Using Evidence in Social Work Practice

Behavioral Perspectives

EDITED BY

Harold E. Briggs
Portland State University

and

Tina L. Rzepnicki
University of Chicago

2004

LYCEUM
BOOKS, INC.
5758 South Blackstone Avenue
Chicago, Illinois 60637

CHAPTER 6

SOME GUIDELINES FOR SELECTING BEHAVIORAL INTERVENTION PROGRAMS FOR CHILDREN WITH AUTISM

Lynn E. McClannahan and
Patricia J. Krantz

This chapter describes some evaluation dimensions that social work professionals can use to assist families in selecting effective intervention programs for children with autism. Although behavioral treatment technology emerged in the mid-1960s and continues to be extended and elaborated, nonscientific approaches to autism treatment also continue to proliferate. Not all agencies that lay claim to a behavioral approach are science based, and there are major, substantive differences among programs that use applied behavior analysis methodology. These circumstances are confusing to people unfamiliar with the field and often complicate placement decisions. However, there are empirically validated practices that appear to be indicators of effective, science-based intervention programs. We discuss the importance of sustained engagement with activities and other people, many opportunities to respond and practice new skills, staff members' frequent but discriminated use of behavior-descriptive praise, good relationship-building repertoires displayed by intervention personnel, careful attention to children's hygiene and appearance, a programmatic approach to the development of youngsters' social competence, an environment that supports the display of new skills and minimizes the occurrence of inappropriate behavior, and policies and practices that foster parents' participation in intervention and promote generalization of children's skills across persons and settings. These are not the only indexes of effective intervention programs for children with autism, but problems in these areas may seriously compromise children's progress in treatment.

SOME GUIDELINES FOR EVALUATING BEHAVIORAL INTERVENTION PROGRAMS FOR CHILDREN WITH AUTISM

Autism is a developmental disability that appears before the age of three and is characterized by impairments in social interaction, such as gaze aversion or the absence of communicative gestures; impairments in communication, such as mutism, language delays, stereotypic uses of language, and lack of pretend play;

and repetitive and stereotypic patterns of behavior such as preserving "sameness" of routines and engaging in repetitive motor mannerisms such as flapping hands or spinning objects (American Psychiatric Association, 1994).

Historically, a portion of the literature of autism treatment—perhaps a significant portion—has comprised ineffective approaches and treatment fads. Sensory integration, auditory integration training, facilitated communication, music therapy, hormone therapies such as secretin, immunological therapies such as intravenous immune globulin, and special diets were (or are) said to be helpful, but not one is adequately supported by scientific evidence, and research has shown that some are actually harmful (New York State Department of Health Early Intervention Program, 1999; Smith, 1996).

Since the publication of *Application of Operant Conditioning Procedures to the Behavior Problems of an Autistic Child* (Wolf, Risley, & Mees, 1965), hundreds of scientific studies have demonstrated the effectiveness of applied behavior analysis in building important skills and in diminishing the severe behavior problems of people with autism (Jacobson, Mulick, & Green, 1998). The contemporary intervention of choice is behavioral (Green, 1996); no other treatment approach has received comparable scientific support. However, agencies that use (or claim to use) a behavioral approach may differ greatly. For example, services may be delivered in hospitals, in outpatient clinics, in children's own homes, in specialized treatment centers, in special education classrooms in public schools, or in various combinations of these locations. Parents and siblings may be included in or excluded from participation. Those who provide intervention may be trained by others who are only slightly more experienced than they are or by senior professionals who have a great deal of education and experience in operant methodology and autism treatment. Staff supervision and mentoring may occur daily, weekly, monthly, or infrequently, or may be absent. Furthermore, behavioral intervention is not a single approach—applied behavior analysis includes many measurement procedures and many behavior-increase and behavior-decrease procedures that can be used singly or in combination to remediate various skill deficits and behavior problems. Given the diversity of services that purport to be behavioral, how can social work professionals and family members determine which agencies are most likely to deliver effective intervention to children who need help?

SOME EVALUATION DIMENSIONS

The following paragraphs present some empirically validated practices that appear to be indicators of program effectiveness. We also review some of the research that supports these practices and discuss their importance. To say that these practices represent "best practice" would be premature; there is so far little or no evidence to recommend one set of well-researched behavioral procedures over another. On ethical and humanitarian grounds, however, omissions of certain practices may be negative indicators of program effectiveness.

