13 PREPARING PRACTITIONERS FOR PLANNING INTERVENTION FOR NATURAL ENVIRONMENTS

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Early intervention for infants and toddlers with disabilities is not a new concept (Noonan & McCormick, 1993; Peterson, 1987). Professionals and paraprofessionals from a variety of disciplines and service agencies have been concerned with the developmental and educational issues of infants and toddlers and their families for some time. There are, however, several significant differences between the traditional infant intervention programs established in the early 1960s and 1970s and those that are being implemented in the 1990s. These differences reflect the expanded knowledge base available concerning typical child development, the impact of the environment on development, the role of the family, effective curricula and intervention strategies, and the systems for delivering services. During the 1970s, visualizing recommended practices in early intervention would have yielded an image of an instructor working one-to-one with a child to stimulate the acquisition of sensory behaviors such as visual tracking or developmental milestones like stacking blocks. Instructors, often called home visitors, would be following a skills-oriented curriculum using a step-by-step prescriptive approach. The home visitor would use specially designed toys and materials to work with the child and would collect data on the child's responses while the parent observed.

Programs, and the individuals participating in the delivery of services to infants and toddlers, are now envisioned very differently. What is seen in the 1990s is a team of professionals from various disciplines (guided by family members) working together, sharing roles and responsibilities. Team members plan and integrate intervention on the child's individualized family service plan (IFSP) outcomes throughout the day in naturally occurring play, routines, and activities using the child's favorite toys and materials. Family members and other identified caregivers, such as child care providers, are found teaching while changing the child's diapers, reading a story, folding laundry, and driving to the store. Services are provided in a variety of settings, including the home, community groups, child care programs, family child care settings, and neighborhood playgroups.

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The shifts in what has traditionally been considered recommended practice in early intervention (i.e., from professionally driven to family guided, from discipline specific to interdisciplinary integrative, from developmental milestones to functional, from teacher directed to child initiated, from behavioral to contingent responsive, from skill/academically based to activity/play based) necessitate reflection by all individuals interested in the delivery of early intervention (Bricker & Cripe, 1992; Cook, Tessier, & Klein, 1996; Hutinger, 1994). A significant challenge for early intervention students and those individuals involved in preservice and inservice instruction for early interventionists is to recognize that the program processes (e.g., assessment, identification of goals and objectives, instructional methodology and approaches to team planning and implementation) provided in the past were not wrong; rather, they represented points in a continuing process of evolution. Through research and model demonstration projects, the information available about early intervention and effective program processes has expanded tremendously. Preservice and inservice personnel must address the critical need to advance innovations from research into practice. As noted throughout this text, to accomplish this advance, personnel must be willing to greet opportunities for instruction in new practices with open minds, to implement new or modified approaches and evaluate their effectiveness critically, and to share the results of these evaluation efforts with their colleagues. Specifically for planning intervention (the focus of this chapter), early interventionists must be competent observers of children and their environments. Only with an understanding of the child and the environment can the early interventionist arrange for learning opportunities related to identified skills and follow the child's lead to foster child initiation (Bricker & Cripe, 1992). Children enjoy adult attention that is focused on the child's interests and activities and will seek to maintain it, thus creating more opportunities for learning to occur.

Early interventionists must be skillful communicators with both children and adults. Family members identify ''being a good listener'' as an important characteristic of family-centered personnel. Teamwork requires skills in communication, including the ability to both share and receive information. Early interventionists must be able to share their knowledge with adults and to teach others to intervene with the child through an interdisciplinary approach. Finally, early interventionists must be skilled observers of their own behavior and able to reflect on what worked well and what did not as well as know how an activity could be modified or a material adapted to increase accessibility, how a strategy could be explained and demonstrated more clearly to a caregiver, and how their communications with team members could have been more efficient or effective. Through these observations and reflections, early interventionists can become contributors to the knowledge base for other team members planning intervention in natural settings.

This chapter is designed to facilitate participants' evolution toward the recommended practices that ensure the development of child-initiated, family-guided, contingently responsive, functional, activity-based, and play-based intervention within natural settings. This chapter identifies and describes processes related to planning interventions (e.g., linking assessment to intervention, writing outcomes) and describes activities that could be used for developing the knowledge base and the skills necessary for implementation of the identified processes.

LINKING ASSESSMENT WITH INTERVENTION

Planning for intervention in natural environments is part of a larger linked systems approach that supports the interconnectedness of the assessment, intervention, and evaluation components in early intervention (Bricker, 1989; Neisworth & Bagnato, 1988). A linked

systems approach advocates the direct use of the information collected during assessment to formulate the IFSP goals and outcomes. The IFSP goals and outcomes guide the selection of intervention content and instructional strategies. The close relationship of activities and strategies maximizes intervention efficiency and increases the probability that the outcomes will be accomplished for the child and family (Bricker & Cripe, 1992). The evaluation of child and family progress focuses on the identified goals and outcomes and is consistent with assessment procedures by reviewing and updating the initial assessment information. Using a linked systems approach, an early intervention specialist implements a very fluid and dynamic assessment–intervention model to meet the needs of rapidly developing infants and toddlers and their families in early intervention settings (Cohen & Spenciner, 1994).

To support intervention planning in natural settings using a linked systems approach, early intervention team members must implement ecological assessment procedures; many activities for teaching these procedures are contained in Chapter 12. Ecologically valid assessment refers to collecting assessment information as the child and family participate in their daily activities (Bergen, 1994). It includes observation of the child eating, playing with brothers and sisters, getting dressed, joining a playgroup when at child care, and coping with a trip to the physician for a checkup. Ecological assessment facilitates understanding the child's cultural and community influences, the roles of various caregivers and family members, and the requirements of the family's daily schedule (Cook et al., 1996). Participation in assessment by the caregivers and team members in each environment (e.g., parents, siblings, extended family members, physicians, child care workers, Sunday School teachers, early intervention specialists, therapists) establishes the foundation for their continued involvement in the intervention planning and implementation. Authentic assessment, during which skills and behaviors are demonstrated in real-life context (Meyer, 1992), and dynamic assessment, during which the evaluator actively engages and supports the child in tasks designed to learn about how the child learns (Lidz, 1991), are additional strategies for linking assessment to intervention that provide critical information from family and other caregivers about what already works or does not work for the child in different settings (Cohen & Spenciner, 1994). These types of assessment activities help to identify intervention strategies appropriate to the child.

