

Naturalistic Language Teaching Procedures for Children at Risk for Language Delays

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Delays in language acquisition are one of the most prevalent disabilities in early childhood. It has been documented that 70% of 3-to-5-year old children with developmental disabilities have language delays (Wetherby & Prizant, 1992). Delays in language acquisition can have serious deleterious effects on the educational and social development of children (Goldstein & Kaczmarek, 1992; Ramey & Campbell, 1992; Warren & Kaiser, 1986). Children with developmental disabilities are known to be especially vulnerable to environmental conditions that may inhibit language acquisition (Tannock & Girolametto, 1992). Thus, the caregiver is viewed as having a “critical influence on the child and the child’s language learning environment” (Hemmeter & Kaiser, 1990, p. 335). Some key interaction variables include the caregiver’s responsiveness to child vocalizations, reciprocity in verbal interaction between caregiver and child, frequency of verbal interaction, and the availability of stimulating materials (Bradley & Caldwell, 1976; Hart & Risley, 1992; Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). For example, Hart and Risley (1995) found that the quantity and quality of talk directed toward children as well as parental responsiveness, feedback tone, and guidance style during the first three years of life were positively correlated with beneficial child language outcomes.

To address this need for language intervention in the child’s natural settings, including the classroom and home, a number of related language teaching procedures have been developed. These include incidental teaching (e.g., Hart & Risley, 1975), mand-modeling (e.g., Rogers-Warren & Warren, 1980; Warren, McQuarter, & Rogers-Warren, 1984), and time-delay (e.g., Halle, Marshall, & Spradlin, 1979). Taken together, these procedures might be termed naturalistic teaching. Naturalistic language teaching approaches have been increasingly viewed as the treatment of choice for children at-risk or children with developmental disabilities (Noonan & McCormick, 1993; Tannock & Girolametto, 1992).

NATURALISTIC LANGUAGE TEACHING PROCEDURES

Incidental Teaching

Incidental teaching (Hart & Risley, 1968, 1974) involves the use of naturally occurring situations and the child’s interests to facilitate language learning.

Hart and Risley (1975) characterized incidental teaching as “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 an adult to transmit information or give the child practice in developing a skill” (p.411). In this approach, the teacher or caregiver takes advantage of naturally occurring teaching situations to provide language-learning opportunities for the child. The situation or activity is “child selected” (Hart & Risley, 1975, p. 412), with the teacher or caregiver following the child’s lead or interest.

Once a teacher identifies naturally occurring situations in which a child expresses interest, she or he then uses a series of graduated prompts to encourage the child’s responses (Hart & Risley, 1974, 1975). Hart and Risley (1974) identified four levels of prompts associated with incidental teaching. The level of response is dependent on the child’s response. A Level 1 prompt involved instituting a 30-second delay when the child displayed an interest in a specific object or material. At Level 2, the teacher prompted the child to ask for the desired object. At Level 3, prompts involved a more elaborate request by the teacher (e.g., the teacher showed the child the toy and asked “what is this?”). Finally, at Level 4, the correct response was modeled by the teacher and the child prompted to imitate the response. Teachers were taught to use the lowest level of prompt that would encourage the correct response by the child.

In one of the first studies of incidental teaching procedures, Hart and Risley (1968) successfully increased preschool children’s use of adjective-noun combinations (e.g., red truck). Children were taught these combinations in a structured group setting. Although children increased their use of adjective-noun combinations in the structured settings, the behavior did not generalize to free play settings. To increase the “spontaneous” use of adjective-noun combinations in free play settings access to desired classroom materials (e.g., paints) was made contingent on the appropriate use of these combinations. Teachers used graduated levels of prompts similar to those described above to shape the children’s verbal behavior.

Incidental teaching procedures have also been used to shape children’s use of compound sentences (Hart & Risley, 1974, 1975). In these studies children were progressively required to increase the complexity of their statements. At first, children were required not only to name the object but also to describe how they would use that object (a compound sentence). Children participating in the studies increased their use of nouns, adjective-noun combinations, and compound sentences.

