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EDUCABLE MENTALLY HANDICAPPED CHILDREN'S

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Abstract of Thesis Presented to the Faculty of the Graduate School of Appalachian State University In Partial Fulfillment of the Requirements for the Degree of Master of Arts

## EDUCABLE MENTALLY HANDICAPPED CHILDREN'S COMPREHENSION OF INDIRECT REQUESTS

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The comprehension of indirect requests by four-, five-, and six-year-old mental aged educable mentally handicapped children was investigated in two experiments through the utilization of videotaped interactions. The children viewed forty videotaped interactions per experiment which lasted approximately twenty seconds each and judged the appropriateness of a listener's response to indirect requests.

Experiment I consisted of indirect requests of the interrogative form (can/will) and indirect requests of the interrogative form with a negative element (can't/won't). Experiment II consisted of indirect requests which conveyed positive intent (can/will) and those indirect requests conveying negative intent (must/should).

The EMH children apparently comprehended the indirect requests with little difficulty except for those requests with negative intent which presented overall difficulty for the mental ages tested. The results indicate that a developmental sequence of indirect requests may occur with a "leveling off" at the mental age of five years, suggesting that at this age they reach their level of developmental maturity with indirect requests.

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# Chapter 1

#### INTRODUCTION

Many studies have been conducted regarding the normal child's comprehension of indirect requests. Royster-Branker and Bernstein (1979) have noted that children develop language comprehension by attending to literal meaning first; only later are they able to respond effectively to indirect meanings. Ervin-Tripp (1976) has suggested that the comprehension and production of request forms by children will proceed from direct imperatives, such as "Give me the blanket," to indirect requests that are presumably based on conversational postulates, such as "Can you reach the blanket?" Leonard, Wilcox, Fulmer, and Davis (1978) found significant differences between four-, five-, and six-year-old children's comprehension of indirect requests. They also noted that there was some difficulty in comprehending certain types of indirect requests such as those containing the modals "must" and "should" as opposed to those containing the modals "can" and "will" which were more easily comprehended. Asku (1973), in his study of the acquisition of requests in Turkish children suggests that the more indirect request forms are the last to be acquired. This information suggests that the comprehension of indirect requests is a cross-cultural communication problem. Bates (1976b) has also determined that interrogative requests develop fairly late in English-speaking children. Her explanation for this late development is that the English interrogative request can only be carried out with modal verbs such as "can, will, may, must, should, etc." Brown (1973) reinforces Bates' statement with results from his study in which he found that modal

verbs were among the last acquisitions of basic grammar. He suggests that the delay in interrogative/indirect requests in English may be an artifact of the delay in acquiring modal verbs.

In their study of normal children, Clark and Lucy (1975) found that contextual language comprehension (in this case, indirect requests) requires complex processing skills. Therefore, it can be assumed that if the comprehension of these requests does in fact require complex processing skills in normal children, then the difficulty may be magnified in children with below average language skills such as the mentally handicapped child.

Leonard et. al. (1978) have stated that there are many skills that children must acquire before they can develop an understanding of the language spoken around them. One skill involves the ability to distinguish between what is said grammatically and what is said pragmatically (Dore, 1977). The grammatical interpretation refers to the literal interpretation of the utterance's meaning whereas the pragmatic meaning deals with the intentions of the speaker and the relations of the speaker's utterance to the context in which it is spoken (Leonard et. al., 1978). Wilcox, Davis, and Leonard (1978) illustrate Leonard et. al.'s (1978) point by stating that people often say one thing yet mean another in the normal communication process. For example, a given speaker might produce an utterance such as "It's hot in here" which could be interpreted in more than one way. They believe that if it was obvious to the speaker and the listener that nothing could be done to reduce the temperature, this utterance could be interpreted as simply a statement about the temperature. However, in another situation this utterance could be interpreted as a request to open the door, open the window, or lower the thermostat. In the latter case, the listener is faced with the task of comprehending not only the literal

meaning of the utterance but also the speaker's intention in producing the utterance. Thus, Leonard et. al. (1978) state that the features of language that best distinguish between these two types of meaning, grammatic and pragmatic, are indirect requests.

# Statement of the Problem

Recent investigations by Leonard et. al. (1978), Royster-Branker and Bernstein (1979), Clark and Lucy (1975), and others have provided a great deal of information regarding normal children's comprehension of indirect requests. However, little research has been conducted involving the educable mentally handicapped (EMH) child's comprehension of indirect requests.

Much of what is known about the language of the mentally handicapped focuses mainly on very isolated linguistic aspects, i.e. the grammatical system, the sound system, and the meaning system. Currently, little research has been conducted concerning the best way to communicate with these children. It is important that these children understand what is said in order that others may more effectively communicate with them and so that they might achieve a fuller independence in their adaptive behavior, occupational adequacy, and social adjustment in the community.

## Purpose of the Study

The majority of studies that have been conducted with normal children have involved affirmative types of indirect requests (Can you stop the noise?). The purpose of this study was to focus on the EMH child's comprehension of indirect requests since little research has been conducted in this area. For example, in order to determine how EMH children comprehend indirect requests, this study viewed those

requests involving affirmative syntactic constructions as illustrated earlier, those involving negative constructions (Can't you close the curtains?), and those involving an affirmative syntactic construction with negative intention (Must you eat the carrot?).

## Hypotheses

To facilitate the computation and analysis of the data, the hypotheses were stated in the null form.

## Experiment I

1. There is no significant difference in the comprehension of affirmative interrogative requests (can/will) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

2. There is no significant difference in the comprehension of negative interrogative requests (can't/won't) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

3. There is no significant difference in the comprehension of affirmative and negative interrogative requests (can/will, can't/won't) in the four-year-old mental aged educable mentally handicapped children.

4. There is no significant difference in the comprehension of affirmative and negative interrogative requests (can/will, can't/won't) in the five-year-old mental aged educable mentally handicapped children.

5. There is no significant difference in the comprehension of affirmative and negative interrogative requests (can/will, can't/won't) in the six-year-old mental aged educable mentally handicapped children.

#### Experiment II

6. There is no significant difference in the comprehension of indirect requests which convey positive intent (can/will) between four-,

five-, and six-year-old mental aged mentally handicapped children.

7. There is no significant difference in the comprehension of indirect requests which convey negative intent (must/should) between four-, five-, and six-year-old mental aged mentally handicapped children.

8. There is no significant difference in the comprehension of indirect requests which convey positive intent and those indirect requests that convey negative intent (can/will, must/should) in the four-year-old mental aged educable mentally handicapped children.

9. There is no significant difference in the comprehension of indirect requests which convey positive intent and those indirect requests that convey negative intent (can/will, must/should) in the five-year-old mental aged educable mentally handicapped children.

10. There is no significant difference in the comprehension of indirect requests which convey positive intent and those indirect requests that convey negative intent (can/will, must/should) in the six-year-old mental aged educable mentally handicapped children.

## Limitations of the Study

1. The materials utilized in this study involved the use of the video monitor. This may have been a more abstract task for the children as opposed to the more concrete actual simulations of the situations.

2. The order effect could not be controlled due to an insufficient amount of testing time.

3. Since the subject selection involved matching EMH children on one variable (mental age), one could not be certain that all variables which might have influenced performance were also equated, i.e. chronological age.

#### Definitions

## Direct and Indirect Requests

Clark and Clark (1977) define indirect requests by stating that although in English the standard way to command someone to do something is to use the imperative form, this is not the only way. They explain that commands can also be related indirectly with declarative constructions, interrogative constructions, and other special devices. To illustrate the difference between direct and indirect requests, Clark and Clark cite the following examples:

> Direct: Indirect:

"Open the door." "Can you open the door?" "Would you mind opening the door?" "The door should be open." "It's hot in here."

Clark and Clark believe that under the right circumstances each of these constructions could be used to get someone to open the door, although they differ in their politeness, directness, and so forth. Their distinction between direct and indirect speech acts is that direct speech acts are those expressed by the constructions specifically designed for those acts while indirect speech acts are those expressed by other constructions.

Leonard et. al. (1978), as well as Clark and Clark (1977), state that indirect requests serve the pragmatic function of making a request and that they are viewed as indirect because of their grammatical marking.

#### Preparatory and Propositional Requests

The two types of indirect requests utilized in this study were the preparatory request and the propositional request (Searle, 1975b). Wilcox, Davis, and Leonard (1978) have defined the preparatory request as representing a condition in which the literal interpretation of the speaker's utterance is a question concerning the listener's ability to perform an act, as in "Can you move the chair?", while the conveyed meaning is a request to have the chair moved. The propositional request represents a condition in which the literal interpretation of the speaker's utterance is a question concerning the listener's likelihood of performing an act in the future, as in "Will you empty the trash?", while the conveyed meaning is a request to have the trash emptied at the time of the request.

## Educable Mentally Handicapped Children

This investigation was conducted in the Burke County Public School System in Morganton, North Carolina. The children who served as subjects met the Burke County definition of EMH. This included an intelligence quotient range of fifty to sixty-nine, plus or minus one standard error of measurement which is equivalent to plus or minus five points. They have defined the mentally handicapped individual as those with significantly subaverage general intellectual functioning existing along with deficits in adaptive behavior. This adaptive behavior refers primarily to the effectiveness of the individual in adapting to the natural and social demands of the environment (State Department of Public Instruction, 1979).

#### Chapter 2

# REVIEW OF RELATED RESEARCH

In order to understand how children comprehend indirect requests, one must first have a basic understanding of indirect requests: what various factors determine whether an utterance is stated directly or indirectly; how does one know how to respond to such requests especially when the same utterance can mean different things; what processes do listeners use to compute indirect meaning.

#### Pragmatics

Bates (1976a) states that pragmatics is best defined as rules governing the use of language in context. She explains that all of language is pragmatic to begin with and that we choose our meanings to fit contexts and build our meanings onto those contexts in such a way that the two are inseparable. For example, Bates (1974) states that language may be used to command, placate, query, impress, threaten, or establish rapport with the listener and that knowing how to use language often requires more than knowing how to assemble a syntactically well-formed sequence with a given literal meaning. She states that a particular sentence type may serve a variety of functions, depending on the topic, the relationship of the speaker and the hearer, and other aspects of the situation. All this is known as the pragmatics of language.

