

## INCIDENTAL TEACHING OF LANGUAGE IN THE PRESCHOOL<sup>1</sup>

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"Incidental teaching" denotes a process whereby language skills of labelling and describing are learned in naturally occurring adult-child interactions. In the present study, 15-min daily samples of the spontaneous speech of 11 children were recorded during free play over eight months of preschool. After incidental teaching of compound sentences, increases in unprompted use of compound sentences were seen for all the children, first directed to teachers, and then to children, in accordance with who attended to the children's requests for play materials. The incidental teaching procedure also stimulated spontaneous variety in speech, and appears to have general applicability to child learning settings.

DESCRIPTORS: disadvantaged children, language, compound sentences, incidental teaching, spontaneous speech, verbal training

For many years, language development has been a focus in preschool programs of every variety and persuasion, with authorities on preschool practice, such as Read (1966), emphasizing the need to provide young children with extensive opportunities for labelling, description, and differentiation. As Weikart (1972) pointed out, research has shown that children profit from any preschool curriculum, as long as it involves a wide range of experiences and situations that require language expression; the curriculum is not for the child, but to focus the teacher's efforts to help the child learn. The opportunities for one-to-one language interac-

tions between teacher and child are not only frequent in a preschool program, but have the advantage of allowing teachers to adjust their teaching to individual personality variables (Blank, 1972). Numerous excellent examples of language-teaching interactions have been written (Blank, 1972, p. 135; McAfee, 1972, p. 75; Read, 1966, p. 332). However, as Cazden (1972) observed, few good descriptions of the process variables (the specific behaviors of teachers and children in the educational setting) are available. The present article describes the one-to-one teacher-child incidental teaching process, with, as an example of this process, an experimental study that was a follow-up of two earlier studies of the incidental teaching process (Hart and Risley, 1968, 1974).

### METHOD

#### *The Incidental Teaching Process*

Incidental teaching refers to the interaction between an adult and a single child, which arises naturally in an unstructured situation such as free play and which is used by the adult to transmit information or give the child practice in developing a skill. An incidental teaching

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situation is child-selected; that is, the child initiates interaction by requesting assistance from the adult. Incidental teaching has been most frequently applied to the teaching of language and is here considered in that context. The child's request may be verbal or nonverbal: for instance, stretching for an object beyond his reach, struggling with clothing, crying, calling the adult's name, asking for a play material, for food, or for information. When the adult responds to the child's request, a series of decisions ensues:

- (1) whether to use the occasion for incidental teaching; if yes, then
- (2) a decision concerning the language behavior to be obtained from the child, and
- (3) a decision concerning the cue to be used to initiate instruction, whether
  - (a) the cue of focused attention alone, or
  - (b) the cue of focused attention plus a verbal cue.

And, if the child does not respond to the cue,

- (4) a decision concerning the degree of prompt to be used, whether
  - (a) fullest degree: a request for imitation
  - (b) medium degree: a request for partial imitation, or
  - (c) minimal degree: a request for the terminal language behavior.

If the adult decides (1) to use the child's request for assistance as an occasion for language learning, the adult then makes an immediate decision (2) concerning the terminal language to be obtained from the child, which will terminate the incidental teaching occasion. The terminal language behavior selected will, of course, vary according to the situation, age, personality, and language ability of the child. Then, the adult decides (3) on the cue to be given the child in order to initiate instruction. Just as the language-behavior goal is, in the end,

adult-level language performance, so also is the cue: the incidental teaching procedure is aimed at having the child learn spontaneous adult-like language responses to the cues of the adult world. Thus, the first, most subtle, and natural cue is the presence of the adult's attention (decision 3a). The focusing of another person's attention should function, finally, as a cue for a language response from an individual needing assistance, whether in purchasing an item in a store, in asking for information, or in specifying a problem. Therefore, the adult always presents this cue first: physical approach, eye contact, and a questioning look. If the child does not respond immediately to the cue of focused attention, the adult adds a verbal cue (decision 3b). In the incidental teaching process, these verbal cues should be situation-general, so that the child can learn the category of language response appropriate to the specific occasion. Thus, when the adult introduces an incidental teaching interaction with the verbal cue, "What do you want?", the child learns that a sentence of explanation is called for, as "Do this", "Give me one", "What are these?". On the other hand, when the adult introduces an incidental teaching interaction with the verbal cue, "What is that?", the child learns that a label is called for. Through variations of the latter cue, as, "What color is that?", the child learns that a descriptive label is called for. Maintaining a relatively small number of verbal cues not only helps the child discriminate the nature of the language response called for, but helps the adult respond immediately and consistently to a child's initiation of an incidental teaching situation.