Portfolio assessment is a purposeful collection of a child's records to provide evidence of his or her efforts and skills (Grace & Shores, 1994) and is useful for demonstrating growth and communicating with team members. It is particularly appropriate for the development of family-guided IFSPs that portray the child within the context of his or her family and community. Within the portfolio, a variety of information may be arranged, involving the different settings and caregivers, to document the child's progress over time, thus linking assessment with intervention (Arter & Spandel, 1991; Hanline & Fox, 1994). All team members, and especially the family, have contributions for the portfolio. Photos, scribbles, or word lists are examples of items that can be collected and shared within the portfolio and that foster active participation from all caregivers in whatever setting they interact with the child.

WRITING IFSP OUTCOMES FOR INTERVENTION PLANNING

The development of a well-written, comprehensive IFSP is critical to successful intervention planning because the IFSP goals and outcomes are the link between assessment and intervention. Early intervention specialists must be able to clearly articulate the family's priorities for the child through the careful development of individual goals and outcomes.

Without the establishment of meaningful individual goals and outcomes for children, early intervention specialists and care providers lack appropriate criteria for intervention planning. If the intervention outcomes are well chosen and operationally defined, each team member's contributions to intervention efforts become clear. With meaningful goals and outcomes, the reinforcement of child-initiated action, the selection of routines, and the planning of activities is straightforward, even in various community settings with different team members.

Particularly important in embedding intervention in natural environments is providing opportunities for practicing the child's targeted goals and outcomes. Putting puzzles together or finding hidden objects, even when the activities are fun for the child, is not good intervention planning if the activities do not provide the child with opportunities to learn new skills or reinforce previous intervention targets. Play, activities, routines, and materials should be selected for intervention based on their ability to provide opportunities to practice the outcomes targeted on the IFSP. As activities proceed, their usefulness can be monitored by determining the number of times children can practice targeted emerging skills or rehearse and generalize other recently acquired behaviors (Bricker & Cripe, 1992).

Because of the critical importance of the IFSP outcomes to good intervention planning, early intervention specialists must be able to write IFSP outcomes that are meaningful and measurable based on the family's priorities. IFSP outcomes actually facilitate naturalistic interventions because they are written in the words of the family, not in professional jargon (Noonan & McCormick, 1993). An outcome statement reports what the family has identified as their priority concerns, that is, what they want to occur to enhance their child's development. It is a positive action statement that reflects change (e.g., Corrina will feed herself with a spoon; family will have respite resources available weekly; Tobias will attend child care to play with other children), rather than a description of an impairment or need (e.g., Corrina is still drinking from a bottle; Dad yells at Billy when he cries; Tobias will not share toys). Some outcome statements will directly address concerns for the child while others will focus on resources and priorities for the family.

The outcome statement must be observable to the team members so that criteria can be established to determine when the outcome has been accomplished (Notari & Bricker, 1990). One strategy for ensuring observability is for the family members to close their eyes and visualize how the child (or situation) will look when the outcome is achieved. This can be helpful when services become confused with outcomes (e.g., when family members identify physical therapy services as their priority rather than the child sitting or walking). Another strategy for writing good outcome statements is to phrase the outcome as an ''in order to'' statement that identifies the relationship between the process and the product (Deal, Dunst, & Trivette, 1989). Examples include the following: Autry will use sounds and gestures (process) in order to gain attention (product), Tobias will attend child care (process) in order to learn to play with other children (product), and Dalton will use a walker (process) to get in an upright position for walking (product). This strategy helps team members focus on the ultimate priority identified by the family, even when small steps must be taken to get there.

The process of outcome development enhances family leadership through the determination of their priorities when families are viewed as colleagues with the other early intervention team members. Early interventionists need to support and encourage family members in their initial efforts as team members. Few family members recognize and value their own expertise during the initial outcome- and intervention-planning efforts. Team members must provide the framework for family members to achieve the level of

participation they feel comfortable with during the initial IFSP and intervention planning efforts (also see Chapter 10). Outcome identification also serves the important function of identifying the resources and sources of support necessary to accomplish the desired outcomes. Family members and caregivers are knowledgeable about the child, their existing formal and informal supports, and available resources, whereas team members are knowledgeable about options for services, additional resources, and available supports. Together, this information becomes the basis for determination of early intervention services on the IFSP.

In addition to the outcome statement, the strategies that will lead to its accomplishment are delineated. These action steps set the stage for intervention planning by providing information about team members' roles and responsibilities, as well as suggestions for activities that are congruent with child and family preferences (Johnson, McGonigel, & Kaufmann, 1989). Resources, materials, and methods are also included to assist the team's organization of the intervention plans for each outcome. Using the family's definition of what they would like to see accomplished in the outcome, an evaluation plan is identified. This establishes the criteria, the time lines, and the individuals responsible for monitoring progress. The criteria used should not be an arbitrary percentage or ratio but rather the most appropriate measure for meeting the family's definition of success. A challenge for early interventionists is to learn (or, in some cases, relearn) how to write family-friendly, yet measurable and meaningful, criteria statements. Working together, individualized, functional, and measurable outcomes and actions plans can be developed that promote intervention planning within natural environments.

Team members often find it challenging to gather assessment information from the family and develop a measurable and functional outcome that builds the foundation for intervention. To assist participants, a series of activities is included at the end of this chapter to illustrate the combined processes of linking assessment to intervention and writing outcomes for intervention planning. Activity 1, ''Writing Outcomes,'' can be used to illustrate the points discussed previously in this chapter about writing outcomes linked to assessment. Autry, first introduced in Activity 1, is included in several illustrative activities to support participant skill development through a case study approach. In each activity, small-group discussion and problem solving supports the teamwork process as well as facilitating knowledge and skill development.

Activity 2, ''Identifying Intervention Contexts and Services,'' can help generate discussion about the complexity of identifying services most appropriate for ensuring that the outcomes are accomplished. The discussion can follow a simulation of the team meeting with participants role-playing the various team members. Asking each ''team'' to develop a service plan for Autry in their community extends the application of learning. Just as there are many options for services, as illustrated in Activity 2, there are many strategies that can be identified for accomplishing the identified outcomes. An additional activity for Autry's team could be to use creative problem solving to develop implementation and evaluation strategies as suggested in Activity 3, ''Writing Outcomes that Support Intervention Planning.''