Engagement with Activities and Other Persons

A large body of research demonstrates relationships between engagement and the acquisition of new academic, social, language, and self-care skills (Greenwood, 1999). Conversely, people who do not interact with the physical or social environment have few opportunities to learn, and chronic inactivity increases the likelihood of behavior problems and health problems (Reid & Green, 1998).

In our setting, an evaluation protocol (McClannahan, Krantz, MacDuff, & Fenske, 1988) defines engagement as "scrutinizing, manipulating, or otherwise appropriately using instructional or leisure materials; visually attending to staff members or to materials they present; visually attending to another learner who is interacting with an instructor; or following directions" (p.7). Children are not scored as engaged if they are exhibiting stereotypic, disruptive, or other inappropriate behavior. When obtaining data on engagement, observers use a time-sampling procedure—every minute, on the minute mark, they count (from left to right) the number of students in a classroom or activity area and then immediately count the number of students who are engaged. These observations are averaged to obtain percentage engagement. Data-based feedback on students' engagement is provided to staff members as a part of their training program, and assessments of engagement are included in staff performance evaluations. More than a quarter of a century of repeated measures of the engagement of young people with autism show that, given an ongoing program of staff training and evaluation and an effective intervention system (McClannahan & Krantz, 1993), it is reasonable to expect group and individual engagement measures to be 80 percent or greater across time, staff members, settings, and activities.

Because high levels of engagement are characteristic of well-organized and effective human service agencies (Reid & Green, 1998), measures of engagement are one way to evaluate a program. During a visit to a single classroom or area, a parent or social work professional may collect successive one-minute time samples; on a tour of the program, it may be possible to collect one time sample in each classroom or activity area. In programs of poor quality, there may be no planned activities during some portions of the day, or learners may spend extended periods of time waiting (e.g., waiting for an activity to begin; standing in line to gain access to the cafeteria, bathroom, or gym). In programs of good quality, time samples should reveal mean engagement of 80 percent to 100 percent.

Opportunities to Respond

An opportunity to respond occurs when someone asks a question or gives an instruction that requests that a person perform a specific behavior (e.g., "What time is it?" or "Please get your coat"). Repeated instructions ("nags") and nonspecific directions ("Do it again") are not good examples of opportunities to respond; the former may teach children that they need not follow directions the first time they are given, and the latter may produce errors.

Unfortunately, in many public school classrooms, youngsters have few or no opportunities to respond during the school day (Stanley & Greenwood, 1983); but for children with and without developmental disabilities, increased opportunities to respond result in improved performance on measures of academic achievement (Delquadri, Greenwood, Stretton, & Hall, 1983). In programs that serve children with autism, opportunities to respond have been increased by means of enriched staff-child ratios; peer tutoring; small-group instruction, including choral responding (Kamps, Dugan, & Leonard, 1994); and integration of parents into the treatment process (Harris, 1983).

Discrete-trial teaching, often discussed in the literature of autism intervention (e.g., Anderson, Taras, & Cannon, 1996; Harris, 1983; Koegel, Russo, & Rincover, 1977; Sundberg & Partington, 1998), represents a specific type of presentation of opportunities to respond. In a discrete-trial paradigm, the teacher asks a question or gives an instruction, the student responds correctly or incorrectly or does not respond, the teacher delivers or does not deliver a reward, and there is a brief time interval before the next trial begins (McClannahan & Krantz, 1997). In some of the early applications of behavior analysis to autism intervention, discrete-trial teaching was virtually the only instructional procedure used (see Lovaas, 1977), and it is still widely used. Some of its important contemporary uses are teaching "readiness" skills (e.g., sitting quietly and looking at the instructor), motor- and verbal-imitation repertoires, and receptive-language tasks (e.g., pointing to objects or pictures). Many children who are exposed to lengthy discrete-trial teaching sessions respond with aggression or self-injury (Horner, Day, Sprague, O'Brien, & Heathfield, 1991), noncompliance (Mace et al., 1988), tantrums (Lovaas, 1977), or stereotypy. Often, these problems can be minimized by interspersing brief periods of discrete-trial instruction with other types of learning experiences, such as using computer software, independently practicing emerging skills (e.g., handwriting, spelling, bike riding), or following photographic or written activity schedules in the absence of verbal prompts from instructors (McClannahan & Krantz, 1999).

