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THE COMPREHENSION OF
INDIRECTIVES IN THE
HARD OF HEARING POPULATION

By

Kimberly L. McCann

B.A., University of Montana, 1978

Presented in partial fulfillment of the
requirements for the degree of

Master of Arts

UNIVERSITY OF MONTANA

1980

Approved by:


Chairman, Board of Examiners


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The Comprehension of Indirectives in the Hard of Hearing
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Pragmatics involves the study of the use of language while considering the context of every utterance as a major determinant for comprehension of the speaker's intention. Pragmatic theory allows for saying one thing and meaning another, which is called indirect speech. Indirect directives are the focus of this study.

This study described the responses of twelve school-aged children following issuance of twelve indirectives each. Each indirective was worked into a conversation about the materials in the testing room. The conversation was led as naturally as possible by the tester.

The indirectives were ordered from most to least explicit and this sequence was compared across age groups. The results indicated that of the five types of indirectives that were discussed, types I and II were easier to comprehend than types III and IV and that type V indirectives were harder than any other type, across all ages. This hierarchy of indirective types provides a beginning step toward establishment of a specific norm for comparing communication disordered and normal children among those who are hard of hearing.

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Pragmatic theory has evolved out of a need for further explanation of the communicative process because explanations based on syntactic and semantic models don't adequately explain all aspects of language (Rees 1978; Bates 1976). Pragmatics involves the study of the use of language when considering the context as a major determinant for comprehension of the speaker's intention. If a speaker were to say, "You sure look nice today," one might think the speaker was complimenting the listener, unless a context was observed in which the listener was in her bathrobe, looked pale and was curled up on the couch with a blanket, sipping tea. When considering this context, it is easy to see that the speaker was being sarcastic and actually meant the opposite of what was said. Sarcasm is one example of indirect speech. Another example of indirect speech (where ambiguity may result unless context is considered) is the indirect directive (indirective). Indirectives can be defined as speech acts in which the intention of the speaker is independent of syntactic form or literal meaning (Rees 1978). For example, one can imagine a situation in which the indirective "I'm real thirsty." would be an indirect request for something to drink. The syntactic form, however, represents a declarative comment rather than an interrogative request. Literally this indirective only supplies information about the speaker rather than functioning as a more polite way of asking for a drink. Indirective speech acts occur very commonly in the English-speaking American culture and are the aspect of pragmatics upon which this study focuses.

While several aspects of pragmatic theory, including indirectives, have been described in hearing people, there is no published description of the use of indirectives in sign language used by the hearing impaired. The subjects of this study are hard of hearing (HOH) children. Hard of

hearing refers to those children who are not deaf but have a hearing loss. Ross (1977) defines HOH children as those who exhibit a hearing loss anywhere from 15 to 95dB. There is a very small body of literature published on the HOH population when compared to the extensive research that has been conducted concerning the language of both the deaf and the hearing populations (David 1977). The deaf population was considered for subjects but was ruled out because of the probable interpretation problems with their natural language which is American Sign Language or ASL. Because indirective use in ASL has not been documented, it cannot be assumed that it does occur. However, after discussion with a fluent ASL signer it was established that indirectives do occur in ASL. The wording of the indirectives that were presented in this study was written in English, and since HOH children do tend to use a form of language somewhere between ASL and English, they were chosen for subjects over the deaf, strictly ASL speaking, children. Therefore, the results of this study describe the responses to indirectives by school-aged HOH children.

As a natural language ASL is considerably different from English (Brown 1973). Interaction between deaf and hearing people is affected by the hearing person's familiarity with ASL (even if he* is a fluent signer) and the degree of familiarity with English by the deaf person (Wilbur 1979). In such situations a pidgin (neither group's daily language) develops, because values of identity may be less important than the practical need to communicate (Ervin-Tripp 1973). Each signer has available to him several forms of sign language for different

* No sexual discrimination is intended. Masculine pronoun forms were chosen for stylistic purposes only.

communicative contexts. The varieties can be looked at on a continuum with ASL at one end and English on the other. "Pidgin Sign English" is the term suggested by Woodward (1972, 1973), Woodward and Markowicz (1975) and Stokoe (1970) to describe the intermediate varieties along the continuum between ASL and English (Wilbur 1979). In this study, each child and the tester were judged for their location on this continuum. The data concerning these dialectical locations may have had an effect upon the interpretation of the results; however, there were not enough members per cell to calculate correlations.

While hearing adults use indirectives frequently and routinely, hearing children tend to directly use the imperative sense or a directive force in their language. Counts have been taken in children's speech that demonstrate that 50% of their utterances are of the directive or imperative form (Ervin-Tripp 1977), the other 50% encompassing the declarative and interrogative forms. With maturation children learn to use more and more indirect ways of presenting the imperative sense. Ervin-Tripp (1977) has developed a list of six types of directives, five of which are indirect directives. Though adults use all six types, children do so but with differing degrees of explicitness at different stages of development. The types are as follows:

- | | |
|----------------------------|-----------------------------------------------------|
| 1. direct imperative | ("Leave me alone.") |
| 2. personal need statement | ("I need to be left alone.") |
| 3. permission directive | ("Can you leave me alone now?") |
| 4. imbedded imperative | ("It would be nice if you left me alone.") |
| 5. question directive | ("Do you have to keep interrupting me?") |
| 6. hint directive | ("Peace and quiet around here would sure be nice.") |

Ervin-Tripp (1977) has reported that "as early as 4 years old, some children, on the phone, hear the question directive, "Is your

father home?", not as a routine directive but at least as a possible directive and reply: "You want to talk to him?" Yet at 10 years of age, other children fail to make this interpretation" (Page 178). Accordingly, there may be great variability in acquisition of some indirectives.