NATURALLY OCCURRING EVENTS AS THE CONTEXT FOR INTERVENTION

Once outcomes and initial strategies have been identified, the team translates them into intervention activities and experiences that promote learning and enhance development within the child's natural environment. For infants and toddlers, naturally occurring events include child-initiated actions and play (e.g., climbing into cupboards to play with the

pots and pans, activating the mobile on the crib), daily routines (e.g., diapering, travel to child care, washing up), and planned activities (e.g., taking a trip to the store, listening at story time) (Bricker & Cripe, 1992).

Play and Child-Initiated Actions for Infants and Toddlers

Play has long served as a central organizing framework for early cognitive, social, and language development (Piaget, 1962; Vygotsky, 1962). Evidence supports the notion that children's play stimulates and supports their development in all of the learning domains (Fewell & Vadasy, 1983; Garvey, 1977; Smilansky & Shefatya, 1990; Vygotsky, 1967). Play-based approaches to both assessment and intervention with infants and toddlers with disabilities are hallmarks of practice in early intervention in the 1990s (Linder, 1993a, b). Play-based approaches provide opportunities for infants and toddlers to use child-initiated action routines to develop and practice skills with their family members and early interventionists in a positive, natural, mutually satisfying context (Cook et al., 1996).

It is within the context of play that children often initiate activities that can be used to guide their intervention plans through the selection of preferred activities and materials (Kostelnik, Soderman, & Whiren, 1993). Early interventionists must be knowledgeable of play behaviors and strategies to facilitate play development to use the child's play initiations. The child's play is assessed through observation, interaction, and discussion with care providers. Because each child has different play interests and styles, the team members must get to know the child as an initial step for planning intervention (Martin, 1994). Some children meet each opportunity with enthusiasm, whereas others are thoughtful and methodical.

The ability to follow the child's lead, a critical competency for early interventionists working with infants and toddlers, takes practice and knowledge of each child's individual patterns for learning (Linder, 1993b). This competency may be difficult for some adults to achieve because of previous professional instruction that delineated their role as the individual responsible for identification, organization, and direction of the learning activities. It will no doubt be a controversial and potentially humbling experience for early interventionists to be directed to learn from the child how to plan his or her intervention! Child-directed play is truly the most valuable learning activity for infants and toddlers and must be included within the curriculum (Kostelnik et al., 1993). It provides enjoyment for both the child and the caregiver, opportunities to explore objects and construct experiences within the environment, and opportunities to interact and negotiate with age mates; and it facilitates development of skills across developmental domains (Koralek, Colker, & Dodge, 1993). Play is the special work of young children because it gives them the opportunity for success (Rogers & Sawyers, 1988).

Daily Routines

Daily routines provide additional opportunities for developing new skills and for generalizing skills already learned with infants and toddlers. By definition, routines occur both regularly and frequently, and, as such, they provide infants and toddlers and their caregivers with a variety of different opportunities to engage in specifically targeted skills or activities. These routines may include dressing, diapering, resting, bathtime, quiet play and naptime, potty time, getting ready for child care, laundry time, meal preparation, or any of a variety of formally defined or informally identified activity sequences. Because families organize their routines based on what constitutes individual and group priorities, the use of daily routines as the setting for early intervention may be more sensitive to the cultural and social values of the family. Routines also provide opportunities for all the child's caregivers to participate in the intervention.

As professionals work with the family to deliver early intervention services in a variety of settings, it is essential that the importance of the daily routines in the life of the child and family be comprehended because these routines compose the real context within which services are provided. Obviously, daily routines will differ dramatically from child to child, family to family, one setting to another, and, perhaps, week to week. However, if early intervention services are viewed as both portable and flexible, early interventionists should have a much easier job of translating IFSP goals and outcomes into the everyday routines of the child and family in as many different environments as the child participates.

The use of daily routines and naturally occurring events as a context for early intervention services may be logically appealing, but it constitutes a relatively new approach for early intervention teams. This perspective builds directly on the functional skills approach, which has been successfully applied in work with children with severe disabilities (Cipani & Spooner, 1994; Snell, 1993), and is considered to be a developmentally appropriate practice for early childhood educators (Bredekamp, 1987; Koralek et al., 1993). Routines will exist within most natural environments for infants and toddlers. They are the mainstay of child care and preschool schedules (Kostelnik et al., 1993). Routines used for infants and toddlers in intervention should be predictable, flexible, and short and should involve repetitive actions. To facilitate participant competence, Activities 4, 5, and 6 help participants define routines and practice gathering information about routines.

The family members must guide the professionals on the early intervention team in determining which of the daily routines to include in intervention. Only the family knows their responsibilities and time commitment to home, job, and/or school; the needs of other family members; general logistics; and their comfort level. It is essential that the early intervention professionals have an understanding not only of the routines that embrace and surround the child but also of the child's preferences and family's choices for involvement in their daily activities. For example, for some families, mealtimes may not be good for embedding practice because the family values mealtime as a time to catch up on the events of each other's day or as a time for quiet conversation. For others, a sit-down meal is a rare occasion because of hectic schedules. Identifying routines that occur on a predictable basis with sufficient frequency to provide ample opportunities for practice requires a good deal of collaboration among team members. When creativity and flexibility are encouraged, routines can be identified for most families. Appreciating the challenges families face and the family's values and culture is crucial for the family-guided use of routines in intervention.

Case studies, such as the one included in Activity 7, are excellent strategies for providing participants with the opportunity to explore the complexities of everyday life for most families. At the preservice level, case studies share concrete experiences that participants may encounter. For inservice participants, case studies can be used to acknowledge the experiences and contributions of the participants. Role plays, as included in Activity 7, provide an opportunity to practice ideas and plans generated in case studies, further extending the learning into real-life situations.

Embedding intervention into routines requires identifying opportunities for practice of the outcomes in each routine. As an example, consider Xochitl, age 9 months, who is working on reaching for and grasping objects. During her busy morning at home, she has opportunities to reach for the powder bottle and hold it while her mom changes her, to reach for and hold toast at breakfast, and to reach for and hold her toys while playing with her sister. While her mom is at work, her grandmother listens for Xochitl and goes to her crib when she hears her fussing and gives her a rattle to hold. Her grandmother then takes her from the crib and changes her, offering her the powder bottle again. While

her sister gives her various choices of toys to reach and grasp, her grandmother prepares a bottle. Xochitl's 13-year-old brother arrives home in time to hold out the bottle for her to grasp and then to feed her. Later, her younger sister plays with her on a blanket on the bedroom floor and offers her different clothing objects to reach for and grasp while getting her ready for bed. When her mom comes home from work, Xochitl is in her night clothes and is holding her shoe. Throughout the course of the day, she has had more than 25 opportunities to reach for and grasp objects functional to the interaction at hand. If early intervention services are to be embedded into naturally occurring event, they also must be nondisruptive to established family routines yet provided with sufficient frequency to ensure that learning will occur.

