, both on graduate and undergraduate levels, discuss multi-level models of communication. Unfortunately, and all too often these models are not subjected to the scrutiny of scientific methodology.

Language Determines Perception

In the 1930s a prevalent idea was that a culture's language determined their perception of the world around them. Evidence for this concept is cited in the culture's use of words. For example, in the midwestern states of North America people generally use only one word to relay the concept pertaining to the white frozen precipitation of winter: snow. Yet Restak (1988), tells us at the same time "the Eskimo's of Alaska have nearly one hundred words for snow——*apikak*, first falling snow; *aniu*, snow spread out; *pukak*, snow for drinking."

After studying the Hopi Indians for a number of years Whorf (1956), an anthropologist, endorsed the idea that language determines perception. Whorf claimed that the Hopi's held a unique view of the world. He based this claim on the idea that the Hopi's had no word for time in their vocabulary.

As we now know, just because the Hopi's do not have a word for time does not mean that they have no perception of it. Malotki (1974) discovered that the Hopi's do live with time in every aspect of their lives. They relate the term much more concretely than we do. For example, Malotki observed every day at "barely sunrise" the Indians would go pray to the sun for cornmeal (Restak, 1988). These early investigations of language sparked the interest of

scientists concerned with the acquisition and use of language.

Working on the assumption that all creatures can communicate basic signals relating to survival, hunger, danger, and lust, the investigators of the 1950s turned to the animal kingdom to learn the secrets of language. While trying to teach lower level primates language, Keith and Virginia Hayes moved a baby chimpanzee named Vicki into their home. "The experiment was a failure for a fundamental reason that is now obvious: apes possess neither the vocal tract nor the agile tongue of humans" (Restak, 1988, p. 197).

The Gardners, another husband and wife team, taught their now famous one-year-old chimpanzee, Washoe, American Sign Language. Their objective was to determine the chimp's potential for language. Others have joined ranks with the Gardners and the Hayes. From his nearly three decades of research with primates, Premack (1972) states:

> It seems clear from all this that language does not in any way constitute the addition of another "room" to a basic floor plan of mind. Creatures who possess language can certainly build a representation of the world within their own mind and manipulate it. But human language is a quantum leap beyond mere

> representation. It makes possible a complete transformation of the human mind. It entails the capacity for abstract representation, as in your reading of the words in this sentence and applying the "abstract representations" the sentence contains to situations and questions you may have encountered in the past, and to your formulations of the future. (p. 156)

While investigators were concerning themselves with primate communication, other researchers were studying the structure and form of language.

Linguistic Communications

Is language built in to us as a species? Why is man the only living creature to evolve a language? When did this evolution occur? These are only a few of the questions that early linguists were investigating. Lieberman (1982) employed the technique of comparative anatomy in laboratory examinations of Neanderthal and hominoid skulls to answer some of these questions. First, he located living animals like chimpanzees and human newborns with skeletal structures like the fossil's. He then examined the soft tissues and how they connect to the skeleton. This information allowed Lieberman to reconstruct the fossils to a life-like condition for a detailed working analysis.

This information, says Lieberman, coupled with "the evidence of Neanderthal culture, which is apparent in their tools and their tool-making techniques, their rituals, and their social order——which involved care for the infirm——all point to the presence of language" (Restak, 1988, p. 204).

So according to Lieberman, language has evolved over time to its present status. Lieberman states:

> Modern speech is very efficient. We don't think about it because we do it all the time. So it's perfectly natural. But it turns out that it's almost ten times faster than any other sound, such as the sound that chimpanzees make. It's also phonetically distinct: about 30 to 50 percent better perceived than other sounds. (Restak, 1988 p. 205)

Kuhl (1982) focuses her research on demonstrating the presence of "special mechanisms" in infants. She researches the theory that there are brain mechanisms that alter speech perception by processing speech signals differently than other auditory signals. Kuhl demonstrates through her research that we all can distinguish miscellaneous sounds from language, even when it is a language that we do not understand. This information is interesting but what is more so is the fact that even a six month-old child can do this (Restak, 1988).

Kuhl (1987) concludes several things from her research with 6 month-olds. Babies recognize a difference between the speech of a child, a man, and a woman. Secondly, babies recognize a similarity between their speech and adults. Finally, six month-old babies can recognize auditory-visual correlates. This final point is the most important of the points. It suggests that the infant's brain is "hard-wired" with the ability to sort and categorize the sounds of speech (Restak, 1988).

To determine the earliest beginnings of language, Trevarthen (1983), a neuropsychologist, observes mothers talking and cooing with their children in his University of Edinburgh, laboratory. From these investigations he has established two things. Clearly infants can differentiate themselves from others, and they can distinguish things from people.

Trevarthen states:

> The baby is born into the world driven to communicate, at times playing the role of leader in its prelinguistic conversations with mother. The infant's development is, to a degree, actually spurred on by the emotional component, by the will to communicate. This interaction is as finely tuned as the speech system the infant will later master. At this stage, his response may take the form of a

> gesture or an intonation matching mother's. But it is highly coordinated to the mother's voice, analogous to the call-and-response improvisation between mother's cooing and short phrases, the baby contributes a carefully timed response which either mimics or cues the mother's next contribution in terms of pitch and intonation. The infant's proficiency in this early cooperative interaction implies that this kind of communication is hard-wired in the species. (cited in Restak, 1988, p. 210-211)

Trevarthen is convinced by his work with infants that the communication of meaning and shared symbolic awareness is more basic than spoken language.

Communication of meaning by gestures, expression, voice, and, at a later point, formal language, is an inherently social process. Language, therefore, is linked with culture, socialization, the cooperative search for knowledge, indeed cooperative ventures of all kinds.

Language comprehension. Understanding language, that is, language comprehension, is a complex process. It involves retrieving information that is permanently stored so we can interpret the new data being presented to us. To do this we must hear a set of complex sounds, and then use our knowledge of sounds, words, language rules, and the

world, to convert the sounds into meaningful language (Matlin, 1989).

To comprehend language we must perceive language. There are three factors that we need consider concerning perception. The first factor regards the way sounds are transmitted. Speech sounds, phonemes, are most often sent in parallel. The label parallel transmission refers to this tendency. The next important factor is context. The context of the conversation allows the listener to fill in missing sounds. Finally, the listener can, and must, impose boundaries between words (Matlin, 1989).

There are several studies that demonstrate these concepts in action. Warren (1970) played the following tape-recorded sentence to a group of 20 people. "The state governors met with their respective legi [cough] latures convening in the capital city" (p. 255) The first s in legislatures was replaced with a 0.12 second cough. Of the 20 subjects 19 reported that no sounds were missing from the recording. The one individual that did specify a missing sound reported the wrong sound (Matlin, 1989).

