

Functional Communication Training in the Classroom: A Guide for Success

G. Richmond Mancil and Marty Boman

ABSTRACT: Researchers have consistently shown the effectiveness of functional communication training (FCT) to address both the communication and behavioral needs of children on the autism spectrum. The three steps of FCT include completing a functional behavior assessment, identifying a communication response, and developing a treatment plan. In addition, 10 support components aid in the successful implementation of FCT, which enhance the maintenance and generalization of learned skills. Although the authors introduced this approach in a therapeutic setting, the research has extended to natural environments including the home and school with considerable success. FCT consistently reduces challenging behavior and increases communication, therefore improving the quality of life for the child and parents.

KEYWORDS: *autism spectrum disorder, classroom training, functional communication training, functional behavior assessment, treatment plan*

AS BOYD AND SHAW OUTLINE in the present issue, the essential features of autism include a significant impairment in social interaction and communication and a highly restricted area of activities and interests (American Psychiatric Association, 2000). Concurrent with these features, children with autism may exhibit high levels of challenging behaviors such as screaming, hitting, and biting (Mancil, 2006), thus creating substantial obstacles for individuals charged with their education and well-being (Durand & Merges, 2001; Sigafos, 2000). When children with autism engage in tantrum-related behaviors, parents and teachers often cannot determine the reason for the outburst because of the child's deficits in communication.

Researchers have responded to the aforementioned concerns by examining the relation between challenging behaviors and communication abilities (Bott, Farmer, & Rhode, 1997; Chung, Jenner, Chamberlain, & Corbett, 1995; Mancil, Conroy, & Haydon, 2009; Sigafos, 2000). Chung et al. found an inverse relation between communication ability and the display of challenging behaviors such as self-injury and aggression. Similarly, Bott et al. discovered

that individuals with more developed speech skills had a lower frequency of challenging behaviors than those with impaired speech. Further, Sigafos hypothesized in a more recent study that impaired communication development causes challenging behaviors.

To address both communication and behavioral needs of children with autism, several researchers have used functional communication training (FCT; Carr & Durand, 1985; Mancil, Conroy, Alter, & Nakeo, 2006; Wacker et al., 1990). Developed in the mid-1980s, FCT involves assessing the function (i.e., outcome and consequence) of a behavior (e.g., attention, escape, tangible, sensory) through analogue assessment methodology, referred to as functional analysis, and then replacing the challenging behavior by teaching a communicative response that serves the same function (Durand & Carr, 1987).

Researchers have consistently shown the effectiveness of FCT with children on the autism spectrum. As researchers developed FCT, they provided interventions in clinical settings removed from natural environments (e.g., children's classrooms, homes), which is typical for the initial stages of procedural development (Mancil, 2006). When implementing the procedures during initial development stages, research teams produced positive behavioral and communication results across the age ranges of toddlers to adults. For example, Durand and Carr (1987) indicated an increase in communication and a decrease in challenging behaviors.

These positive results have been shown across behavioral topographies and language level. The behavioral categories FCT has helped ameliorate include aggression (e.g., hitting, hair pulling), self-injurious behavior (e.g., hand biting),

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property destruction, tantrums (e.g., yelling), body rocking, hand flapping, oppositional behavior (e.g., refusing to do work), and walking away (Mancil, 2006; O'Neill & Sweetland-Baker, 2001). Similarly, results have been shown across children with various language levels. Participants in several research studies have spoken in complete sentences; however, their sentences were not always functional (Mancil, 2006). For example, some of the complete sentences were echolalic (i.e., repeated phrase over and over), whereas others were bizarre (e.g., The cat flew on a broom.). Also, of the individuals who spoke in complete sentences, only one (10%) was reported to speak spontaneously. In addition, FCT has been successful with nonverbal children who did not communicate with signs or gestures.

In more recent years, researchers have shown the usefulness of FCT in natural environments such as the home and school (Dunlap, Ester, Langhans, & Fox, 2006; Mancil et al., 2006). Mancil et al. conducted a study in the home of a child with autism. In Mancil et al.'s study, the child's communication increased and challenging behavior dissipated. In addition, the communication skill generalized from the researcher to the mother over an extended time period. Similarly, Dunlap et al. conducted a study with mothers whose toddlers had serious challenging behaviors. This data showed that mothers used the procedures correctly, and interventions produced reductions in the children's challenging behaviors as well as increases in their use of communicative replacement skills. In another study, researchers showed the efficacy of using a voice output communication aid (VOCA) as the communication response for functional communication training (Olive, Lang, & Davis, 2008). Olive et al. showed that FCT with a VOCA successfully decreased the child's challenging behavior and increased VOCA use and the use of correct pronouns. Across these studies, the mothers implemented the intervention with high levels of fidelity.