A commonly used strategy to facilitate planning is the development of an intervention schedule or matrix (Bricker & Cripe, 1992; Noonan & McCormick, 1993). The development of a schedule provides a visual reminder of the outcomes to be addressed and when and where they will be addressed throughout the child's day. It serves as a valuable form of communication between team members and assists in planning and in documentation of the number and types of opportunities. It is helpful for both caregivers at home and in group settings. It is especially useful when multiple caregivers and team members at different settings are involved in the child's program. The team can see at a glance when an outcome is not being addressed frequently enough or when additional or different routines or activities need to be developed to support progress and generalization.

Early interventionists can use the schedule matrix to support inclusion because the matrix shows how the schedule already developed at child care or preschool embeds intervention. Developing a schedule matrix with the child care provider or teacher reassures them that the intervention will not add significantly more work but will use what is already occurring. Team members from different disciplines can use the schedule matrix as a starting point for integrating therapy. They can each identify preferred times and activities for embedding specific targets throughout the day and together decide how multiple outcomes across developmental domains can be incorporated into the same routine or activity. Examples of schedules for Autry at home and in child care are shown in Figures 13.1 and 13.2. During instruction, participants could be asked to develop similar routines as part of the teaching process.

In addition to monitoring progress on the outcomes, team members should keep records that describe the family members' preferences and the specific strategies used to facilitate planning and to prevent miscommunication between team members and caregivers. Working in natural environments often involves additional participants on the team who work directly with the child. Planning for who does what and when it is done is essential to ensure an effective program for the child and to reduce the amount of redundant or conflicting questioning and consulting with the family and caregivers. Although team communication, both face to face and in writing, is often perceived as time consuming, it is essential for effective intervention. Figure 13.3, an example of an intervention planning worksheet, could be used as the basis of an instructional activity, such as Activity 3. Participants could also design a team intervention planning worksheet suitable to their current practicum or worksite or modify the one provided in Figure 13.3.

PLANNED ACTIVITIES

Planned activities are those that would not routinely occur without adult initiation (Bricker & Cripe, 1992). For infants and toddlers, planned activities typically involve simple events such as trips to the store or post office, play on a swing or at a park, or reading a book

Routines	Vocalizing with gestures	Walking with one-hand support
Car travel	Point at and name common objects or places (trucks, McDonald's) to gain Autry's attention.	Give Autry small object to carry to the car from child care. Walk beside him to the car.
Bathtime	Put favorite toys or sponges by the tub. Offer the boat or bubble pipe and wait for Autry to reach and vocalize to request.	Walk with Autry to the bathtub. After bath, walk with him to the hamper to put away towels.
Playtime	Put favorite toys on a shelf out of Autry's reach so he can point and ask for them.	Encourage Autry to help Troy walk Puddles outside holding Troy's hand.
Bedtime	Wave goodnight and blow kisses to Puddles and Troy. Tell his favorite toys and stuffed animals goodnight.	Walk Autry to his bedroom.

Figure 13.1. An example of an individual schedule for Autry.

before bed. This is in contrast to planned activities in preschool classrooms that involve sophisticated art or drama projects, sand and water science activities, or dress-up role play. Activities planned for toddlers may include dancing to music, using art materials as a process with no product expected, "tea parties," playdough, and building houses and roads with blocks (Bredekamp, 1987; Koralek et al., 1993). Water table (or sink) activities include pouring, squeezing, dumping, and dunking.

It has been common practice for the early interventionist to arrive at the child's home or child care center with a series of planned activities that disrupt the ongoing schedule of routines and play and proceed to deliver early intervention from a bag of tricks and special toys. The early interventionist would then leave after about an hour, when each

Group Schedule

Tots and Tales	AUTRY			DALTON			LARRY	
	Vocalize with gestures	Walk with one hand	Point	Early words	Pincer grasp	Drink without spills	Two-word combo	Initiate play
8:30 A.M. Breakfast	X		X	X	X	X	X	X
9:00 A.M. Blocks and Legos	X	X	X	X	X		X	X
9:30 A.M. Music circle	X	X	X	X			X	
9:45 A.M. Story	X	X	X	X	X		X	
10:00 A.M. Play in centers	X	X	X	X	X		X	X
10:25 A.M. Closing circle	X		X	X			X	

Figure 13.2. An example of a group schedule.

Family name: **Date:**

Typical daily schedule of family:

A.M. P.M.

Information to gather in a family-friendly fashion:

1. Which routine(s) do family members identify as mutually enjoyable?
   How frequently do they occur?
   What motivates the child to participate?

2. How does the caregiver currently proceed with the routine?

3. What outcome(s) should be embedded? Where and when?

Strategies to demonstrate to caregiver:
(Incorporate only 1–2 strategies per routine.)

- ☐ Follow the child's lead
- ☐ Provide choices
- ☐ Model appropriate response
- ☐ Give appropriate portions
- ☐ Time delay: Wait for child to request
- ☐ Interrupt sequence and wait for response
- ☐ Place materials out of reach
- ☐ Create silly situations
- ☐ Provide physical assistance

Communication strategies for caregivers:

- ☐ Speak slowly and clearly; use common words
- ☐ Focus on the child's actions/communication
- ☐ Use gestures
- ☐ Use an exaggerated/animated voice
- ☐ Take turns with actions/vocalization
- ☐ Expect a response from child
- ☐ Respond to child's initiation
- ☐ Expand on child's response
- ☐ Include a variety of attractive, interesting, and desirable objects and materials

NOTES:

Figure 13.3. Intervention planning worksheet. (From Cripe, J., & Graffeo, J. [1995]. Parsons: University of Kansas, KUAP–Parsons, Project FACETS; reprinted by permission.)

of the specific objectives had been addressed in directed play activities and the time allotted for special instruction on the IFSP was completed, without incorporating the planned activities into the child's schedule or routines. Planned activities for infants and toddlers should be activities that characterize the everyday life of most young children and not the elaborately scripted activities early interventionists may choose to construct as opportunities for the child to learn new skills. Planned activities also must focus on the child's specific outcomes rather than on general stimulation for maximum progress to occur. In planning activities, it is often difficult to focus on the child's intervention target(s) and easy to become overly involved in the activity. Activity 8 helps the participants practice the art of planning intervention activities for young children.