The first expressions of the imperative sense look like declaratives because they simply indicate the object of a desire or that a desire exists (Bates 1976). Bates (1976) has further stated that perhaps "at this point the child understands more about end states than about the means for reaching them, and so encodes the goal and leaves the choice of means up to the adult" (Page 271-272). Through experience the child begins to understand that politeness is more efficient for getting demands met, and that indirectness is more polite than directness (Bates 1976). This change is due not merely to the child's advancing mobility skills but to an apparent understanding of the implications of statements regarding the needs of others, and a willingness to satisfy those needs (Ervin-Tripp 1977). Such a change is more social than linguistic and develops as an ability to take the perspective of others (Ervin-Tripp 1977). The child will then alter his concept of efficiency in imperatives, because, as Bates (1976) puts it, "the most economical but informative command may no longer be the most efficient" (Page 273). The child will develop a series of modifications by adding information about the request act itself rather than just the goal (Bates 1976). These changes generally begin between 3 and 4 years of age (Garvey 1974). In a study directed by Ervin-Tripp (1977) the 3 year olds' predominant directives were still direct imperatives (i.e. "Give me my blanket"), but the 4 year olds used other forms predominantly

(need statements such as "I need my blanket", permission directives such as "Can I have my blanket?", and imbedded imperatives such as "Would you give me my blanket?"). Some uses involved modals (i.e. could, would), which leads one to believe that their specific use must be idiomized because children are otherwise incapable of producing modal verbs until a much later age (Bates 1976). This leads one to wonder whether all directive uses, other than the direct imperative, have an idiomized component. It has been hypothesized by Bates (1976) that this gradual experience with idioms helps lead a child into the understanding that form can be detached from function.

The understanding and use of idioms in the HOH population has been studied by Davis (1977). Davis has found that idioms are one aspect of language with which the HOH population is often said to experience communication breakdown. Whether the use of memorized idioms is related to children's use and understanding of other indirect forms would be interesting to know but is outside the scope of this study.

When children begin using forms that are not explicit in function, such as personal need statements, permission directives, and imbedded imperatives, they obviously are beginning to understand that politeness will get them further than just demanding their needs directly. In such a way children gradually learn to conceal their purposes. They use diverse syntactic forms; however, they are still limited by needing explicit reference to their intentions, especially when those intentions are not obvious from the context (Ervin-Tripp 1977, Garvey 1975). Grice (1968) contends that there is operating in our language, which he labels the maxim of quantity, a principle of least effort which states that people say as little as possible when getting their point across.

This efficiency law applies when a child makes his demand more polite but longer linguistically, because the whole idea in speaking in the first place is to get the demand met. The longer, more polite utterance is more likely to result in the demand being met, as opposed to a shorter, more direct utterance, which may be less likely to produce the desired effect.

Later, as cognitive growth occurs, more indirect forms begin to be understood, such as the question directive and the hint directive (Ervin-Tripp 1977). These two forms are less coercive and less direct (Ervin-Tripp 1977) than any others so far discussed. This is true because by asking an indirect question or dropping a hint the speaker is giving the listener a choice. The listener can respond negatively and yet politely when the directive is worded as a question or hint. For example, if a student were to say to his instructor:

Question "Is there some time on Friday that we could meet?"

Hint^{or} "I have to have this done by Friday,"

the student is more likely to get the desired response because it gives the instructor a choice rather than if the student were to say:

Direct imperative "We have to meet Friday at 3:00."

Also even if the instructor's response were negative he would probably be more willing to work something out if he were approached with the indirect question or hint directives rather than the direct directive. Speakers using indirect questions or hints are using advanced cognitive skills because of the required anticipation and allowance for a choice to be made by the listener.

All directive forms so far discussed have included mention of the desired object or action (Bates 1976). Restraint in mentioning the desired object or action is apparently not a child level ability, as evidenced by a study done by Mitchell-Kernan and Kernan (1977). They found that children from 7 to 12 years old used all forms mentioned, but they always mentioned the desired object or goal. Therefore since this restraint in mentioning the desired object or action does occur in adult language it can be argued that this restraint involves even more advanced cognitive skills over and above the use of question and hint indirectives that do mention the desired object or action.

There are basically two theories that explain the acquisition of indirective forms. One is the theory of Gricean manipulations of the conversational postulates and the other is a cognitively less demanding theory developed by Shatz (1978).

The concept of manipulating conversational postulates was originally introduced by Grice (1968), who argued that a general principle of cooperation exists between speakers of the English language. Speakers and their listeners agree to and expect that they will tell each other the truth, offer information assumed to be new and relevant, and request only sincerely wanted information (Grice 1968). Grice does not suggest that this code of conversation (set of conversational postulates) always holds constant across a given sample of real dialogue; "rather, he claims that we will use the set of standard rules in such a way that our deviations from the code will be recognized as violations, and hence contribute additional information." (Bates 1976, Page 27). In other words, the Gricean theory of manipulations of conversational postulates

begins with the fact that the speaker knows the rules of conversation and knows the listener shares this knowledge. He then can create utterances that violate these rules in such a manner that the listener is led to derive another meaning. From the listener's point of view, comprehension of such indirect acts depends on this same rather complex combination of linguistic knowledge, rules of conversation and inferential processes (Searle 1975). Although cognitively very complex, the Gricean theory allows for young children to perform the following:

1. build an imperative intention and hold it in mind while they consider the next three steps
2. consider the listener's reaction
3. consider the conversational postulates and
4. choose a form for stating the imperative intent that violates a conversational postulate so that the listener will be forced to construct the actual rather than literal imperative intention.