Mand-Model

The mand-model procedure (e.g., Rogers-Warren & Warren, 1980; Warren et al., 1984) is an extension of the incidental teaching model (essentially prompt

levels 2, 3, and 4 of Hart and Risley, 1974). The mand-model procedure involves the teacher manding and/or modeling a response from the child. A mand is a request for a verbal response from the child (e.g., “Tell me what you want” or “Use your words”). If the child responds correctly, the teacher or caregiver praises the child and provides the object of interest. In modeling, sometimes known as child-cued modeling (Alpert & Kaiser, 1992; Kaiser, 1993), the teacher observes the focus of the child’s interest (e.g., a toy fire truck) and models the correct verbalization (e.g., “That’s a fire truck”). If the child makes the correct verbal response (e.g., “Fire truck”), the teacher then praises the child and provides the object of interest.

The mand-model procedure combines the mand and modeling procedures. In this procedure, the teacher observes the focus of the child’s interest (e.g., the toy fire truck) and mands a response from the child (e.g., “Tell me what you want”). If the child makes an incorrect response (e.g., “Choo choo train”), the teacher then models the correct response (e.g., “Say fire truck”).

Rogers-Warren and Warren (1980) successfully trained teachers to use the mand-model procedure along with contingent praise. The children participating in the study increased their rates of verbalization in general, as well as their rates of novel words and novel word combinations. Similarly, Warren et al. (1984) demonstrated the effectiveness of the mand-model procedure in promoting generalization across settings and maintenance over time by gradually fading the use of this procedure.

One difference between incidental teaching (e.g., Hart & Risley, 1975) and the mand-model procedure is that incidental teaching is more dependent upon the child’s initiations. With the mand-model procedure, the teacher more directly controls the number of opportunities for the child to engage in the language interaction (Rogers-Warren & Warren, 1980). The procedure may be useful, then, for children with very low rates of initiation (Rogers-Warren & Warren; Warren et al., 1984).

Time-Delay

Another extension of incidental teaching is the time-delay or delayed prompt procedure (e.g., Halle, Baer, & Spradling, 1981). Time-delay has been defined as “nonvocal cues for vocal language” (Halle et al., p. 390). In the time-delay procedure, the teacher identifies a situation in which the child wants an object or assistance and then waits for the child to make a response. If this is unsuccessful, the teacher will then use the mand-model procedure. The time-delay procedure is especially useful for teaching children to initiate verbal interaction (Noonan & McCormick, 1993).

Halle, Marshall, and Spradlin (1979) used a time-delay procedure to increase children’s “opportunity to respond” for two groups of institutionalized

children. Initially, meal trays were withheld for 15 seconds. Of the first set of three children participating in the study, only one appropriately requested the meal tray. Next, modeling of the correct response was added to the delay resulting in an increase in appropriate responding. A second group of three children, who had observed the contingencies implemented for the first three, then participated in the delay condition. These children acquired the requesting behavior and generalized across meal settings and servers.

Charlop, Schriebman, and Thibodeau (1985) used a time-delay procedure to increase spontaneous speech in seven young boys with autism. Pretests were given to determine if each child could label certain preferred items and training was provided if the child did not have these skills in his repertoire. Next, training was provided in which the teacher modeled the correct response (e.g., “I want cookie”). The child would receive the item if he correctly imitated the response. Then a brief time-delay was introduced with delays beginning at two seconds. These were then systematically increased to 10 seconds. All children participating in the study, except one, acquired the target behavior.

Milieu Language Teaching

Incidental teaching, the mand-model procedure, and the time-delay technique have been combined with other strategies to encourage child language in natural environments (Alpert & Kaiser, 1992; Hart & Rogers-Warren, 1978). Hart and Rogers-Warren termed this approach “milieu language teaching.” Kaiser (1993) defined milieu language teaching as “a naturalistic, conversation-based teaching procedure in which the child’s interest in the environment is used as a basis for eliciting elaborated child communicative responses” (p. 77). Hemmeter and Kaiser (1994) later proposed “enhanced milieu teaching” as a more comprehensive approach to naturalistic language intervention. There are three components to this intervention model: (a) environmental arrangement, (b) responsive interaction techniques, and (c) milieu teaching procedures.