Planned activities for infants and toddlers are subject to immediate change to follow the child's lead. The lack of stability and predictability of even typical activities suggests that early interventionists need to be both flexible and responsive to unexpected changes. Although the early intervention team should plan for a balance between play, routines, and planned activities in intervention, because of the age and experiences of infants and toddlers, most time, either individually or in groups, will be spent in play or in routines.

INCREASING OPPORTUNITIES IN INTERVENTION PLANNING

During routines and planned activities, opportunities can often be increased by a team analysis of the activity sequence. Many hidden opportunities can be found during the setup and cleanup of the area or activity. Adults can involve the child in gathering and organizing the materials for snack, choosing clothing to put on, or picking up the toys after play. Interactions can often be repeated, such as in games like peekaboo or This Little Piggy, many times before the child tires, again increasing the target responses. Early interventionists must be careful not to preempt opportunities for the child to practice skills in very functional activities. Preempting can easily occur because of the desire to be helpful to the child, to be efficient and move on to another task rapidly, or because setting up and cleaning up are traditionally teacher duties. Activity 9 provides the team with practice in increasing opportunities in activities for Autry.

There are also many strategies that may facilitate increasingly complex response repertoires and child skill levels. These strategies include the use of interesting or novel materials, placement of materials out of the child's reach, and giving inadequate portions of desired materials. As shown in Figure 13.3, these strategies can be used throughout the routines or planned activities to increase the opportunities children have to practice their targeted outcomes. When applied skillfully, these strategies will offer an extra trial without detracting from the activity, disrupting the child's initiations, or interfering with the logical sequence and predictability of the routine. Activity 10 is an opportunity to role-play teaching caregivers to use various intervention strategies systematically and effectively.

CONCLUSION

Working in natural environments using naturalistic interventions does not mean that the intervention will just naturally occur. In contrast, early interventionists must plan more carefully, document more creatively, and communicate more frequently with team members to ensure the child is making optimal progress. Early interventionists in the 1990s need to know the same content of good instruction (i.e., how and when to model, to deliver prompts or cues, to reinforce, to provide physical guidance) as past early interventionists, but they also need to know how to apply the behavioral strategies within the

context of naturally occurring events. It is not the principles of good instruction that have changed but the strategies for their implementation. Cues may be provided by a greeting to the child when the early interventionist enters the home rather than by a verbal prompt to ''look at me.'' The designated number of instruction trials may be distributed throughout the day during diapering or at mealtimes rather than during a pull-out mass trial treatment session. The reinforcement of a child for practice will not be tokens or verbal praise but rather the toy requested or the turn taken by another child in a game. Early interventionists must never lose sight of why special instruction or special education is special; specialized training approaches are designed and implemented to ensure that learning occurs.

Knowing where, when, and how to intervene is essential for early interventionists, but they also need to understand why and believe in the principles of family-guided, interdisciplinary, activity- and play-based intervention in natural contexts. Without the underlying theoretical knowledge and the commitment to the values of early intervention, team members will be unable to creatively problem-solve and make decisions based on the principles. Preservice and inservice preparation must include information on the rationale for the approaches as well as application opportunities that support the team process. Implementation strategies without the theoretical framework are as unsatisfying for team members in the field as theory without practice is for students. Early interventionists who appreciate where the field has been and what it has done will also understand that the field will continue to evolve. They will prioritize their professional development to grow with and contribute to the knowledge and implementation base for the field of early intervention.

RESOURCES

Bricker, D., & Cripe, J.W. (1992). *An activity-based approach to early intervention.* Baltimore: Paul H. Brookes Publishing Co. Cost: $27. (800) 638-3775.

Shows how to use natural environments and relevant events to effectively and efficiently teach infants and young children. Useful ideas for developing individualized goals and objectives and monitoring child progress. Designed to be used in conjunction with the videotape discussed below.

Cripe, J.W. (1995). *Family-guided activity-based intervention for infants and toddlers* [Videotape]. Baltimore: Paul H. Brookes Publishing Co. Cost: $37. (800) 638-3775.

This 20-minute videotape illustrates strategies through which parents and other caregivers can take advantage of natural learning opportunities. Narration and examples are clear and provide supplemental materials for diverse audiences.

Linder, T.W. (1993). *Transdisciplinary play-based intervention: Guidelines for developing a meaningful curriculum for young children.* Baltimore: Paul H. Brookes Publishing Co. Cost: $49. (800) 638-3775.

Creative strategies for promoting cognitive, social-emotional, communication and language, and motor development. Activities and materials can support teaching and instruction and language about the design and implementation of IFSPs.

McGonigel, M., Kauffman, R., & Johnson, B. (1991). *Guidelines and recommended practices for the individualized family service plan* (2nd ed.). Bethesda, MD: Association for the Care of Children's Health. Cost: $15. (301) 654-6549.

Essential information about the IFSP process, from the federal rules and regulations to recommended practice. This book includes vignettes and family stories, as well as extensive samples, forms, procedures, and instruments for use in preservice or inservice instruction.

Rule, S. (1996). *Strategies for instruction in natural environments.* Logan: Utah State University, Center for Persons with Disabilities. Cost: $450 (includes two videotapes, instructor's manual, and participant's manual). (801) 797-1987.

Part of a five-videotape series designed to provide preservice and inservice education in instructional procedures appropriate for use in natural environments. The remaining three videotapes, *Strategies for Preschool Intervention in Everyday Settings,* will be available in CD-ROM and videotape formats in September, 1997.