Shatz's theory is supported by Bates (1976) and Garvey (1975) who believe that until the end of the preoperational cognitive stage when complex and reversible operations are acquired, children are not capable of rehearsing such an abstract analysis as Grice contends. There are cognitive limits on children (Ervin-Tripp 1977) which prevent them from holding an imperative intention in their mind as they consider three other aspects for analysis before choosing an appropriate form (Muma 1979). Therefore, there must be another strategy being used by children when they respond appropriately to indirectives.

"Linguistic concepts are first realized in action" (Bruner 1975, Page 1) and since indirectives request action, that part of the indirective is automatically satisfied. The indirectives studied that have been responded to appropriately by young children have all contained mention of the explicit action or object desired (Garvey 1975).

Therefore, the child acts naturally; when he hears the explicit goal or object he focuses this action toward this object or goal, appearing to understand the indirective. This cognitively less demanding theory may be an action oriented, discourse rule such as mother says-child does (Shatz 1978). The child finds some element, action or object, in his mother's speech which can be acted out or upon and then performs on that element (Shatz 1978). With this strategy the child lets his mother know that he is participating in his turn-taking role of the "conversation" (Shatz 1978).

Shatz's theory is supported by her study (1978) that argues that young children who provide appropriate action responses to inappropriate utterances like "May you shut the door?" have not just learned routine responses to their mother's standard ways of requesting action, because they also responded similarly to the inappropriate indirectives. These children also did not understand the indirect component ("May you") of the indirective because if they had, they would have noticed the inappropriateness and not responded as if it were appropriate. Rather, children appear to be action oriented and act on whatever part of an utterance they understand. Shatz's (1978) study also concluded that if a young child responds to an indirective, degree of explicitness of the indirective makes no difference, as far as appropriateness of response, as long as the desired object or goal was mentioned. Children respond with action to the mentioned desire only.

Shatz's cognitively less demanding theory explains children's knowledge of indirectives only to approximately age $3\frac{1}{2}$ to 4 years. Ervin-Tripp (1977) has shown that at 3 years of age the predominant

directives were still imperatives but by 4 years of age other types (personal need statements, permission directives, or imbedded imperatives) predominated. What strategies do children use between this time, at 4 years old, and at 6 years old when complex reversible operations are usually acquired, making Gricean manipulations possible?

One very plausible answer involves socialization. Adults help children learn appropriate responses to indirectives (Ervin-Tripp 1977) by asking questions when the child would normally reply anyway, such as when the adult says "What's that?" while the child is naming pictures. Another example more specific to indirectness is seen when the adult says an indirective and then follows it with the understandable explicit directive form. In each of these two examples there is a redundancy factor.

In the first case the eliciting form (Shatz 1974) produced by the adults, "What's that?" is at first redundant with the child's activity. With time this redundancy evolves into a question-answer or action-response paradigm that the child can usually recognize because of the similar force of the message sent by the directing speaker. This force, which carries the intention or function of the utterance (Searle 1969), can be argued to be the identifying factor of indirectives for children in the approximate age range of 4 to 6 years. When a child perceives this "directive force" (from directives or indirectives) he performs on the mentioned object or goal. He understands he is to perform but he doesn't yet use Gricean manipulations to derive alternative meanings.

The second example uses redundancy in another sense (repetition over time). When a mother says to her child "You're a mess!" and

follows that utterance with "Change your clothes!", over time and after many similar examples the child becomes accustomed to the fact that a certain tone or force that carries the meaning, means there is an order to follow. At about age 4, when children are using a greater number of less explicit forms, it would be expected that they would begin to anticipate the order that is to follow and act on whatever was mentioned in the first utterance (mess). By 6 years of age, when children learn to use hints and question directives, it would be expected that they usually could assume the exact order and carry it out without having to be told.

Shatz (1975) and MacNamara and Baker (1975) contend that this specific socialization process appears to occur frequently. In Shatz's study, videotapes were made of mothers with their 2 year old children. It was found that 87 to 100% of the mothers' directives contained redundant cues which were mainly gestures. MacNamara and Baker found that 12 and 17 month old children are heavily influenced by gestures, and that by 17 months of age the children could make use of language cues without gestures. This understanding and use of language without gestures is a skill the 12 month old children did not have. Therefore, it can be argued that the skill appears to have arisen from the initial redundancy.

There are three consequences that follow this socialization model.

- 1) The child learns to discriminate forms that are always directives from those that contain directive cues but may have other functions.
- 2) The child learns to understand even when support from the setting

is minimal. 3) The child learns to understand when inference, or at least a more explicit form, would be required (Ervin-Tripp 1977).

The socialization which takes place in our culture when learning appropriate responses to indirectives is a good example of how our social and linguistic systems are intertwined (Halliday, 1973). Another example of these intertwined systems is the social phenomenon of politeness. In directives, politeness is the chief motivation for indirectness (Searle 1975). Our culture's requirements for politeness make it awkward to issue flat imperative sentences, such as "Leave the room!", so we seek indirect means to express our intentions (Searle 1975).