Wollner and Geller (1979) divide pragmatics into three different components: conversational rules, presuppositions, and function. Conversational rules are simply defined by Bates (1976a) as being the

intentions, or rules for using utterances. She states that the ability to predict whether or not the listener shares a given assumption and to plan one's utterances accordingly is one of the highest achievements in pragmatic development. Pragmatic presuppositions, according to Bates (1976a) are conditions which are necessary for a sentence to be appropriate in a given context. To illustrate, she cites the example "John is a bachelor." This sentence not only asserts that John is unmarried, but allows the listener to pragmatically presuppose (take for granted) that John is also an adult male. The third element of pragmatics is function, the main concern of this investigation. Clark and Clark (1977) note that function is an important pragmatic concern since every utterance is designed to serve a specific function. It may be meant to inform listeners, warn them, order them to do something, question them about a fact, or thank them for a gift or act of kindness. They believe that the function the sentence serves is critical to communication and that speakers expect listeners to recognize the functions of the sentences they speak and to act accordingly.

To understand the functions an utterance serves, one must understand why the speaker said what he said. Ervin-Tripp (1977a) has reported that intent is not always obvious nor is it always easy to discover. She states that some knowledge of intent is necessary to the complete understanding of any utterance and that interlocutors continually, and often unconsciously, know or make guesses about each other's intentions. She cites the example concerning the speaker asking "Do you have a match?". The hearer, being a member of the same speech community as the speaker and being familiar with the linguistic conventions of that speech community, would undoubtedly

recognize that the speaker's intent was not to ask an informationseeking question but to request a light for a cigarette.

How do hearers actually know when a speaker utters a sentence that the speaker thereby is requesting something instead of asking an information-seeking question? What information must be available to the hearer in order to be able to make such assignments? Van Dijk (1977) states that obviously this information may come from various sources and through various channels such as:

 properties of the structure of the utterance (as assigned on the basis of grammatical rules);

2. para-linguistic properties, such as speed, stress, intonation, pitch, gestures, facial expression and bodily movements;

3. actual observation/perception of the communicative context (presence and properties of objects, other persons, etc.);

4. knowledge/beliefs in memory about the speaker and his properties, or about other properties of the actual situation;

5. knowledge/beliefs with respect to the type of interaction going on, and the structures of preceding contexts of interaction;

6. knowledge/beliefs derived from previous speech acts;

7. general semantic, in particular conventional, knowledge about (inter-) action, rules, etc.—especially those of pragmatics;

8. other kinds of general world-knowledge.

Van Dijk affirms the fact that all these components may be involved in pragmatic comprehension which justifies the well-known insight that it is often impossible to assign a definite intention to an utterance on the basis of semantic comprehension of an utterance alone.

# Speech Acts

Speech acts fall under the pragmatic category of function. Searle (1969) describes the speech act as containing two components: a proposition and an illocutionary force. Lenneberg and Lenneberg (1975) explain that the proposition represents the semantic content of the sentence-the speaker's intention in producing an utterance. Searle (1969) states that the illocutionary force indicates whether the utterance should function as an assertion, promise, question, etc. (how the speaker intends the utterance to be taken). Austin (1962) states that illocutions require the intentional use of a conventional signal to carry out some socially recognized function and may be carried out with conventional gestural signals such as pointing as well as with verbal language. For example, given the utterance "Move the chair", the propositonal content is the words "move the chair" while the illocutionary force is a request. Here the literal meaning of the proposition and the conveyed illocutionary force are the same. However, in the utterance "Can you move the chair?", if interpreted literally, the illocutionary force would be a question about the listener's ability to move the chair. Wilcox et. al. (1978) explain that unless the listener was physically unable to do so, it is unlikely that this would be the speaker's true intention in producing the utterance. It is more likely that the illocutionary force is a request to have the chair moved. In this situation, the literal interpretation of the utterance and the conveyed illocutionary force are not the same. This latter example can be termed as an indirect speech act. These two speech act concepts (propositions and illocutions) are useful in analyzing the development of communicative intentions in children.

#### Direct and Indirect Speech Acts

Clark and Clark (1977) categorize utterances by their particular function: performatives (how the content is to be taken), and propositions (as stated earlier, the speaker's intention in producing an utterance). Under the category of performatives falls direct and indirect speech acts.

Geukens (1978) has stated that the distinction between direct and indirect speech acts is based on the observation that there is quite often a wide discrepancy between what a sentence means and what we may mean by it.

The major problem with indirect speech acts is discussed by Dore (1977). He states that there is a mismatch between surface form and intention. He explains that this mismatch is systematic, involving the appearance of surface forms which look like questions or statements even when the intention is to direct. He also states that many directives are socially motivated by factors that define the speech situation, with a reference point in social norms.

Searle (1975a) defines indirect speech acts as instances in which the speaker communicates to the hearer more than he actually says by way of relying on their mutually shared background information, both linguistic and nonlinguistic, together with the general powers of rationality and inference on the part of the hearer.

Ervin-Tripp (1976, 1977b) states that directives (direct and indirect requests) may take a variety of forms ranging from simple commands to hints that require inference based on shared knowledge for their proper identification as directives. She has listed several factors which serve to determine whether an utterance is stated directly or less directly, including: familiarity and relative ranks of the

interlocutors, the setting, and the role relations of the speaker and addressee. In addition, aspects of the request itself, such as the difficulty of the task and whether the task is a normally expected duty, play a role in determining the form appropriate to the situation (Ervin-Tripp, 1977a). Ervin-Tripp states that the child's developing rules are not solely a function of the grammatical system and the capacity for handling complexity, but also the knowledge of social features. A similar set of variables which influence the way in which a message is transmitted have been discussed by Hopper and Naremore (1973).

Wilcox et. al. (1978) observed that the existence of indirect speech acts poses a problem: How is it possible for the listener to know when to respond to the literal as well as to the conveyed meaning especially when the same utterance can mean different things? According to Searle (1975b) the process begins when the listener interprets the literal meaning of the utterance. He suggests that while doing this the listener also applies knowledge of the situation in which the utterance was produced and assumes that the speaker is cooperating in conversation. Finally, the listener's knowledge of speech acts is applied so that one intention can be used to convey another. According to Wilcox et. al. (1978), all this information taken together enables the listener to correctly determine the speaker's intention in producing an utterance.

Royster-Branker and Bernstein (1979) illustrate how an utterance can be expressed in more than one way. For example, in considering the sentence, "Can you raise the window?", a literal paraphrase would be "Are you able to raise the window?". Royster-

Branker and Bernstein note that there are circumstances that warrant such an interpretation. For example, a physcial therapist might ask this of a patient with a broken arm and intend for it to serve as an information seeking question, where a yes or no answer is appropriate. In other situations, a literal interpretation is not intended. A speaker would know that the listener is capable of raising the window. In addition, the listener presupposes that the speaker is aware that the listener can raise thw window. Given this mutually shared extralinguistic knowledge, plus some situational knowledge (e.g. the window is closed and it is hot), the listener infers that the speaker wants the window raised. Royster-Branker and Bernstein have stated that when sentences like, "Can you raise the window?", are intended as requests for action, they are identified as indirect directives. Hymes (1972) states that responses to indirect directives involve the listener's knowledge of "Who can say what, in what way, where and when, by what means and to whom." These questions by Hymes have come to be referred to as the pragmatics of language.

Mitchell-Kernan and Kernan (1977) believe that there are probably numerous, highly idiosyncratic reasons why a speaker might be reluctant to be explicit. These factors include those which have been stated earlier such as aspects of the request itself, and factors that enter into the definition of the speech situation, such as the role relations between speaker and hearer and their relative ranks. Mitchell-Kernan and Kernan comment that aspects of the request may serve as a selector for hinting because there are certain intentions which cannot be realized politely with any of the more direct forms. These are referred to as directives which are functioning to terminate interaction or encounters. For example, a hostess cannot communicate

the end of a party by saying "Would you go home now?". She is forced by social convention to communicate this indirectly. Similarly, in these situations, it would be unlikely that a doctor would terminate a consultation or therapy session by saying "Would you go now?" or "Do you mind leaving?". Rather a termination would take such forms as "I'm afraid our time is up", or "I'd like to see you again in two weeks". Therefore, Mitchell-Kernan and Kernan (1977), like Ervin-Tripp (1977a) have reinforced the fact that social circumstances affect directive choice.

In seeking a simple interpretive rule which would account for all directives, Searle (1975b), Gordon and Lakoff (1971), and Sinclair and Coulthard (1975) have assumed that listeners could consider the literal meaning of directives first, and use inference, if necessary, to reject that interpretation and find another. But, they have reported that many directives are understood although their literal meaning is opaque, humorous, or irrelevant: "What about the salt?, What's that doing here?, How many times have I told you about the door?, Can you shut up?", etc. Therefore, a wide variety of interpretative procedures may in fact be employed by listeners.

Just how listeners compute indirect meaning is far from clear, but as a first approximation H. Clark and Lucy (1975), Gordon and Lakoff (1971), and Searle (1975b) have listed four major steps:

Step 1: Compute the direct meaning of the utterance.

Step 2: Decide if this meaning is what was intended. Are there sufficient and plausible reasons for the speaker to have intended to convey this meaning, or this meaning alone, in this context?

Step 3: If not, compute the indirect meaning by way of the cooperative principle and the conventions of speech acts.

Step 4: Utilize the utterance on the basis of its indirect meaning.

In an attempt to test this process of computing indirect meaning, H. Clark and Lucy (1975) had individuals respond to various pairs of positive and negative indirect requests:

- 1.a. "Can you open the door?"
  b. "Must you open the door?"
- 2.a. "Why not open the door?"b. "Why open the door?"
- 3.a. "I would love to see the door opened."b. "I would hate to see the door opened."

They found that 1a, 2a, and 3a were taken as requests to open the door, and 1b, 2b, and 3b were taken as requests not to open the door. Clark and Lucy's interest here was in two points. First, if listeners respond to these sentences on the basis of their indirect meaning (Step 4), then the positive requests should behave like other affirmative sentences, and the negative requests like other negative sentences, regardless of their direct meanings. Second, if listeners compute the direct meaning (Step 1) in getting to the indirect meaning (Step 3), the difficulty of computing the direct meaning should make a difference.

Shatz (1974) reports that very young children, before they learn to understand indirect requests, respond to both affirmative and negative requests such as "Can you open the door?", "Must you open the door?", and "Should you open the door?" by opening the door. She explains that they are led to incorrect action on the latter two requests. Lakoff (1973) noted that if adults are asked such questions, they go on to compute the direct meaning. He explains that listeners are keenly aware of politeness distinctions among indirect requests. Between equals, the statements "Open the door", "I want you to open the door", and "You will open the door" are normally impolite, while "Could you open the door?", "Would you mind opening the door?", and "Won't you open the door?" are polite. Lakoff advises that in order to notice these gradations, listeners must normally compute the direct meaning, noting the method the speaker had used to convey the request.