FCT Description

FCT researchers and practitioners follow a similar three-step process, which has resulted in improved outcomes such as those previously described. First, they conduct an assessment of the function of a behavior (e.g., attention, escape, tangible, sensory) through a functional behavior assessment (FBA). Next, they identify a communicative response that matches the function. Last, a behavior that is specified in the intervention plan replaces the challenging behavior with a communicative response that serves the same function (see Figure 1).

Three FCT Steps

Step 1: FBA

To identify the function, researchers typically complete a functional assessment (FA) by manipulating conse-

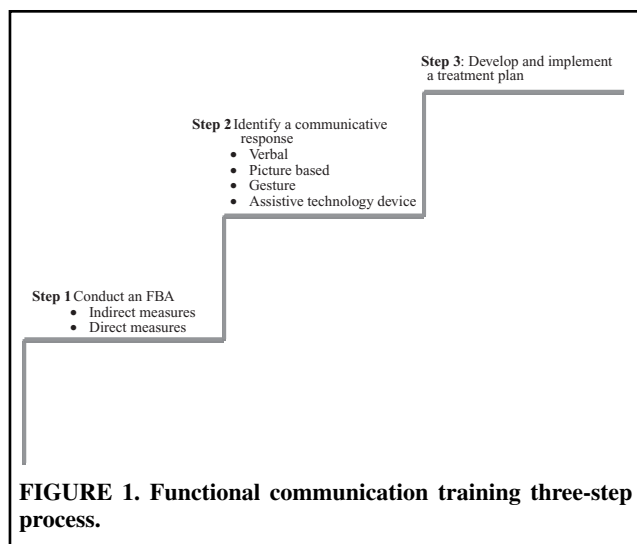


FIGURE 1. Functional communication training three-step process.

quences, such as escape from demands, obtaining attention, and obtaining preferred tangible items, contingent on the challenging behavior to conclusively determine the function of the behavior. However, many researchers agree that an FA is not feasible for a teacher to complete (for other ways to complete an FBA in general education settings, see Scott, Anderson, & Pauling, 2008). Thus, indirect assessments and direct observations may be used to hypothesize a behavioral function and be sufficient for teachers as long as data are collected on the intervention (Brady & Halle, 1997).

Indirect assessments. Indirect assessment instruments can be categorized into three formats: (a) checklists, (b) questionnaires, and (c) interviews. Checklists typically comprise items related to functions of challenging behavior that requires an adult (e.g., parent, teacher) who is familiar with the child's behavior to respond on a Likert-type scale. The parent or teacher must then score the instrument, leading to a hypothesis of the function of the challenging behavior. The Motivation Assessment Scale (MAS; Durand & Crimmons, 1996) is a checklist that teachers and other professionals commonly complete. Items on this 16-question checklist are rated on a seven-point Likert-type scale ranging from 0 (*never*) to 6 (*always*). Four questions related to each possible function (i.e., sensory, escape, attention, and tangible), which are randomly grouped. The points are totaled for each function and the one with the greatest number of points and highest relative ranking is the hypothesized function. Many questionnaires contain similar content, but usually consist of open-ended questions. For example, a question may be presented as "When does the child engage in the behavior?" Then, there may be some additional stipulated follow-up questions about the context in which the challenging behavior occurs (e.g.,

“Does the child engage in the behavior during an academic task or mostly during transitions?”).

In contrast, interviews generally involve initial questions that are vague and set the occasion for the interviewer to probe for more detail and guide the process with specific follow-up questions. The interviewer may ask, “How often does the behavior occur?” If the respondent answers, “The child screams all morning,” the interviewer may follow-up by asking, “Does he screams often or for extended periods?” The interview provides more room for a detailed assessment but also requires both additional time and skill level of the interviewer. After the interview is complete, the interviewer compiles the provided answers and hypothesizes a function.

Direct observations. Unlike indirect assessments that are designed to gain information from a third party (teacher, parent), direct observations comprise directly observing the behavioral and communicative behaviors of the children in various settings such as the clinic, classroom, or playground. For example, a researcher may observe a child and record what occurs before (antecedent) and after (consequence) the challenging behaviors. Both indirect assessments (checklists, questionnaires, interviews) and direct observations aid in developing a hypothesis of the behavior’s function (i.e., the interview and direct observation may suggest that attention is the function because every time the challenging behavior was observed, the teacher or parent gives the child attention).