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ACTIVITY 1

WRITING OUTCOMES

Instructions:

1. Divide participants into small "teams" of five or six people. Team members should simulate an IFSP meeting to generate outcomes for Autry. Be sure a team member represents Katherine, Autry's mother.
2. As a team, use the "Action A will be implemented in order to accomplish Action B" approach to writing outcomes for Autry. Work to ensure the process results in outcomes that are
   - Reflective of family priorities
   - Appropriate for teaching in various settings
   - Functional and sustainable
   - Supportive of caregiver–child interactions
   - Interaction enhancing with peers and/or siblings
   - Interesting and motivating for the child
   - Developmentally appropriate

Case Study: Autry

Autry, 22 months, was referred to early intervention services after moving to Beauville with his mom, Katherine, his brother, Troy, age 13, and the family dog, Puddles. Autry received physical therapy (PT) and speech-language pathology (SLP) services at a hospital outpatient clinic three times a week in his previous program. Katherine was interested in services that would give Autry the opportunity to interact with other children yet would not conflict much with her work schedule. She also requested home visits so she and Troy could learn how to work with Autry, too.

Autry's portfolio included his baby book with photographs highlighting his progress from his premature arrival at 30 weeks and 3 pounds, 2 ounces to his current weight of 16 pounds. Eligibility of early intervention services was documented by significant delays in the motor and communication domains on the Battelle Developmental Inventory (Newborg, Stock, Wnek, Guidubaldi, & Svincki, 1984) and by his physician's diagnosis of cerebral palsy. Anecdotal records from the hospital showed progress in fine and gross motor areas with Autry currently walking with a two-wheel walker, stringing large beads, and feeding himself with a spoon with minimal spilling. The SLP reported that Autry did not verbalize in the therapy setting but used crying and hitting to communicate protests.

An Assessment, Evaluation, and Programming System (AEPS) (Bricker, 1993) curriculum-based assessment was added to his portfolio to assist in intervention planning. Using the *AEPS Family Report* and observations of Autry at play at his child care center, Katherine identified communication as her main priority for Troy's intervention so he could begin to develop friendships. She also believed that his crying and hitting were getting worse because he did not have other more effective ways to get attention and ask for things. The team agreed that continued support was necessary to maintain Autry's fine and gross motor progress. Being new to the area, Katherine requested information on resources, community programs, and parent groups. The team also prioritized transition planning for Autry. Katherine reported that Autry's preferred activities involve Troy and Puddles and being outside. The teacher from Tots and Tales Child Care Center, which Autry attends when Katherine works, identified the household and music/book centers as his favorite inside areas.

ACTIVITY 2

IDENTIFYING INTERVENTION CONTEXTS AND SERVICES

Instructions:

1. Ask participants to read the following vignette. Facilitate a large-group discussion using the questions below the vignette.

   At Autry's IFSP meeting, the team decided that he would join the Early Intervention Toddler Play Group children at the Tots and Tales Child Care Center he attends and receive bimonthly after-work home visits from the early intervention specialist. The Toddler Play Group provides integrated early intervention services to eligible children four mornings a week for 2 hours. Eight children are currently participating with three children identified as having special needs. An early intervention specialist leads each session with nursing, PT, occupational therapy, and SLP services available on a consultation basis. The SLP and PT will see Autry weekly and provide strategies for embedding his outcomes into the group activities in the playgroup, with the child care teacher, and at home. The child care center teacher agreed to incorporate learning opportunities for Autry throughout the daily routines and to participate in team planning. Troy and Puddles are anxiously awaiting a home visit so they can be involved, too!

2. As a team, debate the pros and cons of the options Autry's team chose for him.

   - Do you agree with their plan?
   - What other choices should/could have been considered?
   - What might the team consider if the Toddler Play Group were not available?
   - What are some of the potential problems that could occur with intervention occurring in so many sites across so many team members?
   - What if the PT and SLP changed on the team and were no longer willing to provide services in the child care setting? How could the team continue to plan and provide integrative therapy?

ACTIVITY 3

WRITING OUTCOMES THAT SUPPORT INTERVENTION PLANNING

Instructions:

Instruct your teams to use Autry's case study and the following example of his communication outcome to write strategies and an appropriate evaluation plan for the outcomes written in Activity 2.

Outcome Plan

Child's name: Autry
Persons responsible: Katherine (mom), Juli (SLP), Tom (early interventionist), Ruth (teacher)
Service: Early Intervention
Date: 03/01/96

Outcome statement: (What is to be accomplished?)

Autry will ask for help and indicate what he wants with gestures and vocalizations.

Strategies: (How will the outcome be accomplished? Who will be involved? When and where will the activities occur?)

Katherine and Ruth will share Autry's "best times" and routines throughout the day at the child care center and at home with Juli and Tom. Familiar routines that are fun for Autry and comfortable for Katherine and Ruth will be identified.

A team intervention activity plan will be used to share information across team members. (See Figure 13.3. on p. 346 for one example of a plan.)

During home visits, Juli will show Katherine and Troy a new strategy (e.g., modeling, pauses, choices) as appropriate that can be used to help support Autry's attempts to communicate.

The strategies will be included in daily routines using Autry's favorite toys (e.g., book, bear, train) and planned activities outdoors with Puddles and Troy.

At group time, the team will plan activities and use various naturalistic intervention strategies in routines that provide opportunities for Autry to make requests.

Katherine will post activity sheets or routine data sheets on the refrigerator for easy reference, and Ruth will include comments on Autry's communication attempts when she writes in his home–school journal.

Evaluation: (How will we know the outcome is accomplished? Who will review? When?)

Autry will gesture by pointing, waving, showing, and vocalizing for his food, toys, and materials at home and child care. Each month Juli, Tom, and Katherine will chart Autry's progress.

ACTIVITY 4

DEFINING ROUTINES

Instructions:

1. As a group, define what a routine is and list common examples on a flipchart or chalkboard. Next, ask each participant to turn to someone and identify five important routines in his or her own life. (*Important* may be defined simply as difficult to change or interrupt.) Compare similarities and differences based on personal preferences, current lifestyle, family values, logistics, and economics.
2. Take one very common routine (e.g., early morning bathroom and breakfast procedures) and have participants list in sequence the steps they follow to complete that routine. As a group, discuss how many different ways people can accomplish the same task. Ask participants to reflect on implications for practice that occurred to them as a result of this activity.

ACTIVITY 5

DELINEATING ROUTINES APPROPRIATE FOR INTERVENTION PLANS

Instructions:

1. List, as a group, typical examples of daily routines for children ages birth to 3 years. Discuss how the routines could vary in a family with six children versus two children; with extended family members as caregivers versus private child care; with a child with severe, multiple disabilities requiring assistive medical technology versus a child with a hearing loss.
2. Knowing that maintaining a family-guided approach to intervention planning requires each family to identify their preferred routines, role-play an opportunity to visit with a family to identify the specific routines that could potentially be used for intervention. Encourage the participants to look for routines that are interesting to the child, comfortable for the caregiver, completed quickly, require joint attention, involve interesting materials or desirable objects, and offer opportunities for repetition. Routines that are mutually satisfying for the child and caregiver will be undertaken with the most frequency and will meet with the greatest success.