## Comprehension of Indirect Speech Acts

## Development in Normal Children

Leonard et. al. (1978) note that it has recently been shown that children at surprisingly young ages show an ability to produce (Garvey, 1975; Ervin-Tripp, 1977b) as well as comprehend (Bates, 1976a; Shatz, 1974) indirect requests. They also note that often the ages at which such an ability is observed predate the ages at which children are thought to acquire the ability to comprehend the literal meaning of such utterances.

Some problems in deciding when a child has understood a directive have been noted by Garvey (1975). She states that the clearest examples are excuses for noncompliance. She mentions that failure to comply or even to acknowledge a directive may be deceptive because the child may not want to comply. She has also stated that a systematic feature of the most indirect directives is that they provide a routine reply for noncompliance. For example, when a fouryear-old hears: "Why are you in the garden in your socks?" and answers "Because I took off my shoes", it is not clear whether he understood a directive. Compliance with a more explicit directive might merely indicate that he understands differences in the speaker's choice of a directive form may be related to affect.

The child may think a direct imperative from his mother means she is more likely to punish him. Therefore, Garvey explains that noncompliance alone may be insufficient evidence for determining if a child has understood a directive, unless the act is one that there is reason to believe the child wants to carry out and relative sanctions are not important.

Ervin-Tripp (1977a) believes that by the time the child is three-years-old, comprehension of hints and of question-directives has enlarged. She states that the change is due not merely to the child's enlarged capacity to offer services, but to an understanding of the implications of statements regarding the needs of others, and willingness to gratify those needs. Such a change is more social than linguistic, as the child develops an ability to take the perspective of others. She says that it may require considerable knowledge in some cases of the practical, social, or technical facts to make an inference. She also states that variation in the rate of development can be expected because of these social factors. One might also expect some relation between the child's capacity to view speech addressed to him as intentional, and look for the speaker's motives, and the speaker's ability to use those intentions of listeners in developing elaborate strategies which require the child to anticipate a series of replies, and to build on each stage as a means to the ultimate goal.

According to Ervin-Tripp (1977a), the evidence suggests that the social basis already exists in early years for the development of more subtle forms of deviousness than children actually use, in that they differentiate in speech between imperatives, modified imperatives, imbedded imperatives using questions, and need statements.

She claims that they are sensitive to certain social variables, in particular, the age and familiarity of the addressee, the task, and the probability of compliance. She has also noted that many children of seven years of age still cannot comprehend account terminology, and if asked to "ask" or "tell" commands, do not differentiate. Later they may differentiate by adding "please", at least for "ask".

Bates (1976b) devised a three stage model of indirect requests to determine when a child produces and understands indirect speech acts:

1. There is a period from the beginning of language development up to about  $3\frac{1}{2}$ -4 years of age in which from the child's point of view there are no indirect speech acts. Children in this first stage may learn several direct, idiomatic mapping rules for various portions of a performative, without analyzing or understanding the internal syntactic structure of such idioms. For example, as Ervin-Tripp (1974) suggests, English-speaking children may learn the phrase "Can I have..." as a request idiom when they are otherwise incapable of producing modal verbs.

2. In this stage, the child is free of the idiomatic, direct mapping constraints of the earlier period. The child and the listener now understand that they both share certain rules about the goals of speakers and the nature of conversations, and hence, that the listener can recover the child's intent despite variations in form. Bates reports that the Stage 2 child can manipulate the surface form for such indirect utterances, but cannot construct utterances that mark both form and content while successfully achieving his goal.

3. At the third stage, the child will be able to manipulate both form and content in achieving communicative goals. As the child's

role-taking capacity increases, the ability to deceive, wheedle, seduce, and persuade will expand accordingly.

Both Garvey (1975) and Ervin-Tripp (1976) have discussed this third stage. They both report that completely indirect hints are extremely rare in preschool children. Neither is quite sure when a full fledged capacity for such utterances is established. It is estimated by both Garvey and Ervin-Tripp that this stage begins when concrete operations are well-established (e.g., 7-8 years of age), and the child is confident and versatile in role-taking skills. During this period the child controls not only his own pragmatic structures, but the listener's interpretation of those structures (Piaget, 1970). With all this information available to the child, and with an enlarged and more efficient processing capacity, the child can recombine various relations to create a camouflaged utterance—indirect speech acts which successfully convey a different meaning and/or goal than what is signalled in the surface form of the utterance alone (Ervin-Tripp, 1976).

Ervin-Tripp (1977a) suggests that the comprehension of directive intent may not only include the speaker's choice of particular forms in his repertoire but also the social information involved in that particular situation. She states that in the adult directive system some directives will not be recognized as such, unless the listener knows the rules for appropriate selection in those social conditions, since the surface forms are systematically ambiguous out of context.

Ervin-Tripp cites a familiar example: "Is you Daddy there?". Such a question from a caller at the beginning of a telephone conversation would normally be heard by an adult or older child as a routine directive to bring him to the telephone, with a reply such as

"Yes, just a minute please". Ervin-Tripp states that callers wishing more information must use another form or mark the deviation from the routine. She relates the fact that we assume that children learn this interpretation because there is a regular sequence in which the caller remedies the listener's failure to hear the directive by moving to a more explicit form, like the permission directive: "Can I talk to him?". Ervin-Tripp has stated that there is evidence from recordings of family interaction of such sequences in which speakers move to increasingly more explicit forms. As early as age four, some children hear the directive question not as a routine directive, but at least as a possible directive, and reply: "You want to talk to him?". Yet at age ten, Ervin-Tripp believes that other children fail to make this interpretation. She states that the reasons for such a wide variation in acquisition are not totally understood.

In normal comprehension, listeners try to build the interpretation they think they were meant to build, and that may take them beyond the direct meaning of a sentence to its indirect meaning (Clark and Clark, 1977). Clark and Clark give the example "Must you open the door?" which will in certain contexts be construed not just as a question to be answered "yes" or "no" but as a polite request not to open the door. They say that because listeners probably store this indirect interpretation, they should often confuse "Must you open the door?" with other requests with the same interpretation, for example, "Please don't open the door."

## Development In Deviant Populations

This study is concerned with those who are somewhat cognitively deficient in the cognitive processes which underlie language. Hughes (1975)

has shown that the subnormal seem to show a verbal or linguistic ability that parallels their cognitive development. He states that sometimes their linguistic abilities can be shown to match their chronological age as distinct from their mental age.

Sinclair (1976) states that language disordered children process language too literally and that they do not take context into account. He believes that language disordered children engage in linguistic interactions with the same action response strategies that normal children use but are less sensitive than normal children to the markers that would lead them away from action. Sinclair gives the following illustration involving a language disordered child involved in conversation with an adult: When asked, "Can your mother talk on the telephone?", the child answers, "Yes". The adult then asks, "Can you talk on the telephone?", and the child responds by picking up the receiver of the telephone and pretends to be engaging in a conversation. Sinclair says that the first question can be thought of as a contextual marker that the child should have considered when answering the second question.

A study by Shatz, Bernstein, and Shulman (1976) which dealt with the comprehension of indirect directives by language disordered children reported that their language disordered subjects were not confined to literal interpretations as has been suggested by Sinclair (1976) but that they could take context into account.

Blake (1975) conducted a study to determine the effects of negation on sentence comprehension of mentally handicapped and normal pupils. She found that the handicapped and younger normal children did not differ and the older normal children exceeded both groups in their comprehension. The present investigation resulted in similar

findings; both groups of children performed equally. However, the older normal children exceeded the mentally handicapped group only in their comprehension of indirect requests with negative intent (must/should).

Gough (1975) states that negation increases the difficulty in sentence comprehension. This particular study involved indirect requests with negative syntactic constructions i.e. those requests containing the modals "can't" and "won't", as well as indirect requests involving affirmative syntactic constructions with negative intention such as those sentences containing the modals "must" and "should".

It has been found in a study by Royster-Branker and Bernstein (1979) that language impaired children's use of pragmatic skills exhibits a sensitivity to prior linguistic context. The results of their experiment show that it may be the case that these children have difficulty taking into account some of the contextual and linguistic markers which signal the inappropriateness of action. However, it was found that these children in this study by Royster-Branker and Bernstein were not confined to literal interpretations they could take context into account.

## Summary

The choice of directives as the focus for an analysis of children's speech acts is based on several advantages (Ervin-Tripp, 1977a). Ervin-Tripp reports that directives are relatively frequent from the beginning of child language—some counts have yielded frequencies as high as fifty percent of utterances. Since they make a demand on the listener for services, they display considerable sensitivity to social features. Ervin-Tripp believes that they are somewhat more independent of text than some other kinds of forms in that they "change the subject" rather than arise naturally out of discourse, except when discourse is activity-tied. Ervin-Tripp also believes that directives are relatively easy to recognize. She notes that the high frequency of directives produced by children is related to their realistic dependency. The content of directives will change with age, as the speaker's desires and scope of practical competence increases.

In retrospect, information has clearly demonstrated that little research has been conducted regarding the mentally handicapped child's comprehension of indirect requests. Therefore, speech pathologists should be concerned with this aspect of communication and its significance to the mentally handicapped child's development. This information may help speech pathologists, teachers, and others understand how these children process directions in the classroom and in turn, will help them determine whether these individuals need to be approached in a more direct or indirect way. This type of investigation is relevant as it focuses on the language these children encounter in their everyday environment. For example, indirect requests are used in most any type of situation: the classroom, playground, cafeteria, at home, etc. Because of children's broad exposure to these requests, educators feel that they should be able to pinpoint deficits that the children have in everyday understanding kinds of situations so that strategies can be developed to help them overcome those kinds of deficits. Further studies could yield positive results in developing a more effective or direct mode of communication involving these children.

#### Chapter 3

#### PROCEDURE

In this chapter, the participants of the study are identified, the methodology is discussed, and the instruments and data-collecting devices used in the study are described.

## Participants in the Study

Forty-six educable mentally handicapped children served as subjects. The children tested were all those EMH children from the Burke County Public Schools who met the criteria for subject selection: (1) mental ages (MA) of four, five, and six years (plus or minus six months), (2) EMH classification (Intelligence Quotient falling within the range of fifty to sixty-nine, plus or minus one standard error of measurement which is equivalent to plus or minus five points), (3) and enrollment in regular kindergarten or elementary school facilities in the Burke County Public School System. In addition, parental permission was obtained for each child to be tested. Appendix A contains the descriptive information relevant to the subjects.

# Methodology

## Stimulus Materials

The experimental stimuli consisted of two experiments with forty videotaped interactions per experiment. Each videotaped interaction was approximately twenty-five seconds in duration and consisted of one adult (the speaker) making an indirect request of another adult (the listener). The adult serving as the speaker and the adult serving as the listener remained constant throughout all stimuli in each experiment. All stimuli were designed to represent interactions that could occur naturally in everyday circumstances. The stimuli were recorded in one of four simulated settings: an office, a kitchen, a hallway, and a living room. During each of the forty interactions in each experiment, at the time of the speaker's request, the listener was engaged in some activity, such as moving furniture, reading a book, etc.