Although opportunities to respond are a relevant feature of good intervention programs, they are only one of many key features, and discrete-trial instruction is only one of several ways to provide opportunities to respond. In our setting, we count the number of opportunities to respond that staff members deliver during five-minute observation periods, and we invite staff members to predict the level of opportunities to respond that they will use during specific activities (this promotes correspondence between "saying" and "doing," which is important to the development of good intervention skills). Predictions are indexed to three levels: Low (zero to seven opportunities in five minutes), moderate (eight to fourteen opportunities), or high (fifteen or more opportunities). These categories are useful only with reference to children's activities. Some activities, such as receptive language development ("Touch your nose/hair/shoulders/knees") and verbal imitation ("Say 'ma,'" "Say 'mama'") call for many opportunities to respond; others, such as certain receptive language programs, call for moderate

levels because the target responses require some time to execute ("Find the refrigerator" and "Touch the dishwasher"); and still other activities, such as keyboarding, writing, dressing, and brushing teeth, call for few or no opportunities to respond (Do we want others to talk to us while we complete such tasks?).

When visiting agencies that serve children with autism, parents and professionals may want to count or, at minimum, informally observe opportunities to respond, not only because they help learners remain engaged, but also because they create occasions for them to practice certain key responses. But it is also important to recall that not all learning activities should be guided by verbal instructions.

Behavior-Descriptive Praise

Nine of the first ten volumes of *Journal of Applied Behavior Analysis* (1968–1977) include one or more articles that describe praise as a reinforcer. In general- and special-education classrooms, praise has been shown to increase appropriate behavior (e.g., Hall, Lund, & Jackson, 1968) and task engagement (e.g., Broden, Bruce, Mitchell, Carter, & Hall, 1970). Unfortunately, for most children with autism, praise is not a functional reinforcer at the outset of intervention; when it is systematically paired with other reinforcers (initially, perhaps, preferred foods and later, tokens), it acquires reward value.

Behavior-descriptive praise statements include both an indication of approval and a specification of the response that is being approved (e.g., "Good, you pointed to the dime," "I like it when you use your napkin"). Such statements also provide good language models that can support next performances. For example, if the teacher instructs "Say 'I want'" and the child responds "I wan" (the child's best-yet approximation), the behavior-descriptive praise "Good, you said 'I want!'" not only indicates approval but also provides a model for the next verbal production.

In addition to confirming that students' responses are correct, behavior-specific praise helps make both staff members' and learners' day-to-day experiences more pleasant. Most people prefer to occupy work environments that feature praise ("Great, you covered your mouth when you coughed!") rather than correction ("Don't sneeze on me! Turn your head!"). Furthermore, because behavior-descriptive praise indicates which responses receive a staff member's attention, it is useful to staff trainers.

Good intervention environments feature behavior-specific praise that supports behavioral receptivity and the shaping of new skills. In such settings, staff members *contingently* deliver praise—that is, they praise correct, socially appropriate responses and do not praise incorrect or inappropriate performances. In addition, they identify certain teaching activities in which praise is likely to be helpful and other activities in which it may not be useful. If verbal prompts are appropriate (e.g., "Five plus two equals seven; say 'seven'" or "Say, 'it's October'") or if the activity features social interaction, behavior-descriptive praise is often a

helpful tool. If verbal prompts are not called for and may produce prompt dependence (e.g., during bathing, shoe tying, or face washing), praise may interrupt or postpone independent performances.

Relationship Building

In autism intervention, just as in social work practice, it is important to build relationships that result in positive social consequences for the people who are receiving help (Pinkston, Levitt, Green, Linsk, & Rzepnicki, 1982). Often, building relationships with children with autism begins when the therapist pairs herself or himself with items or activities that have already acquired reward value, such as preferred snacks or favorite toys. If this is successfully accomplished, the therapist's physical proximity, positive attention, and praise become reinforcers that can be delivered in many different contexts.