"Other research has demonstrated that people are highly accurate in reconstructing a word that is missing during speech perception, particularly when the word is highly predictable from context" (Matlin, 1989, p. 256). This system is dependent upon the listener's ability to insert word boundaries. Naturally occurring word

boundaries happen only approximately 40 percent of the time in a typical conversation (Cole & Jakimik, 1980). "The (perceptual) system relies on stored knowledge to enable the listener to figure out what sounds are grouped together into words" (Matlin, 1989, p. 257). It is plausible then that individual differences in stored knowledge are, in part, responsible for one's communicational style. Yet, this is just one aspect that affects comprehension.

Factors affecting comprehension. There are three factors that make sentences difficult to understand. Sentences that contain a negative, such as the word "not," are difficult to understand. As the number of negatives in a sentence increases, comprehension decreases. Place three negatives in a sentence and it becomes almost incomprehensible. For example, you would have to read the following sentence several times to determine whether it is true or false. *Not too many people don't look when not told to by others.* Sentences containing multiple negatives often force the listener/reader to guess at sentence meaning (Matlin, 1989).

The second factor that affects comprehension is voice. That is, whether the sentence is of active or passive voice. The use of passive voice creates sentences that are wordy; and often times makes verbs incomprehensible. The sentence "The dog is being petted by the boy," illustrates

passive voice. The sentence is easier to read when the voice is active: "The boy is petting the dog." In line with this idea is the fact that active voice is commonly used seven times more often than passive voice (Matlin, 1989). So if nothing else we hear many more active statements than passive ones. This familiarity with active statements would certainly make them easier to comprehend.

The third factor affecting comprehension that will be discussed here is ambiguity. There are three kinds of ambiguity: lexical ambiguity, surface structure ambiguity, and underlying structure ambiguity. Lexical ambiguity pertains to a word that has more than one meaning. Thus: "Time flies like an arrow, but fruit flies like a banana" (Matlin, 1989, p. 268). Of course the ambiguous word in this sentence is flies. The first part of the sentence leads the reader to one interpretation, while the second part leads you to another.

Surface structure ambiguity involves words that can be grouped together in more than one way. For instance the Groucho Marx line, "Last night I shot an elephant in my pajamas. How he got into them I've never understood." The phrase in my pajamas could refer to the speaker or the elephant. Surface structure ambiguities are quite common in daily conversation.

An underlying structure ambiguity "occurs when a single surface structure has two different deep structures" (Matlin, 1989, p. 268). In this type of sentence the "essential logical relations between phrases can be interpreted in two ways" (Matlin, 1989, p. 268). Imagine reading a newspaper headline that read: "President found drunk on White House lawn" (Matlin, 1989, p. 268).

All three of these ambiguities present potential problems for communication. To date there is a controversy about how people process ambiguous material. Holmes, Kennedy, and Murray (1987) offer a theoretical explanation of the process humans use to resolve ambiguous material. They believe that when we are confronted with an ambiguous word in a sentence we activate all of the meanings for the word. Once the meanings are activated we select the correct word meaning for the current context. Holmes, Kennedy, and Murray (1987)

> favor an activated network approach to language and argue that when people encounter a potential ambiguity, the activation builds up for all meanings of the ambiguous item; however, the degree of activation depends on the frequency of the meanings and the context. (Matlin, 1989, p. 269)

If this theory is accurate it could prove helpful in explaining the differences between direct and inferential communicators. It is possible that direct communicators either accurately select the meaning of ambiguous words more efficiently than their inferential counterparts, or possibly they activate fewer word meanings. When we consider the activated network theory with a contrasting theory it adds credence to the above notions concerning direct communicators. "Other theorists argue that context constrains the meaning activation at the very beginning, limiting meaning-access to only a single interpretation that is appropriate to the sentence context" (Glucksberg, Kreuz, & Rho, 1986).

Through a series of experiments Glucksberg (1986) and his colleagues have determined that 75% of the time context does constrain lexical access. As a part of this study Orifer and Swinney (1981) tested 20 native English-speaking undergraduates at Princeton. The subjects were provided with 48 sentences containing an ambiguous priming word. These subjects reported the dominant sense of the ambiguous words 75% of the time (p. 326). This finding is consistent with several studies: Gildea & Glucksberg, 1984, Collins & Loftus, 1975, and Cairns & Hus, 1980. These findings support the theory that contextual information does limit initial ambiguous word meaning to a single contextually appropriate sense. It is possible that

for some unknown reason inferential communicators either do not accurately select the meaning of ambiguous words, or they may activate several word meanings simultaneously.

These experimental results are a product of backward priming. Backward priming occurs when the ambiguous word is placed near the end of the sentence. This sequence allows the reader/listener to use the context of the sentence to determine the words ambiguous meaning. An example of this is "Drink your soda with a STRAW." The word soda implies the meaning of straw to that of a soda straw instead of straw that grows on a farm. The backward priming effect accounts for the discrepancy in results of the above two theories. Sentences containing forward priming are more difficult for subjects to determine the proper dominant sense of the ambiguous words. For example, "The SCALE is an important tool when learning to play a musical instrument" (Glucksberg, Kreuz, & Rho, 1986).

Language processing in the brain. Two psychologists, Wang and Tzeng (1985), traveled to "Taiwan to study how the special characteristics of the Chinese language affect brain organization and the processing of language" (Restak, 1988, p. 220). Chinese differs from English in the method of word construction; in the vowel and consonant combinations; and, the distinctive tone each word has. For example, the word *ma* can mean 'mother,' 'hemp,' 'horse,' or

'scold' depending on the tone and pitch used to pronounce the word (Restak, 1988).

Since the Chinese language has a musical sound to the Western ear, it was expected that Chinese would process language in the right hemisphere, as music is. Wang and Tzeng found, through their work with brain damaged Chinese people, that the Chinese language is processed as the English language is, in the left hemisphere. Wang states:

> Both the tones of spoken Chinese and the pictorial characters of the Chinese writing system are strongly lateralized to the left hemisphere. Patients with damage to the left hemisphere have a great difficulty spontaneously producing Chinese characters in their writing. (cited in Restak, 1989, p. 221)

The findings of Wang and Tzeng (1985) supports the idea that both direct and inferential communicators process language in the left hemisphere of the brain.

Indirect/Non-Verbal Communication

Communication involves more than left-brain processes, linguistics, and, language perception. It involves many indirect and non-verbal cues. Some of these communicational elements have been the focus of research; others are theories.