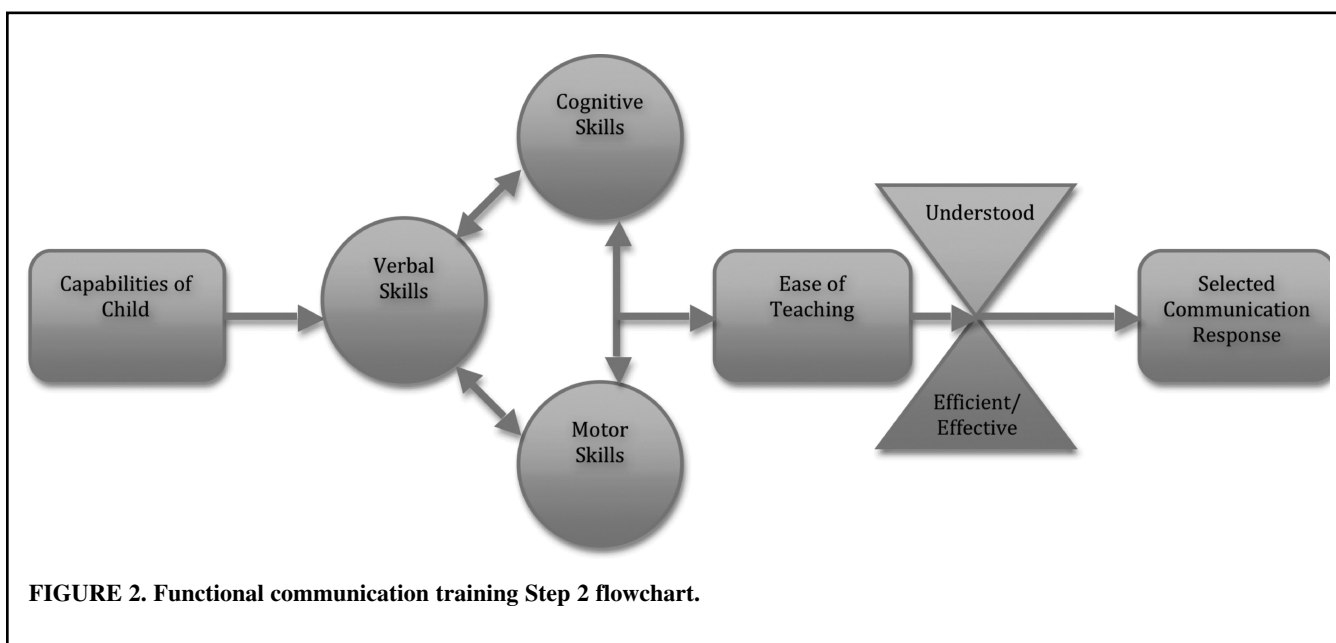
Step 2: Identifying a Communicative Response

After determining the behavioral function, the next step in the FCT process involves identifying a communicative response that matches the identified function of

the challenging behavior (for a flowchart of Step 2, see Figure 2). This replacement communicative response may be in the form of one of the following categories: verbal language, picture communication, gestures, or assistive technology devices (Brady & Halle, 1997). The selection of this response is based on four criteria (Dunlap & Duda, 2005; Horner & Day, 1991). First, change agents (researchers, teachers, parents) should consider the child’s capability of completing the response. For example, if the child lacks the verbal abilities to request a desired tangible item, the change agent may choose picture communication or a gestural response to teach the child to use in replacement of the challenging behavior. Second, change agents should consider the ease of teaching the response. If a child is nonverbal, it may be difficult and time consuming to teach a verbal response; thus, another response such as picture communication or gesture is more efficient. Third, change agents should consider whether others are able to understand and acknowledge the response. If no individuals in the child’s life know sign language, the researcher should choose a response people could easily understand and acknowledge such as a picture or an assistive technology device. Last, change agents should further consider how efficient and effective the response serves its function in the community at large. For example, if other individuals in the child’s environment (e.g., store) are unable to understand the response or the child has difficulty completing the communicative response, it may not necessarily serve the desired function.

Step 3: Development of Treatment Plan

After the functional communication response is selected, an intervention plan is designed to teach the targeted



response to the child (Lalli, Casey, & Kates, 1995). Typically, discrete trial procedures have been used to teach the child a communicative replacement response. Discrete trial procedures involve removing the target child from the natural routine and providing direct and repeated trials, therefore requiring the child to respond to the change agent's request with the trained communicative response until mastery criterion is met. In research literature, this criterion typically involves the child providing a correct response ten consecutive times. For example, a child may be taught to say "Help" or perform a gesture that represents the word help to replace screaming as the method for obtaining attention. For another child who is nonverbal, he may be taught to hand a picture of a desired item to the teacher to replace challenging behaviors, such as hitting someone, to gain the tangible item. The final component in FCT involves placing the challenging behavior on extinction (i.e., withholding reinforcement for the behavior) and prompting and reinforcing the child's use of the functional communicative response that replaces the challenging behavior (Lalli et al., 1995). If the target child engages in a tantrum to obtain a desired tangible item, the change agent ignores the tantrum, prompts the child to ask for the tangible item using the functional communicative response, and provides the child access to the tangible item following the appropriate communicative response.