ACTIVITY 6

ASKING THE RIGHT QUESTIONS ABOUT ROUTINES

Instructions:

1. It can be difficult to initiate a conversation with a family about their typical routines. Families new to early intervention may be suspicious of why team members are asking questions (i.e., a professional is asking questions to point out what they are doing wrong). Families may be trying to please the team and give the answers they think the team wants to hear rather than their everyday reality or they may believe the information is personal and private and choose to not respond.
2. Ask each participant to identify a family with an infant or toddler who would be willing to "practice" with them. Encourage participants to try various strategies for learning about the family's schedule and to ask the family for feedback on the different approaches.

ACTIVITY 7

CASE STUDY FOR DEFINING ROUTINES

Instructions: Read the following case study.

Case Study: Triesté and Torre

Triesté is meeting with her son's new early intervention specialist, a speech-language pathologist, to develop intervention plans. Torre, age 16 months, has just been identified with a significant bilateral hearing loss. They are scheduled to meet at the Churchill High School Child Care Center that Torre attends during the day while Triesté is in school. Triesté has her class schedule arranged to end at lunchtime. If everything goes well, Triesté and Torre get home before his naptime so Triesté has time to do her homework before she starts her evening shift as a waitress at Big Boy's at 5:00 P.M. The time that Triesté missed in school when Torre was born and had so many medical complications put her a semester behind. Now that he has a hearing problem and needs more help, she is unsure how she is going to find the time. She finds herself struggling to even get her schoolwork done and has just about given up on any hope of a scholarship for college. Working 5 hours a night at Big Boy's provides only enough money to pay for Torre's immediate needs and to pay a little back to her mother on the huge debt for medical expenses incurred at the time of Torre's birth. Triesté believes her schedule is as full as it can possibly be, and she does not want to ask her mom to do more work with Torre as she babysits him every evening. It is enough that she has to feed him, bathe him, and put him to bed after working an 8-hour shift at the factory.

The speech-language pathologist told Triesté on the phone when she set up the appointment that she would help Triesté work with Torre to learn to communicate through the use of routines and that it would be fun. Triesté does not quite see how that is going to happen!

Discussion: Ask the following questions or assign them for homework for later discussion.

- As the SLP, how would you describe the use of routines to Triesté? How would you support Triesté in using caregiver–child routines to address communication goals for Torre? How would this differ from providing individual speech therapy at the center?
- What options might be available in the natural environment for Triesté and Torre? How could you help Triesté identify the options?
- What complications in the daily schedule of Triesté and Torre must the early interventionist be especially sensitive to?
- Given this scenario, what possible routines for embedding intervention objectives could you suggest to Triesté as examples? Be creative. There is more to life than bathtime and meals!

Follow-Up: Lead participants in one or both of these activities.

- Divide the class into pairs with one member of the dyad playing the part of Triesté and the other playing the part of the SLP. Role-play the ideas you generated in your plan during the Case Study for Defining Routines for the class.
- Lead the participants in a discussion of how the planning might be different if 1) Torre had severe cerebral palsy with feeding problems instead of a hearing loss, 2) Torre were visually impaired, or 3) Torre had a diagnosis of autism.

ACTIVITY 8

DEVELOPING PLANNED ACTIVITIES

Instructions:

1. In a group discussion, pose the question, "Which comes first, the activity or the outcome?" The answer may seem very obvious: the outcome, of course. In actual practice, however, it is often the opposite. "Really cool" activities are planned based on materials available, community events, or upcoming holidays without careful consideration of their actual potential to provide opportunities for instruction.

   Explain to the participants that when planning activities, it is important to prioritize the child's intervention outcomes. The role of the early interventionist is to incorporate the outcomes into current activities or to plan activities that provide multiple opportunities for working on the targeted outcomes. It is easy to get involved in planning activities that are so fun, especially when working in small groups of toddlers, that the purpose of the activity—embedding intervention outcomes—becomes secondary to the activity. Activities that relate to themes such as pets, community helpers, and holidays often occur in preschool and community group child care settings and can be used very effectively for intervention with careful planning. Without planning, the activity may be completed without the child addressing any targeted outcomes. To ensure the activity maximizes intervention opportunities, the early interventionist working with the team should carefully examine the activity for learning opportunities.

2. Ask the participants to assume the roles of different team members (i.e., child care provider, family member, SLP, teacher) and to plan several developmentally and functionally appropriate activities for both individual children at home and for small groups of children at a child care center. Use Autry's and Torre's outcomes as examples, if needed.

3. Ask the participants to describe how their team identified activities and opportunities to embed the targets. The team may want to consider questions such as the following:

   - **Is this a preferred activity for the child?** When the activities are fun and inherently reinforcing, there is a greater probability that the child will become actively engaged and learn from them. If not, then planning may not be a good use of the team's time as the child is not likely to attend or to return to the activity. For example, making pasta necklaces can incorporate many fine motor, cognitive, communication, and social intervention outcomes if the activity is motivating and interesting to the child. If the child does not choose to spend time at table activities and prefers to play with blocks and cars, it would be better to incorporate opportunities for the child while playing with blocks and cars.
   - **Does the activity provide opportunities for the targeted outcomes without becoming contrived?** One common mistake often made when intervening in natural settings is to believe that any activity can be made into an intervention activity. For young children, it is important that the activities have an obvious and logical sequence that makes sense. They are using contextual cues and their experiences to learn; therefore, it is important to minimize unnecessary variation to include instruction on an outcome. The best rule is the following: The simpler, the better.
   - **Is this activity a part of ongoing daily activities or is it a special event?** Obviously, activities that are repeated frequently provide more opportunities for practice than special events (e.g., holiday, field trip activities) and, therefore, through repetition become familiar to the child. Activities that are repeated can also provide a framework to scaffold increasingly more difficult skill development.