Experimenter expectancy and covert communication. Rosenthal (1966) has contributed much to these concepts of communication through his research. In a double-blind experiment on experimenter expectancy Rosenthal (1966) divided uninformed experimenters into three groups: visual, auditory, and visual plus auditory. Rosenthal found the subjects who had only visual contact with the experimenter showed little expectancy effect. The subjects serving with the experimenters in the auditory condition showed a significant expectancy effect. The largest expectancy effect was reported for the visual plus auditory group. It is plausible that we use these same mechanisms to aid us in the interpretation of conversations.

Citing the "Clever Hans" phenomenon as an example, Rosenthal researched the ways in which experimenters influence their subjects to give responses that are favorable. In 1911 a race horse earned the nickname "Clever Hans" due to his seemingly amazing mathematical ability. When asked to count a specific number Hans would tap his hoof on the ground the correct number of times. Many people were convinced that the animal could actually count! Pfungst (1911), as reported by Rosenthal (1966), "found that as questioners gained experience in asking Hans to respond they became successful in unintentionally signaling to Hans when to stop his tapping" (p. 301).

Rosenthal's investigations focused specifically on the experimenter/subject relationship; he mentions the importance of his findings for interpersonal communications:

> These findings do not solve our problem of finding the key to the communication of expectancies, but there is a lesson for future studies of interpersonal communication...though there is some experimental evidence that human subjects are not using the same sort of cues that Clever Hans employed. (Rosenthal, 1966, p. 346)

Active listening. There are two aspects of any communication style; speaking and listening. In a discussion of some aspects of listening Gerard Egan (1986) states, "The art of listening has three parts: (1) listening to and understanding nonverbal behavior; (2) listening to and understanding verbal messages; and (3) listening to and understanding the person" (p. 79).

Egan identifies obstacles that get in the way of good listening. Selective perception occurs when an individual interprets messages to fit their predetermined beliefs. When a person only exposes themselves to messages that confirm their established beliefs it is an example of selective exposure. We are using selective retention when

we only remember those things that affirm our belief system (Egan, 1983).

Bypass statements and metacommunication. Although all of us learn to communicate, we do so in different ways, which may vary as a function of our environment. Much of the research to date centers on nonverbal communication, as well as verbal styles and paralinguistic augmentation of verbal styles. These components of communication have many names. Bittner (1975) refers to "bypass statements" as a concept of statements that don't quite say what the speaker really means, but hint at that meaning (p. 60). Ruesch (1957) speaks of metacommunication, which he defines as "The ability of a speaker to instruct others about the way his statements ought to be interpreted and the listener's proficiency in understanding these instructions (p. 179)."

Kappas model: Direct vs. inferential.

One investigator who devised an integrated communication model is Kappas (1975). Kappas' (1975) model consists of opposing concepts: The "physical" individual who speaks and understands directly, and the "emotional" who speaks and understands inferentially. These theories stem from Kappas' investigations into the relationship of "suggestible" personalities and hypnotism. According to Kappas, "we learn these communication styles as defense mechanisms to protect ourselves from either

physical or emotional rejection, whichever is most vulnerable" (Kappas, 1975, p. 18).

Individuals who are direct communicators use mostly verbal cues, and tend to approach the center of a message straightforwardly, as efficiently as possible, using a minimum of words. These people express ideas by saying exactly what they mean, no more, no less. Direct communicators also have a tendency to miss the extra verbal (or nonverbal) cues such as tone of voice and body language. In extreme situations direct communicators can miss up to two-thirds of the verbal content of a message. Oftentimes, inferential communicators perceive direct communicators as rude, interrupting, and blunt (Kappas, 1975).

Inferential communicators, on the other hand, tends not to approach the center of a message at all. Instead, the inferential communicator combines verbal and nonverbal cues to "imply" the meaning of the message. This situation requires that the listener interpret a set of "hints" to receive the message. In extreme situations inferential communicators suppress what they really want to say and often withdraw emotionally. Direct individuals frequently perceive their inferential counterparts as vague, wordy, and frustrating to listen to. A person would be inferential to the extent that they are suggestible. This characteristic

will vary in degrees along a linear scale, according to Kappas' (1975) theory.

Theories of language and communication development. There are several theories concerning the development of language and communication, but there are two major views. The first is the learning view proposed by Skinner (1957). Skinner offered that humans learn language through the instrumental-conditioning process. He claims that children learn language because of reinforcement by their parents and other influential people.

Chomsky (1957) offered the opposing theory, the psycholinguistic theory. This approach assumes that language acquisition is innate. That is, Chomsky believes that human are born with the mechanisms that allow them to communicate with only a minimum of linguistic experience.

Of the two theories the psycholinguistic view receives the most support while the learning view receives criticisms.

> There are three major aspects of this criticism: the first problem is that Skinner's view assumes that parents will reward correct use of language and ignore or penalize incorrect use, but observations (McNeill, 1966) show that parents use rewards and punishments to influence only the content, not the

> grammatical correctness, of their children's language...
>
> A second problem that psycholinguists have cited with a reinforcement view concerns the creative aspects of language. Children as well as adults frequently use an original combination of words to convey an idea. The fact that people can generate new but grammatically accurate language is difficult to explain in terms of instrumental-conditioning principles: how can children (or adults) use a combination of words that they have never said nor heard and that therefore has never been reinforced?. (Klein, 1987, p. 346)

The final criticism comes from the research of Lennenbergh (1967). Lennenbergh found that most children acquire language in a comparatively consistent way.

> Lennenbergh found that nonsense sounds are always followed by one-word speech, which then develops into the use of two-word sentences, followed by telegraphic speech, and then the use of complex sentences. The observation that even children raised by deaf parents show the same pattern of language development suggests that social reinforcement is not a critical determinant of language acquisition. (Klein, 1987, p. 346)

Psycholinguistic theory is also consistent with the psychoanalytic view of language development. Many personality theorists (Freud, Mahler, Piaget, and Erickson to list a few) similarly describe the steps of speech and language development to identify early developmental milestones. Mahler (1975) proposes one such developmental model citing the beginning of verbal communication during the third subphase of development. It is possible that the development of communication style is as dependent on environment and interaction as is *the psychological birth of the human infant.*

The achievement of individuality. Through a series of experiments involving infants and children, Mahler (1975) and colleagues developed a model of human psychological development. This model, The Psychological Birth Model, is designed to describe stages and subphases of psychological development. According to Mahler the process begins shortly after the infant's birth. She calls this the normal autistic phase. During this time infants appear to be purely biological organisms. If all goes well the infant will progress to the stage of symbiotic child psychosis. It is during the stage of development that the child will treat mother as if she is a part of the self (Mahler, 1975).

