PREFACE

This volume follows on from our earlier book, *Autism Spectrum Disorders: Applied Behavior Analysis, Evidence, and Practice* (Sturmey & Fitzer, 2007). That volume provided an overview of applied behavior analysis (ABA) and autism spectrum disorders (ASD) and covered both the general features of ABA and their application to all aspects of ASD, including readiness and self-help skills, social behavior, communication skills, maladaptive behaviors, and programmatic issues. Thus, that volume condensed ABA approaches to language acquisition into one chapter (Sigafoos, O’Reilly, Schlosser, & Lancioni, 2007).

Any one chapter, no matter how excellent, can do no more than touch on the issues related to language acquisition. Language acquisition is one of the most important aspects of education and intervention for children and adults with ASD. Parents recognize that a child’s first functional words and the reestablishment of language in a child with ASD who had lost his or her language are major achievements. Many aspects of language—functional speech or other modes of communication, writing, reading, private verbal behavior—are highly valued by education and society for all people. We all pay lots of money and invest our valued time to acquire the verbal behavior needed for education and life. Replacing maladaptive behavior with functional communication is a wonderful and acceptable approach to intervention for maladaptive behaviors. Language acquisition in people with ASD has been a testing ground for nativist and behavioral theories of language acquisition. Further, the quantity of language research in people with ASD is enormous, as shown by the fact that this volume has more chapters than our first overview volume. Finally, there are now many therapists, including both behavior analysts and speech and language pathologists using ABA, specializing in language remediation. There are also commercial products based on ABA, such as Picture Exchange Communication System (PECS), which further help to facilitate language acquisition. Thus, there were many good reasons for a volume dedicated to this one aspect of ABA and ASD.

Language interventions, as with other interventions for children and adults with ASD, are subject to numerous fads, unevaluated treatments, and professional practices without empirical foundation. Smith (1996) noted that some speech and language therapists rarely adopted empirically supported
practices such as ABA with children and adults with ASD. In summarizing the evidence for this approach he concluded the following:

To the author's knowledge, no scientific studies have evaluated whether any form of speech and language therapy, other than behavior analysis, helps children with autism. (p. 48)

Other systematic reviews of the literature have also failed to identify any nonbehavioral approaches to language remediation that are supported by evidence (New York State Department of Health, 1999). This led the Surgeon General of the United States to conclude that ABA is an effective approach to remediation of ASD.

The Collaboration Between Applied Behavior Analysis and Speech Pathology

Although there are speech therapists who practice nonbehavioral approaches to language, there seems to be a trend toward collaboration between the two disciplines, evidenced by the development of The Journal of Speech-Language Pathology and Applied Behavior Analysis, The Speech Pathology and Applied Behavior Analysis Special Interest Group (www.behavioralspeech.com); and even an edition of Language, Speech, and Hearing Services in Schools (2003), a journal published by the American Speech-Language-Hearing Association that showcased articles written by behaviorally oriented researchers. In the prologue to that issue, Sylvia F. Diehl (2003) wrote:

In the past decade, the link between communication and behavior has become exceedingly clear. This link has reemphasized the need for the speech-language pathologist to obtain knowledge of behavioral techniques and to collaborate with behavior management specialists.

The call for collaboration between ABA and speech-language pathology is not limited to speech and language pathologists and therapists. Mareile Koenig, a board-certified behavior analyst (BCBA) and CCC-SLP, and Joanne Gerenser, PhD, CCC-SLP, the Director of Eden II programs for learners with autism and a past president of the New York Association for Behavior Analysis, wrote in the opening article of the first issue of The Journal of
Speech-Language Pathology and Applied Behavior Analysis entitled “Collaborating to Support Individuals With Communication Impairments” that there are numerous benefits to behavior analysts to collaborate with SLPs including “a reduction in the number of reinvented wheels” (p. 5). Collaboration with licensed speech pathologists and therapists can give new insight into many areas that behavior analysts might struggle with when programming for students with autism, including (but not limited to) understanding why a student may sound or speak in a particular way (e.g., begins to talk when vocal cords are not relaxed or where breath is being held when a student is talking) and informing behavior analysts on the developmentally appropriate sequences in which certain sounds are learned. Koenig and Gerenser (2006) give recommendations for collaboration including sharing innovative teaching procedures. In our own practice, collaboration with speech therapists has led to a greater understanding of methods to prompt a learner to make certain sounds, the acquisition of valuable curricula to teach fluency, and guidance in developing operational definitions for target speech and language behavior.

