A Review of McClannahan and Krantz's
*Activity Schedules for Children With Autism:
Teaching Independent Behavior: Toward the
Inclusion and Integration of Children with Disabilities*

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It is no easy task for parents of children with autism to select an appropriate intervention for their child. The popular media are saturated with criticisms and critiques of various treatment options for the disorder (Green, 1996, 1999). Should a parent choose to pursue intervention that is based on applied behavior analysis, he or she may be faced with the further challenge of balancing household and family responsibilities against the task of reading (and understanding) procedures and protocols that may be technically complicated and advanced. Parents are most likely to be successful if they can see the relevance of their reading material for their own situation, if the material does not require advanced technical understanding, and if their child's progress can be easily envisioned from their reading. Lynn McClannahan and Patricia Krantz's *Activity Schedules for Children with Autism: Teaching Independent Behavior* (1999) meets all of these criteria, and is thus a welcome and timely addition to the current compilation of resources on interventions for autism. Books like this will be helpful in behavior analysts' efforts to educate the public of the utility of early behavioral intervention (see Green, 1996, 1999).

The book is intended for readers

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who may have a basic understanding of applied behavior analysis, but advanced understanding is not a prerequisite for successfully implementing the procedures described in this book. Individuals with no background in behavior analysis should be able to acquire a general understanding of how to teach children to use activity schedules. The book is appropriate for parents and professionals who seek to ameliorate some of the deficits and difficulties associated with autism. These include the absence of play and leisure skills, resistance to changes in routine, deficits in social interaction skills, and language and communication delays that can limit choice making (American Psychiatric Association, 1994; McClannahan & Krantz, 1999; Volkmar, Klin, & Cohen, 1997). The instructions for constructing activity schedules and teaching children to use them are clear and concise, and the pictures and illustrative examples in each chapter will facilitate implementation. In most cases, sound justification is provided for teaching in a particular manner or for teaching certain skills first. Busy parents will be pleased to see that activity-schedule teaching can be incorporated naturally into the course of a household's ongoing activities, the end result being a child who engages in leisure activities or household chores in the absence of adult instruction.

Establishing a Schedule-Following Repertoire

Approximately the first half of the book is dedicated to providing a ratio-

nale for the use of activity schedules, as well as the steps necessary to establish a rudimentary schedule-following repertoire. The procedures described were developed and evaluated over the course of several years of research at the Princeton Child Development Institute. The authors define *activity schedule* as a series of pictures or words, each of which is discriminative for the child's completion of some activity. The schedule is usually arranged in a three-ring binder, with pictures or words that are discriminative for either an entire activity or one component of a larger task presented on each page. Reinforcer availability is typically signaled on the last page of the schedule. A proficient schedule follower is a child who, given the initial verbal instructions, "it's time to do your schedule," opens his or her binder, looks at the first page of the schedule, attains the materials for the first activity, completes the activity, returns the materials, turns to and looks at the next page of the schedule, and so forth, until the schedule is completed and a reinforcer is available. The child is able to complete this task in the absence of immediate verbal instructions from a parent or teacher. Thus, activity schedules may facilitate the completion of lengthy response chains and independent transition from one activity to the next (see Krantz, MacDuff, & McClannahan, 1993; MacDuff, Krantz, & McClannahan, 1993).

Scattered throughout the book are poignant descriptions of children with varying combinations of deficits. These vignettes will help to attract and maintain the attention of parents and teachers, for they are certain to remind the reader of children with whom they are familiar. Chapter 1 describes the gains that a child may make after learning to use an activity schedule. These include the acquisition of play skills, the ability to complete household chores, and social interaction skills. The child will learn to make transitions independently from one activity to another without constant adult

monitoring. The authors note that activity schedules may foster choice making, because children can eventually learn to sequence the pictures in their schedule themselves. Also emphasized is the fact that using schedules is a normal part of community life—activity schedules are not unlike calendars, "to do" lists, or appointment books. The chapter closes with brief descriptions of children with autism who have become proficient schedule users and as a result have overcome certain deficits.

Chapter 2 describes the prerequisite skills that must be intact before a child can benefit from an activity schedule. These include figure-background discrimination, identity matching, and matching three-dimensional objects to their two-dimensional representations. The authors provide easily understood directions for assessing a child's abilities in these areas as well as sample data sheets and pictures of stimuli. The rationale for teaching these skills prior to activity-schedule teaching may not seem obvious to readers who are unfamiliar with discrimination teaching procedures. In addition, some parents or teachers may have to devote considerable effort to establishing these rudimentary skills, and the brief description of how to teach them may imply that they can be more readily established than might turn out to be the case. Hence, parents or teachers who work with children with more severe autism or mental retardation could benefit from the inclusion of references as to where they could find more detailed instruction (e.g., Lovaas, 1981). An acknowledgment that establishing these precursory skills may require considerable effort and time in certain cases might also be helpful for some readers. In addition, it seems that some degree of compliance with adult instructions, as well as attending behaviors (such as making eye contact, making eye contact in response to name, sitting at a table, etc.), are also important to the success of activity-schedule teaching. A novice reader may not realize that

these areas should also be addressed. Chapter 2 also offers helpful suggestions for increasing a child's tolerance for manual guidance.