With the two primary stages complete at approximately five to nine months of age the infant enters the first subphase: Differentiation and the Development of Body Image. The child begins to be less dependant on mother, pulling away from her slightly, and begins tactile exploration. Once the child has differentiated itself from mother it is ready to enter the second subphase: Practicing. Beginning at approximately 15 months of age the infant actively moves away from mother and then returns to her. This is achieved first by crawling then with upright locomotion (Mahler, 1975).

The third subphase, Rapprochement, is the most important with regard to this paper. This is the time infants normally begin verbal communication. This subphase typically lasts beyond 15 to 24 months of age. A main characteristic of this subphase is the rediscovery of mother. If the child navigates these stages and subphases well, and the environment is healthy, that is, conducive of psychological growth, the child will enter the fourth subphase: Consolidation of Individuality and the Beginning of Emotional Object Constancy (Mahler, 1975).

This subphase usually begins by the end of the second year and is open-ended. During this period language flourishes and the child achieves a degree of object constancy and the separation of self and object representations is sufficiently established (Mahler, 1975).

This model proposes the need of a relationship between mother and child to promote psychological growth and development. It is possible then that this relationship would affect the child's development of language. This question, however, will not be addressed in this paper. The subject under investigation is the existence of childhood communicational styles. The age range of the test subjects for this study were selected with knowledge of Mahler's investigations in mind. The youngest subjects are six years old. At this age these children should have the necessary language skills to determine style, and the cognitive ability to participate effectively (Mahler, 1975).

Statement of Hypothesis

This thesis is an extension of a 1987 Undergraduate research project, Direct and inferential communication: A determination of oral communication styles through converging methods, conducted by this author and Michael Holler. The tested hypothesis in that investigation was: Human beings communicate with each other using different communicational styles, direct and inferential, and that the majority of the subjects tested will be inferential. When conceptualizing communication styles as a continuum, with the direct style at one end and the inferential style at the other, these styles are readily observable and measurable. Hoerchler and Holler's (1987) research supported this

hypothesis. Among the 32 adult psychotherapy clients tested, 62.8% scored on the inferential half of the continuum while 37.2% received scores on the direct half of the scale.

The hypothesis for this study is a logical extension of the 1987 research, as such it follows: Our communication style emerges and evolves (Direct and Inferential) during our childhood and adolescent stages of development. These styles will be observable and measurable. A valid and reliable psychometric instrument, the Direct and Inferential Psychometric Test (DIPT), specifically geared toward this younger population (from 7 to 18 years old) will be developed. The DIPT will be tested in the same converging methods design, with the "lines" test and the "commands" test which were used in the previous investigation.

CHAPTER III

Method

Subjects

The subjects for this study are children and adolescents, from ages 6 through 18, living in a residential treatment facility located in St. Louis County. These children suffer from a variety of problems: Emotional disturbance, behavior disorders, neurological problems, delinquency and/or status offenses. Approximately 50% of these individuals are diagnosed learning disabled, educable mentally handicapped, or mentally retarded. Most are placed at the facility by either the Division of Family Services (DFS) or the Department of Mental Health (DMH). These youngsters come from environments where they were abused, abandoned, or neglected. Forty-Three residents were randomly selected for participation in the study from a total subject pool of eighty-six . Twenty of the subjects were Black; the rest were Caucasian. Twenty-five of the subjects were females.

Instruments

Three measurement devices were developed specifically for this investigation, the Commands Test (CT), the Lines Test (LT), and the Direct/Inferential psychometric test (DIPT). Three criteria guided the development of these instruments. The prime objective was to measure the full range of subject's responses to the communicated cues,

which extended from totally inferential (a physical gesture), to totally direct (a verbal command). This objective could be accomplished by cross-measuring each test command that was issued to the subjects. Also, measuring each command more than once would reduce experimenter bias and possible confounding.

A system permitting simultaneous researcher scoring, and subject self-reporting of the same communicational cue was developed. Subjects were unaware of their reporting role. It was decided to further assess these two measures by examining their correlations with a psychometric measurement of communication styles. Finally, to conceal them from the subjects, the commands would have to be integrated into the testing sequence.

CT. The Commands Test is a series of inferential and direct cues that are communicated to the subject. The first command was issued by the investigator and consisted of "patting" his shirt and pants pockets with his right hand (for 6 seconds) as if looking for a pencil. The remaining six commands were given by a narrator via videotaped instructions. The commands were: (a) The narrator holds up a packet and looks through it and stating "You should have a packet like this in front of you." (This infers that the subject should look through their packet.) (b) The narrator states, "These images will flash very quickly on the screen. You will be given 10 seconds between images.

Please go with your first impression and do not go back and change anything." (This command infers that the subject should write what they see.)

At this point of the testing sequence the subject is exposed to the first four line samples from the Lines Test. The lines are flashed on a television screen for 1/100 of a second, accompanied by a clicking sound, and are 10 seconds apart.

Command (c) The narrator says, "There are two more pages in your packet," as he fingers through his packet. (An inference to check the packet for two pages.) (d) The narrator suggests "You might want to turn to the next page." (An inference to turn the page.) The second set of four line samples are shown. (e) The narrator reveals, "The closer you get to the screen, the easier the images are to see." (An Inference to move closer to the television set.) The final four line samples are presented. After which, (f) The narrator asserts, "Put your pencil down now." (A direct statement.)

The "commands" test is scored according to the following format. A positive response to a cue earns one point, while an inappropriate response, or no response receives no point. Participants are allowed six seconds from the time the command is given to respond. Besides the time limit, subjects' responses had to meet predetermined minimum and maximum standards of responding. (See

Appendix A for a list of the commands and the minimum and maximum standards for each response.) An example is Command four. The narrator says, "There are two more pages in your packet," as he pages through his packet. The subject must lower his head, look at his packet while simultaneously fingering the corner of the pages, and expose the page numbers, to meet the minimum requirements. Maximum response was achieved by subjects who actually picked up the packet and emulated the narrator's actions.

Scoring for the Commands Test was dichotomous. That is, subjects either received one point for responding within the limits, or they received no points for inadequate responding.

LT. To insure natural responding from participants, a version of Zajonc and Sales' (1966) line experiment was devised. The purpose of the Lines Test is threefold: To get the subjects sufficiently involved and aroused so that they are unaware of the continued nature of the commands; create ample experimental realism in the interest of fostering external validity; and to obtain a second measure of communication style.