Thus, when the child initiates the incidental teaching situation by requesting assistance, the adult responds first with the cue of adult presence and attention (decision 3a), and, then, if the child does not respond to this cue with spontaneous speech, the adult offers a verbal cue (decision 3b). In the incidental teaching situation, the child is in need of help; he may be lacking in language skills, but his need is real

and therefore his attention is fully focused on the assistance implicit in the adult's presence and attention. The adult may be sure that the child will respond if the adult enables him to do so by selecting a terminal language behavior that he can produce or that the adult can help him to produce. In this sense, the child who has selected the occasion, controls it, for he can nearly always find assistance elsewhere, or do without, if the adult's help is too difficult to obtain. Therefore, the adult keeps the incidental teaching interaction short and comfortable for the child: if the adult presents a cue and the child does not respond appropriately, the adult prompts him (decision 4); if he does not respond appropriately to this prompt, he may be prompted once more. Then, the adult helps the child anyway, reflects on his/her own behavior in order to discover what kind of prompt would have elicited the appropriate language from that individual child, and tries again the next time the child selects an occasion for instruction. The degree of prompt used will depend on the individual child and the situation. The first, fullest degree of prompt (decision 4a) is always used when the terminal language behavior to be obtained from the child is one that the adult has not previously obtained: the adult prompts by presenting to the child the terminal language behavior itself, and asking the child to imitate it. For example, to a barely verbal child struggling to put on clothing, the adult might say, "What do you want? [the verbal cue] You need to tell me. Say, 'Do this' ". As soon as the child imitates the terminal language behavior (says, "Do this"), the adult responds with praise and assistance. To an older, more verbal child, who has responded to the cue of the adult's presence and attention with a request for information, as, "What time is it?", the adult might say, "The little hand is on five, so it's five o'clock." Note here that the adult's assistance (telling the time) is given only after the child has imitated the terminal language behavior; such an imitation would be requested only if a child with this degree of verbal skill had never

been prompted to describe the hands on a clock previously, and the adult's goal in this incidental teaching situation is not to teach the child to tell time, but to teach him the descriptive language skills that will be used when the adult does begin to teach him how to tell time. It is essential that a child be able to respond to this fullest degree of prompt, one that calls for imitation ("Say——") before any other is used; if a child cannot imitate an adult verbalization, he must be taught this language skill first. The procedures for teaching imitation have been described in detail elsewhere (see, for instance, Lovaas, 1966; Risley and Wolf, 1967).

The second, medium degree of prompt (decision 4b) involves partial imitation by the child and reduction of the adult prompt until the child is spontaneously responding with the appropriate language. In the two examples given above, this medium degree of prompt would be used after the children were reliably and spontaneously imitating the adult verbalization, "Do this", or "The little hand is on five". Then, the adult would say to the barely verbal child in an identical incidental teaching situation, "What do you want? [the verbal cue] You need to tell me. Say 'Do \_\_\_\_\_' ", and wait for the child to produce, "Do this". With the more verbal child, the adult would prompt partial imitation by saying, "The little hand is . . .", and then wait for the child to imitate the phrase with the spontaneous addition of "on five". In both cases, if the child does not say the complete sentence, the adult prompts it by asking the child, "Say the whole thing", and then prompting the complete sentence if necessary. It is essential that, if the terminal language behavior is a sentence, the adult prompt the entire language response before a further reduction in prompt is introduced. However, complete sentences should not be required when the labelling of objects and attributes is the terminal language behavior in the incidental teaching situation. In the above example, for instance, if the goal of the incidental teaching was that the child learn to label the numerals on the clock,

rather than to describe the location of the hands, the terminal language behavior would be the single-word label, "five".

In the third, minimal degree of prompt (decision 4c), the adult prompts by directly requesting the terminal language behavior. Thus, in an identical incidental teaching situation with the barely verbal child, the adult request would be the statement, "You need to tell me" (*i.e.*, verbalize, rather than whine or cry). Note that, at this stage, the terminal language behavior may be any verbal statement of need by the child: the adult request is satisfied, for instance, whether the child says, "Do this", or "Help me", or "Tie my cap". In fact, such variety of language is to be encouraged. With the older, more verbal child, the adult request would be, "Where is the little hand?". At this third, minimal degree of prompting, when the child has learned the terminal language response such that he no longer needs to imitate any portion of it, the adult begins to introduce variation in requests for the behavior so that the child can learn the many kinds of stimulus situations to which the language behavior is appropriate. For instance, the older, more verbal child could be asked, on subsequent occasions of teaching him to describe the position of the hands on a clock, "Look at the clock", or "Is the little hand on four?".