The stimuli were presented in two independent experiments. Experiment I involved the syntactical construction Modal + You + Verb + Article + Noun. These consisted of indirect requests of the interrogative form (can/will) and indirect requests of the interrogative form with a negative element (can't/won't). For example, "Can you move the ashtray?", "Won't you leave the room?". Both the affirmative and negative construction requests called for the same kind of behaviors on the part of the listener, i.e. that the listener respond appropriately to the request asked of him. An appropriate response occurred either in performing an act or not performing an act such as "Can you move the chair?", or "Can you stop the noise?". Inappropriate responses took one of two forms. In some instances the listener responded to the literal interpretation of the speaker's utterance (i.e. as an inquiry about the ability or likelihood of performing an act). For example, if the speaker said "Can you move the chair?" the listener responded with "yes" and continued performing the original activity. The other form of inappropriate responses involved the listener performing an act other than the one requested. For example, when asked "Can you clean the stain?", the listener said "yes" and instead left the room. This experiment focused on a comparison of indirect requests differing only in their syntactic structure.

Experiment II also involved the syntactical construction Modal + You + Verb + Article + Noun. These consisted of indirect requests which conveyed positive intent (can/will) and those indirect requests conveying negative intent (must/should). "Will you leave the stapler?", and "Must you eat the carrot?" are examples of these types of requests. Those requests with positive intent were considered instances in which the speaker indicated that he wanted the listener to perform an act. Those with negative intent were defined as instances in which the speaker indicated that he did not want the listener to perform an act that he was doing or about to do. The indirect requests used in this experiment permitted a comparison of comprehension abilities concerning positive versus negative intent through the use of the modals "can" and "will" versus "must" and "should". The requests involving "can" and "will" required the listener to change from this activity to the one specified in the predicate of the request. In contrast, the indirect request involving "must" and "should" required the listener to perform some act other than the one specified in the predicate. For some of these requests containing the modals "must" and "should", the appropriate response took the form of a change in action. For example, when asked "Should you interrupt the meeting?", the listener said "Oh!" and turned and walked away. The other appropriate responses involved the cessation of an action. For instance, when asked "Must you bite the pen?", the listener stopped biting the pen. For some of these requests the inappropriate response involved the listener continuing the activity in which she was engaged. For instance, while walking away from a package that she left, the listener was asked "Should you leave the package?" Rather than returning for the package, the listener continued walking away. Other inappropriate responses involved the listener

performing an action at the time of the speaker's request. For example, after bringing a magazine back to a table on which a pair of scissors was lying, the listener was asked "Should you cut the magazine?". After pausing, the listener proceeded to cut the magazine with the scissors.

The basic differences between the two experiments were the usage of the modals and the intended meaning of the utterances. As stated earlier, Experiment I utilized (can/will, can't/won't) while Experiment II used (can/will, must/should), however none of the specific requests used in the first experiment were repeated in the second. The same two types of appropriate and inappropriate responses used in the first experiment were used in the second with verbal responses remaining the same and appropriate for the request regardless of the appropriateness of the behavioral response. Verbal responses included: "Sure", "Oh", or "Yes".

A few of the experimental stimuli developed for this study involved modifications of those used in Leonard et. al.'s research (1978). These modifications included partial alterations of a small portion of the stimulus items. Examples of the altered requests include: "Can you lift the table?" which was changed to "Can you turn on the lamp?", and "Can't you carry the briefcase?" which was changed to "Can't you carry the bag?" It was believed that these slight modifications would not interfere with the original design of the study since they contained the same modal verb as the original requests.

The specific experimental stimuli for both Experiments I and II are listed as Appendices B and C and the outline for both experiments' components is listed as Appendix D.

## Testing Procedure

Each of the children serving as a subject was seen individually in a quiet room at the child's school. The child and the experimenter were seated directly in front of the video monitor. The following instructions were given:

> Watch the two ladies on T.V. One talks; one listens. Watch the lady who is listening. Tell me if she does right or wrong.

These directions were repeated and modified if there were any questions or if the individual appeared to be confused.

Four practice stimuli were presented to insure that the child understood the task. None of the practice stimuli involved indirect requests. For example, one practice item involved the speaker looking up at the listener who just entered the room. The speaker then motioned toward a chair and said "Move the chair." The listener said "Sure" and moved the chair. One repeat viewing of the stimulus interaction was permitted if requested by the child or if it was observed that the child was not attending to the task. Guessing was encouraged if the child was unsure about the certainty of his response at this time. The experimenter recorded the correctness of the child's judgment for each of the forty interactions in each experiment.

Samples of the data-collecting devices for the child's responses appear as Appendices E and F.

#### Time Frame

The EMH children were tested during February and March of 1980. Approximate duration of the task (Experiments I and II) for each individual was forty minutes. However, this time frame varied according to the child's IQ with the higher functioning children responding more rapidly to the stimuli than those children with lower IQ's.

#### Chapter 4

# ANALYSIS OF THE DATA

Data was collected on forty-six subjects who ranged in mental ages from three years, six months to six years, six months. An item analysis of Experiments I and II is listed as Appendix G. Figures I and II represent the mean number of correct judgments by subject age and type of indirect request in Experiments I and II. As seen in Appendix G and Figures I and II, there seems to be a difference between the children's comprehension of the stimuli in the two experiments. A significant difference is seen particularly in the responses to those negative requests in Experiment II (as represented by the larger number of incorrect responses) as opposed to the responses on the other types of requests. These other types of requests include the remaining stimuli in Experiments I and II. Raw data for both experiments are seen as Appendices H and I.

The subjects' correct judgments on the tasks for both experiments were analyzed by the Kruskal-Wallis one-way analysis of variance by ranks (Siegel, 1956) with a between (subject age) groups variable. Hypotheses (1), (2), (6), and (7) were tested with this procedure (see Table I). The Wilcoxon Matched-Pairs Signed-Ranks Test (Siegel, 1956) was also utilized to analyze the within-subjects (syntactic construction) variable. Hypotheses (3), (4), (5), (8), (9), and (10) were tested with the Wilcoxon (see Table II). Table III represents a summary of the statistical findings by hypotheses. Kuder-Richardson formula 20 (Bruning, and Kintz, 1968) computed reliability measurements for Experiments I and II as being 0.51 indicating a statistical significance (MEAN NUMBER OF CORRECT JUDGMENTS BY MENTAL AGE AND TYPE OF REQUEST)



 =	NEGATIVE	RE	UESTS
=	AFFIRMATI	VE	REQUESTS

(MEAN NUMBER OF CORRECT JUDGMENTS BY MENTAL AGE AND TYPE OF REQUEST)



----- = NEGATIVE REQUESTS = POSITIVE REQUESTS

# TABLE I

(KRUSKAL-WALLIS ONE-WAY ANALYSIS OF VARIANCE BY RANKS)

# EXPERIMENT I

			MEN	TAL AGE	CHI-SQUARE	P <		
			4 5 6		6	FOR TIES)		
N=46			10	16	20			
MEAN	RANKS	(AFFIRMATIVE)-	15.50	25.66	25.77	5.220	0.047	
MEAN	RANKS	(NEGATIVE)-	9.60	27.31	27.40	17.939	0.001	

# EXPERIMENT II

			ME	TAL AGE	CHI-SQUARE	P <	
			4	5	6	FOR TIES)	
N=46			10	16	20		
MEAN	RANKS	(POSITIVE)-	10.90	28.28	25.97	13.083	0.001
MEAN	RANKS	(NEGATIVE)-	17.50	26.03	24.47	2.685	0.261

# TABLE II

# (WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST)

#### P4 VARIABLE MEAN MA N STD DEV Z 2.936 4 -0.629 10 17.200 0.529 AFFIRMATIVE 4 NEGATIVE 10 17.000 5 5 AFFIRMATIVE 16 19.313 0.8732 -1.540 0.123 0.602) 19.688 NEGATIVE 16 6 1.164 20 0.033 AFFIRMATIVE 19.250 -2.132 6 NEGATIVE 20 19.700 1.817 46 18.826 4,5,6 AFFIRMATIVE 4,5,6 46 19.109 NEGATIVE

# EXPERIMENT I

# EXPERIMENT II

MA	VARIABLE	N	MEAN	STD DEV	Z	P<
4 4	POSITIVE NEGATIVE	10 10	17.000 9.600	2.309 3.718	-2.803	0.005
5 5	POSITIVE NEGATIVE	16 16	19.438 12.625	0.892) 4.801	-3.408	0.001
6 6	POSITIVE NEGATIVE	20 20	19.300 14.450	0.865 13.945	-3.058	0.002
4,5,6 4,5,6	POSITIVE	46 46	18.848 12.761	1.619 9.801		

# TABLE III

# (SUMMARY OF STATISTICAL FINDINGS BY HYPOTHESES)

HYPOTHESIS	COMPARISONS	MENTAL AGES	P VALUES
#1		1. 5. 6	
#1	AFFIRMATIVE	4,2,0	0.047 = 51G.
#2	NEGATIVE	4,5,6	0.001 = SIG.
#3	AFFIRMATIVE VS. NEGATIVE	4	0.529 = NONSIG.
#4	AFFIRMATIVE VS. NEGATIVE	5	0.123 = NONSIG.
#5	AFFIRMATIVE VS. NEGATIVE	6	0.033 = SIG.
#6	POSITIVE	4,5,6	0.001 = SIG.
#7	NEGATIVE	4,5,6	0.261 = NONSIG.
#8	POSITIVE VS. NEGATIVE	4	0.005 = SIG.
#9	POSITIVE VS. NEGATIVE	5	0.001 = SIG.
#10	POSITIVE VS. NEGATIVE	6	0.002 = SIG.

at .01 level of confidence or as having a high degree of reliability.

Test-retest trials were administered to four subjects to determine the percentage of agreement for Experiments I and II. The subjects selected were those children who had MA's representative of their age group. Test-retest trials for Experiment I indicated ninety-five percent agreement, whereas eighty-six percent agreement was noted in test-retest trials in both experiments (see Table IV).

# Results of Statistical Analysis

The results of the statistical analysis are discussed under the restatement of each null hypothesis.

#### Null Hypothesis 1

There is no significant difference in the comprehension of affirmative interrogative requests (can/will) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table I, the null hypothesis was rejected at the .05 level of confidence indicating a significant difference between the comprehension of these three groups in the affirmative interrogative requests.

## Null Hypothesis 2

There is no significant difference in the comprehension of negative interrogative requests (can't/won't) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table I, the null hypothesis was rejected at the .05 level of confidence indicating a significant difference between the comprehension of these three groups in the negative interrogative requests.