The measurement system for the test is simple. The self-report measure, the Lines Test, consists of a packet containing four pages with blank spaces numbered consecutively 1 through 12. The line samples are

interspersed among narration and commands as a part of the video-taped presentation. Each sample consists of two unsystematic broken horizontal lines. Command 3, "Please go with your first impression and do not go back and change anything," gives the subject the inference to record their observations on the pages of the packet. If the subject fills in a particular blank they receive a score of one. If they leave the blank empty they receive a score of zero. A total of 12 points was possible for the lines test.

DIPT. The DIPT was developed specifically for children and adolescents. The DIPT is a 46-item, true/false questionnaire. Each item is to be answered either "T" meaning true of me, or "F" meaning not true of me. (See Appendix B to examine the complete DIPT.) The subject scores Direct points for each response matching the corresponding item on the test key. The 15 direct items are scored positively, while the 16 Inferential items are scored negatively. The following are the first four items from the DIPT: "When someone orders me to, "Do this!" or "Do that!" without even saying please first, it makes me angry and I don't want to do what they say." "When I am talking with my friends I often feel that they are not saying what they really mean." "I always want things to be done right away." "I have had several friendships that ended and I do not understand why."

There are 31 Direct points possible. A second scale contains 15 Social Desirability (SD) items adapted from the Edwards Personal Preference Schedule; a high score (more than 10) indicates trying to please and to look appropriate. The SA items are scored in a positive direction.

DIPT norm group. Participants were randomly selected from several groups of St. Louis County parochial school children and adolescents. Thirty-nine subjects in all were used to norm the DIPT. A test-retest method was employed with a one month interval between administrations. These subjects were members of either the Catholic or Presbyterian religions. Of these thirty-nine subjects, twenty are female, nineteen are male, and all are Caucasian. A mean of 17.20 and a standard deviation of 3.42 were found for the students on the direct measure. The social desirability measure yielded the following descriptive statistics; Mean = 8.07, Standard Deviation = 2.00.

Using a sample of 78 students, a split-half reliability coefficient of .90 was obtained for the DIPT which is a satisfactory outcome. When coefficient alpha, a measure of internal-consistency reliability, was computed for the DIPT scores, .95 was obtained for the sample of 78 students.

The test-retest reliability of the DIPT was assessed using a sample of 78 students, who were attending grades 1 through 12, which is the sample employed to determine the

internal-consistency of the test. The DIPT was administered to the students twice, and there was a one month interval between the test administrations. A test-retest reliability coefficient of .91 was obtained. Remembering that there can be random and systematic changes in people over time,which might affect their communication style, this represents satisfactory stability.

An item-analysis utilizing the "point-biserial" formula (r_{pb}) was calculated on these data. (See Appendix C for a complete listing of the correlations for all 50 DIPT items.) Four items were deleted from the questionnaire because they had low correlations (r_{pb} = .19 or lower) with the total scores (Nunnally, 1967).

The DIPT was constructed to have content validity built in. One hundred and fifty statements were composed on the basis of suggestibility studies by Kappas (1975). These statements were then submitted to three psychologists, selected for their extensive knowledge concerning psychometric test construction. The psychologists were asked to rate the statements as to whether they reflected high, average, or low direct communication. The 46 items selected for use in the DIPT were the ones for which there was unanimous agreement. The data of the present study will address the DIPT's criterion-related validity.

CT and LT administration. The apparatus used was video equipment consisting of a VCR for playing instructions and test material, and a television set for viewing instructions, tests and results. Two different paper and pencil tests were employed. The first is the LT and the second is the DIPT.

Participants of the study were individually tested in one location at an office with which they were familiar. They were told that they were being tested on perception. An explanation of the procedure was read to the subjects, and after answering their questions, they signed a consent form, which stated that they could terminate their participation at any time.

Subjects were seated (at a distance of approximately 10 feet) facing a television set. The data collector walked up to the subject and issued command number one, "patting" his pockets with his hand (for six seconds) looking for a pencil. At the completion of this command the investigator started the video-tapped portion of the test and took a seat within view of the subject. The remainder of the CT and the LT was given by a narrator via videotaped instructions.

DIPT administration. After the subject completed the video-taped portion of the CT and LT the data collector handed them a copy of an answer sheet for the DIPT and stated, "It is important that you answer all of the questions. If you have any questions, or do not understand

something, please stop me and I will try my best to answer your question. Take you're time and mark the answer that best describes you." The data collector then read each of the 46 statements to the subject.

CHAPTER IV

Results

This study was developed in keeping with the well-established principle that "arousal enhances whatever response tendency is dominant" (Meyers,1983, p. 298). It also assumes that the framework of an individual's communication style, an aspect of personality, is shaped between the years of 5 and 7 and is refined throughout one's life. This concept is based on the work of numerous personality theorists. As discussed by Hall and Lindzey (1978) "Freud felt that the personality was pretty well formed by the end of the fifth year, and that subsequent growth consisted for the most part of elaborating this basic structure" (p. 49). The results of this study supports the existence of the two communication styles, direct and inferential.

Two of the measures, the CT, and the LT yield support for this hypothesis. As can be seen in Table 1, correlations with the DIPT are low. Table 2 provides a complete listing of all three tests for the study subjects. The DIPT did not correlate with either the LT or the CT. There is a positive correlation, .34, between "directness" on the DIPT and the social desirability measure.

Table 1

Correlation Matrix for DIPT Norm Group

	S.D.	DIPT
S.D.	1.00	- -
DIPT	.28	1.00

Table 2

Correlation Matrix for Study Subjects

	S.D.	DIPT	LT	CT
S.D.	1.00	- -	- -	- -
DIPT	.34	1.00	- -	- -
LT	-.15	-.02	1.00	- -
CT	-.119	.06	.46	1.00

To gain a through understanding of the study results it is important to investigate the similarities and differences of the study and norm groups. A χ^2 calculated on the Direct measure of the DIPT, with data provided by these groups, produces insignificant results, χ^2 (1) = .10, $p < .05$. Because of the limitations of the χ^2, further analysis is required.

Calculation of a t Test for independent samples to determine a difference reveals a significant difference for the Social Desirability measure between the two samples, $t(119) = 2.41$, $p < .05$. A large number, 44%, of the study subjects answered "True of me" to 10 or more of the Social Desirability statements indicating that they were trying to select socially desirable answers. Only 24 percent of the norm group selected 10 or more Social Desirability items. A comparison of the Direct measures for the two samples yields results that are not significant, $t(119) = -.34$, $p < .05$. This finding is consistent with the χ^2 calculated for the same data. Table 3 provides descriptive statistics for both the DIPT norm group and the study subjects.