Finally, the fourth, zero degree of prompt is the adult cue: the verbal cue, "What do you want?" to the young child, or the cue of receptive adult attention to the older child. Always, however, if the child does not respond appropriately in the incidental teaching situation to a cue or a prompt given by the adult, the adult immediately presents a prompt of the preceding fuller degree; the child's response always informs the adult concerning the degree of prompt necessary for learning for that child, and how much repetition of a given language behavior is necessary in a given area or at a given stage of language learning. The variety and extent of children's language learning will thus be determined by the skill of the adult and the frequency of

child-selection of occasions for instruction. The frequency of instructional occasions is again determined by the arrangement of the environment in which the child lives (see Risley, 1972).

The nature and degrees of adult prompts and cues used in incidental teaching of labelling objects and their attributes, and of describing reasons for use of play materials, have been described earlier (Hart and Risley, 1974); in that study, the effectiveness of the incidental teaching procedure was demonstrated. Several questions remained, however, about the nature and maintenance of language learned through incidental teaching: whether spontaneous variety of language resulted from the incidental teaching, whether adult prompts continued to be necessary throughout incidental teaching, and whether the incidentally taught behavior would generalize to persons other than the teachers of it. The present study was undertaken to answer these questions in a context of demonstrating the effects of incidental teaching in promoting children's regular use of compound sentences to describe their reasons for using preschool play materials.

#### *Subjects and Setting*

Eleven black children, five girls and six boys, from low-income families living in or near a federal housing project in Kansas City, Kansas, served as subjects. At the end of the preschool year, the children ranged in age from 4 yr 8 mo to 5 yr 2 mo, and in IQ, as measured by the PPVT, from 51 to 101. The mean age was 5 yr; the mean IQ was 73. The children attended Turner House Preschool from 9 a.m. to 12 noon four days per week. The daily schedule and recording procedures were identical to those described in Hart and Risley (1974): during two half-hour free-play periods every day, three observers wrote down in longhand for 15 min "everything said" by a given child, noting to whom the child directed each recorded verbalization (to a teacher, a child, or in no observable direction), and whether the child was playing with the "shelf" materials (beads, puzzles, pound-

ing benches) or with some other play material in another preschool area. In addition, the observers noted with a separate symbol any verbalization that was a repeat by a child of an immediately preceding teacher statement, and any verbalization that was prompted by a teacher with, "Say . . .", "You need to ask for . . .", or the equivalent.

### *Measurement*

Each 15-min verbalization sample for each child each day was key-punched for computer analysis in a manner identical to that described in Hart and Risley (1974). A compound sentence was defined as any two clauses, each containing a verb, connected by a conjunction. Each recorded compound sentence was computer-coded according to its addressee (*i.e.*, said to a teacher, a child, or addressee not observable). In addition, a special computer code was given to any sentence marked by an observer as prompted or imitative. All sentences meeting the compound definition were coded as above, not just those sentences that appeared to be the result of incidental teaching. Similarly, all teacher-prompted sentences were so coded, not just compound sentences.

To analyze the variety of vocabulary used in compound sentences, a separate count was made of the numbers of different nouns and verbs in compound sentences of the pattern taught on incidental teaching occasions, *i.e.*, "I want  $x$  so I can  $y$ " (as, "I want a *block*, so I can *play* with it").

Whenever a child was absent, the observer assigned to that child recorded a simultaneous but independent 15-min sample with one of the other observers. Absences averaged approximately one per child per month; there were no systematic differences across conditions except for one marked increase during several weeks of bad weather between school days 50 to 60. A total of 133 reliability samples were recorded, one or more each day in each experimental condition. The data from these samples were processed through the computer in the same

way as the data taken by the prime observer. For the 133 samples, total agreements between prime observer and both second observers on the occurrences (only) of the following categories, when divided by agreements plus disagreements, yielded: 0.99 agreement on use of a compound sentence, 0.99 agreement on the direction of the compound sentence, 0.85 agreement on whether a statement was prompted or imitative, and 0.96 agreement on whether a compound sentence was in statement or question form.