# TABLE IV

(PERCENTAGE OF AGREEMENT ON TEST-RETEST TRIALS)

1	EXPERIMENT I (MAX = 40)	EXPERIMENT II (MAX = 40)				
ID	# OF AGREEMENT WITHIN TEST-RETEST TRIALS	ID # OF AGREEMENT WITHIN TEST-RETEST TRIALS				
#30	40	#30	35			
#31	39	#31	35			
#14	39	#14	35			
#4	34	#4	33			

TOTAL = 152/160 = 95%

TOTAL = 138/160 = 86%

TOTAL AGREEMENT OF EXPERIMENTS I AND II = 290/320 = 90%

## Null Hypothesis 3

There is no significant difference in the comprehension of affirmative and negative interrogative requests (can/will, can't/won't) in the four-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table II, the null hypothesis was not rejected at the .05 level of confidence indicating no significant difference in the comprehension of affirmative and negative interrogative requests in the four-year-old mental aged children.

#### Null Hypothesis 4

There is no significant difference in the comprehension of affirmative and negative interrogative requests (can/will, can't/won't) in the five-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table II, the null hypothesis was not rejected at the .05 level of confidence indicating no significant difference in the comprehension of affirmative and negative interrogative requests in the five-year-old mental aged children.

## Null Hypothesis 5

There is no significant difference in the comprehension of affirmative and negative interrogative requests (can/will, can't/won't) in the six-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table II, the null hypothesis was rejected at the .05 level of confidence indicating a significant difference in the comprehension of affirmative and negative interrogative requests in the six-year-old mental aged children.

#### Null Hypothesis 6

There is no significant difference in the comprehension of indirect requests which convey positive intent (can/will) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table I, the null hypothesis was rejected at the .05 level of confidence indicating a significant difference in the comprehension of indirect requests conveying positive intent in the three age groups of children.

## Null Hypothesis 7

There is no significant difference in the comprehension of indirect requests which convey negative intent (must/should) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table I, the null hypothesis was not rejected at the .05 level of confidence indicating no significant difference in the comprehension of indirect requests conveying negative intent in the three age groups of children.

## Null Hypothesis 8

There is no significant difference in the comprehension of indirect requests which convey positive intent and those indirect requests that convey negative intent (can/will, must/should) in the four-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table II, the null hypothesis was rejected at the .05 level of confidence indicating a significant difference in the comprehension of indirect requests conveying positive intent and those conveying negative intent in the four-year-old mental aged children.

# Null Hypothesis 9

There is no significant difference in the comprehension of indirect requests which convey positive intent and those indirect requests that convey negative intent (can/will, must/should) in the five-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table II, the null hypothesis was rejected at .05 level of confidence indicating a significant difference in the comprehension of indirect requests conveying positive intent and those conveying negative intent in the five-year-old mental aged children.

## Null Hypothesis 10

There is no significant difference in the comprehension of indirect requests which convey positive intent and those indirect requests that convey negative intent (can/will, must/should) in the six-year-old mental aged educable mentally handicapped children.

Based on the information shown in Table II, the null hypothesis was rejected at the .05 level of confidence indicating a significant difference in the comprehension of indirect requests conveying positive intent and those conveying negative intent in the six-year-old mental aged children.

## Chapter 5

# SUMMARY, DISCUSSION, AND RECOMMENDATIONS FOR FURTHER RESEARCH

Chapter 5 includes a summary of the study, a discussion of the conclusions and implications drawn from the data, and recommendations for further research.

#### Summary

The purpose of this study was to investigate the educable mentally handicapped child's comprehension of indirect requests by asking them to judge the appropriateness of a listener's response to indirect requests.

Forty-six subjects from regular kindergarten or elementary school facilities in the Burke County Public School System were tested.

The null hypothesis was used for the purpose of facilitating the computation and analysis of the data.

There is no significant difference between the following: four-year-old mental aged children's comprehension of affirmative and negative interrogative requests, five-year-old mental aged children's comprehension of affirmative and negative interrogative requests, and four-, five-, and six-year-old mental aged children's comprehension of indirect requests conveying negative intent.

The following findings were based upon statistical analysis of the data obtained during the investigation:

1. There was a significant difference in the comprehension of affirmative interrogative requests (can/will) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

2. There was a significant difference in the comprehension of negative interrogative requests (can't/won't) between four-, five-, and six-year-old mental aged educable mentally handicapped children.

3. There was a significant difference in the comprehension of affirmative and negative interrogative requests (can/will, can't/won't) in the six-year-old mental aged educable mentally handicapped children.

4. There was a significant difference in the comprehension of indirect requests conveying positive intent (can/will) in the three groups of children.

5. There was a significant difference in the comprehension of indirect requests conveying positive intent and those conveying negative intent (can/will, must/should) in the four-year-old mental aged children.

6. There was a significant difference in the comprehension of indirect requests conveying positive intent and those conveying negative intent (can/will, must/should) in the five-year-old mental aged children.

7. There was a significant difference in the comprehension of indirect requests conveying positive intent and those conveying negative intent (can/will, must/should) in the six-year-old mental aged children.

# Discussion

Results suggested a significant difference in the comprehension of affirmative and negative indirect requests (can/will, can't/won't) between those children with mental ages of four, five, and six years. Results indicated that the children with mental ages of four-year-olds showed a depressed performance as compared to those children with mental ages of five and six years who performed similarily (see Tables I, II, and III). A significant difference was also noted between the affirmative and negative indirect requests in those children with mental ages of six years (see Tables II and III). It seems typical that there would be no significant difference in these two types of requests in everyday situations. However, this difference was noted in the six-year-old mental aged children with a higher performance in the comprehension of negative requests.

It appears that the indirect requests with negative constructions posed no difficulties for the children tested. Apparently the children did not make the assumption that the presence of a negative element (can't/won't) meant a negation of the behavior specified in the request.

A significant difference was found in the four-, five-, and sixyear old mental aged children's comprehension of indirect requests with positive intent (can/will). Once again, those children with MA's of four-year-olds exhibited a depressed performance in their comprehension as compared to children with MA's of five-, and six-years who performed similarily (see Table I).

The information found in Table I suggests that there is not a significant difference in the three mental age groups' comprehension of requests with negative intent. A possible explanation for these results may be due to the fact that these requests are more linguistically difficult than those requests with positive intent.

Because of the linguistic simplicity of the requests with positive intent (can/will), and the linguistic complexity of the requests with negative intent (should/must), it is not surprising that significant differences in comprehension between these two types of requests were noted in all age groups. The requests with negative intent involved a modification of the behavior mentioned—all age groups performed better when the listener's inappropriate response involved a continuation of the activity specified in the request, and worse when the listener's response involved terminating the activity specified in the request.

For the age groups studied, the children's judgments concerning the appropriateness of the listener's responses to indirect requests involving "must" and "should" presented considerable problems. Every child's performance involved a number of errors suggesting that understanding of such requests was not yet complete.

Other possible explanations as to why these requests with negative intent presented difficulty for the children are: 1. Most indirect requests in English ask that the behavior specified in the predicate be performed (Leonard et. al., 1978), while those utilized in this investigation requested modifications or termination of the behavior, 2. "Must" and "should" requests can function in the opposite manner. In some instances, these requests may function as requests for the behavior specified in the predicate. For example, "Should you leave the room?" might be a request for the listener to leave the room. In videotaping the interactions in this study, this possible interpretation was avoided. For instance, when the speaker asked "Should you leave the room?", the listener was in the process of leaving the room. The fact that these modals can function in a different manner in some situations may account for the difficulty the children demonstrated, 3. Blake (1975), in her study of normal and handicapped subjects' comprehension, found that concrete sentences are easier to understand than abstract for both groups of children. Therefore, the conclusion can be drawn as to why the subjects in this investigation appeared to have more difficulty comprehending those requests with negative intent (must/should)-these were more abstract than the other types of requests.

When introduced to the task of judging the appropriateness of a listener's response to indirect requests, many of the children did

not respond on the basis of whether or not the listener performed an action, but they appeared to base their judgments on their knowledge of the conveyed meanings of indirect requests. In other words these children, in most cases, responded to meanings instead of words. The results indicate that only the indirect requests with negative intent (must/should) posed a problem for the EMH children tested.

A surprising result of this investigation was the similarity in performances of the five-, and six-year-old mental aged children while those children with mental ages of four years showed a depressed comprehension level. It was believed that with an increase in MA, there would also be an increase in comprehension. Figures I and II illustrate a possible explanation for these results indicating that the curve begins to level off at the mental age of five years. This leveling off at the mental age of five years may represent the peak of the EMH children's growth in language development involving indirect requests.

## Normal vs. EMH Children's Comprehension

It is interesting to make a general comparison between the results of the comprehension of the normal subjects tested in Leonard et. al.'s (1978) study and the results of the comprehension of the EMH subjects tested in this study. With these two groups considered, it was believed that the EMH population would perform similarly to the normal population when the mental age was controlled i.e. equivalent to the mental age of the normal children. According to Figures III and IV, when these two groups were compared, the performance seemed to be the same. The EMH children did not seem to have any more problems than normal children functioning at the same age level. In other words,

## FIGURE III EXPERIMENT I

(MEAN NUMBER OF CORRECT JUDGMENTS FOR NORMAL AND EMH CHILDREN)



\*DATA FROM LEONARD ET. AL.'S STUDY (1978) ----- = EMH SUBJECTS' RESPONSES = NORMAL SUBJECTS' RESPONSES FIGURE IV EXPERIMENT II

(MEAN NUMBER OF CORRECT JUDGMENTS FOR NORMAL AND EMH CHILDREN)



\*DATA FROM LEONARD ET. AL.'S STUDY (1978) ----- = EMH SUBJECTS' RESPONSES \_\_\_\_\_ = NORMAL SUBJECTS' RESPONSES retardation does not seem to have any appreciable effect on the EMH child's comprehension of indirect requests when compared to normal children with the same mental age functioning.

The similar performances of the EMH and normal children may be due to several factors other than equivalent MA's of the two groups. For example: 1. Language programs are generally stressed in the public schools for EMH children, 2. Since the two groups of children were matched according to MA, the EMH children were, in some instances, twice as old as the normal child. As a result, the EMH children have had more language experience. This may explain their similar performance to the normal children in spite of their mental deficit. In observing Figures III and IV it can be noted that the EMH children's comprehension begins to level off at age five, suggesting that they have reached their level of maturity. It appears that in both figures the normal children are continuing to climb in their performance rather than level off as the EMH children have done. These results may be indicative of a developmental sequence in the comprehension of indirect requests for all children.

## Recommendations For Further Research

The following recommendations are made as a result of the present investigation.