Environmental arrangement involves the arrangement of the child’s environment to facilitate language teaching. The goal is to increase the child’s engagement with the environment (Kaiser, 1993), while setting up situations in which the child is more likely to use language. For example, having toys or other objects of interest available will make it more likely that the teacher can use the situation to have the child verbalize a request for that toy or object (see Ostrosky & Kaiser, 1991). Another important part of environmental arrangement is to provide an “optimal affective environment for the child” (Kaiser, 1993, p. 76); that is, to keep the interaction nurturing and reinforcing for the child.

Responsive interaction techniques are designed to increase conversational interaction between teacher and child. These techniques include following the

child's lead in terms of focus of interest, turn-taking, providing descriptive statements, imitating the child's verbalizations, and expanding on verbalizations made by the child (Kaiser, 1993). Milieu teaching procedures include modeling, mand-modeling, and time-delay. Each of these procedures builds upon the previous one, with later procedures incorporating components of earlier ones (Alpert & Kaiser, 1992), much like Hart and Risley's (1974) incidental teaching.

Effectiveness of Naturalistic Teaching

While little research has been conducted on the effectiveness of naturalistic teaching for children designated as having learning disabilities per se, it has been found to be effective for children from low-income families (e.g., Hart & Risley, 1975, 1980), children with mental retardation (e.g., Gobbi, Cipani, Hudson, & Lapenta-Neudeck, 1986; Warren, 1992), children with developmental delays (e.g., Angelo & Goldstein, 1990, Oswald, Lignugaris/Kraft, & West, 1990), children with language delays (e.g., Rogers-Warren & Warren, 1980; Warren et al., 1984), children prenatally exposed to drugs and in multiple risk families (Peterson, Carta, & Greenwood, 2005), and children with autism (e.g., Charlop et al., 1985; Hancock & Kaiser, 2002; Laski, Charlop, & Schriebman, 1988). Given the range of children for whom this approach is effective it would seem that it would also be useful in teaching children with learning disabilities.

Studies have demonstrated that children were able to acquire and generalize across a range of language targets, including single words (e.g., Charlop et al., 1985; Warren & Gazdag, 1990), combinations (e.g., Cavallaro & Bambara, 1982; Warren & Bambara, 1989), complexity of sentences (e.g., Hart & Risley, 1980), initiations and requests (e.g., Angelo & Goldstein, 1990; Warren et al., 1984; Warren, Yoder, Gazdag, Kim, & Jones, 1993), signing (e.g., Carr & Kologinsky, 1983; Kaczmarek, Hepting, & Dzubak, 1996), reading (e.g., Fabry, Mayhew, & Hanson, 1984), and receptive language (e.g., McGee, Krantz, Mason, & McClannahan, 1983; McGee, Krantz, & McClannahan, 1986).

NATURALISTIC TEACHING VS. TRADITIONAL LANGUAGE INTERVENTION

Naturalistic language teaching has been compared to more traditional, therapist-directed approaches to language intervention, such as discrete trial training (Fey, 1986; Spradlin & Siegel, 1982; Sundberg & Partington, 1998). Discrete trial training is conducted under highly structured conditions in which the therapist selects the stimulus items to be used during the teaching sessions, divides the language target skills into a series of independent tasks, presents these tasks in a series of massed trials until criterion is met, and provides the child an often arbitrary reinforcer combined with praise (Sundberg & Partington, pp. 224–256). In contrast, naturalistic teaching is considered

“looser” (Sundberg & Partington), with less emphasis, at least initially, on the correctness of the child’s response. This approach follows the child’s lead in terms of the stimulus of interest and provides a “natural reinforcer” (usually the object of interest to the child). The reinforcers delivered in naturalistic teaching are considered to be more functional in relation to the child’s response than in the discrete trial training approach.