Implementing the Treatment Plan

In addition to the preceding main steps, there are 10 components that should be addressed when implementing a treatment plan (for a top 10 checklist, see Figure 3).

Data-Collection Procedures

Collecting data helps guide decisions about the progress of FCT with the students. Types of data to collect include antecedents, prompts, and frequency of communication and challenging behavior (for an example, see Figure 4). This data helps the change agent to determine the effectiveness of the intervention. In addition, it allows change agents to monitor the prompting needed and when unprompted communication begins to occur.

Seizing the Environment

When capitalizing on the environment, there are two areas to consider: natural opportunities and arranging the environment.

Natural opportunities. During the school day, opportunities to teach communication skills abound (see, e.g., Figure 5). One period of particular interest is lunchtime because of the numerous communicative interactions naturally within the lunch routine. As the students progress through the lunch line, they choose a drink. Change agents may use this as

an opportunity to teach students with autism to request milk or water. Similarly, change agents may use routines in the classroom to teach communication. During coloring activities, the students may ask for markers or other desired tangibles.

Arranging the environment. Addition to teaching communication responses during natural routines, change agents may arrange the classroom environment to encourage communication (for examples, see Figure 6). For example, a change agent may place a desired object on shelves in view of, but out of reach of, the child with autism, therefore creating a situation in which a child makes a request for an object. Further, change agents may consider the interests of a child in classroom activities and subsequently teach him or her to request objects that are interesting, thus enhancing communication.