The Guidelines for Responsible Conduct for Behavior Analysts (BACB, 2004) state:

Behavior analysts provide services, teach, and conduct research only within the boundaries of their competence, based on their education, training, supervised experience, or appropriate professional experience. (section 1.03a)

and

Behavior analysts provide services, teach, or conduct research in new areas or involving new techniques only after first undertaking appropriate study, training, supervision, and or/consultation from persons who are competent in those areas or techniques. (section 1.03b)

We would be remiss if we said this book was a complete resource for practitioners who would like to use applied behavior analytic methods to teacher learners with ASD language acquisition. Whether you are from a behaviorally oriented background or have a background in speech-language pathology, consultation with, and ideally supervision by, an experienced behavior analyst and/or licensed CCC-SLP with behavioral orientation is recommended before undertaking some of the more advanced methods of teaching that are described throughout this book.
Organization of the Book

This book is organized into two broad sections. Part I deals with general aspects of language in people with ASD, such as the nature of language impairments, general approaches to language teaching, behavioral conceptions of language, and the evidence base for which approaches are effective. Part II deals with specific programmatic issues including particular intervention questions, such as how to teach specific functions (e.g., mands, tacts, intraverbals, and echoics); specific intervention methods (e.g., discrete-trial training, natural language paradigm, and incidental teaching); and intervening for problematic aspects of verbal behavior (e.g., prosody and maladaptive verbal behavior).

Part I opens with a chapter by the editors. This chapter reviews the elements of diagnostic criteria for ASD that relate to language and goes on to review evidence from empirical studies that illustrate the nature of the differences in language behavior between children with ASD and typical children and children with other developmental disabilities to illustrate the nature of language deficits related to ASD. This chapter goes on to consider assessment of language in ASD and begins to note the differences between typical structural approaches and functional behavioral approaches to assessment. The chapter ends by illustrating the functional approach to language that ABA takes.

Chapter 2 by Jessica Boisjoli and Johnny Matson provides a concise overview of behavioral approaches to intervene with language. This chapter illustrates that common behavioral interventions such as reinforcement, shaping, prompting and fading, extinction, and punishment have all been readily applied to teach and remediate verbal behavior in children and adults with ASD.

In Chapter 3 Claire Poulson provides a lucid and persuasive account of behavioral approaches to language. She contrasts nativist approaches to language, which assume that some occult language acquisition device is immature or broken in people with ASD. According to this account, all we can do is wait for it to fix itself someday. Poulson then systematically defines behaviorism, learning, and language and distinguishes between speech, language, and communication. She then gives a behaviorist account of language and its response to the nativist position. The remainder of her chapter reviews data on typical infant vocal behavior, generalized imitation, and other examples of stimulus control of verbal behavior in infants and children with ASD. The last part of her chapter reviews research on ABA interventions for language
behavior in children with ASD including discrete-trial training, incidental teaching, script fading, the centrality of imitation in language remediation, and the development of a sound system. She argues that generalized imitation occupies a special place in a behavioral account of language both as an explanation for crucial elements of language development and as a vehicle for teaching language.

Earlier we noted the concern over effective language intervention that Smith (1996) raised. In Chapter 4 Oliver Mudford, Erika Ford, and Angela Arnold-Saritepe provide a comprehensive and masterly review of the evidence on this question since Smith's own review. They begin by reviewing the criteria for evidence-based practice for both group and small-n experimental designs. They note the large number of participants that have accumulated in the research literature since the publication of Lovaas's (1985) much-cited study. They conclude that “our brief review of EIBI suggests that it is a well-established intervention for language and communication for many children with ASDs,” but they note that data on efficiency and long-term costs and benefits are lacking when it comes to intervention to address specific language skills, such as echoics, mands, tacts, and intraverbals. Along the way they review the evidence for specific approaches to language intervention, such as PECS, signing, and scripts. They conclude that certain behavioral approaches are “well-established,” meaning there is robust evidence for these approaches, whereas others are “promising,” meaning that there is evidence of effectiveness but insufficient evidence to be very confident of these approaches. Mudford and his colleagues have done us all a great favor in systematically sifting through the evidence. Their conclusions highlight what we currently know and where future research should go.

Part II of the book opens with Jeff Sigafoos, Erik Drasgow, Pieter C. Duker, Mark F. O'Reilly, Giusto E. Lancioni, and Joe Reichle's chapter on general approaches to teaching speech and its prerequisites. They begin by reviewing the requirements for language intervention—a responsive communication partner, entry behavior such as attending, and a good rapport between the teacher and child. They go on to describe a useful curriculum that sequences the skills that children with autism must learn to acquire language and that addresses replacing echolalia.