Table 3

Descriptive Statistics For DIPT Norm Group and Study Subjects

	S.D.[a]	DIPT[b]	S.D	DIPT	LT	CT
Mean	8.07	17.20	9.00	16.88	6.33	4.36
Std. Dev.	2.00	3.42	2.41	3.22	5.17	1.36
Count	77	77	42	42	42	42
Min.	4	9	5	11	0	1
Max.	12	27	15	23	12	7
Range	8	18	10	12	12	6

[a]S.D. = Social Desirability scores for the DIPT norm group;

[b]DIPT = DIPT scores for the DIPT norm group.

The remaining scores belong to the study subjects.

The results of this investigation are consistent with the stated hypothesis: Different communication styles, direct and inferential, do exist in children and adolescents, and the styles are observable and measurable. The percentage of direct to inferential subjects support the stated hypothesis, and confirm the 1987 findings. In 1987, Hoerchler and Holler determined that 41% of the adult subjects responded inferentially, and 59% of the subjects responded directly. The direct-to-inferential percentages for this study, the DIPT norm group, and the 1987 adult subjects are presented in Table 4.

Table 4

Percentage of Direct/Inferential Subjects as Measured by the DIPT

	Study Subjects	Norm Subjects	1987 Adults
Direct number[a]	18	35	13
Direct %[b]	43%	45%	41%
Inferential number[c]	25	43	19
Inferential %[d]	58%	55%	59%
Total subjects	43	78	32

[a]Direct number = the number of subjects who scored 50% or greater on the direct measure of the DIPT. [b]Direct % = Direct number divided by Total subjects. [c]Inferential number = the number of subjects who scored less than 50% on the direct measure of the DIPT; [d]Inferential % = Inferential number divided by Total subjects.

The criteria used to find the values for Table 4 are relatively simple. Of the 43 study subjects 25 of them scored 49% or less on the direct measure of the DIPT. These 25 subjects, the inferential subjects, represent 58% of the total subjects. The rest of the numbers presented in the table were determined using the same criteria and mathematical procedure.

It is apparent by the information provided in Table 4 that both groups of children measured by the DIPT seem to be divided along similar direct/inferential lines. Yet there are some striking differences. Tables 5, 6, and 7 contain statements that were presented via the DIPT to both groups, accompanied by the percentage of subjects who answered "True of me" to the statements. The Tables are separated into three categories: Table 5 Relationships, Table 6 Educational skills, and Table 7 Values.

Table 5

Percentage of True Responses by Group in the Relationships Category for Selected DIPT Items

	Group Responses	
DIPT Item	Norm[a]	Study[b]
"I have had several friendships that ended and I do not understand why."	31%	74%
"I am comfortable doing things with people of the opposite sex."	65%	50%
"I am more affected by the tone of my parents voice than by what they actually say."	37%	57%

"When one of my friends at school tells me something bad about another kid, I usually believe what my friend says."	51%	33%
"I feel that I show more love and affection to my parents and family than they show to me by the things that I do for them."	78%	52%
"When people are talking, I say things that are way off the subject."	36%	64%
"People say that I am bossy."	24%	55%

[a]Norm = percentage of norm group subjects who answered "true of me" to presented DIPT item; [b]Study = percentage of study subjects who answered "true of me" to presented DIPT item.

Relationships. To summarize the relational differences between the two groups we could say that the study subjects are less likely to understand why their friendships end. They are not as comfortable with the opposite sex. They are more affected by tone of voice, and less likely to trust what friends tell them about others. The study group probably shows love and affection in a more direct manner than the norm group. During conversations the study children are more likely to say things that are way off the subject. Finally, more than one-half of the study kids perceived themselves as bossy.

Table 6

Percentage of True Responses by Group in the Educational Skills Category for Selected DIPT Items

	Group Responses	
DIPT Item	Norm[a]	Study[b]
"I understand what I read."	76%	50%
"Most of the time I do not finish what I start."	38%	71%
"I think I learn best when someone tells me how to do things."	86%	71%

[a]Norm = percentage of norm group subjects who answered "true of me" to presented DIPT item; [b]Study = percentage of study subjects who answered "true of me" to presented DIPT item.

Educational skills. The intellectual and educational differences between these two groups are profound. The study group is less likely to understand what they read. By an overwhelming degree they are less likely to finish what they start. Additionally, more than 25 percent of the study group reports that they learn best through non-verbal methods.

Values. The area in which these two groups differ the most is values. This should not come as a surprise when

you remember that the study group is comprised of individuals who are victims of abuse, abandonment, and neglect. With this in mind it does not seem farfetched that almost twice as many study subjects as norm subjects thought it important to have nice clothes and a fancy car. Likewise, it follows that people who possess great sums of money are more likely to impress the study group children. What is disconcerting, however, is that over one -third of the study group reports an intention to use others in any way they can to get what they want. None of the norm group children made this claim. Finally, with their history in mind, it almost seems appropriate that all but three of the study group children want someone to hug them and to tell them "It's going to be okay" when things are going badly.

Table 7

Percentage of True Responses by Group in the Educational Skills Category for Selected DIPT Items

	Group Responses	
DIPT Item	Norm[a]	Study[b]
"I think it is important to have nice clothes and a fancy car."	37%	69%
"I really like people who have a whole lot of money."	23%	40%

"I will use other people in any way I can to get what I want."	0%	36%
"When things are going badly I just want someone to hug me and to tell me 'It's going to be okay.'"	73%	93%

[a]Norm = percentage of norm group subjects who answered "true of me" to presented DIPT item; [b]Study = percentage of study subjects who answered "true of me" to presented DIPT item.

The DIPT lacks convergent validity because it does not correlate with two other measures of communication style. As listed in Table 2, the Direct measure of the DIPT does correlate with the social desirability scores but the relationship of these two traits are uncertain. The DIPT also Lacks discriminant validation because it correlates with a different trait (SD) that happens to be measured by the same method. Both convergent and discriminant validity are important. Future studies should be designed to determine convergent and discriminant validity.

CHAPTER V

Discussion

When we examine the results of the CT and the LT for the study group we find that the CT measures 79 percent of the study subjects to be inferential. While the LT measures 49 percent of the subjects to be inferential. Calculation of the grand mean for the CT, LT, and the direct measure of the DIPT reveals that 38 percent of the study subject responded directly, while 62 percent of the subjects responded inferentially.

As is reported in Table 2 there is a correlation between the CT and the LT, yet neither of these measures correlates with the DIPT. There are numerous possible reasons for this lack of correlation. What seems most probable at this time is that the three tests are measuring different aspects of direct and inferential communication. That is, the CT and the LT are measuring the range of direct to inferential nonverbal communications, while the DIPT measures the individual's perception of their verbal communication style. Support for this notion comes from Rosenthal's (1966) work concerning experimenter expectancy and covert communications.