It is not difficult to observe staff members' relationship-building repertoires during even a brief visit to an autism treatment program. Individuals with good skills in this area have pleasant facial expressions, smile frequently, and speak enthusiastically to children who are responding correctly, but maintain neutral facial expressions and voice tone when students are displaying inappropriate behavior. When children earn rewards, staff members do not passively observe them playing with preferred toys or engaging in preferred activities; instead, they play *with* them, make friendly comments about the activities, and provide positive physical contact such as light touches, pats, or tickles (if these are rewarding to a child). During transitions from one activity to another (e.g., a walk to another classroom, the drinking fountain, the playground, or the lockers), staff members do not disengage; instead, they use transitions as additional opportunities to provide attention, praise, tokens, and other rewards for appropriate performances. Furthermore, their relationship-building skills are individualized on the basis of each child's observed likes and dislikes. Some children like hugs, and others enjoy tosses in the air; some like to sing and others do not enjoy singing; some like to run or to be chased, and others do not; some are very interested in noise-making toys, and others are fearful of them. Skillful therapists not only deliver highly preferred snacks, toys, or activities but also provide a wide array of rewards, teach children to make choices among the available rewards, and invent new activities that are based on the children's preferences.

In intervention programs of good quality, relationship-building repertoires extend to colleagues and consumers of services. Staff members publicly recognize one another's professional accomplishments, effectively communicate with one another about topics that may have an impact on treatment integrity, and take pride in children's progress. Although a small proportion of people begin their intervention careers with good relationship-building skills, most people develop and enhance these skills as a result of ongoing training and mentoring. Not all organizations foster these behavior patterns; some agency subcultures promote competition rather than cooperation (McClannahan & Krantz, 1993), place

greater emphasis on punishment than reinforcement, or adhere to policies about instructional procedures or curricula that prevent good relationship building and individualization of rewards. When rewards are less frequent or less potent, both children and staff members are less likely to try new responses, and there are fewer opportunities to shape new skills.

Children's Hygiene and Personal Appearance

Prior to intervention, most children with autism have few, if any, personal-care skills. After treatment begins, it may take a considerable amount of instructional time before children achieve criterion performances of skills such as buttoning, zipping, washing hands, blowing one's nose, and taking a shower. In fact, initial instruction often focuses on basic issues, such as learning to use the toilet or cooperating with bathing, hair drying, and dressing.

A child who routinely arrives at a treatment setting with dirty hair, dirty hands and nails, mucous on his or her face, and urine-stained clothing is in a very vulnerable position because professional helpers (like most other members of the community) avoid close physical proximity, physical contact, and associated social attention, although these may be primary components of reinforcers. Therefore, while children are learning self-care repertoires, staff trainers and their trainees must ensure children's good hygiene and personal appearance; failure to do so may erode the effectiveness of their intervention programs and contribute to social disapproval and discrimination. In summary, personal appearance variables, such as clean face and hair, clean nose, unstained hands, absence of sores on hands and face, matching socks, and clean and unstained clothing, may be taken as indicators of program quality (McClannahan, McGee, MacDuff, & Krantz, 1990). The presence of programs to teach zipping, dressing, shoe tying, or nail clipping is important but not sufficient. If children appear dirty and unkempt, the treatment agency is failing to fulfill its mandate.

Social Competence

Social competence, like good personal appearance, helps people with developmental disabilities avoid disapprobation and enjoy a measure of social acceptance. The term *social competence* subsumes a broad array of responses and repertoires, such as sharing, being of assistance, complimenting others, and requesting assistance when appropriate (Walker & Calkins, 1986). Specifically, instructional goals for children who are learning to talk should include "please," "thank you," "excuse me," and "help me" as well as greetings and good-byes. Preschoolers and young children should learn to put away toys and instructional materials, pick up things that they drop, and use wastebaskets and recycling containers. They should also be taught to flush toilets, wash hands at relevant times, use tissues and napkins, tuck in their shirts, zip their pants, and tie their shoes. Teaching children with autism to walk with their hands in their pockets or to carry their own belongings provides alternatives to stereotypic motor movements

such as hand flapping or repetitive finger play and thus enhances others' perceptions of their social competence.

Beyond early childhood, intervention personnel should help children acquire more-advanced social competencies, such as opening doors for others, picking up things that others drop, turning lights on if first to enter a room and turning them off if last to leave, expressing appreciation, and offering to help (McConaughy, Stowitschek, Salzberg, & Peatross, 1989; Salzberg, Agran, & Lignugaris/Kraft, 1986). Learning to request specific types of information and assistance (e.g., "What is this?" "Where should I put it?" "I can't reach it" "Can you show me how to do it?") are skills that are of lasting importance. In addition, a critical area of social competence is learning to complete tasks *at criterion*. If a student cleans his or her desk, is it really clean when the task concludes? After an adolescent shaves, does he appear clean shaven? Is the sink clean? Are the razor and shaving supplies put away?