This relationship between social and linguistic systems is made even more complicated by adding the cognitive dimension (Ervin-Tripp 1973) that has been mentioned throughout the discussion of differing comprehension theories. The area of pragmatics is very complex, and perhaps "the most important reason for studying pragmatics in child language is that it occupies the interface between linguistic, cognitive and social development" (Bates 1976, Page 3).

PLAN OF THE STUDY

The list of types of directives derived by Ervin-Tripp (1977) represents a preliminary hierarchy of the sequence of acquisition. It is being called a preliminary hierarchy, because the few studies that have investigated indirectives generally illustrate that, other things being equal, imperatives, need statements, permission directives and imbedded imperatives are the most explicit forms. Imbedded imperatives may be harder to comprehend because of the assumption that children use a literal interpretation of syntax rather than easier strategies that

require less verbal processing (Ervin-Tripp 1977), such as Shatz's (1978) theory of the action oriented, discourse rule, mother says-child does. Question directives and hints are less explicit and sometimes don't mention the desired object or goal (Ervin-Tripp 1977). Comprehension requires active inference or repeated conjunction with more explicit forms. Therefore, the plan of this study was to study four of the indirectives in Ervin-Tripp's list of directive forms. These indirectives were presented to HOH children in their natural language, which in this case was an ASL-SEE pidgin. A pidgin is a combination of two languages. Speech, or at least silent enunciation, was used simultaneously because, for the subjects used in this study, the total communication approach is advocated and used extensively at their school. The determination that the subjects of this study do in fact use an ASL-SEE pidgin was made by judgment of their responses to the administration of a tool designed and used by Woodward (1973). The responses to the presentation of this tool were used to determine each child's and the tester's location on the continuum between ASL and SEE. Each child's location was compared to the tester's location in order to control for dialectical differences. Also the dialectical differences were viewed to see if those children more toward one end of the continuum responded appropriately more or less frequently than those at the other end. The exact procedure used to determine dialect is described in detail in chapter II.

PURPOSE OF THE STUDY

The purpose of this study is to show a developmental sequence of four types of indirectives, while also considering whether the desired

object or action was mentioned. Twelve indirectives were presented to twelve HOH children and the children's responses were described. The descriptions were categorized and labeled for analysis. Explanation of how responses were described, and by whom, is included in the procedure section. These children represent ages ranging from 6 to 15 years. It was expected that their responses would reveal a developmental sequence. The expected developmental sequence of the indirective types that were studied, in order from early to late, is as follows:

1. personal need statements)
2. imbedded imperatives)
3. question directives) desired goal or object is mentioned
4. hints)
5. question directives and hints that do not mention the desired goal or object.

Discovery of such a sequence would be helpful in describing the acquisition of indirectives among children acquiring a visual sign language system. This would not only provide information for the speech-language clinician but also for the sociologist and the cognitive specialist.

CHAPTER II METHOD

Subjects

The twelve subjects for this study were chosen from among the HOH students at the Montana State School for the Deaf and Blind. The subjects ranged in age from 6 to 15 years. Their hearing losses as judged by their pure tone averages across the speech frequencies, ranged from 55 to 95 decibels hearing level using ANSI 1969 standards. The subjects all came from families of hearing parents, all learned sign language before the age of 6 years and have normal intelligence. All but one subject were congenitally HOH. The one exception was a hearing impairment due to meningitis at 6 months of age. All subjects with one exception wore hearing aids and no subject was multiply handicapped. Twenty-four subjects were tested. Following viewing of the video tapes with the tester, ten samples were judged invalid, leaving fourteen. After viewing, these fourteen tapes with the second judge, two more samples were judged invalid, leaving the twelve subjects described above.

Procedure

Each subject was videotaped in an informal testing session with an adult tester. The tester was a fluent ASL signer, a hearing person with deaf parents. The tester led a conversation with each child in a room predesigned with certain materials in certain places. For example, there was a purse on the table to correspondent with the indirective "It would be nice if you would give me my purse." The tester incorporated twelve indirectives into a conversation in order to make the use of these indirectives appropriate to context. Responses to the indirectives were viewed on video tapes by the tester and by a second observer who was a fluent SEE signer. Both observers described the

responses by labeling each with one or more of the following categories.

- 1) Appropriate This indicates the child did understand the directive intent as evidenced by his attempt to carry out the requested action or response. Also an explicit refusal would show understanding and would therefore be judged appropriate. An example of an explicit refusal would be when a child replies "No, I don't want to." to the indirective, "Could you close the door?"
- 2) Intermediate This indicates the child may possibly be in a transition stage toward the understanding of the indirective. For example, if a child were to reply "Yes, do you want me to?" to the indirective "Could you close the door?" his response would be judged as intermediate.
- 3) Literal This indicates the child did not understand the indirect intent and answered the indirective as if it were an actual question.
- 4) Request for Clarification This indicates the child didn't hear and/or understand the indirective. Following repetition of the indirective the response would be scored again and the score would show that repetition was needed.
- 5) Ignoring This indicates the child was not paying attention to the tester at the time the indirective was issued and therefore no response was elicited.
- 6) Looked but did not show understanding
- 7) Indeterminate This indicates the child either refused to cooperate so that no judgment could be made, or the child's response for whatever reason could not be translated.