### *Procedures*

*I. Baseline: incidental teaching of labels.* Before teaching compound sentences, in order to ensure that the children had a variety of vocabulary items for use in those sentences, incidental teaching of labels for play materials was conducted. Except for certain manipulative toys indoors (the "shelf" play materials) and major equipment and sand toys outdoors, all preschool materials were placed beyond the reach but within sight of the children, so that a child's need for assistance in obtaining a material would create an incidental teaching occasion. On these occasions, the teachers learned from the children's responses which children already knew the names of the play materials and taught those who did not. If a child labelled a play material (as, "I want a truck.") before or as soon as the teacher turned her attention to him, no incidental teaching was conducted; the child received the item requested and praise for his language behavior. If a child pointed but did not verbalize or verbalized without using a label (as, "I want that."), the teacher cued, and then prompted, if necessary, the labelling behavior. The sequence of cues and prompts used in this incidental teaching of labels was identical to that described in Hart and Risley (1974) under "Use of Nouns".

*II. Incidental teaching of compound sentences directed to teachers.* After 36 days of school, the incidental teaching occasions occurring when children needed assistance in obtaining preschool

materials became occasions for instruction in use of compound sentences. The preschool environment remained the same, except that now when a child said, "I want a truck", the teacher introduced incidental teaching. She presented the cue, "Why?" or "What for?" and then, in the manner described in Hart and Risley (1974) under "Use of Compound Sentences", prompted a complete sentence that stated a reason, as "I want a truck so I can play with it." The teacher prompted the compound sentence whenever a child failed to respond to her verbal cue; as soon as he was responding to the cue, "What for?", she began waiting for him to verbalize a compound sentence in response to her attention alone. She assisted the child, handing him the requested material, immediately upon his use of a compound sentence, and praised his language behavior.

Initially, any reason given by a child within a compound sentence resulted in teacher assistance; after the forty-fourth day of school, however, the incidental teaching occasion was used to teach specific and appropriate reasons for use of materials. After a child used a compound sentence, as "I want a block so I can play with it", the teacher presented a variation of the cue, saying, "Why do you really want it? What are you going to do with it?". If the child responded with a specification, "Build with it", the incidental teaching situation was terminated with his receipt of the block; assistance was not delayed by a teacher request for a complete sentence.

*III. Incidental teaching of compound sentences directed to children.* Beginning on the seventy-seventh day of school, the incidental teaching situations arising when children needed assistance in obtaining a play material were used to instruct the children to address the previously learned language behavior, a compound sentence, to another child. This was done in order to generalize this language behavior to persons other than those who had directly taught it; since the only other persons available in the preschool environment were the children, they became the recipients. The preschool environment remained

the same, except that now, when a child initiated an occasional teaching situation by requesting a play material from a teacher, she presented the cue, "I'll give it to Bill (a child nearby), and you ask him for it", or "Ask Bill to get it for you". If the child hesitated, the teacher gave the material to the second, nearby child and directed that child's attention, and thus the availability of his assistance, to the first child by saying, "Bill, Andy (the first child) is going to ask you for the \_\_\_\_\_". If necessary, she then prompted the first child by saying, "You need to ask Bill for it". When the first child asked the second child for the material, if he did not employ a compound sentence, the teacher delayed the second child's assistance by asking him, "Did Andy say it right?". The teacher then prompted the first child to repeat his request to the second child, and again asked whether the statement had been said correctly as a compound sentence. Then, the teacher prompted a compound sentence from the first child if he still did not produce one. In these situations, incidental teaching was never conducted with the second, assisting child; he was praised for getting the material and handing it to the first child and was never asked to produce a compound sentence if he had to ask the teacher for the material in order to hand it to the first child.

When a child used a compound sentence in requesting a material from another child, the teacher made certain that the second child assisted the first child in obtaining the material, she praised the first child for the correctness of his language behavior, and she praised the second child for assisting and for recognizing and verifying (by saying, "Very good") the correctness of the first child's language behavior. As previously, teacher prompts were employed to both first and second child whenever their behavior appeared to necessitate them.

*IV. Baseline.* On Day 114 of school, the conditions of the first 36 days of school were reproduced. Children continued to need assistance in obtaining a play material, and, as in the previous baseline, if a child labelled a play material before

or as soon as the teacher turned her attention to him, no incidental teaching was conducted. Any form of language behavior that labelled a material directed to any person resulted in teacher assistance.