1. This investigation should be replicated using live stimuli as opposed to videotapes. Tough (1977) has stated that pictures cannot be compared with ongoing experiences although they are a familiar means of presenting information to children with the expectations of the children interpreting them as ongoing situations.

2. This investigation and Leonard et. al.'s (1978) investigation should be replicated utilizing a statistical comparison of the two groups studied. A supporting factor for this analysis would involve the subject selection of both normal and EMH children deriving from the same geographic region. In addition, a larger age range may support or weaken the comparison made in Figures III and IV. It would be interesting to determine if the children's performance would continue to plateau or climb if, for example, seven- and eight-year-old children were also tested.

3. Further research might include testing institutionalized mentally handicapped children's comprehension of indirect requests. Since these children are not provided the same type of exposure to normal situations as the noninstitutionalized child, a comparison between this normal and abnormal exposure might prove to be interesting.

# APPENDIX A

# EXPERIMENTS I AND II

	4				5				6		
ID	CA	IQ	MA	ID	CA	IQ	MA	ID	CA	IQ	MA
#1	6.7	56	3.6	#11	7.6	66	4.9	#27	8.2	70	5.7
#2	6.9	53	3.6	#12	6.11	72	4.9	#28	8.10	67	5.8
#3	6.5	63	4.0	#13	8.6	58	4.9	#29	8.10	69	6.0
#4	6.6	64	4.1	#14	7.0	72	5.0	#30	8.10	69	6.0
#5	7.3	61	4.4	#15	7.4	70	5.1	#31	11.8	52	6.0
#6	6.10	66	4.4	#16	7.2	72	5.1	#32	8.9	70	6.1
#7	6.11	65	4.4	#17	7.5	70	5.1	#33	8.3	74	6.1
#8	6.11	64	4.4	#18	7.1	74	5.2	#34	9.11	64	6.3
#9	6.11	67	4.6	#19	8.2	64	5.2	#35	8.9	72	6.3
#10	8.10	53	4.6	#20	7.6	71	5.3	#36	9.2	69	6.3
				#21	7.9	68	5.3	#37	9.6	67	6.3
				#22	7.7	72	5.4	#38	10.10	59	6.3
				#23	10.2	53	5.4	#39	12.6	51	6.3
				#24	7.5	73	5.4	#40	9.8	66	6.4
				#25	10.8	51	5.4	#41	9.5	69	6.4
				#26	11.0	50	5.5	#42	10.8	61	6.5
								#43	8.10	74	6.5
								#44	9.11	67	6.6
								#45	12.4	54	6.6
								#46	11.3	59	6.6

MEAN	RANGE	MEAN	RANGE	MEAN	RANGE
MA = 4.2	3.6-4.6	MA = 5.1	4.9-5.5	MA = 6.2	5.7-6.6
CA = 6.6	6.5-8.10	CA = 8.0	6.11-11.0	CA = 9.6	8.2-12.6
IQ = 61	53-67	IQ = 66	50-74	IQ = 65	51-74

APPENDIX B

# EXPERIMENT I

PRACTICE STIMULI:

a.	hand	me	book
-			

- b. please move chair
  I c. give me paper
  I d. move cup

EXPERIMENTAL STIMULI:

	1.	can open door (H)
	2.	won't hand paper (0)
	3.	will get chair (0)
Ι	4.	can move chair (0)
Ι	5.	won't use cup (K)
	6.	can't close curtains (LR)
	7.	can get glasses (0)
	8.	will answer door (0)
Ι	9.	can hold cup (K)
	10.	won't shut door (0)
Ι	11.	can't move ashtray (0)
Ι	12.	won't open window (0)
	13.	can hold cup (K)
	14.	can't get book (0)
Ι	15.	will answer door (0)
Ι	16.	can't close curtains (LR)
	17.	will empty trash (LR)
	18.	can reach book (LR)
	19.	can't stop noise (LR)
Ι	20.	won't shut door (0)

I	21.	can't carry bag (0)
Ι	22.	can reach book (0)
	23.	won't open window (0)
I	24.	can get glasses (0)
I	25.	will empty trash (0)
I	26.	won't leave room (0)
	27.	can't carry bag (0)
Ι	28.	can't get book (0)
	29.	won't leave room (0)
Ι	30.	can't stop noise (0)
	31.	will move typewriter (0)
I	32.	won't hand paper (0)
Ι	33.	can open door (H)
	34.	can't move ashtray (0)
	35.	won't use cup (K)
I	36.	will hang picture (0)
I	37.	will move typewriter (0)
	38.	can move chair (0)
	39.	will hang picture (0)
Ι	40.	will get chair (0)

SETTINGS:

a.	office (0)	
Ъ.	kitchen (K)	
c.	hallway (H)	
d.	living room	(LR)

NOTE: I = INAPPROPRIATE RESPONSES MADE BY THE LISTENER ON THE VIDEOTAPE.

# APPENDIX C

# EXPERIMENT II

#### EXPERIMENTAL STIMULI:

1.	can get envelope (0)
2.	will leave stapler (0)
3.	must read book (0)
4.	should leave room (0)
5.	can find sugar (K)
6.	must bite pen (0)
7.	will wash dishes (K)
8.	can turn on $lamp(0)$
9.	must tap pencil (0)
10.	should take book (0)
11.	will make coffee (K)
12.	must tap pencil (0)
13.	will type letter (0)
14.	can clean stain (0)
15.	should leave room (0)
16.	must remove chair (0)
17.	should take book (0)
18.	can hand cup (K)
19.	must bite pen (0)
20.	will return book (0)
	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20.

]	21	ι.	should leave package (H)	
1	22	2.	must eat carrot (K)	
	2'	3.	can get envelope (0)	
1	2	+.	will return book (0)	
	2	5.	should leave package (H)	
	20	5.	can clean stain (LR)	
1	27	7.	should interrupt meeting	(H)
	28	З.	will wash dishes (K)	• •
1	29	9.	should cut magazine (0)	
	30	<b>)</b> .	must eat carrot (K)	
]	31	ι.	must read book (0)	
1	32	2.	can find sugar (K)	
1	3	3.	will leave stapler (0)	
	31	÷.	should interrupt meeting	(H)
	31	5.	can reach card (0)	,
	36	5	must remove chair (0)	
1	2	-	can reach card (0)	
1	- )	•	can reach card (0)	

- 38. should cut magazine (0)
  I 39. will make coffee (K)
  40. will type letter (0)

## SETTINGS:

a.	office (0)	
Ъ.	kitchen (K)	
c.	hallway (H)	
d.	living room	(LR)

NOTE: I = INAPPROPRIATE RESPONSES MADE BY THE LISTENER ON THE VIDEOTAPE.

#### APPENDIX D

#### OUTLINE OF EXPERIMENTS I AND II

- I. Forty indirect requests
  - Twenty interrogative indirect requests A.
    - Ten propositional speech acts using modal "will" 1.
      - a. Five appropriate listener responses
      - b. Five inappropriate listener responses
    - Ten preparatory speech acts using modal "can" 2.
      - a. Five appropriate listener responses
      - b. Five inappropriate listener responses
  - Twenty interrogative indirect requests with a negative element Β.
    - Ten propositional speech acts using modal + negative "won't" 1.
      - a. Five appropriate listener responses
      - b. Five inappropriate listener responses
      - Ten preparatory speech acts using modal + negative "can't" 2.
        - a. Five appropriate listener responses
        - b. Five inappropriate listener responses
- II. Forty indirect requests
  - Twenty indirect requests conveying positive intent Α.
    - Ten propositional speech acts using modal "will" 1.
      - a. Five appropriate listener responses
      - b. Five inappropriate listener responses
    - Ten preparatory speech acts using modal "can" 2. a. Five appropriate listener responsesb. Five inappropriate listener responses
  - Twenty indirect requests conveying negative intent в.
    - Ten using the modal "must" 1.
      - a. Five appropriate listener responses
      - b. Five inappropriate listener responses
      - Ten using the modal "should" 2.
        - a. Five appropriate listener responses
        - b. Five inappropriate listener responses

# APPENDIX E

# EXPERIMENT I

Subject # \_\_\_\_

Туре	Stimulus Number	Response	Type	Stimulus Number	Response
Prep	1		Prep N	21 I	
Prop N	2		Prep	22 I	
Prop	3		Prop N	23	
Prep	4 I		Prep	24 I	
Prop N	5 I		Prop	25 I	
Prep N	6		Prop N	26 I	
Prep	7		Prep N	27	
Prop	8		Prep N	28 I	
Prep	91		Prop N	29	
Prop	10		Prep N	30 I	
Prep N	11 I		Prop	31	
Prop N	12 I		Prop N	32 I	
Prep	13		Prep	33 I	
Prep N	14		Prep N	34	
Prop	15 I		Prop N	35	
Prep N	16 I		Prop	36 I	
Prop	17		Prop	37 I	
Prop	18		Prep	38	
Prep N	19		Prop	39	
Prop N	20 I		Prop	40 I	

		Correct Judgments		
Prep	Neg	Appropriate	Inappropriate	
	No Neg			
Prop	Neg			
	No Neg			
Prop	Neg No Neg			

# APPENDIX F

# EXPERIMENT II

Subject # \_

Type	Stimulus Number	Response	Type	Stimulus Number	Response
P	1 I		N	21 I	
P	2		N	22 I	
N	3		P	23	
N	4 I		P	24 I	
Р	5		N	25	4
N	6		P	26	
Р	7 1		N	27 I	
P	8 1	Sec. Sec.	P	28	
N	9 I		N	29 I	
N	10		N	30	
P	11		N	31 I	
N	12		P	32 I	
Р	13 I		P	33 I	
P	14 I		N	34	
<u>N</u>	15		P	35	
N	16 I		N	36	
N	17 I		P	37 I	
P	18		N	38	
N	19 I		Р	39 I	C. Martin
P	20		P	40	