The twelve indirectives presented constituted three examples each of four different types, some with desired object or goal mentioned and some without. They were presented in a sequence that the tester kept flexible for adjustment to context. No forced or unnatural responses were judged valid. The indirectives presented were as follows:

1. "Could you close the door?"
2. "I want that paper."
3. "Did you wash this morning?"
4. "I was hot, now I'm cold."
5. "Would you tell me how old you are?"
6. "I want to know your full name."
7. "Do you have a favorite color?"
8. "I forgot your middle name."
9. "It would be nice if you would give me my purse."
10. "I need a pencil."
11. "Do you know what your father does?"
12. "I have another meeting now."

The tool designed by Woodward (1973) that was used to determine dialect was a presentation of nine sentences to each child. Each sentence was signed two ways, once with inward and once with outward directionality. The sentences were repeated as often as the children needed in order for them to decide which way they usually signed the verbs. The nine verbs used in the sentences are presented in TABLE 1, which also shows that the inward direction (+) is characteristic of ASL signers and the outward direction (-) is characteristic of English signers. Each child's and the tester's responses were then placed on this table and assigned a dialect or a range of dialect numbers. Dialects 1-5 are toward the ASL end of the continuum and dialects 6-10 are toward the English end. The nine sentences that were presented for determination of dialect are as follows:

1. Fingerspell for me.
2. You hate me.
3. You hit me.
4. You force me to eat.
5. You say no, I can't go.
6. Tell me how you feel.
7. Ask me anything.
8. Show me your new shoes.
9. Give me one dollar.

TABLE 1. Implicational Scale of Dialects for Agent-Beneficiary Directionality Rule in ASL

Verbs	Dialects									
	1	2	3	4	5	6	7	8	9	10
1. fingerspell	+	-	-	-	-	-	-	-	-	-
2. hate	+	+	-	-	-	-	-	-	-	-
3. hit	+	+	+	-	-	-	-	-	-	-
4. force	+	+	+	+	-	-	-	-	-	-
5. say no	+	+	+	+	+	-	-	-	-	-
6. ask	+	+	+	+	+	+	-	-	-	-
7. tell	+	+	+	+	+	+	+	-	-	-
8. show	+	+	+	+	+	+	+	+	-	-
9. give	+	+	+	+	+	+	+	+	+	-

This scale was devised by Woodward (1973e) and was used for determination of dialect for the subjects and the tester in this investigation. The results of the determination for each subject and the tester are recorded in Appendix B.

CHAPTER III RESULTS

The following six sections report reliability, statistical findings, the relation between age and acquisition of indirectives and appropriateness of subjects' responses. Each will be discussed separately.

Reliability

The appropriateness of the subjects' responses was judged by the tester and later by a second judge. The testing was video taped and the tapes viewed by both judges.

A coefficient of agreement for nominal scales (Cohen 1960) was calculated to determine the reliability of the judging. When judgment concerned only appropriate versus inappropriate responses the coefficient of agreement was .9488. When judgment concerned differing types of inappropriate responses, the coefficient of agreement was .8198. The judgments of both judges are recorded in Appendix C. When differences in judgment occurred, the judgment made by the tester was recorded. This decision was made because the second judge was not present during the initial taping and some subtle aspects of communication (i.e. force of facial expression) were sometimes not seen on the tapes by the second judge, as they were by both the experimenter and the tester who were present initially.

Statistical Overview

In order to determine whether the hypothesized developmental sequence could be supported by this study, statistical differences between groups needed to be calculated. Statistical analyses included a one-way correlated groups (repeated measures) analysis of variance (ANOVA) which compares four types of indirectives to the number of

appropriate responses by subjects ranging in age from 6 to 15 years. Also included were two individual group ANOVAs, comparing number of appropriate responses to one type of indirective with three groups of subjects divided by age, and Scheffé's test of critical difference following the one-way correlated groups ANOVA. Reliability was measured by two coefficients of agreement for nominal scales (Cohen 1960).

Age and Acquisition of Indirectives

The original hypothesis proposed that age was related to the acquisition of the comprehension of indirectives, and more specifically, that indirective types could be ordered into an explicitness hierarchy that would be correlated with age.

Consider TABLE 2. The data included in TABLE 2. were used to perform the one-way correlated groups ANOVA. The data described the number of appropriate responses within each indirective type for each child. The children are listed in order by age. The results of that ANOVA appear in TABLE 3.

TABLE 2. Appropriate Responses to Indirectives by HOH Subjects.

Age	Indirective Types			
	I	II	III	IV
Yr-Mo	Personal Need Statements	Imbedded Imperatives	Questions	Hints
6-4	3	2	1	1
6-7	3	3	2	2
9-3	3	2	1	0
10-3	2	3	1	1
11-1	3	3	2	2
11-6	3	3	2	2
11-7	3	3	1	1
14-4	3	3	2	1
14-6	3	3	2	2
14-7	3	3	2	1
14-10	3	3	2	2
14-11	3	2	2	1

There was a total of 3 trials, per indirective type, per child.

TABLE 3. Analysis of Variance of Appropriate Response Scores.

Source	Sums of Squares	Degrees of Freedom	Mean Squares	F
Total	32.75834	47	--	---
Subjects	6.75834	11	--	---
Treatments	22.25834	3	7.4194	65.4268*
Error	3.74166	33	.1134	---

F ratio results exceeded the .05 alpha level established prior to the study.