Plan for Generalization

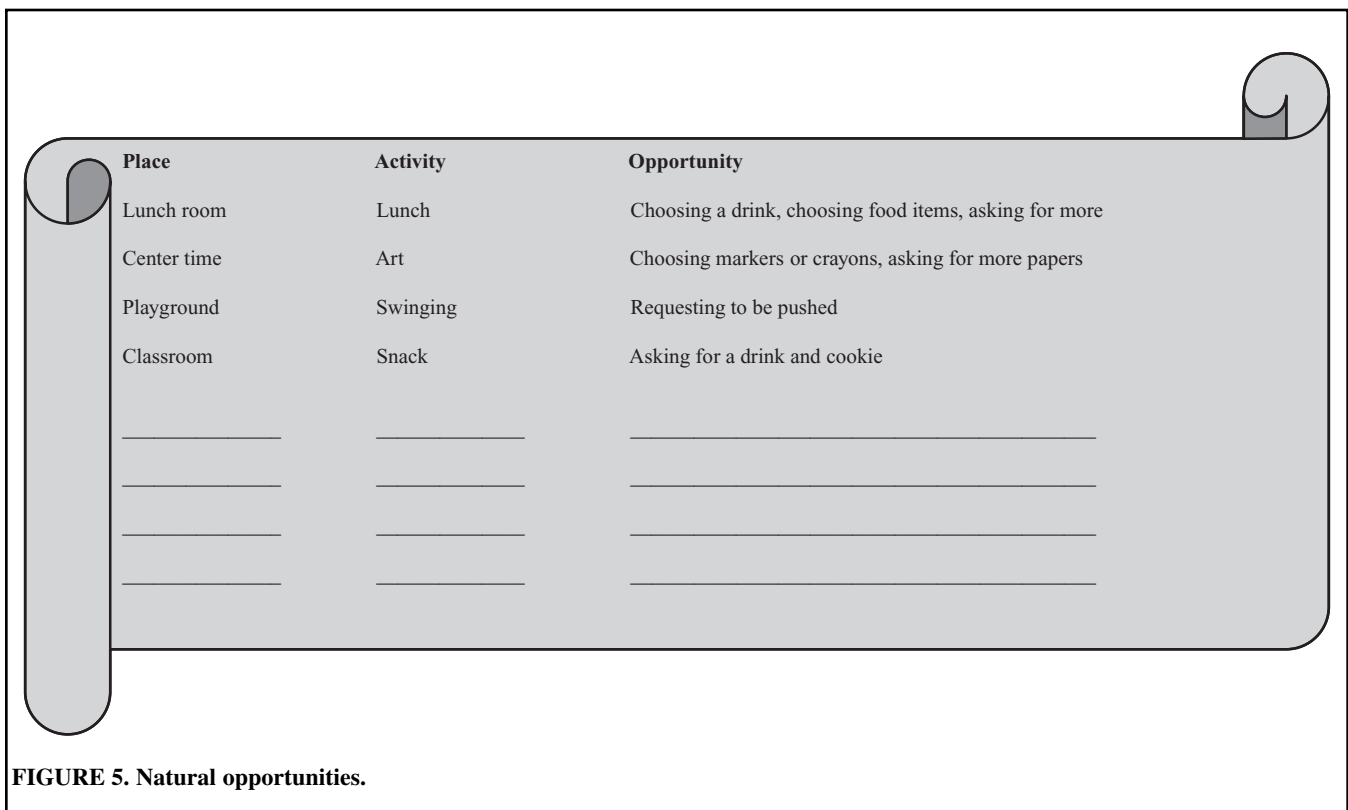
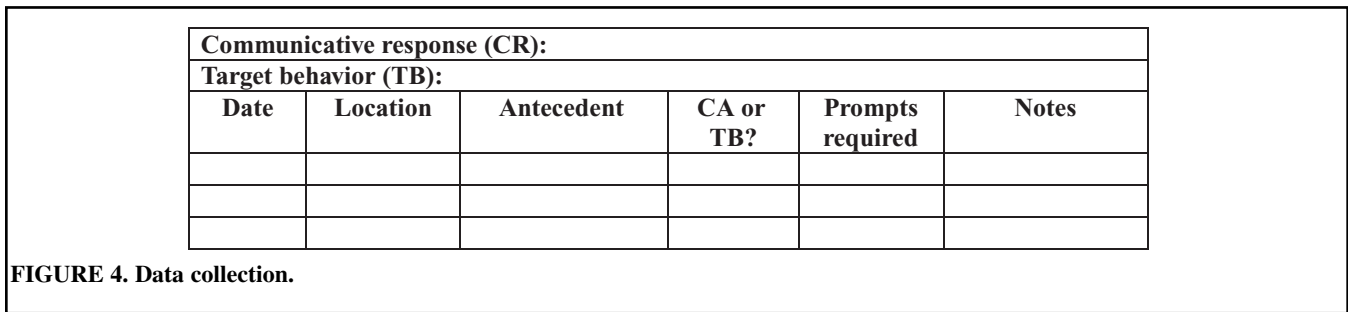
Generalization is particularly difficult for children with autism because they often remember tasks specific to the situation (Siegel, 1996). Grandin (1995) described her experience as a young child and her insistence on routine. When

1. Data collection procedures	<input type="checkbox"/>
2. Seizing the environment	
a. Natural opportunities	<input type="checkbox"/>
b. Arranging the environment	<input type="checkbox"/>
3. Planning for generalization	
a. Across people	<input type="checkbox"/>
b. Across environments	<input type="checkbox"/>
c. Across items/situations	<input type="checkbox"/>
4. Prompting	<input type="checkbox"/>
5. Reinforcing	<input type="checkbox"/>
6. Extinction	<input type="checkbox"/>
7. Shaping	<input type="checkbox"/>
8. Fading	<input type="checkbox"/>
9. Delay	
a. Time	<input type="checkbox"/>
b. Distance	<input type="checkbox"/>
10. Following data	<input type="checkbox"/>

FIGURE 3. Functional communication training top-10 checklist.

a therapist taught her a task, she assumed the task applied to sessions with her therapist, thus, Grandin continued to engage in challenging behaviors in other settings. In addition, children with autism frequently develop communication that only one other person recognizes (Schuler, 1995). A mother of a child with autism, for example, described a scenario in which her son depended on her for a glass of water because she interpreted his grunting as a request (Maurice, 1993). When the child attended school, he screamed and hit himself when other individuals did not know he was thirsty. If researchers planned for generalization, children with autism likely would not exhibit such outbursts. Three key factors help promote generalization: teaching the individual to use the communication response across people, environments, and items or situations.

Across people. One of the greatest factors for increasing generalization is practicing across people. Particular attention should be applied to having the children use the communication response with peers as well as adults. When considering the peers, it is important to train them and other communicative partners to respond appropriately. If a child has been taught to say, "Leave me alone" rather than hitting a peer, the peers should be taught to move away. In addition, all communicative partners (assistants, teachers, parents, and peers) should be taught to provide the appropriate, natural reinforcer consistently. When the child asks for a drink, give the child a drink. However, after communication develops, it is imperative to teach the child there are times he or she will have to wait for the reinforcement or that it will not occur. For example, if all the lasagna



Place	Arrangement	Activity Connection
Classroom	Put favorite markers out of reach	Art
Living room	Put favorite movies out of reach	Watching movies
Bedroom	Toys out of reach	Play with favorite toy
Playground	Put balls out of reach	Bouncing on the "hippity-hop"
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

FIGURE 6. Arranging the environment.

has been eaten at dinnertime, the child could not possibly receive more lasagna.