- **Does the activity provide opportunities for child initiation?** Activities that provide maximum opportunities for the child to direct the play and the adult to follow will last longer and generally allow for more opportunities to practice targeted skills. Specific activities such as making a hand puppet may offer several opportunities to label objects and to make requests, to use fingers to grasp and release small objects, and to sort by size, but when the puppet is finished, the activity is logically completed. In contrast, at the water table, play can include practice on the same outcomes while floating boats, and continue when the child adds cars that sink, and still continue when wind-up fish and ducks are added. When the child takes the boats and cars to the block corner, the early interventionist can still follow the child's lead and embed instruction in the new activity.
- **Are there opportunities for peer interaction?** Play with peers provides ample reinforcement for working on targeted outcomes without the need for extrinsic reinforcers. Arranging the environment to ensure that opportunities exist for practice on targeted outcomes can facilitate child initiation and peer interaction without the need for adult direction. For example, Jacob can push the grocery cart as he practices walking with assistance to the household corner while his friends, Cara and Eric, put groceries in the cart. Adults may need to help organize the play but then need to fade their support to encourage the interactions between peers.

4. Teams may share their activity plans with each other and discuss variations that will help maintain the child's interest and help to increase complexity as the child meets the initial targeted outcomes.

ACTIVITY 9

INCREASING OPPORTUNITIES

Instructions:

This activity can be accomplished either as a team or individually.

1. Direct the participants to look at Autry's group activities (see Figure 13.2) with the intent to increase opportunities to practice his targeted outcomes. Remind the participants that the purpose of every scheduled activity is to provide learning opportunities; thus, breakfast, circle, music, story, blocks, and centers should all be considered during planning. Generate (aloud or in writing) ideas for how opportunities to practice might occur within the following activities:

    - **Setup and cleanup:** An easy but frequently overlooked strategy for increasing response opportunities is to provide opportunities for children to participate in the setup and cleanup of a routine or activity. For example, during setup children may assist in gathering and moving materials to a specified work area. Autry could carry a bucket of blocks to the center. For other children, social goals might include taking turns and interacting and cooperating with peers. Communication targets such as following directions and asking and answering questions can easily be included. At home, caregivers can include the child in setup, too. For example, Autry can get his own diaper and wipes. Cleanup offers similar response opportunities along with practice of self-help skills. Caregivers tend to preempt many opportunities for practice by having everything ready.

    - **Repetition:** Children acquire new skills through repetitive practice. Practice play occurs, for example, when children drop and retrieve items, pull to stand and fall purposefully, climb stairs, exercise sensorimotor schemes (e.g., bang blocks), and vocalize repeatedly. Repetition is easily incorporated in routines and activities with infants and toddlers simply because they enjoy it. Adding a variation to peekaboo such as blowing a kiss or making a raspberry when saying "boo" adds novelty to maintain interest and allows the interaction to be repeated again and again. Materials also support repetition in activities. Autry can vocalize and gesture to the caregiver for each block during block play rather than the caregiver giving him a bucket of blocks at one time.

    - **Imitation and role play:** Children engage in imitation and role play when they pretend to be another person or imitate the actions of another person. For example, a toddler can play the role of a parent by assisting a doll in hand washing, imitating dad stirring pudding, or driving the car like mom. Role-playing permits children opportunities to initiate and maintain interactive play, practice communication, develop problem-solving skills, and sequence actions. Use of common objects (e.g., dishes, combs, hats) facilitates role play.

ACTIVITY 10

TEACHING CAREGIVERS INTERVENTION STRATEGIES

Instructions:

There are many effective strategies for increasing response opportunities in both individual and group activities. When working in natural settings it is important not only for the early intervention specialist to know when, how, and how often to apply these strategies but also to demonstrate and explain to other caregivers how these strategies can be used. Although most strategies appear to be "common sense," the early interventionist must be cautious regarding the overuse or misuse by individuals not specifically instructed in instructional methods.

Discuss how you would teach a caregiver to use these strategies within routines and activities to practice the child's targeted outcomes. Role-play with a partner what you would say. Be sure to address the following questions:

How would you demonstrate this to a family member?
What cautions would you share?

1. **Use interesting materials:** Young children are most likely to initiate learning about the things that interest them, thus increasing opportunities for practice. Materials should be developmentally appropriate and relevant to the child's interests and routines.

   How would you demonstrate this strategy?
   What cautions are critical to share with the caregiver to ensure success?

2. **Place materials out of reach:** Placing some desirable materials within view but out of reach may encourage children to make requests to secure the materials. The effectiveness of this strategy may be enhanced by showing the child materials, naming the materials, and then waiting attentively for the child to make a request. Caregivers can use this strategy with a favorite toy or an afternoon snack.

   How would you demonstrate this to a family member?
   What cautions would you share?

3. **Give inadequate portions:** Providing small or inadequate portions of preferred materials such as blocks, crayons, or crackers is another strategy used to promote interaction. During an activity the children enjoy, caregivers can control the amount of materials available so that the children have only some of the parts needed to complete the activity. When the children use the materials initially provided, they are likely to request more from the caregiver or other children.

   How would you demonstrate this to a caregiver?
   What cautions would you share?

4. **Provide choice making:** There are occasions when two or more options for activities or materials can be presented to children. Children may be most encouraged to make a choice when one of the items is preferred. For example, the caregiver may hold up two different toys (e.g., a big red tractor and a small green block) and wait for the child to indicate his or her preference.

   How would you demonstrate this to a caregiver?
   What cautions would you share?

5. **Encourage some need for assistance:** Creating a situation in which children are likely to need assistance increases opportunities for interaction with caregivers or peers. A wind-up toy, a swing that a child needs help getting into, or an unopened bottle of bubbles are all examples of materials that can encourage interaction.

How would you demonstrate this to a caregiver?
What cautions would you share?

6. **Create silly situations:** Absurd or silly situations that violate the child's expectations can be useful to increase communication, social interaction, and problem solving. For example, an adult who playfully attempts to put a child's shoe on his or her own foot, who tries to comb his or her hair with a block, or who reads a washcloth may encourage the child to comment on the absurd situation.

   How would you demonstrate this to a caregiver?
   What cautions would you share?

7. **Be forgetful:** "Forgetting" can occur when the caregiver fails to provide the necessary equipment or materials or overlooks a familiar or important component of a routine or activity. Examples include not having any water in the tub at bathtime, not having cups or plates on the table for snack time, playing kickball without a "ball," or not having books for storytime.

   How would you demonstrate this to a caregiver?
   What cautions would you share?