In chapter 3, McClannahan and Krantz explain how to prepare a child's first schedule. It is advised that the first schedule be brief, that it include activities already in a child's repertoire, and that the activities included all have clear endings. The authors provide examples of activities that would be appropriate for children of different ages. Busy parents may find the task of gathering materials and constructing the schedule a bit overwhelming, but the authors depict the task as being easy and fun. A number of suggestions are made that will be especially valuable for those who are inexperienced in making teaching materials for children. These include recommendations on the types of materials that can be used for constructing the schedule, hints for taking pictures of activities for inclusion in the schedule, and tips for storing materials so that the child can retrieve and return the materials easily. The pictures of activity schedules presented in the chapter are also helpful. The authors provide clear directions for delivering reinforcers such as edible items or tokens.

Chapter 3 also describes an important feature of activity schedules, that being a picture (or printed word) that occasions a social interaction with another person. The authors suggest that a social interaction be required for even very young or severely language-delayed children. This way, the child learns to initiate social exchanges, be they in the form of simple vocal phrases, such as "how are you," or "can I have a hug," or simple nonvocal mands, such as exchanging a picture of a desired object for the object itself (e.g., Bondy & Frost, 1993). Often children with autism learn to reciprocate social greetings and answer social questions following many hours of discrete-trial training, but as the authors note, this form of training is not analogous to the natural trade-off of every-

day conversation (see also Sundberg & Partington, 1999). Few other approaches to teaching children to actually initiate social interchanges exist (but see Bondy & Frost, 1993, 1994, 1995, for a description of the picture exchange communication system, which also teaches children to initiate social interactions).

Two specific characteristics of activity schedule teaching are presented in chapter 4. First, some disadvantages of discrete trial teaching are specified, including the fact that it can promote a child's dependence upon adult instruction (see also Sundberg & Partington, 1999). Teaching children to use activity schedules avoids this outcome. Children are instead taught to complete and move between activities independently, in the absence of adult instruction. Second, the authors encourage the use of most-to-least manual prompts in teaching children to use activity schedules. It is suggested that this prompting strategy will prevent a child from making errors and will facilitate the fading of assistance. The authors describe the use of spatial fading and shadowing as prompt-reduction techniques (see Cooper, 1987). Some parents and teachers may be challenged to walk the fine line between preventing errors yet fading guidance. For this reason, some readers may require support from behaviorally oriented professionals to use these procedures successfully.

Chapter 5 makes apparent the necessity of data collection, and provides some examples of data sheets that can be easily adapted for personal use. The directions for using the data sheets, as well as for graphing the data, are straightforward. Helpful suggestions for data-collection problems are provided. The suggestion that a sibling aid in data collection seems particularly promising as a small step towards increasing the sibling's involvement with his or her brother or sister with autism.

Advanced Schedule Following

Once a rudimentary schedule-following repertoire is intact, a child's

newly established skills can be further developed. New avenues of pursuit are characterized in chapter 6. The authors provide instructions for changing the order of pictures in the schedule, introducing new pictures, and gradually decreasing one's proximity to the child so as to facilitate independence. They also provide suggestions for fading prompts and preventing errors. In chapter 7, McClannahan and Krantz explore the possibility of teaching a child to engage in activities that do not have clear endings. Because many leisure activities enjoyed by children without disabilities do not have distinct endings (e.g., listening to music, bicycling, swinging, etc.), the material in this chapter is particularly relevant for fostering a child's community inclusion and participation. The authors provide guidelines for teaching a child to use a timer to guide his or her activity-engagement time, and suggest examples of activities for which a child could use a timer. The authors also describe how timer skills can be transferred from a handheld timer to a microwave clock, and explain the necessity of time-management skills in everyday family life.