## RESULTS

After incidental teaching, procedures were used to instruct children in the use of compound sentences directed to teachers; the use of such

sentences so directed increased markedly, while the number of compound sentences directed to children remained at baseline level. The language behavior generalized to use with children when incidental teaching procedures were used to direct compound sentence usage to them: the number of compound sentences to children more than doubled. When systematic incidental teaching was discontinued, a moderately high rate of compound sentence usage to both teachers and children was seen. Figure 1 shows

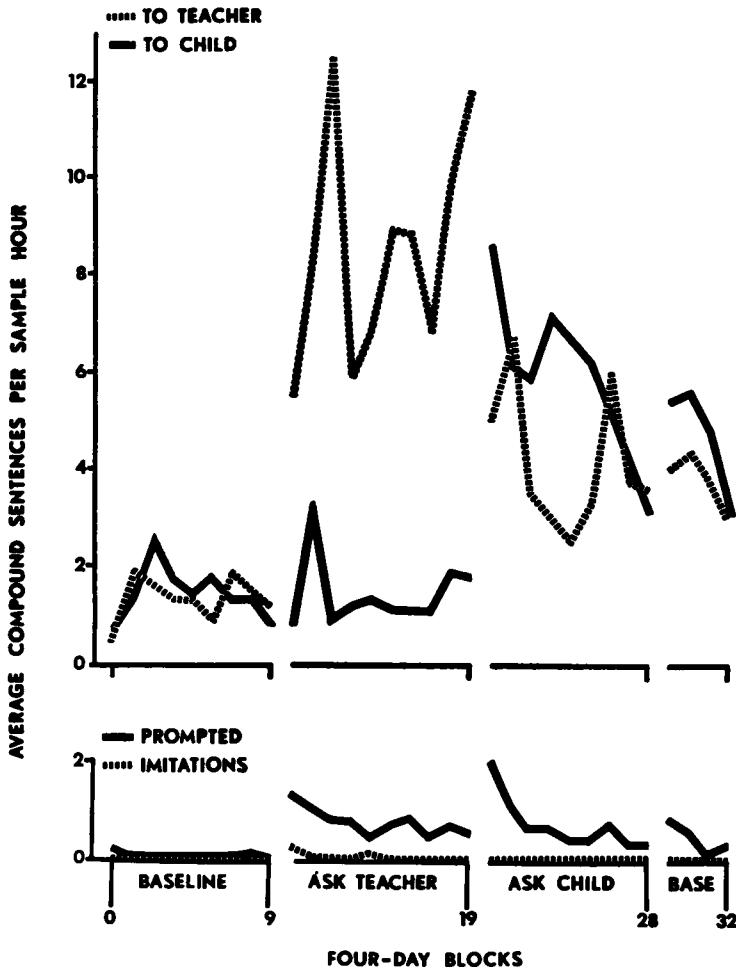


Fig. 1. Top: average use of compound sentences per sample hour directed by all 11 children to teachers (dotted line) and to children (solid line). Bottom: average number of statements for all 11 children that were prompted (solid line) by a teacher statement and that were imitations (dotted line) of an immediately preceding teacher statement. Experimental conditions were: baseline, blocks 1 to 9 (Days 1 to 36); incidental teaching of compound sentences directed to teachers, blocks 10 to 19 (Days 37 to 76); incidental teaching of compound sentences directed to children, blocks 20 to 28 (Days 77 to 112); and baseline, blocks 29 to 32 (Days 113 to 128). Each point represents four 15-min verbalization samples (*i.e.*, four consecutive days of observation).

the average use per sample hour of compound sentences by all 11 children over the entire school year. During baseline, compound sentence usage among the 11 children averaged 2.6 per sample hour (range 1.1 to 4.2), with an average of 1.4 compound sentences addressed to children and 1.2 addressed to teachers. When incidental teaching procedures were used to teach compound sentence usage directed to teachers, the number of compound sentences recorded as so directed rose to an average of 8.5 per hour (range 5.5 to 12.6). Compound sentences directed to children remained at a recorded average of 1.5 per hour (range 0.8 to 3.3). When incidental teaching procedures were used to generalize compound sentence usage to children, the number of compound sentences recorded as directed to children rose to an average of 5.9 per hour (range 3.1 to 8.6), while compound sentences addressed to teachers decreased to an average of 4.1 per hour (range 2.5 to 6.7). After incidental teaching of compound sentences was discontinued, the number of compound sentences recorded per hour averaged 4.5 directed to children (range 3.1 to 5.6) and 3.8 directed to teachers (range 3.2 to 4.3).