In the traditional therapist-directed approach (i.e., discrete trial training), language intervention is typically conducted in a speech therapy room and is highly structured by the therapist (Fey, 1986; Sundberg & Partington, 1998). Naturalistic teaching approaches typically work with the child in his or her natural setting (i.e., classroom or home) and usually follow the child’s lead or interest, not in terms of the language skill being taught, but in relation to toys and other objects of interest to the child. This requires the teacher to respond more flexibly to naturally occurring language teaching opportunities as they occur throughout the day. The teacher must also be able to identify potential reinforcing contingencies that will be functional for the child in other settings (D. Baer, personal communication, May 30, 1996).

Naturalistic teaching procedures are advantageous in that the teacher or parent has far more opportunities throughout the day to engage in naturalistic teaching than would a speech therapist in a traditional pull-out program (Fey, 1986). Ideally, the use of naturalistic teaching procedures would become “automatic” to the teacher or parent and be used naturally throughout the day. Perhaps the most difficult part of this approach is teaching parents and teachers how to identify naturally occurring opportunities for language interaction.

A number of studies have compared naturalistic teaching with discrete trial training. Miranda-Linne and Melin (1992) found that although children acquired color adjectives faster through discrete trial training, they were more likely to generalize the new language skills following naturalistic teaching. Similarly, McGee, Krantz, and McClannahan (1985) reported that naturalistic teaching promoted greater generalization of new language skills across people and settings than did a more traditional trainer-directed approach. Seifert and Schwarz (1991) compared incidental teaching and direct instruction techniques and found that incidental teaching promoted great generalization across concepts to untrained concepts. Carr and Kologinsky (1983) initially used discrete trial training to teach signing to three children with autism. They then faded to incidental teaching. The results indicated that discrete trial training was best for training the correct form of the signs and incidental teaching was more likely to promote generalization and maintenance. Finally, Charlop-Christy and Carpenter (2000) compared discrete trial training, incidental teaching, and their modified incidental teaching (a combination of discrete trial

training and incidental teaching). They found that their modified incidental teaching procedure was superior to either discrete trial training or incidental teaching alone.

It seems that discrete trial or other more structured, therapist-directed approaches may be necessary for establishing language skills initially but that naturalistic teaching strategies will promote better generalization of those skills.

NATURALISTIC TEACHING AND GENERALIZATION OF LANGUAGE SKILLS

Researchers and therapists have been concerned for some time about the poor generalization of children's language skills following traditional speech and language intervention (Fey, 1986, 1988; Guess, Keogh, & Sailor, 1978; Warren, 1988). Fey (1986) has called this a "black mark" on the history of language intervention. Problems in achieving generalization can occur, for example, if the generalization environment is too dissimilar to the training situation (e.g., Hemmeter, Ault, Collins, & Meyer, 1996; McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992) or if the child's newly learned language skills are not reinforced in the generalization environment (e.g., Carr & Kologinsky, 1983; Warren & Bambara, 1989).

Generalization occurs when new skills learned in the teaching environment transfer to other situations without further training in those new environments or situations (Stokes & Baer, 1977). Stokes and Baer identifies a number of methods that have been utilized to promote generalization. Some of these methods include: (a) introduce behaviors that will contact naturally occurring contingencies of reinforcement in the generalization settings, (b) provide a range of examples of the target behavior, (c) vary the training routine enough to provide the child exposure to a wider range of stimuli, or "train loosely," and (d) make it difficult for the child to discriminate the contingencies, possibly through the use of an intermittent schedule of reinforcement.

Naturalistic teaching procedures have a number of common characteristics that make them very effective tools for promoting generalization of the child's newly learned language skills. As listed in Kaiser, Yoder, and Keetz (1992, p. 9) these include: (a) language teaching that follows the child's lead or interest, (b) the use of multiple, naturally occurring examples, (c) explicit prompts for the child's use of language, (d) the use of natural consequences to reinforce the child's verbal behavior, and (e) naturalistic teaching strategies that are embedded in the ongoing interaction between teacher and child.