Types of Indirectives and HOH Children's Responses

The results shown in TABLES 2. and 3. indicate that there are significant differences, at the .001 level, concerning how HOH school-aged children respond to different indirective types. Types I and II were responded to appropriately much more frequently than types III and IV. In order to determine which indirective types were significantly different from the others, a Scheffé's test for critical difference was performed.

The results of Scheffé's test are included in TABLE 4.

TABLE 4. Scheffé Test Results

Indirective Types	I	II	III	IV
Mean Number of Appropriate Responses	2.9167	2.75	1.6667	1.3333
Critical difference = .8725				
Comparisons:				
IV vs I	= 1.5834	significant difference		
IV vs II	= 1.4167	significant difference		
IV vs III	= .3334	not significant		
III vs I	= 1.25	significant difference		
III vs II	= 1.0833	significant difference		
II vs I	= .1667	not significant		
Results: $X_I = X_{II} > X_{III} = X_{IV}$				

These results indicated that the means of type I (personal need statements) and type II (imbedded imperatives) were not significantly different. This was also the case when comparing the means of type

III (question directives) and type IV (hints). However, types I and II were each significantly different from both types III and IV. Therefore, the null hypothesis ($H_0: X_I = X_{II} = X_{III} = X_{IV}$) can be rejected; however, the projected hypothesis ($H_1: X_I > X_{II} > X_{III} > X_{IV}$) is not entirely supported. Rather, the data analysis supports the following hypothesis: $X_I = X_{II} > X_{III} = X_{IV}$.

A fifth type of indirective, which was inclusive within types III and IV, contained one question directive and two hint directives that did not mention the desired object or action. When considered separately, this fifth type of indirective was definitely the most difficult for the children to understand. This type V indirective was responded to inappropriately more frequently than any other type. Had these three indirectives mentioned the desired object or action there may have been more appropriate responses to types III and IV. To control for this situation in further studies, one might include a fifth category of indirectives that do not mention the desired object or action, and include none of this type V indirective within any other category.

Appropriateness of Subjects' Responses

Type I and II indirectives were responded to appropriately nearly 100% of the time across subjects. Therefore, types I and II were not analyzed for differences between age groups. However, individual group ANOVA's were performed on type III and type IV indirectives to check for differences between age groups of these HOH children. TABLE 5. and TABLE 6. show these results.

TABLE 5. ANOVA of Responses to Type III Indirectives by 6 Year Olds, 9 to 11 Year Olds and 14 to 15 Year Olds.

Source	Sums of Squares	Degrees of Freedom	Mean Squares	F
Total	2.6667	11	--	----
Between	.9667	2	.4834	2.5589 NS
Within	1.7	9	.1889	----

Not statistically significant when alpha = .05.

TABLE 6. ANOVA of Responses to Type IV Indirectives by 6 Year Olds, 9-11 Year Olds and 14 to 15 Year Olds.

Source	Sums of Squares	Degrees of Freedom	Mean Squares	F
Total	4.6667	11	--	----
Between	.1667	2	.08335	.1667 NS
Within	4.5	9	.5	----

Not statistically significant when alpha = .05.

The individual group ANOVA's for types III and IV showed no significant differences between performances by 6 year olds, 9 to 10 year olds or 14 to 15 year olds though types III and IV appeared harder than types I and II for all subjects. The fifth type which was discussed above appeared to be the hardest of all types, again for all subjects. Therefore, because types I and II appeared easier than III and IV, and III and IV easier than type V, and because there were no significant differences between any age groups in frequency of appropriate responses, there appears to be little relation between age and acquisition of indirective types in HOH children age 6 to 15 years.

Dialect

As has been discussed earlier, there is a continuum of dialects of sign language with ASL at one end and English at the other. Woodward (1973e) has devised a scale for determining where on this continuum a person's use of sign lies. This determination was implemented by the

subjects choosing between the tester's examples of inward and outward directionality on nine verbs. The tester, a fluent ASL signer, made judgments concerning each subject's choice because often the subjects would show how they signed the verb rather than strictly choosing from the tester's examples. From the tester's judgments the experimenter assigned a dialect or a range of dialect numbers using Woodward's (1973e) implicational scale. Number 1 indicates pure ASL and 10 indicates pure English. The actual judgments made for each subject can be seen in Appendix B. TABLE 7. shows the distribution of dialects by number and any tendency toward ASL or English.

TABLE 7. Dialect Assignments

Age	Dialect	English	Both ASL and English	ASL
6-4	1-10		x	
6-7	1-10		x	
9-3	2-10		x	
10-3	10	x		
11-1	3-9		x	
11-6	10	x		
11-7	10	x		
14-4	2-10		x	
14-6	2			x
14-7	7-9	x		
14-10	6-9	x		
14-11	1-10		x	
Tester	2			x

There were not enough subjects in each cell to reliably test for correlation of membership in the dialects and number of appropriate responses. However, there appears to be no correlation between dialect and number of appropriate responses within any age group, any directive type or overall.

CHAPTER IV DISCUSSION

General Conclusions

This study has shown that question directives and hints are less direct than the personal need statements and imbedded imperatives or at least appear harder to understand by HOH school-aged children using sign language.

Several other factors must be taken into account. First, of the three question directives presented to each subject, one did not mention the desired object or action which appears from the results of this study to be a much harder indirective to comprehend. Also, of the three hints presented to each subject, two did not mention the desired object or action. Therefore, it is not clear if the question directives and hints are actually harder to understand than the first two types or if the fact that three out of six of them being even more difficult to comprehend biased the scores.