Rosenthal (1966) found that subjects in his experiments evidenced distinct differences in their reaction to experimenter expectancies. Subjects who had only visual contact with the experimenter showed little

expectancy effect. The subjects serving with the experimenters in the auditory condition showed a significant expectancy effect. The largest expectancy effect was reported for the visual plus auditory group.

In the current study the DIPT required visual contact of the subjects. Whereas the LT required visual and written contact. But the CT required visual plus auditory contact. It is possible that similar to Rosenthal's (1966) experience, the different measurement devices of the current study elicited a different kind of responding for each measure. That is, the CT and the LT required the subject to interpret nonverbal information, while the direct measure of the DIPT required the subject to record their perception of their own communication style. These differences may account for the lack of correlation between measures.

Subjects are completely unaware of the CT. This minimizes the possibility of the subject affecting the outcome of this measure. The subject is aware of the LT, but they are told by the data collector that this is a study on perception, and the narrator inferentially instructs them to "Go with your first impression, and don't go back and change anything." Again it is unlikely that anyone could determine from those instructions that they were actually being measured on their ability to understand the inferential command to write, or record in some fashion on

the paper in front of them, what they see on the video monitor.

The children asked more questions about the inferential commands, probably because many of them are learning disabled and are accustomed to asking for help in what they perceive to be an educational setting. The most common question was "Should I write?" followed by, "I don't understand, what should I do?" Many, 90%, of the children stated that they did not see anything when the line samples were presented. This is very high when we consider that only 10% of the adult groups from the 1987 Hoerchler and Holler study made this statement.

Another difference is that the children responded to the line samples with internal information. The (1987) adults attended to the external clues and images presented on the monitor. That is, their answers attended to the clicking noise that accompanied each image, or they made statements referencing the screen images. The children on the other hand responded to their internal processes, "I'm Sad," "Happy," "Thinking of mom," and "Mad," were common answers to the line samples. It is not certain what, if any, bearing these differences have on the outcome of the study, but further testing of these differences should be done to make a determination.

An individual's communication ability is a combination of innate preparedness and the use of

conditioning to influence language (Klein, 1987). It is possible that through the process of learning language one develops a communicational style. Confirmation of this hypothesis might be gained through the testing of the remaining group of newborns to 6-year olds. It is possible that one is born with a predisposition to a certain style. Through the processes of socialization, life experiences, and personal interactions with meaningful individuals, one develops a way of communicating that is unique to him, yet measurable.

This study neither confirms nor contradicts Trevarthen's (1983) idea that the human ability to communicate is hard-wired. The current study was not designed to test such a hypothesis. Future studies of children and infants will in part test Trevarthen's idea while examining the existence of communication style. This work could possibly shed some light on the issue of hard-wired communication traits. Much study is needed to clarify this issue.

If we could ascertain whether or not communication style is an innate, stable, but evolving personality trait then we might better understand the the conflicting data regarding the presentation of ambiguous material in sentences. Holmes, Kennedy, and Murray (1987) theorize that we are when confronted with an ambiguity, we consciously think of all of the meanings for an ambiguous

word, and then actively select the correct word meaning for the current context. Glucksberg, Kruz, and Rho (1986) determined through numerous experiments that 75% of the time context does constrain lexical access. Future research should include a way of measuring communication style and the subject's method of resolving ambiguous material. This combination will yield important information concerning communication style the way individuals process language.

The (1987) communication style research of Hoerchler and Holler was based on the investigations of Kappas (1975) into the relationship of the suggestible personalities and hypnotism. The current investigation has similar results to the 1987 study. In both studies the CT and the LT were correlated with each other and the psychometric instrument did not correlate with the other measures. The concept that communication style and hypnotic suggestibility might be related is still intriguing to this author. Unfortunately, this concept was not supported by the current study.

Kappas (1975) implies that the more direct an individual is the less suggestible they will be. Because this study shows a lack of correlation among the three measures,the CT, LT, and DIPT, this idea was not completely supported. Further study is needed to confirm the theories generated because of Kappas' (1975) work.

This investigation answers the question concerning the existence of communication styles in children and

adolescents. It furthers, but leaves undone the question, "Are communication styles learned or inherited?" Further study is required to determine how an individual develops their communicational style. There are many more questions that require exploration. Are certain degrees of communication styles dysfunctional; if yes, what are the dysfunctional levels and why do they occur? What effect do communication styles have on communication as a whole. Finally, can individuals accurately assess their own communication style in the form of a self-report psychometric instrument?

This question of the psychometric test has proven to be most perplexing. The 1987 Kappas psychometric test failed to correlate with the behavioral tests. After refining the written test through two separate series of item-total analyses, the instrument proved to be unreliable. The DIPT test, on the other hand, stands up well under the rigors of statistical analysis. It was constructed to have content validity built-in, and its internal-consistency reliability was confirmed through several statistical procedures. More study is needed to resolve this issue. It would be interesting to see if the DIPT correlates with the original Kappas (1975) test.

The subjects of the current study were selected because the data collector reasoned that if communication style was an inherent trait then it would present itself in

all segments of the population. On the other hand, if communication style is learned as the learning theorists suggest, then the best population to investigate would be ones in which communication is dysfunctional or severely limited.

Several populations were explored as possible subject groups for the study. For example, a variety of hearing impaired groups were considered. All but the actual study subjects were ruled out because of a variety of difficulties associated with either gathering a substantial sample or severe communication barriers between subject and data collector. Future research should include both individuals from disadvantaged communication settings and from functional communication settings.

The converging methods design of this investigation is sound. In future research, however, at least two new instruments should be developed or selected. Care should be taken in the selection or design of these instruments so they consistently measure the same facet of communication style. Ideally, the LT and the CT would be replaced with two psychometric measures that would measure the same element of communication style as the DIPT. These changes to future research projects should enhance our understanding of both human communication in general and the acquisition, and development, of communication style.

Appendix A

The Minimum and Maximum Standards for Each Response.for the Seven Commands.

Command 1. Data collector pats his shirt and pants pockets as if looking for his pencil

Minimum Response: Prior to the end of the 6 second time period the subject must make verbal reference about the pencil. Examples: "Here it is," "You gave it to me," or "You gave it to me." Maximum Response: Subject immediately hands data collector the pencil that they are holding.

Command 2. The narrator holds up a packet and looks through it and stating "You should have a packet like this in front of you."

Minimum Response: Prior to the end of the 6 second time period the subject looks at their packet and fingers the corner of the pages.

Maximum Response: The subject immediately physically looks through their packet imitating the narrators actions.