Learning to request specific reinforcers—manding—is one of the most elementary and useful forms of language behavior. Various forms of educational technology to teach mands appear to have been adopted somewhat widely in autism services. Hence, Erik Drasgow, Jeff Sigafoos, James W. Halle, and Christian A. Martin's chapter on mand training addresses an important issue. They begin by distinguishing accepting and rejecting mands, which they argue are controlled by different independent variables and hence require
somewhat different forms of interventions. They note that very young infants emit nonvocal mands to reject or terminate aversive stimuli and acquire reinforcers. Thus, a nonvocal repertoire of mands exists when beginning to teach vocal mands. They go on to describe assessment of reinforcers, motivating conditions, current mand repertoire, and identification of new mands forms. When new mands are taught they compete with existing mand forms; hence, teaching new mands must address how to reduce existing mands. Drasgow et al. describe a number of principles that are involved in doing this. The final sections of the chapter address making students resilient communicators, expanding mand training, and programming generalization of mands.

ABA has developed a number of approaches to teach behavior including discrete-trial training, a group of methods collectively referred to as the “natural language paradigm,” and incidental teaching. Ruth Anne Reifeldt, Michael Lane, and Jennifer Brosh’s chapter reviews the outcome evidence and staff and parent training literature for these three approaches to teaching language to children with ASD. The authors summarize literature that supports the effectiveness of all three approaches, at least in some contexts, but concludes by noting the limited evidence on training staff and parents in these approaches.

Children with ASD must not merely talk more—they must say the right thing in the right context. Thus, as well as increasing language through contingencies, a wide range of technologies have been developed that facilitate language using stimulus control technology. Bridget A. Taylor and Hannah Hoch review this literature in Chapter 8. After reviewing the basic notions of stimulus control and transfer of stimulus control, Taylor and Hoch review specific technologies to establish and achieve transfer of stimulus control of verbal behavior including most to least prompt fading, time delay, pictorial prompts, textual and auditory prompts, video modeling, and vibratory prompts. This chapter documents a burgeoning and imaginative technology to address stimulus control of verbal behavior in children with ASD.

Language is some of the most complex human behavior, and behavior analysis is challenged to provide an account for how humans categorize and engage in conceptual behavior. Robert Stromer and Rudy Vogt’s chapter, “The Formation and Elaboration of Stimulus Classes,” illustrates the challenge of accounting for this complex phenomenon. Building on the more simple notion of stimulus control, Stromer and Vogt outline what equivalence classes are and relate these ideas to traditional notions of understanding. They review Sidman’s early work on receptive matching, which demonstrated the potential for large amounts of generalization from training correct responding to carefully selected training stimuli and the subsequent extension to teaching reading to children with developmental disabilities.
Their chapter includes a carefully sequenced series of figures that illustrates the gradual development of stimulus classes that incorporate receptive labeling and tactual stimuli. This is complex stuff! But this chapter illustrates both the daunting nature of stimulus classes and the potential for ABA to address these complex forms of behavior.

One of the underresearched areas of language in children with ASD is prosody. Yet, when one listens to a child with ASD speak without appropriate inflection and rhythm, its importance is immediately apparent. Even after teaching children with ASD many aspects of language, their language may still appear quite unusual if they do not have conventional prosody. In Chapter 10, John Brown and Claire Poulson provide an analysis of the features of speech—pitch, rhythm, and loudness—that make up expressive and receptive prosody. Their chapter illustrates some of the difficulties in developing reliable objective measures of prosody and, noting the limited amount of empirical studies in this area, maps out a program of future research into prosody.

Most of this book is about building new language behavior. Yet, we are sometimes concerned with reducing some forms of verbal behavior—for example, when verbal behavior is disruptive, is stigmatizing, or interferes with current appropriate forms of verbal behavior or with the acquisition of new forms of verbal behavior. The next chapter by Peter Sturmey reviews the general approaches used to reduce maladaptive behavior, which are based on functional assessment and analysis and their application to inappropriate verbal behavior in children with ASD specifically. Many of the features of assessing and treating inappropriate verbal behavior in children and adults with ASD are the same as with other populations. However, echolalia and other verbal stereotypies are more common in children and adults with ASD and hence require special attention.

The final chapter in this volume is entitled “Functional Communication Training Intervention.” In it, David P. Wacker, Jay W. Harding, and Wendy K. Berg describe an impressive large-scale application of functional communication training (FCT) to maladaptive behavior. In their chapter they provide both a useful and illuminating case study of the use of FCT. They also provide a thoughtful analysis of FCT as well as very impressive outcome data on treatment of 17 children with ASD and behavior problems from the University of Iowa Functional Communication Project.
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References