Any future study should include indirectives that do not mention the desired object or action only as a separate category. TABLE 8. shows in one column the scores (number of appropriate responses out of six trials) of the subjects for question directives (type III) and hints (type IV) combined, and in the other column the number of these indirectives (III and IV) which did not mention the desired object or action (V) that were responded to appropriately (possible score = 3). The actual indirectives presented are recorded in Appendix A. and may clarify TABLE 8. The table illustrates that the indirectives that did not mention the desired object or action (V) were understood much less frequently than any other type. The inclusion of the type V indirectives

within types III and IV makes interpretation of types III and IV difficult.

TABLE 8. Effect of Type V Indirectives on Interpretation of Types III and IV.

Age	Indirective	Types
	III and IV	V
6-4	2	0
6-7	4	1
9-3	1	0
10-3	2	0
11-1	4	1
11-6	4	1
11-7	2	0
14-4	3	0
14-6	4	1
14-7	3	0
14-10	4	1
14-11	3	0

Order of Presentation of Indirectives

One needs to consider that the order of presentation of the indirectives was not counterbalanced due to the necessity of a natural context which required flexibility in presentation. The exact order of presentation to each subject is listed in Appendix A. The order was more systematic than was initially thought possible. Therefore, future studies may be able to control for order of presentation.

Dialect

The tester's dialect when measured was very close to pure ASL, and only one subject's dialect was as close to pure ASL as the tester's. The tester and the experimenter felt that the subjects did understand the dialect the tester used and when there was doubt, the tester used a more English sign for some vocabulary words (e.g., purse). Care was taken to insure preservation of indirectness. Alternative presentations were discussed previously to any data collection and were practiced by

the tester. Any unplanned changes were viewed carefully afterward and when directness was not preserved, the data were disregarded.

Due to the fact that the personnel who work with the subjects daily use a signed English system, the subjects may have felt that they were expected to use signed English rather than ASL. This was evident when testing one subject who responded in ASL to an indirective and then repeated the exact sentence in English as if it were expected, or as if the experimenter may have felt English to be better than ASL. This only happened once and the tester was very careful to explain, when testing dialect, that we wanted to know their (the subject's) way of signing because we all have our own way. This explanation and the fact that the tester was using ASL herself was designed to encourage the subjects to report their way of signing rather than what they may have learned as the "right" way or at least the way their teachers have signed.

One other factor to consider was mentioned by the tester. She felt that being asked which way she signed a verb was a difficult question because it is out of context (though in a sentence), and how she would sign the nine verbs may have been different from the way she may have signed them spontaneously. However, Woodward (1973e) found a high rate of acceptability (89.9%) with these nine verbs, which according to Guttman's (1944) definition (85%), is a valid rate for an implicational scale. The alternative to Woodward's scale, a spontaneous language sample that elicited the exact verbs, using second person, would have been very time consuming, if possible at all. Therefore, it was decided to utilize Woodward's procedure.

Degree of Explicitness of Indirectives

Shatz (1978) reported in her study of children's comprehension of their mother's question directives that the degree of explicitness of indirectives made no difference as far as appropriateness of response, as long as the desired object or action was mentioned. The present study indicates that degree of explicitness does make a difference. Question directives and hints which are less explicit than personal need statements and imbedded imperatives were appropriately responded to less often across all age groups. However, half of the question directives and hints did not mention the desired object or action and therefore could account for this difference between Shatz's (1978) findings and the findings of this investigation.

Relation of Age and Socialization to Indirective Comprehension

It was hypothesized that a developmental sequence would emerge in the children's responses to all indirective types. However, some six year olds responded more appropriately than some fourteen year olds which precludes the construction of a developmental sequence. Because within the age group studied, age does not appear to be related to the understanding of indirectives, perhaps there is a social component involved. The extent of directness or indirectness used may differ between families. Children may learn that form can be detached from function as Bates (1976) has hypothesized through the actual memorization of some examples (i.e. general idioms, idiosyncratic family indirectives). Then with more and more exposure to indirectness, children with normal cognitive processes may learn to develop their own examples. The degree of exposure to indirectives probably varies

between families and therefore some children may be much more receptive to underlying meaning than others, regardless of age.

Implications for Further Research

Very little is known about how indirectives are signed in a visual language. It would be very informative to know more about the different ways adults sign indirectives. Our perspective, as part of the hearing population, biases our view of indirectives. We need to know much more about how adult signers use indirectives and how directness functions in a visual language.

Other implications for future studies might include replication of this study using an English signer, the five categories of indirectives and a wider range of ages. The wider range of ages would indicate if those younger than six years do as well as the 6 to 15 year olds studies here in responding appropriately to indirectives and if those older than 15 do better with the type V indirectives than the 6 to 15 year olds used in the present investigation.

Also of interest for further research is adult usage and understanding of type V indirectives, which would provide a tentative tempoal schedule of acquisition.

The coding scheme described on page 15 that was used for inappropriate responses was more elaborate than needed. The categories numbered 2, 3 and 6 were the only necessary categories. Categories 4, 5 and 7 labeled invalid data and therefore could not be used. Further studies may want to take this into account.

Another interesting research project might involve the study of family styles of directness versus indirectness and if this style is

correlated with appropriate response scores to indirectives.