A social competence curriculum is likely to have far-reaching implications for young people with autism; the evidence suggests that job loss and movement to more restrictive residential settings are often associated with social-skill deficits (Salzberg, Likins, McConaughy, & Lignugaris/Kraft, 1986; Walker & Calkins, 1986). Although not all of the examples of social competence described previously may be noted on a single visit to an intervention agency, one should expect to see some of these skills displayed and others being taught. Claims that these goals are too advanced for enrolled children may represent deficiencies in the curriculum or deficiencies in instructional technology.

Inappropriate Behavior

Effective programs are prosthetic environments that support the development of new skills and help people learn not to display dysfunctional behavior. Therefore, when visiting an autism intervention agency, one may observe a few children who are engaging in disruptive or self-injurious behavior, or perhaps several young people who occasionally display motor stereotypy or vocal noise; one should not expect to see frequent or widespread behavior problems. If dysfunctional behavior is ongoing, the agency is not meeting its responsibilities.

When inappropriate behavior occurs, closely observe the responses of intervention personnel. Under the best of circumstances, they will respond quickly in a manner that appears to be practiced; for example, a teacher or therapist might remove a token from a token board, turn a child's chair away from an activity area, or temporarily remove toys or snacks. In less desirable circumstances, staff members may appear to be embarrassed or uncertain as to how to respond. If the opportunity arises, ask a staff member what he or she is expected to do when problem behavior occurs. Optimal responses will be respectful of children's right to confidentiality but may describe some parameters of agency policy and refer visitors to someone who can answer the question in more detail.

Prevention is at least as important as treatment of severe behavior problems. Research shows that intervention environments that promote high levels of

engagement with activities and other people not only decrease stereotypy, aggression, self-injury, and other inappropriate behavior (Konarski, Favell, & Favell, 1992; Krantz, MacDuff, & McClannahan, 1993) but also prevent their development (Reid & Green, 1998). This is an important reason for the examination of individual and group engagement, as discussed previously in this chapter.

Other indicators of prevention that can be observed during introductory visits to an agency are (a) the fact that there is far more attention to appropriate behavior than to inappropriate behavior, (b) children are frequently rewarded for displaying new skills, and (c) children have many opportunities to make choices. Of course, meaningful choices are individualized; very young children, children who recently entered treatment, and children with the most severe disabilities may select one of two snacks or toys. Others may choose from a broad array of activities or respond to nonspecific questions such as, "What would you like to do?" An important body of research indicates that when people with developmental disabilities have regular opportunities to make choices of preferred items and activities, they are less likely to engage in problem behavior (Lancioni, O'Reilly, & Emerson, 1996).

Family Participation in Intervention

It is well established that the therapeutic gains of children with autism often fail to generalize from the treatment setting to home and community settings or from intervention agents to parents, siblings, and relatives. It is also true that new skills acquired in home-based programs often do not transfer from home to the special education classroom or park or from the home therapist or parent to a grandparent or classroom aide. Baer (1999) notes that, "no one learns a generalized lesson unless a generalized lesson is taught" (p. 1); this axiom is especially relevant to people with autism.

Responsible treatment agencies include parents as partners in intervention, because it is unlikely that desirable outcomes can be achieved without their participation. Learning to set a table in the treatment center is not relevant in the absence of programming to promote skill generalization to home (and to successfully accomplish this, it may be necessary to know how many family members are present for breakfast or dinner, what condiments the family uses, or whether they use placemats). Initiating conversation with a therapist is of little value unless the social interaction program includes provisions for achieving skill transfer from therapist to parents. Learning to use the toilets at school and to buy snacks at the school store are splinter skills unless intervention agents take specific steps to ensure that the child can use the toilets at home, at church, and at the shopping center and can make purchases at the places his or her parents regularly shop. In summary, any curriculum for a child with autism is likely to be nonfunctional unless it is individualized to reflect his or her family members' interests, preferences, and usual activities and unless skill generalization is actively programmed to parents, siblings, and relatives and to home and community settings.

When selecting a treatment resource, a key evaluation dimension is an agency's expectations, policies, and procedures about family members' roles in intervention. Ideally, agency personnel encourage parents to advocate for their children, to give them key roles in selecting intervention goals, to provide instruction and hands-on training that enable them to be effective partners in intervention, and to support and reinforce their participation (Pinkston, et al., 1982). Agencies that discourage parent involvement are unlikely to represent good choices; treatment personnel come and go, but parents' responsibilities continue.