# ITEM ANALYSIS

# EXPERIMENT I

# EXPERIMENT II

1.01.02.12.83.23.224.24.395.55.16.06.147.07.28.28.19.49.1210.010.1011.311.212.212.813.213.614.014.515.215.3016.116.3417.017.1818.118.019.219.1420.621.721.722.1823.323.124.124.725.625.2526.329.1730.130.2031.31.1632.032.234.134.1335.535.136.238.1439.39.440.1740.0	ITEM #	INCORRECT	RESPONSES	ITEM #	INCORRECT	RESPONSES
2.       1       2.       8         3.       2       3.       22         4.       2       4.       39         5.       5       5.       1         6.       0       6.       14         7.       0       7.       2         8.       2       8.       1         9.       4       9.       12         10.       0       10.       10         11.       3       11.       2         12.       2       8.       1         9.       4       9.       12         10.       0       10.       10         11.       3       11.       2         12.       2       13.       6         14.       0       14.       5         15.       2       15.       30         16.       1       16.       34         17.       0       17.       18         18.       1       18.       0         19.       2       18       2         23.       3       23.       1         24.       1 </td <td>1.</td> <td>0</td> <td></td> <td>1.</td> <td>0</td> <td></td>	1.	0		1.	0	
3. $2$ $3.$ $22$ $4.$ $2$ $4.$ $39$ $5.$ $5$ $5.$ $1$ $6.$ $0$ $6.$ $14$ $7.$ $0$ $7.$ $2$ $8.$ $2$ $8.$ $1$ $9.$ $4$ $9.$ $12$ $10.$ $0$ $10.$ $10$ $11.$ $3$ $11.$ $2$ $12.$ $2$ $12.$ $8$ $13.$ $2$ $13.$ $6$ $14.$ $0$ $14.$ $5$ $15.$ $2$ $15.$ $30$ $16.$ $1$ $16.$ $34$ $17.$ $0$ $17.$ $18$ $18.$ $1$ $18.$ $0$ $19.$ $2$ $19.$ $14.$ $20.$ $1$ $20.$ $6$ $21.$ $7$ $21.$ $38$ $22.$ $4$ $22.$ $18$ $23.$ $3$ $23.$ $1$ $24.$ $1$ $24.$ $7$ $25.$ $6$ $25.$ $25$ $26.$ $3$ $26.$ $1$ $27.$ $0$ $27.$ $26$ $28.$ $2$ $28.$ $0$ $29.$ $3$ $30.$ $20$ $31.$ $31.$ $16.$ $22.$ $36.$ $19$ $37.$ $1$ $37.$ $3$ $38.$ $2$ $38.$ $14.$ $9.$ $3$ $39.$ $4$ $40.$ $17.$ $40.$ $0$	2.	1		2.	8	
4. $39$ $5.$ $5.$ $1.$ $6.$ $0$ $6.$ $14$ $7.$ $2$ $8.$ $1$ $9.$ $4$ $9.$ $12$ $10.$ $0$ $10.$ $10$ $11.$ $2$ $12.$ $8$ $13.$ $2$ $13.$ $6$ $14.$ $0$ $14.$ $5$ $15.$ $2$ $15.$ $30$ $16.$ $1$ $16.$ $34$ $17.$ $0$ $17.$ $18$ $18.$ $1$ $20.$ $6$ $19.$ $2$ $19.$ $14$ $20.$ $1$ $20.$ $6$ $21.$ $7$ $22.$ $18$ $23.$ $3$ $23.$ $1$ $24.$ $1$ $24.$ $7$ $25.$ $6$ $25.$ $25.$ $26.$ $3$ $26.$ $1$ $27.$ $0$ $27.$ $26$	3.	2		3.	22	
5.       5       5.       1         6.       0       6.       14         7.       0       7.       2         8.       2       8.       1         9.       4       9.       12         10.       0       10.       10         11.       3       11.       2         12.       2       12.       8         13.       2       13.       6         14.       0       14       5         15.       2       15.       30         16.       1       16.       34         17.       0       17.       18         18.       1       18.       0         19.       14       20.       6         21.       7       21.       38         22.       4       22.       18         23.       3       23.       1         24.       1       24       7         25.       6       25       25         26.       2       28       0         29.       3       29       17         30. <td>4.</td> <td>2</td> <td></td> <td>4.</td> <td>39</td> <td></td>	4.	2		4.	39	
$\hat{6}$ . $\hat{0}$ $\hat{6}$ . $14$ $7$ . $2$ $8$ . $2$ $8$ . $1$ $9$ . $4$ $9$ . $12$ $10$ . $0$ $10$ . $10$ $11$ . $3$ $11$ . $2$ $12$ . $2$ $12$ . $2$ $12$ . $2$ $12$ . $2$ $12$ . $2$ $13$ . $6$ $14$ . $0$ $14$ . $5$ $15$ . $2$ $15$ . $30$ $16$ . $1$ $16$ . $14$ $17$ . $0$ $17$ . $18$ $18$ . $1$ $18$ . $1$ $18$ . $1$ $12$ . $20$ . $6$ $21$ . $7$ . $21$ . $38$ $22$ . $14$ . $24$ . $7$ $21$ . $25$ . $6$ $25$ . $25$ $26$ . $3$ $26$ . $1$ $27$ . $0$ $27$ . $26$ $28$ . $2$ $29$ . $3$ $29$ . $17$ $30$ . $1$ $31$ . $16$ $32$ . $2$ $33$ . $1$ $35$ . $5$ $34$ . $1$ $35$ . $1$ $36$ . $2$ $36$ . $2$ $37$ . $1$ $37$ . $3$ $38$ . $2$ $38$ . $14$ $39$ . $4$ $40$ . $17$ <	5.	5		5.	1	
7.07.28.28.19.49.1210.010.1011.311.212.212.813.213.614.014.515.215.3016.116.3417.017.1818.118.019.219.1420.120.621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.329.1730.130.2031.331.1632.032.233.134.1335.535.136.236.1937.137.338.238.1439.339.440.1740.0	6.	õ		6.	14	
8. $2$ $8.$ $1$ $9.$ $4$ $9.$ $12$ $10.$ $0$ $10.$ $10$ $11.$ $3$ $11.$ $2$ $12.$ $2$ $12.$ $8$ $13.$ $2$ $13.$ $6$ $14.$ $0$ $14.$ $5$ $15.$ $2$ $15.$ $30$ $16.$ $1$ $16.$ $34$ $17.$ $0$ $17.$ $18$ $18.$ $1$ $18.$ $0$ $19.$ $2$ $19.$ $14$ $20.$ $1$ $20.$ $6$ $21.$ $7$ $21.$ $38$ $22.$ $4$ $22.$ $18$ $23.$ $3$ $23.$ $1$ $24.$ $1$ $24.$ $7$ $25.$ $6$ $25.$ $25$ $26.$ $3$ $26.$ $1$ $27.$ $0$ $27.$ $26$ $28.$ $2$ $28.$ $0$ $29.$ $3$ $29.$ $17$ $30.$ $1$ $30.$ $20$ $31.$ $33.$ $13.$ $35.$ $5$ $35.$ $1$ $36.$ $2$ $36.$ $19$ $37.$ $1$ $37.$ $3$ $38.$ $14.$ $13$ $39.$ $4$ $40.$ $0$	7.	0		7.	2	
9.49.1210.010.1011.311.212.212.813.213.614.014.515.215.3016.116.3417.017.1818.118.019.219.1420.6621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.331.1632.032.233.133.234.134.1335.535.136.236.1937.137.338.238.1439.339.440.1740.0	8.	2		8.	1	
10.010.1011.311.212.212.813.213.614.014.515.215.3016.116.3417.017.1818.118.019.219.1420.120.621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.331.1632.032.233.134.1335.535.136.236.1937.137.338.238.1439.339.440.1740.0	9.	4		9.	12	
11.311.212.212.813.213.614.014.515.215.3016.116.3417.017.1818.118.019.219.1420.120.621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.331.1631.331.1632.032.233.133.234.134.1335.535.136.238.1439.339.440.1740.0	10.	0		10.	10	
12.212.813.213.614.014.515.215.3016.116.3417.017.1818.118.019.219.1420.120.621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.331.1632.032.233.133.234.134.1335.535.136.238.1439.339.440.1740.0	11.	3		11.	2	
13.213.6 $14.$ 0 $14.$ 5 $15.$ 2 $15.$ 30 $16.$ 1 $16.$ $34.$ $17.$ 0 $17.$ $18$ $18.$ 1 $18.$ 0 $19.$ 2 $19.$ $14.$ $20.$ 621. $38.$ $22.$ 4 $22.$ $18.$ $23.$ 3 $23.$ $1.$ $24.$ 1 $24.$ $7.$ $25.$ 6 $25.$ $25.$ $26.$ 3 $26.$ $1.$ $27.$ $26.$ $1.$ $29.$ $3.$ $29.$ $17.$ $30.$ $1.$ $30.$ $20.$ $31.$ $3.$ $31.$ $16.$ $32.$ $0.$ $32.$ $2.$ $33.$ $1.$ $34.$ $13.$ $35.$ $5.$ $35.$ $1.$ $36.$ $2.$ $36.$ $19.$ $37.$ $1.$ $37.$ $3.$ $38.$ $2.$ $38.$ $14.$ $39.$ $3.$ $39.$ $4.$ $40.$ $17.$ $40.$ $0.$	12.	2		12.	8	
14.014.515.215.3016.116.3417.017.1818.118.019.219.1420.120.621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.330.2031.30.2031.33.233.133.234.134.1335.535.136.236.1937.137.338.238.1439.339.440.1740.0	13.	2		13.	6	
15.215.3016.116. $34$ 17.017.1818.118.019.219.1420.120.621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.331.1632.032.233.133.234.134.1335.535.136.238.1439.339.440.1740.0	14.	0		14.	5	
16.1 $16.$ $34$ $17.$ 0 $17.$ $18$ $18.$ 1 $18.$ 0 $19.$ 2 $19.$ $14.$ $20.$ 1 $20.$ 6 $21.$ $7.$ $21.$ $38.$ $22.$ $4.$ $22.$ $18.$ $23.$ $3.$ $23.$ $1.$ $24.$ $1.$ $24.$ $7.$ $25.$ $6.$ $25.$ $25.$ $26.$ $3.$ $26.$ $1.$ $27.$ $0.$ $27.$ $26.$ $28.$ $2.$ $28.$ $0.$ $29.$ $3.$ $31.$ $16.$ $32.$ $0.$ $32.$ $2.$ $31.$ $3.$ $31.$ $16.$ $32.$ $0.$ $32.$ $2.$ $33.$ $1.$ $33.$ $2.$ $34.$ $1.$ $34.$ $13.$ $35.$ $5.$ $35.$ $1.$ $36.$ $2.$ $36.$ $19.$ $37.$ $1.$ $37.$ $3.$ $38.$ $2.$ $38.$ $14.$ $39.$ $39.$ $4.$ $40.$ $17.$ $40.$ $0.$	15.	2		15.	30	
17.0 $17.$ $18$ $18.$ 1 $18.$ 0 $19.$ 2 $19.$ $14$ $20.$ 1 $20.$ 6 $21.$ $7$ $21.$ $38$ $22.$ $4$ $22.$ $18$ $23.$ $3$ $23.$ $1$ $24.$ $1$ $24.$ $7$ $25.$ $6$ $25.$ $25$ $26.$ $3$ $26.$ $1$ $27.$ $0$ $27.$ $26$ $28.$ $2$ $28.$ $0$ $29.$ $3$ $30.$ $20$ $31.$ $3$ $31.$ $16$ $32.$ $0$ $32.$ $2$ $33.$ $1$ $33.$ $2$ $34.$ $1$ $34.$ $13$ $35.$ $5$ $35.$ $1$ $36.$ $2$ $36.$ $19$ $37.$ $1$ $37.$ $3$ $38.$ $2$ $38.$ $14$ $39.$ $39.$ $4$ $40.$ $17$ $40.$ $0$	16.	1		16.	34	
18.1 $18.$ $0$ $19.$ $2$ $19.$ $14$ $20.$ $1$ $20.$ $6$ $21.$ $38$ $22.$ $18$ $23.$ $3$ $23.$ $1$ $24.$ $1$ $24.$ $7$ $25.$ $6$ $25.$ $25$ $26.$ $3$ $26.$ $1$ $27.$ $0$ $27.$ $26$ $28.$ $2$ $28.$ $0$ $29.$ $3$ $29.$ $17$ $30.$ $1$ $30.$ $20$ $31.$ $31.$ $16$ $32.$ $0$ $32.$ $2$ $33.$ $1$ $33.$ $2$ $34.$ $13$ $35.$ $1$ $36.$ $2$ $36.$ $19$ $37.$ $1$ $37.$ $3$ $38.$ $2$ $38.$ $14$ $39.$ $39.$ $4$ $40.$ $17$ $40.$ $0$	17.	0		17.	18	
19.219.1420.120.621.721.3822.422.1823.323.124.124.725.625.2526.326.127.027.2628.228.029.329.1730.130.2031.331.1632.032.233.134.1335.535.136.236.1937.137.338.238.1439.339.440.1740.0	18.	1		18.	0	
20.1 $20.$ $0$ $21.$ $7$ $21.$ $38$ $22.$ $4$ $22.$ $18$ $23.$ $3$ $23.$ $1$ $24.$ $7$ $25.$ $25.$ $25.$ $6$ $25.$ $25.$ $26.$ $3$ $26.$ $1$ $27.$ $26.$ $1$ $29.$ $3$ $29.$ $17.$ $30.$ $1$ $30.$ $20.$ $31.$ $31.$ $16.$ $32.$ $0$ $32.$ $2.$ $33.$ $1$ $34.$ $13.$ $35.$ $5.$ $35.$ $1.$ $36.$ $2$ $36.$ $19.$ $37.$ $1.$ $37.$ $3.$ $38.$ $2.$ $38.$ $14.$ $39.$ $39.$ $4.$ $40.$ $17.$ $40.$ $0.$	19.	2		19.	14	
21. $7$ $21.$ $36$ $22.$ $4$ $22.$ $18$ $23.$ $1$ $24.$ $1$ $24.$ $7$ $25.$ $6$ $25.$ $25$ $26.$ $1$ $27.$ $26$ $28.$ $2$ $28.$ $29.$ $3$ $29.$ $30.$ $1$ $30.$ $29.$ $31.$ $32.$ $2$ $33.$ $1$ $34.$ $13$ $35.$ $5$ $36.$ $29$ $37.$ $3$ $38.$ $2$ $39.$ $39.$ $40.$ $17$	20.	1		20.	0	
22.4 $22.$ $10$ $23.$ 3 $23.$ 1 $24.$ 1 $24.$ 7 $25.$ 6 $25.$ $25$ $26.$ 3 $26.$ 1 $27.$ 0 $27.$ $26$ $28.$ 2 $28.$ 0 $29.$ 3 $29.$ 17 $30.$ 1 $30.$ $20$ $31.$ 3 $31.$ 16 $32.$ 0 $32.$ $2$ $33.$ 1 $34.$ $13$ $35.$ 5 $35.$ 1 $36.$ 2 $36.$ 19 $37.$ 1 $37.$ $3$ $38.$ 2 $38.$ $14$ $39.$ $39.$ $4$ $40.$ $17$ $40.$ $0$	21.	2		21.	30	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	22.	4		22.	10	
24.1 $24.$ 7 $25.$ $6$ $25.$ $25$ $26.$ $1$ $27.$ $26$ $28.$ $0$ $29.$ $3$ $29.$ $17$ $30.$ $1$ $30.$ $20$ $31.$ $30.$ $20$ $31.$ $31.$ $30.$ $20$ $31.$ $30.$ $20$ $31.$ $30.$ $20$ $31.$ $31.$ $32.$ $2$ $33.$ $1$ $34.$ $13$ $35.$ $5$ $5.$ $35.$ $1$ $36.$ $2$ $38.$ $2$ $38.$ $2$ $39.$ $39.$ $40.$ $17$	23.	2		2).	1 7	
23. $0$ $23.$ $25.$ $25.$ $26.$ $1$ $27.$ $26$ $28.$ $0$ $29.$ $37.$ $30.$ $29.$ $31.$ $30.$ $20.$ $31.$ $30.$ $20.$ $31.$ $30.$ $20.$ $31.$ $30.$ $20.$ $31.$ $30.$ $20.$ $31.$ $31.$ $32.$ $2$ $33.$ $1$ $32.$ $2$ $33.$ $1$ $34.$ $13$ $35.$ $5$ $35.$ $1$ $36.$ $2$ $36.$ $19$ $37.$ $1$ $37.$ $38.$ $29.$ $39.$ $40.$ $17$	24.	4		24.	25	
20. $3$ $20.$ $1$ $27.$ $26$ $28.$ $2$ $29.$ $3$ $29.$ $17$ $30.$ $20$ $31.$ $30.$ $20$ $31.$ $31.$ $30.$ $20$ $31.$ $31.$ $30.$ $20$ $32.$ $23.$ $2$ $33.$ $1$ $34.$ $13$ $35.$ $5$ $5.$ $35.$ $1$ $34.$ $36.$ $2$ $37.$ $3$ $38.$ $2$ $39.$ $39.$ $40.$ $17$	25.	3		25.	1	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20.	2		27.	26	
29. $3$ $29.$ $17$ $30.$ $1$ $30.$ $20$ $31.$ $3$ $31.$ $16$ $32.$ $2$ $33.$ $2$ $33.$ $1$ $33.$ $2$ $34.$ $1$ $34.$ $13$ $35.$ $5$ $35.$ $1$ $36.$ $2$ $36.$ $19$ $37.$ $1$ $37.$ $3$ $38.$ $2$ $38.$ $14$ $39.$ $39.$ $4$ $40.$ $17$ $40.$ $0$	28	2		28.	0	
27. $30.$ $27.$ $27.$ $30.$ $1$ $30.$ $20$ $31.$ $31.$ $16$ $32.$ $2$ $33.$ $1$ $33.$ $2$ $34.$ $1$ $34.$ $13$ $35.$ $5$ $35.$ $1$ $36.$ $2$ $36.$ $19$ $37.$ $1$ $37.$ $3$ $38.$ $2$ $38.$ $14$ $39.$ $39.$ $4$ $40.$ $17$ $40.$ $0$	20.	23		29.	17	
31. $3$ $31.$ $16$ $32.$ $0$ $32.$ $2$ $33.$ $1$ $33.$ $2$ $34.$ $1$ $34.$ $13$ $35.$ $5$ $35.$ $1$ $36.$ $2$ $36.$ $19$ $37.$ $1$ $37.$ $3$ $38.$ $2$ $38.$ $14$ $39.$ $39.$ $4$ $40.$ $17$ $40.$ $0$	30.	1		30.	20	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	31.	3		31.	16	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	32.	ó		32.	2	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	33.	1		33.	2	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	34.	1		34.	13	
36.2 $36.$ 19 $37.$ 1 $37.$ 3 $38.$ 2 $38.$ 14 $39.$ 3 $39.$ 4 $40.$ 17 $40.$ 0	35.	5		35.	1	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	36.	2		36.	19	
38.       2       38.       14         39.       3       39.       4         40.       17       40.       0	37.	1		37.	3	
39.     3     39.     4       40.     17     40.     0	38.	2		38.	14	
40. 17 40. 0	39.	3		39.	4	
	40.	17		40.	0	