Conclusion

There does not appear to be a developmental sequence in the acquisition of the comprehension of indirectives in school-aged HOH children using sign language. However, there does appear to be a difficulty hierarchy of types of indirectives which applies to HOH children using sign language from the ages of 6 to 15 years. This hierarchy is as follows:

- I Personal Need Statements and Imbedded Imperatives
- II Question Directives and Hints
- III Any of the above that do not mention the desired object or action

The above hierarchy might be useful, however, in individualizing the curriculum of subjects similar to those studies here. Some children have little problem with possibly one or two or more types. For children exhibiting problems with comprehension of indirectives, a similar test to the one used in this study may help instructors to know how they themselves can or cannot use indirectness in order to be most easily understood by each child. Also, as was hypothesized earlier, there may be a social component involved which leads one to believe that not only can an instructor tailor his language to fit certain children, but he may also be able to actively assist children in learning to understand these indirect forms of language.

Appendix A. Indirectives

Type I

2. I want that paper.
6. I want to know your full name.
9. I need a pencil.

Type II

1. Could you close the door?
5. Would you tell me how old you are?
10. It would be nice if you would give me my purse.

Type III

- *3. Did you wash this morning?
7. Do you have a favorite color?
11. Do you know what your father does?

Type IV

- *4. I was hot, now I'm cold.
8. I forgot your middle name.
- *12. I have another meeting now.

*Type V = 3., 4., and 12. as they are stated above. Type V indirectives were not presented twice, only analyzed twice because they can be categorized in two ways.

Order of Presentation to each subject	
Age	Order
6-4	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
6-7	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
9-3	1, 2, 10, 9, 5, 6, 7, 11, 4, 8, 12, 3.
10-3	1, 2, 10, 9, 6, 7, 5, 3, 8, 4, 11, 12.
11-1	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
11-6	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
11-7	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
14-4	1, 2, 3, 4, 5, 6, 8, 7, 10, 11, 9, 12.
14-6	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
14-7	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
14-10	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.
14-11	1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 11, 12.

Appendix B. Subjects' and tester's general characteristics and responses to Woodward's (1973e) dialect procedure.

Video Tape No.	Age	Sex	Hearing Loss	Dialect Scale Verbs Listed Below								
				1	2	3	4	5	6	7	8	9
5	6-4	M	80 dB	+	+	-	-	+	-	-	-	-
12	6-7	M	55 dB	±	±	-	-	-	+	-	-	-
1	9-3	M	90 dB	-	+	+	-	-	-	-	-	-
2	10-3	M	85 dB	-	-	-	-	-	-	-	-	-
3	11-1	F	85 dB	-	-	+	+	+	-	-	-	+
6	11-6	F	55 dB	-	-	-	-	-	-	-	-	-
11	11-7	F	90 dB	-	-	-	-	-	-	-	-	-
8	14-4	M	75 dB	-	+	-	+	+	+	+	+	-
4	14-6	M	80 dB	-	+	+	+	+	+	+	+	+
9	14-7	M	80 dB	-	-	-	-	-	-	+	-	+
7	14-10	F	85 dB	-	-	-	-	-	+	+	-	+
10	14-11	M	75 dB	+	-	-	-	-	-	-	-	-
Tester	Adult	F	None	-	+	+	+	+	+	+	+	+

Hearing loss is a pure tone average represented by measurements in dB HL, using ANSI 1969 standards.

+ = inward
- = outward

For sentences used to incorporate the nine implicational verbs, refer to Chapter II, procedure section.

Dialect Scale Verbs

1. fingerspell
2. hate
3. hit
4. force
5. say no
6. ask
7. tell
8. show
9. give

Appendix C. Judges decisions regarding appropriateness of responses for each subject.

Indirective Number-Refer to App. A	Age															
	6-4		6-7		9-3		10-3		11-1		11-6		11-7		14-4	
	Judge		Judge		Judge		Judge		Judge		Judge		Judge		Judge	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1.	2	2	1	1	6	6	1	* 6	1	1	1	1	1	1	1	1
2.	1	1	1	1	1	1	6	6	1	1	1	1	1	1	1	1
3.	3	* 6	3	3	3	3	6	6	3	3	3	3	3	3	3	3
4.	6	6	6	6	6	6	6	6	1	1	6	6	6	6	6	6
5.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7.	3	* 6	1	1	6	6	3	3	1	1	1	1	1	1	1	1
8.	1	1	1	1	6	6	1	1	1	1	1	1	1	1	1	1
9.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11.	1	1	1	1	1	1	1	* 6	1	* 6	1	1	3	3	1	1
12.	6	6	1	1	2	2	6	6	6	6	1	1	6	6	2	2

	14-6		14-7		14-10		14-11	
	A	B	A	B	A	B	A	B
1.	1	1	1	1	1	1	1	1
2.	1	1	1	1	1	1	1	1
3.	3	3	3	3	3	3	3	3
4.	6	6	6	6	6	6	6	6
5.	1	1	1	1	1	1	1	1
6.	1	1	1	1	1	1	1	1
7.	1	1	1	1	1	1	1	1
8.	1	1	1	1	1	1	1	1
9.	1	1	1	1	1	1	1	1
10.	1	1	1	1	1	1	6	6
11.	1	1	1	1	1	1	1	1
12.	1	1	2	2	1	1	6	6

The numbers above stand for the judgments which were categorized as follows:

1 = appropriate

2 = intermediate

3 = literal

6 = looked but showed no understanding

Refer to Chapter II, procedure section for definitions of the above categories.

Judge A was the tester

Judge B was a secondary observer (tapes only)

*Sources of disagreement between Judge A and Judge B

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