These common characteristics are compatible with the strategies proposed by Stokes and Baer (1977) for promoting generalization of functional language skills in children (Warren & Kaiser, 1986). Following the child's lead or interest and the use of natural consequences increase the probability that the child's

behavior will contact naturally occurring contingencies of reinforcement. The loose structure of this approach makes it more likely that the child will be exposed to multiple exemplars (Laski et al., 1988), including variations in location, position of trainer, time of day and so on (see Baer, 1981). This may prevent the behavior from coming under too narrow a range of stimulus control (Kirby & Bickel, 1988). Similarly, the embedded nature of the ongoing teaching interaction may make some of the contingencies less discriminable, perhaps creating “multiple stimulus control” (Halle et al., 1981). In addition, the fact that training is conducted in natural contexts makes it more likely that stimuli common to a wide range of potential language environments will be present. This would be a case of “programming common stimuli” (Stokes & Baer, 1977). Finally, it may also be that the language skills taught in the naturalistic language teaching approach, as compared to more traditional speech and language therapy, are more functional for the child and more likely to generalize to other settings and persons (Fey, 1986; Guess et al., 1978; Sundberg & Partington, 1998). In a review of the naturalistic teaching literature, Peterson (2005) found that 94% of the studies measuring for generalization effects demonstrated generalization.

Teaching Teachers and Parents To Use Naturalistic Language Teaching Skills

A number of studies have successfully trained teachers (e.g., Halle et al., 1981; Kaiser, Ostrosky, & Alpert, 1993; Warren et al., 1984) and parents (e.g., Alpert & Kaiser, 1992; Hemmeter & Kaiser, 1994; Laski et al., 1988; Peterson et al., 2005) to implement naturalistic language teaching strategies. The most common strategies for teaching parents and teachers how to implement naturalistic teaching strategies include didactic presentation, modeling, roleplaying, feedback both during interaction with the child and via videotape (e.g., Alpert & Kaiser; Hester, Kaiser, Alpert, & Whiteman, 1995; Kaiser & Hancock, 2003; Kaiser, Hancock, & Hester, 1998; Kaiser et al., 1993; Peterson et al., 2005). Kaiser and Hancock also had parents keep detailed notes of their naturalistic teaching interaction with their children. Kaiser et al. (1998) trained parents as “co-interventionists” in which the therapist models and coaches the parent while they are both involved in a naturalistic teaching interaction with the child. In addition to direct modeling and coaching, the therapist can provide “functional support” to the parent by facilitating certain tasks (e.g., arranging the environment).

IMPLEMENTING NATURALISTIC TEACHING IN THE CLASSROOM AND HOME

There are three essential ingredients for the successful implementation of naturalistic teaching procedures in the classroom and home. These are (a) sensitivity to the child’s interests, (b) strategic arrangement of the teaching

Environmental Arrangement

- _____ Are interesting toys and materials available to the child?
- _____ Does the teacher respond to teaching opportunities?
- _____ Is the teacher aware of the child’s immediate interest?
- _____ Does the teacher follow the child’s lead or interest?
- _____ Is the affective environment positive and nurturing?

Use of Responsive Interaction and Milieu Teaching Procedures

Mark each time teacher uses a procedure	Naturalistic Teaching Procedure	Rate per Minute
	Descriptive Statements	
	Imitation	
	Expansions	
	Model	
	Mand	
	Mand-Model	
	Time-Delay	

Figure 1. Naturalistic teaching observation checklist

environment, and (c) appropriate use of naturalistic teaching techniques (i.e., mand-model, time-delay).

Sensitivity to the Child’s Interests

The best naturalistic teachers are those who are keenly aware of the child’s interests both in general and at the moment. While more of an art than a science, a naturalistic teacher should be able to “read” the contingencies surrounding the child’s behavior. The teacher must be able to track the child’s changing interests and adjust accordingly. Naturalistic teachers can sense when to push for more and when to back off a little without “giving in” to the child. Knowing when to use specific naturalistic teaching strategies and when to change activities depends, in part, on this sensitivity. Sensitivity can be developed through coaching and experience. In addition, the teacher should keep her or his interaction with the child nurturing, positive, and reinforcing (Kaiser, 1993). The Naturalistic Observation Checklist (Figure 1) is an example of an instrument designed for training teachers and collecting data regarding fidelity of treatment. During a training or assessment opportunity an observer collects data on sensitivity to the child’s interests, environmental arrangement, and the use of naturalistic teaching techniques. Data can be expressed as pure frequen-