Across environments. Programming across environments increases the chance of generalization. Various environments included different areas in the school, job sites, before- and after-school care facilities, and the home. Furthermore, environments that encourage choice-making result in improved FCT outcomes (Durand & Merges, 2001). If a child has to choose an activity or item often in an environment, his or her opportunities to respond increases greatly, and he or she will learn the skills more quickly. Also, home programs have proven effective at increasing generalization of skills (Mancil, Conroy, Alter, & Nakao, 2006). One example of programming across environments involves having the child request a drink for meal times in the school cafeteria, in the home, and in the restaurant.

Across items or situations. When teaching communication responses, change agents should train the students to use the responses across items and situations. A change agent should instruct students to request bubbles, Legos, and cars, rather than only practicing a request for Legos. If the student is to ask for a break from an activity, this response should be practiced across settings, such as mathematics time, group play, or other situations.

Prompting

Prompts vary depending on the functioning level of the individual. The change agent should use the least intrusive prompt necessary. One student may only need an explanation and example, such as a middle school student with high-functioning autism who whistles to get attention. A change agent may explain to the student that he or she will be given a card with the words, "I need a break" to use when he or she wants a break. This student may only require a verbal prompt a couple of times. In contrast, a child with lower skills, who bites to escape task demands, may require physical prompts (i.e., hand over hand assistance) to give the card to the teacher (for examples of each type of prompt, see Table 1). Prompts should be faded as soon as possible in order for the student to become independent and included into everyday activities.

Reinforcing

As previously mentioned, it is important to respond consistently and quickly to the communication response; otherwise, the child may not associate the communication (i.e., behavior) with receiving the requested item (i.e., consequence). That is, the child should receive the reinforcer immediately and every time when he or she asks. However, also recall that waiting should be taught after communication is firmly established, which can be observed in the data

collection. The waiting can be accomplished through time and distance delays (see Component 8).

Extinction

Related to reinforcement of the desired communication response is the concept of extinction. When implementing an FCT program, the change agent should place the challenging behavior on extinction. That is, the behavior should be ignored while the communication response is reinforced. However, there are times that this may not be possible as care should be taken not to be too intrusive (Durand and Merges, 2001). For example, if a child begins hitting himself or others, response blocking (block the hitting) may need to occur as the teacher prompts the child to use the communication response instead.

Shaping

Communication often needs to be shaped in children with autism. For example, a child may be taught to request, "I want a snack." However, he or she may only be able to say, "snack." In this case, the shortened response should be allowed. As the FCT progresses, more complete approximations to the desired response should be required. Another point to consider is choosing the correct communication response. If the child is not able to perform the desired communication response even with shaping, it may be appropriate to choose a different communication response. For example, a student may be taught to produce the sign for the bathroom, but his motor skills do not allow him or her to perform the act. In this case, it may be an appropriate time to teach a communication response such as picture exchange.

Fading

When the change agent uses prompts, they should be faded and replaced with less intrusive prompts and phased out completely over time. Although a student may need a physical prompt to give a picture card, the physical prompt

later should be replaced with a verbal or gestural prompt. Two ways to accomplish fading is through pairing and time delay. Pairing involves the combination of two of the prompt types. For example, if a child requires physical prompts, these may be paired with a verbal prompt before completely removing the physical prompts. Time delay also helps in fading prompts. When you move to a less intrusive prompt, provide a wait time before giving the prompt. Wait long enough for the child to provide the communication response before intervening with a more intrusive prompt (for FCT fading procedures, see Figure 7).

Delay

Two delay types help ensure the communication response learned continues to be used.

Time. As previously mentioned, it is not realistic for reinforcement to always be given immediately upon the request. Thus, it is important to slowly increase the time between the request and delivery of the reinforcer. For example, a child may be taught to ask for a break from work. At first, this may be given immediately. Over time, the change agent may lengthen the time before receiving the break from 5 s or eventually several minutes. There is no precise formula for determining the time delay. Change agent experience and child developmental levels should guide this decision.