DISCUSSION AND IMPLICATIONS FOR PRACTICE

Although the well-documented practices described in the preceding paragraphs may be helpful indicators of program quality, there are some more general characteristics of intervention that are also predictive of positive outcomes for children. Two of these are age at intervention and program intensity: Treatment that begins earlier in a child's life and delivers many hours of intervention per day, week, or year is likely to produce greater benefits than intervention that begins later in life and delivers fewer hours (Jacobson et. al., 1998; Ramey & Ramey, 1998). These data set agendas for educating parents as well as pediatricians and other professionals in order to achieve increasingly early diagnoses and placements and for advocating for increased federal, state, and health insurance funding of early and intensive intervention. There is a growing body of data to support these initiatives. For example, Jacobson et al. (1998) report that, of children with autism who receive competently delivered, early, intensive behavioral intervention, 20 percent to 50 percent achieve normal functioning; 40 percent achieve meaningful, moderate gains; and only 10 percent continue to need intensive services in adulthood. These figures represent positive outcomes for children and families and substantial cost savings for government funding agencies.

A third indicator of program quality is the use of many versus few behavioral intervention procedures. In the best of circumstances, children with autism have opportunities to learn in many different ways that are defined by many different but well-documented procedures, such as discrete-trial training, incidental teaching, peer tutoring, video modeling and imitation, and use of photographic or written activity schedules (Krantz, 2000). Programs that confine their intervention efforts to single procedures and ignore the richness and depth of contemporary, empirically based practice may prevent children with autism from taking advantage of the wealth of learning opportunities available to their siblings and typical peers.

REFERENCES

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Anderson, S. R., Taras, M., & Cannon, B. O. (1996). Teaching new skills to young

children with autism. In C. Maurice, G. Green, & S. C. Luce (Eds.), *Behavioral intervention for young children with autism: A manual for parents and professionals* (pp. 181–194). Austin, TX: Pro-Ed.

Baer, D. M. (1999). *How to plan for generalization.* Austin, TX: Pro-Ed.

Broden, M., Bruce, C., Mitchell, M. A., Carter, V., & Hall, R. V. (1970). Effects of teacher attention on attending behavior of two boys at adjacent desks. *Journal of Applied Behavior Analysis, 3,* 199–203.

Delquadri, J. C., Greenwood, C. R., Stretton, K., & Hall, R. V. (1983). The peer tutoring spelling game: A classroom procedure for increasing opportunity to respond and spelling performance. *Education and Treatment of Children, 6,* 225–239.

Green, G. (1996). Early behavioral intervention for autism. In C. Maurice, G. Green, & S. C. Luce (Eds.), *Behavioral intervention for young children with autism: A manual for parents and professionals* (pp. 29–44). Austin, TX: Pro-Ed.

Greenwood, C. R. (1999). Reflections on a research career: Perspective on 35 years of research at the Juniper Gardens Children's Project. *Exceptional Children, 66,* 7–21.

Hall, R. V., Lund, D., & Jackson, D. (1968). Effects of teacher attention on study behavior. *Journal of Applied Behavior Analysis, 1,* 1–12.

Harris, S. L. (1983). *Families of the developmentally disabled: A guide to behavioral intervention.* New York: Pergamon Press.

Horner, R. H., Day, H. M., Sprague, J. R., O'Brien, M., & Heathfield, L. T. (1991). Interspersed requests: A nonaversive procedure for reducing aggression and self-injury during instruction. *Journal of Applied Behavior Analysis, 24,* 265–278.

Jacobson, J. W., Mulick, J. A., & Green, G. (1998). Cost-benefit estimates for early intensive behavioral intervention for young children with autism: general model and single state case. *Behavioral Interventions, 13,* 201–226.

Kamps, D. M., Dugan, E. P., & Leonard, B. R. (1994). Enhanced small group instruction using choral responding and student interaction for children with autism and developmental disabilities. *American Journal on Mental Retardation, 99,* 60–73.

Koegel, R. L., Russo, D. C., & Rincover, A. (1977). Assessing and training teachers in the generalized use of behavior modification with autistic children. *Journal of Applied Behavior Analysis, 10,* 197–205.

Konarski, E. A., Jr., Favell, J. E., & Favell, J. E. (1992). *Manual for the assessment and treatment of the behavior disorders of people with mental retardation.* Morganton, NC: Western Carolina Center Foundation.