cy count or as rate per minute. Furthermore, an observation system utilizing a computer program with codes for both teacher behavior (e.g., descriptive statements, mand-model) as well as child verbal response (e.g., correct response) could be employed to determine the conditional probabilities of a child's verbal behavior following a specific naturalistic teaching behavior by the teacher (see Peterson et al., 2005). Conditional probability data can be a very useful feedback tool for training naturalistic teachers.

Environmental Arrangement

There are a number of strategies that can be used by the teacher to establish a more effective naturalistic teaching environment. Ostrosky and Kaiser (1991) offer a number of useful recommendations for arranging the teaching environment, including (a) making sure that toys, books, and other items of specific interest to the child are available, (b) putting toys and other interesting items out of reach, (c) not providing enough of something of interest so that the child will ask for more, (d) sabotaging, or “forgetting” an important item in a multi-step task so that the child will have to ask for it, (e) giving the child opportunities to make choices, and (f) arranging situations so that the child has to ask for assistance. Each of these strategies is designed to encourage functional language use by the child by arranging a situation in which the child must initiate a request.

The teaching area should include numerous materials (e.g., toys, books) that one is reasonably certain will be of interest to the child. For example, if the child is interested in jungle animals the teacher should make sure that there are toy jungle animals, books with pictures of jungle animals, and perhaps a jungle animal puzzle present in the teaching area. One should never assume that any particular toy, book, object, or activity will be of interest to an individual child (e.g., “Every child likes dinosaurs!”). Once again, the teacher needs to know the child's interests. These toys, books, and objects can be put out of reach so that the child has to request them. The teacher can then employ time-delay, model, mand, or mand-model procedures to prompt the correct verbal response from the child.

Teachers can also arrange a teaching opportunity by providing only some of what is needed to complete a task or activity (e.g., Ostrosky & Kaiser's, 1991, inadequate portions). Some examples might include providing only a small amount of paint needed for a painting project or only a small portion of a snack, so that the child will have to ask for more. This has the added benefit of “priming the pump” in terms of an introduction of a potential reinforcer in incomplete form. A closely related strategy is “sabotage” (e.g., Ostrosky & Kaiser). Sabotage is often accomplished through teaching the child a sequence

of behaviors leading to a common outcome and then withholding materials necessary for completion of one of the behaviors. For example, a child might be taught to make chocolate milk using a glass, spoon, chocolate mix, and milk. Assuming that chocolate milk is a reinforcer for the child, after she has mastered the skill of making chocolate milk, the sequence can be “sabotaged” in that materials for one of the steps is withheld (e.g., the glass). Now the child has to verbally request the glass (or milk, or chocolate mix, etc.) in order to make her chocolate milk. This is also a case of arranging the situation so that the child has to ask for assistance.

Giving children an opportunity to choose is another strategy for establishing opportunities to use naturalistic teaching techniques. Depending upon the child’s abilities, one may have to teach the child to make choices, perhaps by at first giving the child a choice between a highly desired item and a non-desired item, employing time-delay, model, mand, and mand-model as needed. Later, the teacher can work toward giving the child choices of more equal value.

Naturalistic Language Teaching Techniques

At the core of naturalistic teaching are the teaching techniques themselves. Table 1 summarizes naturalistic language teaching techniques including descriptive statements, imitating, expansion, modeling, manding, mand-modeling, and time-delay. These techniques can be skillfully and flexibly combined to encourage children’s verbal behavior and should be tailored to each child’s language learning needs. For example, if a child has the verbal repertoire to request preferred objects but does not do so, time-delay may be a useful strategy to increase that child’s verbal initiations. Another child, however, may not have the verbal repertoire to make requests. Then the mand-model procedure would be more appropriate.