Command 3. The narrator states, "These images will flash very quickly on the screen. You will be given 10 seconds between images. Please go with your first impression and do not go back and change anything."

Minimum Response: Prior to the end of the 6 second time period the subject must write or draw a response on the provided answer sheet.

Maximum Response: The subject immediately writes or draws a response on the provided answer sheet.

Command 4. The narrator says, "There are two more pages in your packet," as he fingers through his packet.
Minimum Response: Prior to the end of the 6 second time period the subject must turn to the second page.
Maximum Response: The subject immediately turns to second page.

Command 5. The narrator suggests "You might want to turn to the next page."
Minimum Response: Prior to the end of the 6 second time period the subject must turn to the second page.
Maximum Response: The subject immediately turns to second page.

Command 6. The narrator reveals, "The closer you get to the screen, the easier the images are to see."
Minimum Response: Prior to the end of the 6 second time period the subject leans forward moving at least 6 inches closer to the screen of the television set.
Maximum Response: The subject immediately gets up and physically moves them self and their chair at least 6 inches closer to the screen of the television set.

Command 7. The narrator asserts, "Put your pencil down now."

Minimum Response: Prior to the end of the 6 second time period the subject lays their pencil on the clipboard.

Maximum Response: The subject immediately lays their pencil on the clipboard.

Appendix B

The Direct and Inferential Psychometric Test and Answer Sheet Including the Four Deleted Items.

INSTRUCTIONS: Please do not mark on this copy of the questioner. Read each statement carefully and record your answers on the provided answer sheet. If the statement describes the way you are 51% of the time or more then place an "X" in the space before the word TRUE. If the statement does not describe the way you are 51% of the time or more then place an "X" in the space before the word FALSE. The best answer is the one you think of first.

1. When someone orders me to, "Do this!" or "Do that!" without even saying please first, it makes me angry and I don't want to do what they say.

2. When I am talking with my friends I often feel that they are not saying what they <u>really</u> mean.

3. I always want things to be done right away.

4. I have had several friendships that ended and I do not understand why.

5. When asking for something I want, I kind of beat around the bush to get it.

6. I really like people who have a whole lot of money.

7. When someone is talking, and they do not get to the point, it makes me kind of mad.

8. When I am talking with someone, I like them to look at me.

9. I am comfortable doing things with people of the opposite sex.

10. When I am describing something it helps if I can use my hands.

11. When a person is very honest it embarrasses me.

12. Most of the time I do not finish what I start.

13. Sometimes I "tune out" when a person is talking to me. At those times I don't hear what the other person is saying, because I am thinking about what I want to say.
14. I think I learn best by when someone tells me how to do things.
15. I have a whole lot of energy.
16. I am more affected by the tone of my parents voice than by what they actually say.
17. When a friend talks about a thing that scares them, and it is a thing that also scares me, I start feeling scared and uncomfortable.
18. When one of my friends at school tells me something bad about another kid, I usually believe what my friend says.
19. I feel that I show more love and affection to my parents and family than they show to me by the things that I do for them.
20. Having to wait in lines often makes me angry.
21. I get bored with a game if I win too easily.
22. What a person is saying is more important to me than the tone of their voice.
23. People get restless when I'm explaining something in detail.
24. When people are talking, I say things that are way off the subject.
25. I often feel that people don't understand me.
26. Sometimes I feel like our family pet understands me better than most people I know.

27. It is hard for me to make an important decision without help from others.

28. People with loud voices make me uneasy.

29. When things are going badly I just want someone to hug me and to tell me "It's going to be okay."

30. I think it is important to have nice clothes and a fancy car.

31. I often find myself trying to figure out what someone else is thinking.

32. Even when I really want something, I have a hard time asking for it.

33. I work best when I have a plan to follow.

34. When I am playing with my friends and I get either tired or bored with the game we are playing, I usually kind of hint that I'd like to play a different game.

35. When my friends and I are talking, and I want to talk about something else, I have sneaky ways of changing the subject.

36. I will use other people in any way I can to get what I want.

37. If a friend of mine had a new radio that I wanted to look at, I would say "Hey, give me that radio!"

38. When I have bad news to tell, I just say it right away.

39. It is easy for me to say what I am thinking.

40. I like telling people what to do.

41. When someone is angry with me because of something that I have done, and they are telling me about it to my face, I usually have a hard time figuring out what to say.

42. I let others know how much I like them.

43. When I have something to say I just say it.

44. People say that I am bossy.

45. I understand what I read.

46. I tell people when they are wrong.

47. When someone makes a mistake I usually find a gentle way to break it to them.

48. I don't like it when someone has something important to say to me and instead of just saying it, they beat around the bush.

49. When someone is talking to me, I try very hard to listen to everything that they say before deciding what I am going to say.

50. I get bored or really restless when someone talks for a long time without giving me a chance to talk.

I.D. Number _____ Grade _____

Age _____ Boy _____ Girl _____

1. ____ TRUE ____ FALSE
2. ____ TRUE ____ FALSE
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39. ____ TRUE ____ FALSE
40. ____ TRUE ____ FALSE
41. ____ TRUE ____ FALSE
42. ____ TRUE ____ FALSE
43. ____ TRUE ____ FALSE
44. ____ TRUE ____ FALSE
45. ____ TRUE ____ FALSE
46. ____ TRUE ____ FALSE

22. ____ TRUE ____ FALSE
23. ____ TRUE ____ FALSE
24. ____ TRUE ____ FALSE
25. ____ TRUE ____ FALSE
47. ____ TRUE ____ FALSE
48. ____ TRUE ____ FALSE
49. ____ TRUE ____ FALSE
50. ____ TRUE ____ FALSE

Appendix C

Correlation Figures Used in Item-Analysis to Determine Item Acceptance.

The items presented in bold print have correlations ≤ r_{pb} .19 and were deleted from the DIPT for the study subjects.

Item #	r_{pb}	Item #	r_{pb}	Item #	r_{pb}
1	.52	21	.52	41	.41
2	.28	**22**	**.04**	42	.50
3	.26	23	.33	43	.29
4	.52	24	.56	44	.52
5	.48	25	.46	45	.52
6	.86	26	.70	46	.34
7	**.09**	27	.57	**47**	**.12**
8	.54	28	.49	48	.33
9	.72	29	.55	49	.28
10	.71	30	.76	**50**	**.11**
11	.32	31	.28		
12	.79	32	.50		
13	.34	33	.40		
14	.90	34	.29		
15	.46	35	.41		
16	.31	36	.99		
17	.90	37	.97		
18	.59	38	.59		
19	.48	39	.43		
20	.68	40	.25		

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