Krantz, P. J. (2000). Commentary: Interventions to facilitate socialization. *Journal of Autism and Developmental Disorders, 30,* 411–413.

Krantz, P. J., MacDuff, M. T., & McClannahan, L. E. (1993). Programming participation in family activities for children with autism: Parents' use of photographic activity schedules. *Journal of Applied Behavior Analysis, 26,* 137–138.

Lancioni, G. E., O'Reilly, M. F., & Emerson, E. (1996). A review of choice research with people with severe and profound developmental disabilities. *Research in Developmental Disabilities, 17,* 391–411.

Lovaas, O. I. (1977). *The autistic child: Language development through behavior modification.* New York: Wiley.

Mace, F. C., Hock, M. L., Lalli, J. S., West, B. J., Belfiore, P., Pinter, E., et al. (1988). Behavioral momentum in the treatment of noncompliance. *Journal of Applied Behavior Analysis, 21,* 123–141.

McClannahan, L. E., & Krantz, P. J. (1993). On systems analysis in autism intervention programs. *Journal of Applied Behavior Analysis, 26,* 589–596.

McClannahan, L. E., & Krantz, P. J. (1997). In search of solutions to prompt dependence: Teaching children with autism to use photographic activity schedules. In D. M. Baer & E. M. Pinkston (Eds.), *Environment and behavior* (pp. 271–278). Boulder, CO: Westview Press.

McClannahan, L. E., & Krantz, P. J. (1999). *Activity schedules for children with autism: Teaching independent behavior.* Bethesda, MD: Woodbine House.

McClannahan, L. E., Krantz, P. J., MacDuff, G. S., & Fenske, E. C. (1988). *Staff training and evaluation protocol.* Unpublished manuscript, Princeton Child Development Institute.

McClannahan, L. E., McGee, G. G., MacDuff, G. S., & Krantz, P. J. (1990). Assessing and improving child care: A personal appearance index for children with autism. *Journal of Applied Behavior Analysis, 23,* 469–482.

McConaughy, E. K., Stowitschek, J. J., Salzberg, C. L., & Peatross, D. K. (1989). Work supervisors' ratings of social behaviors related to employment success. *Rehabilitation Psychology, 34,* 3–15.

New York State Department of Health Early Intervention Program (1999). *Clinical practice guideline: The guideline technical report. Autism/pervasive developmental disorders, assessment and intervention for young children (age 0–3 years)* (Publication No. 4217). Albany, NY: Author.

Pinkston, E. M., Levitt, J. L., Green, G. R., Linsk, N. L., & Rzepnicki, T. L. (1982). *Effective social work practice.* San Francisco: Jossey-Bass.

Ramey, C. T., & Ramey, S. L. (1998). Early intervention and early experience. *American Psychologist, 53,* 109–120.

Reid, D. H., & Green, C. W. (1998). *Determining quality outcome indicators in programs for people who have the most significant disabilities.* Morganton, NC: Habilitative Management Consultants.

Salzberg, C. L., Agran, M., & Lignugaris/Kraft, B. (1986). Behaviors that contribute to entry-level employment: A profile of five jobs. *Applied Research in Mental Retardation, 7,* 299–314.

Salzberg, C. L., Likins, M., McConaughy, E. K., & Lignugaris/Kraft, B. (1986). Social competence and employment of retarded persons. In N. Ellis & N. Bray (Eds.), *International Review of Research in Mental Retardation* (pp. 225–257). New York: Academic Press.

Smith, T. (1996). Are other treatments effective? In C. Maurice, G. Green, & S. C. Luce (Eds.), *Behavioral intervention for young children with autism* (pp. 45–59). Austin, TX: Pro-Ed.

Stanley, S. O., & Greenwood, C. R. (1983). How much "opportunity to respond" does the minority disadvantaged student receive in school? *Exceptional Children, 49,* 370–373.

Sundberg, M. L., & Partington, J. W. (1998). *Teaching language to children with autism or other developmental disabilities.* Danville, CA: Behavior Analysts.

Walker, H. M., & Calkins, C. F. (1986). The role of social competence in the community adjustment of persons with developmental disabilities: Processes and outcomes. *Remedial and Special Education, 7,* 46–53.

Wolf, M. M., Risley, T., & Mees, H. (1965). Application of operant conditioning procedures to the behavior problems of an autistic child. *Behavior Research and Therapy, 3,* 113–124.