Hart and Risley’s (1974) levels of incidental teaching provide a fairly well structured example of how these might be combined for naturalistic teaching. As discussed earlier in this chapter, Hart and Risley recommended that the teacher begin with the lowest level of prompt necessary to encourage the child’s verbal response beginning with, perhaps, the Level 1 time-delay. If the child does not respond, the teacher would then prompt the child to ask for the desired object. If the child still does not emit the desired response the teacher would then use a more elaborate response by pointing to the object and asking, “What’s this?” If this still does not work, the teacher would then model the correct response and the child would be prompted to imitate the teacher.

For example, a teacher with Michael knows that he very much likes fire trucks and fire fighters. The teacher would already have made sure that there were toy fire trucks, books about fire trucks, and perhaps a fire fighter costume

Table I	
<i>Naturalistic Language Teaching Techniques</i>	
Technique	Description
Descriptive Statements	Caregiver makes a statement that describes the child's ongoing activities (e.g., "You're picking up the train"), or some other event in the immediate environment (e.g., the phone rings and teacher says, "The telephone is ringing").
Imitating	Caregiver directly imitates a verbal statement made by the child. For example, child says, "fire truck," mom says, "You're right. That's a fire truck."
Expansion	Caregiver expands on the child's statement. The caregiver responds to the child's utterance by repeating it, but adds syntactic or semantic information to what the child said. For example, child says, "fire truck," mom expands by saying, "That's a big red fire truck."
Model	Caregiver produces a word, phrase or sentence with the intention that the child will imitate the verbal behavior. For example, the caregiver, following the child's lead, observes the child's possible interest and models, "I want the red fire truck." Please note that model is different than descriptive statements in that the caregiver intends for the child to imitate the response.
Mand	Caregiver requests an appropriate response from the child. For example, the child is gesturing toward the toy fire truck and mom says, "Tell me what you want."
Mand-Model	Caregiver combines a mand and model at the same time. For example, the child is still interested in the toy fire truck and mom says, "Michael, say I want the red fire truck."
Time-Delay	Caregiver recognizes a situation in which the child wants an object or assistance and then waits to see if the child emits the correct response. The caregiver may use some form of visual prompt (e.g., holding the toy up) or assume a questioning look (e.g., raised eyebrows) or both. For example, mom notices that the child is interested in the toy fire truck, picks up the truck so that the child can see her holding it and then she simply waits for a response from the child.

Adapted from the Combined Milieu, Responsive-Interactive and Hybrid Language Teacher Code (Alpert, Keefer, & Fischer, 1992)

available in the room. The teacher observes that Michael is interested in the toy fire truck that has been placed out of reach. The teacher can tell that Michael is interested because he has been standing in front of the shelf that the toy fire truck is on and looking at the toy for some time. First, the teacher moves near the shelf and looks at Michael with an expectant look (communicating non-verbally, “Tell me what you want”). If Michael says “fire truck,” the teacher will provide the toy and might also use an expansion like “the big red fire truck” or “You want the red fire truck.” If Michael does not emit the correct response to the time-delay within 30 seconds, the teacher would then prompt him by saying “Tell me what you want.” If Michael does not state what he wants verbally the teacher might then prompt him further by manding “What is this?” If Michael says “fire truck,” she can then give Michael the toy (and probably use one of the expansions described above). If Michael does not say “fire truck” the teacher will then move to the next level of prompt and first model the correct response, “I want the fire truck,” and then prompt Michael by saying, “Say I want the fire truck.” If Michael successfully emits the response he can then play with the fire truck. If not, then he does not get to play with the toy. It should be noted, however, that shaping may be required here. If a child is only capable of getting out part of a word, for example “truh” (for fire truck), the teacher will need to start with that and shape close approximations as time goes on (later “truck,” then “fff truck,” then “fire truck”).

In conclusion, naturalistic teaching has been demonstrated to be an effective approach to children’s language intervention and may be particularly useful in facilitating the generalization and maintenance of children’s language skills following intervention. The skillful combining of sensitivity to the child’s interests, thoughtful arrangement of the teaching environment, and flexible use of naturalistic teaching techniques can lead to a positive and productive language interaction between teacher and child.

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