Distance. Using distance between the child who is requesting and the change agent is another effective method that requires students to increase their ability to deal with delayed gratification (Mancil, 2009). When initially teaching a child to request an item, it is essential to be in close proximity so that prompts may be applied and reinforcement occur consistently and quickly. However, as the child gains consistent use of the communication response, the change agent may increase the distance between them. The change agent may move across the room, and the child may

TABLE 1. Prompt Examples

Prompt	Example	Nonexample
Verbal	The teacher says, "tell me what you want."	The teacher points to an object and then holds her hand out.
Gestural	The parent holds her hand out with palm up in anticipation of receiving the card. The parent holds her hand out and points to the object.	The parent says, "What do you want?" The teacher touches the student's hand.
Physical	The parent grasps the child's hand and assists in picking up the card.	The teacher holds her hand out for the picture card. The parent says, "Give me the card."

Note. Prompts are listed from least-to-most intrusive.

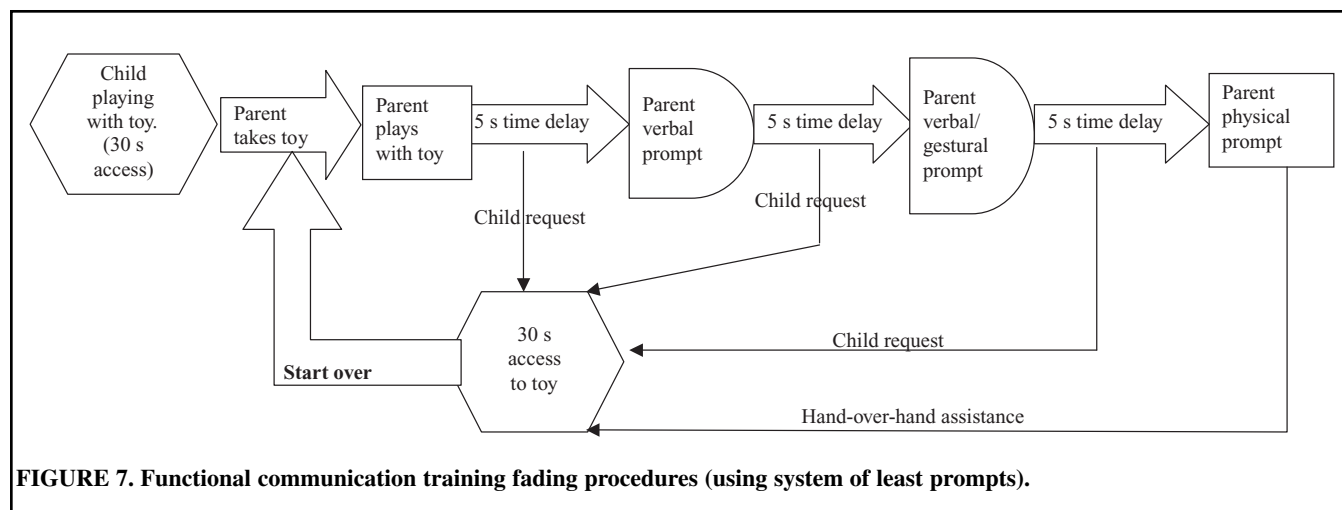


FIGURE 7. Functional communication training fading procedures (using system of least prompts).

be required to walk to the change agent to make a request. Then, the change agent may move out of sight so the child is required to search for the change agent when requesting an item.

Following Data

FCT has been successful when the child uses the communication request consistently without prompt or engaging in challenging behaviors. If these factors have not been met, then the change agent should look at the data and procedures to identify what may need to change. It may be helpful to ask the following questions:

- Is the correct behavioral function identified?
- Is the communication response efficient, appropriate, and recognizable?
- Was teaching applied across people, environments, and item or situations?
- Was reinforcement applied consistently and quickly?
- Was the challenging behavior placed on extinction? That is, was it less efficient for the child to engage in the challenging behavior than to use the communication response?
- Did I ignore, or otherwise make less efficient, the target behavior?

Conclusion

A significant impairment in communication is one of the defining characteristics of autism, subsequently causing problems with behavior. FCT is one approach researchers employed to address the communication and behavioral needs of children with autism. Spanning the past 23 years, research teams have slowly moved from the clinical setting to natural environments in an attempt to have the children associate the components of FCT with teachers, parents, classrooms, and home (i.e., generalization).

Further, natural environments pose sensory issues (e.g., background noises, various lighting, other visual stimuli) for children with autism to overcome that is not present in clinical settings. Over these last 2 decades, researchers have refined the required steps and FCT strategies, resulting in increased communication, decreased challenging behaviors, and improved maintenance and generalization of learned skills.