Like chapter 7, chapter 8 includes material that is relevant for community integration and participation. In this chapter, the authors describe the use of activity schedules to promote choice making. As previously noted, children with communication impairments seldom have opportunities for choice making. By using activity schedules, children can learn to choose their own reinforcers and choose the sequence of activities specified in their schedule. The authors also illustrate how a child can be taught to deliver his or her own reinforcers. These opportunities approximate the control and autonomy that persons without disabilities are able to exercise in their lives. For this reason, this material will be encouraging for many readers. The scenarios presented of children who have acquired functional choice-making abilities emphasize the implications of establishing choice-making skills (see

also Dyer, Dunlap, & Winterling, 1990; Kennedy & Haring, 1993). The chapter also describes how to condense a child's schedule so that multiple pictures are not necessary to occasion a task, but one picture can be established as discriminative for an entire task.

The focus of chapter 9 is on the introduction of textual cues into a child's activity schedule, so that he or she may eventually learn to use a written schedule. The method described involves the presentation of pictures and words as compound stimuli, with the intensity or size of the picture gradually faded. Preparing multiple pages of compound stimuli might be cumbersome for some readers. Lalli, Casey, Goh, and Merlino (1994) report an alternative approach of establishing conditional discriminations between the picture and its corresponding printed word, such that the printed word can then be substituted for the picture in the child's schedule. This form of instruction may enhance written activity-schedule following without requiring the preparation of many stimuli. Regardless of the method by which a child is taught to use a written schedule, the authors make clear the opportunities afforded to a child once this skill is established. A child may learn to use "to do" lists or appointment books, daily practices that are not uncommon for persons without disabilities.

Chapter 10 includes procedures for expanding upon the social interaction skills described in chapter 3. These include teaching a child to select both an activity and the person with whom he or she would like to complete the activity. Directions are specifically provided for teaching social skills to children who are nonverbal or who have acquired only a few utterances. Much of the recommended instruction revolves around the use of Language Master machines and cards, in which children learn social comments via audiotaped scripts.

Chapter 11 is entitled "Troubleshooting," and contains helpful, encouraging responses to a number of

concerns that parents or teachers might encounter as they teach children to use activity schedules. These include managing stereotypy, fading prompts, reducing errors, teaching picture-object correspondence skills, and controlling boredom. The authors' tone in this section is reassuring; readers may feel some alleviation of anxiety to see the authors acknowledge that they too have experienced difficulties in these areas. The book's appendix includes data sheets for teaching such prerequisite skills as figure versus background discrimination, identity matching, and matching objects to their corresponding pictures. Also included are data sheets for teaching activity schedules and ordering information for the Language Master machines and scripts. The data sheets can be easily extracted from the book for everyday use.

Additional Considerations

There are a few additional points that beginning and advanced analysts may wish to consider regarding this book. First, it may be overly optimistic to expect that parents or teachers who work with children with more severe autism and mental retardation will be able to successfully implement the procedures described in the book, in the absence of other forms of behavioral intervention. Many children with autism are likely to demonstrate challenging behaviors that will undoubtedly interfere with activity-schedule teaching. However, the book does not describe procedures for reducing non-compliance or for increasing direction-following skills. It may be important for novice readers to be referred to other valuable sources that will help them gain control over such behaviors (e.g., Foxx, 1982). The inclusion of references on the function-based treatment and assessment of problem behavior would be particularly appropriate (e.g., Carr et al., 1994; Durand, 1990).

A second consideration concerns the age group for which activity-schedule teaching is intended. For the most part,

the authors describe activity-schedule teaching as a tool to be used with children. However, activity schedules are likely to be valuable in fostering the community integration and inclusion of adolescents and adults with autism. The authors mention this and provide a few examples as to how activity schedules might be used to this end, but parents and professionals who work with adolescents and adults could probably benefit from more detailed examples and instructions that are tailored to these age groups. For example, picture schedules are often used to facilitate skill acquisition in vocational settings (e.g., Wacker & Berg, 1983; Wacker, Berg, Berrie, & Swatta, 1985) and have been used to increase engagement in leisure activities in residential settings (e.g., Anderson, Sherman, Sheldon, & McAdam, 1997). Likewise, textual cues have been used to teach basic health-care skills (e.g., O'Reilly & Cuvo, 1989), and written lists have been shown to facilitate independent grocery shopping (Stromer, Mackay, McVay, & Fowler, 1988). Thus, the creative incorporation of activity schedules into adolescent and adult rehabilitation has obvious advantages, and it would be a shame for practitioners working with these age groups to overlook this book because its primary focus is children (see McClannahan, MacDuff, & Krantz, 2002).

In conclusion, *Activity Schedules for Children with Autism: Teaching Independent Behavior* is a clearly written, straightforward description of the procedures used to teach children to use activity schedules. The advantages of teaching children to use activity schedules are made obvious, and the gains that a child might make are described in everyday, nontechnical language. Although some readers may require additional information and professional support, most parents and teachers should be pleased with this book.

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