Teacher prompts appeared to play a negligible role in the children's continued use of compound sentences. As presented in the lower portion of Figure 1, teacher-prompted statements of all types, and child imitations of teacher statements, ranged from zero to 0.2 throughout the baseline period. When incidental teaching of compound sentences directed to teachers was begun, prompted responses of all types rose on the first four days to 1.3 per hour, and then gradually decreased to an average of 0.7 per hour. Imitative responses were 0.3 per hour during the first four days, decreasing to less than 0.1 thereafter. When incidental teaching for language generalization to children was begun, prompted responses of all types again rose, to 2.0 per hour on the first four days, but decreased thereafter to an average of 0.7 per hour. Imitative responses were less than 0.1 per hour throughout this condition. When in-

cidental teaching of compound sentences was discontinued, prompted responses of all types decreased to an average of 0.5 per sample hour, while imitations remained at less than 0.1 per sample hour.

Rather than producing stereotyped patterns, incidental teaching of compound sentences led to considerable variety of language among the children, particularly toward the end of the school year when children were addressing compound sentences to other children. When compound sentences of the incidentally taught pattern, "I want an  $x$  (a noun such as 'block'), so I can  $y$  (a verb such as 'build')", were examined for a variety of vocabulary, it was found that, while only 20% of all the sentences contained different verbs describing the reason for use of a material after the auxiliary "can", 40% of the sentences directed to children (*i.e.*, those recorded after 41 days of incidental teaching) contained a different verb describing the reason for using the material. Approximately one-quarter of these were novel verbs not recorded previously in a compound sentence. Similarly, while only 36% of all the compound sentences contained a different noun in the initial portion labelling the material wanted, 60% of the compound sentences directed to children later in the school year contained different noun labels. Of all these noun labels, 42% were unique usages, recorded only once per child; 37% of all verbs of reason for use were recorded only once per child. Examination of the compound sentences also showed an unprompted shift in sentence-pattern when children addressed compound sentences to other children: while the majority (74%) of compound sentences addressed to teachers were statements ("I want . . .", or "Give me . . ."), the majority (56%) of compound sentences addressed to children were questions ("Can I have . . .?"). Only 18% of the compound sentences addressed to teachers were of this question form.

As in the Hart and Risley (1974) study, the present study showed that incidental teaching had no deleterious effects on children's use of



preschool materials. During the 36 days of baseline, an average of 1.17 children per day played with the "shelf" materials that throughout the year remained available to children without the assistance of a teacher. When incidental teaching was introduced, no child played with these materials during the first seven consecutive days of the availability of incidental teaching; thereafter, an average of 0.49 children per day used these "shelf" materials during the remaining 85 school days.

### DISCUSSION

This study replicates earlier studies (Hart and Risley, 1968, 1974) in demonstrating the effectiveness of incidental teaching procedures for increasing children's language skills and in suggesting that children prefer play in areas in which incidental teaching, with its immediate teacher attention and assistance, is available. The study adds evidence that specific instruction and continual prompts are not necessary to generate variety of language or to maintain children's use of incidentally taught language. Also, the present study showed that incidentally taught language can be readily generalized to persons other than those who directly taught it.

When incidental teaching of compound sentences was directed to use with other children rather than to teachers, the children initially appeared enthusiastic. "Ask me for it", said by one child to another, appeared frequently in observer recordings. After a time, however, children seemed to tire of the "game"; "Ask someone else" began to appear in observer records, and teachers more frequently had to intercede to ensure that a child received the assistance requested. The initial high rate of compound sentences to children, followed by a sharp decline and an increase in compound sentences addressed to teachers, is indicative that the actual assistance in obtaining play materials was provided to children by teachers. The increase in compound sentence usage in the final baseline period appeared to result from the

children's decision to help themselves. Observer records increasingly showed instances of a child saying, "I'm going to ask myself", and of a child suggesting this to another child; the child was then recorded as addressing a compound sentence to himself. Such a situation might be considered the terminal generalization, when the individual states to himself a need and the reason for the need, and then behaves accordingly.

Incidental teaching thus appears to be an effective means of increasing children's language skills through utilizing those occasions that are child-selected for individualized instruction and those materials and situations that occur frequently and naturally within the child's environment. Instruction may be provided by teachers, parents, or other children. The process of incidental teaching described may be, and commonly is in most preschool programs, the method by which most language learning is achieved; the process is detailed here so that teachers and parents may focus their efforts and more effectively use these child-selected occasions to help their children learn.

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