AUTHOR NOTES

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REFERENCES

- American Psychiatric Association. (2000). *Diagnostic and statistical manual for mental disorders* (4th ed., Rev. ed.). Washington, DC: Author.
- Bott, C., Farmer, R., & Rhode, J. (1997). Behavior problems associated with lack of speech in people with learning disabilities. *Journal of Intellectual Disability Research, 41*, 3–7.
- Brady, N. C., & Halle, J. W. (1997). Functional analysis of communicative behaviors. *Focus on Autism and Other Developmental Disabilities, 12*, 95–104.
- Carr, E. G., & Durand, V. M. (1985). Reducing behavior problems through functional communication training. *Journal of Applied Behavior Analysis, 18*, 111–126.
- Chung, M. C., Jenner, L., Chamberlain, L., & Corbett, J. (1995). One-year follow-up pilot study on communication skill and challenging behavior. *European Journal of Psychiatry, 9*, 83–95.
- Dunlap, G., & Duda, M. (2005). *Using functional communication training to replace challenging behavior*. Retrieved March 10, 2005, from <http://www.csefel.uiuc.edu/whatworks.html>
- Dunlap, G., Ester, T., Langhans, S., & Fox, L. (2006). Functional communication training with toddlers in home environments. *Journal of Early Intervention, 28*, 81–96.

- Durand, V. M., & Carr, E. G. (1987). Social influences on "self-stimulatory" behavior: Analysis and treatment application. *Journal of Applied Behavior Analysis, 20*, 119–132.
- Durand, V. M., & Crimmons, D. B. (1996). *The Motivation Assessment Scale administration guide*. Kansas City, KS: Monaco & Associates.
- Durand, V. M., & Merges, E. (2001). Functional communication training: A contemporary behavior analytic intervention for problem behaviors. *Focus on Autism and Other Developmental Disabilities, 16*, 110–119.
- Grandin, T. (1995). *Thinking in pictures: And other reports from my life with autism*. New York: Vintage.
- Horner, R. H., & Day, H. M. (1991). The effects of response efficiency on functionally equivalent competing behaviors. *Journal of Applied Behavior Analysis, 24*, 719–732.
- Lalli, J. S., Casey, S., & Kates, K. (1995). Reducing escape behavior and increasing task completion with functional communication training, extinction, and response chaining. *Journal of Applied Behavior Analysis, 28*, 261–268.
- Mancil, G. R. (2009). Milieu therapy as a communication intervention: A review of the literature related to children with autism spectrum disorder. *Education and Training in Developmental Disabilities, 44*, 331–358.
- Mancil, G. R. (2006). Functional communication training: A review of the literature related to autism. *Education and Training in Developmental Disabilities, 41*, 213–224.
- Mancil, G. R., Conroy, M., Alter, P., & Nakao, T. (2006). Functional communication training in the natural environment: A pilot investigation with a young child with autism spectrum disorder. *Education and Treatment of Children, 29*, 615–633.
- Mancil, G. R., Conroy, M. A., & Haydon, T. (2009). Effects of a modified milieu therapy intervention on the social communicative behaviors of young children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 39*, 149–163.
- Maurice, C. (1993). *Let me hear your voice: A family's triumph over autism*. New York: Ballantine.
- Olive, M., Lang, R., & Davis, T. (2008). An analysis of the effects of functional communication and a voice output communication aid for a child with autism spectrum disorder. *Research in Autism Spectrum Disorders, 2*, 223–236.
- O'Neill, R. E., & Sweetland-Baker, M. (2001). Brief report: An assessment of stimulus generalization and contingency effects in functional communication training with two students with autism. *Journal of Autism and Developmental Disorders, 31*, 235–240.
- Schuler, A. L. (1995). Enhancing communication in nonverbal children with autism. In K. A. Quill (Ed.), *Teaching children with autism: Strategies to enhance communication and socialization* (pp. 73–102). New York: Delmar.
- Scott, T., Anderson, C., & Spaulding, S. (2008). Strategies for developing and carrying out functional assessment and behavior intervention planning in the general classroom. *Preventing School Failure, 52*, 39–52.
- Siegel, B. (1996). *The world of the autistic child: Understanding and treating autistic spectrum disorders*. New York: Oxford University Press.
- Sigafoos, J. (2000). Communication development and aberrant behavior in children with developmental disabilities. *Education and Training in Mental Retardation and Developmental Disabilities, 35*, 168–176.
- Wacker, D. P., Steege, M. W., Northup, J., Sasso, G., Berg, W., Reimers, T. et al. (1990). A component analysis of functional communication training across three topographies of severe behavior problems. *Journal of Applied Behavior Analysis, 23*, 417–429.

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