# APPENDIX H

# EXPERIMENT I

4			5			6		
ID.	AFF.	NEG.	ID.	AFF.	NEG.	D.	AFF.	NEG.
#1	18	18	#11	20	20	#27	20	20
#2	11	9	#12	20	20	#28	20	20
#3	19	19	#13	20	19	#29	19	20
#4	15	15	#14	19	19	#30	20	20
#5	20	19	#15	19	20	#31	19	20
#6	20	20	#16	19	20	#32	18	19
#7	18	19	#17	20	20	#33	19	19
#8	15	16	#18	18	20	#34	19	20
#9	16	17	#19	20	20	#35	19	20
#10	20	18	#20	20	20	#36	20	19
			#21	19	18	#37	20	20
			#22	19	20	#38	20	20
			#23	19	20	#39	20	20
			#24	20	20	#40	19	20
			#25	20	20	#41	20	20
			#26	17	19	#42	20	20
						#43	19	19
						#44	15	18
						#45	20	20
						#46	19	20

MEAN		MEAN		MEAN	
AFFIRMATIVE =	17.2	AFFIRMATIVE =	19.3	AFFIRMATIVE =	19.2
NEGATIVE =	17.0	NEGATIVE =	19.6	NEGATIVE =	19.7

NUMBERS LISTED ARE THOSE SCORED AS CORRECT RESPONSES/20.

# APPENDIX I

# EXPERIMENT II

	4			5			6	
ID.	POS.	NEG.	ID.	POS.	NEG.	D.	POS.	NEG.
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10	16 12 20 18 19 19 16 16 16 16 18	5 8 12 12 13 15 3 11 8 9	#11 #12 #13 #14 #15 #16 #17 #18 #19 #20 #21 #22	20 17 19 20 20 20 20 20 20 20 20 20 20 20 20 20	8 16 19 16 14 7 10 5 19 7 14 13	#27 #28 #29 #30 #31 #32 #33 #34 #35 #36 #37 #38	20 20 20 20 19 20 19 20 20 19 18 18 18	11 8 20 15 13 15 6 18 16 17 9 14 7
			#23 #24 #25 #26	19 20 20 18	5 8 14 17	#39 #40 #41 #42 #43 #44 #45 #46	19 17 20 19 19 19 20 20	7 3 7 9 9 10 16

MEAN	MEAN	MEAN		
POSITIVE = 17.0 NEGATIVE = 9.6	$\begin{array}{rcl} \text{POSITIVE} = 19.4 \\ \text{NEGATIVE} = 12.0 \end{array}$	POSITIVE = 19.3 NEGATIVE = 11.3		

NUMBERS LISTED ARE THOSE SCORED AS CORRECT RESPONSES/20.

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