

ABA *for* SLPs

Interprofessional Collaboration
for Autism Support Teams

Joanne E. Gerenser
Mareile A. Koenig



ABA for SLPs

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edited by

Joanne E. Gerenser, Ph.D.

The Eden II Programs
Staten Island, New York

and

Mareile A. Koenig, Ph.D., CCC-SLP, BCBA

West Chester University
West Chester, Pennsylvania

with invited contributors

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About the Editors

Joanne E. Gerenser, Ph.D., Executive Director, The Eden II Programs, Staten Island, New York

Joanne Gerenser is Executive Director of the Eden II Programs, located in Staten Island, New York. She received her doctorate in speech and hearing science from the City University of New York Graduate Center. Dr. Gerenser teaches courses in autism at Temple University, Brooklyn College, and Penn State University World Campus. She is the past chair of the board of the Council of Autism Service Providers as well as the co-chair of the Scientific Advisory Council for the Organization of Autism Research. Dr. Gerenser has authored book chapters and articles on autism and related disorders.

Mareile Koenig, Ph.D., CCC-SLP, BCBA, Professor and Graduate Coordinator, Department of Communication Sciences and Disorders, West Chester University, West Chester, Pennsylvania

Mareile Koenig serves as Professor and Graduate Program Coordinator of Communication Sciences and Disorders at West Chester University in Pennsylvania. She teaches courses on language development and intervention and has consulted to families of learners with autism for more than 25 years. Dr. Koenig served as editor of the *Journal of SLP-ABA*. She participated as Co-chair of the Education/Certification Subcommittee on the Pennsylvania Autism Task Force. She has published papers and delivered presentations on topics related to autism and applied behavior analysis (ABA)–speech-language pathology (SLP) collaboration at regional, national, and international conferences.

About the Contributors

Dana Battaglia, Ph.D., CCC-SLP, Associate Professor, Adelphi University, Garden City, New York

Dr. Battaglia received her bachelor's degree in speech-language pathology from C.W. Post/Long Island University and her master's degree in speech-language pathology from St. John's University in Queens, New York. Dr. Battaglia earned her doctorate in speech-language-hearing sciences at the City University of New York Graduate Center. She is Associate Professor in the Department of Communication Sciences and Disorders at Adelphi University, teaching coursework related to autism spectrum disorder (ASD). She presents at state, national, and international levels while holding consultancies for individuals and organizations serving individuals with ASD.

Andy Bondy, Ph.D., BCBA-D, Behavior Analyst, Pyramid Educational Consultants, Inc., New Castle, Delaware

Andy Bondy has almost 50 years of experience working with children and adults with autism and related developmental disabilities. For more than a dozen years, he served as the director of a statewide public school program for students with autism. He codeveloped the Picture Exchange Communication System (PECS) and designed the Pyramid Approach to Education as a comprehensive combination of broad-spectrum behavior. Dr. Bondy cofounded Pyramid Educational Consultants, Inc., an internationally based team of specialists from many fields promoting the principles of applied behavior analysis within functional activities and an emphasis on developing functional communication skills. He was the recipient of the 2012 Society of the Advancement of Behavior Analysis (SABA) Award for International Dissemination of Behavior Analysis.

Aimee Bord, M.A., CCC-SLP, Sacramento, California

Aimee Bord is a speech-language pathologist trained in the Early Start Denver Model and has worked extensively with children and families with autism. Ms. Bord served as a speech-language pathologist at the University of California Davis

MIND (Medical Investigation of Neurodevelopmental Disorders) Institute and as the lead speech-language pathologist for the Early Start Denver Model Early Steps study and Toddlers with Autism: Developing Opportunities for Learning (TADPOLE) research projects. She works with children and families privately in Sacramento, California.

David A. Celiberti, Ph.D., BCBA, Clinical Psychologist/Behavior Analyst, Association for Science in Autism Treatment, Hoboken, New Jersey

Dr. Celiberti is the part-time executive director of the Association for Science in Autism Treatment (ASAT) and Past President of its board of directors, a role he served from 2006 to 2012. He is the coeditor of ASAT's newsletter, *Science in Autism Treatment*. He received his doctorate in clinical psychology from Rutgers University in 1993. Dr. Celiberti has served on a number of advisory boards and special interest groups in the field of autism, applied behavior analysis (ABA), and early childhood education. He works in private practice and provides consultation to public and private schools and agencies in underserved areas. He has authored several articles in professional journals and presents frequently at regional, national, and international conferences. In prior positions, Dr. Celiberti taught courses related to ABA at both the undergraduate and graduate levels, supervised individuals pursuing Board Certified Behavior Analyst certifications, and conducted research in the areas of ABA, family intervention, and autism.

Frank R. Cicero, Ph.D., BCBA, Assistant Professor and ABA Program Director, Seton Hall University, South Orange, New Jersey

Dr. Cicero is an assistant professor and director of the Applied Behavior Analysis program at Seton Hall University. He is a licensed psychologist and licensed behavior analyst in New York as well as a Board Certified Behavior Analyst. He has more than 23 years of experience working in applied behavior analysis with individuals with autism spectrum disorder, related developmental disabilities, and other behavioral challenges.

Amy L. Donaldson, Ph.D., CCC-SLP, Associate Professor, Portland State University, Portland, Oregon

Amy L. Donaldson is an associate professor in the Department of Speech & Hearing Sciences at Portland State University. Her research focuses broadly on social-communication and perception of social competence in individuals on the autism spectrum and neurotypical individuals. Dr. Donaldson examines intervention efficacy, pre- and postprofessional development, the influence of context on performance, and the experiences of neurodivergent individuals in different contexts.

Lori Frost, M.S., CCC-SLP, Speech-Language Pathologist, Pyramid Educational Consultants, Inc., New Castle, Delaware

Lori Frost is the cofounder of Pyramid Educational Consultants, Inc., and cocreator of the PECS. She is coauthor of the *PECS Training Manual, Second Edition*

(Pyramid Educational Consultants, 2002); *A Picture's Worth: PECS and Other Visual Communication Strategies in Autism, Second Edition* (Woodbine House, 2011); and *Autism 24/7* (Woodbine House, 2008). Ms. Frost has taught international workshops and graduate courses on communication intervention in ASD, PECS, and SLP-ABA collaboration. She consults to schools and families worldwide.

Melanie Olson Giles, M.A., M.Ed., CCC-SLP, BCBA, LABA, Speech-Language Pathologist/Board Certified Behavior Analyst, Endicott College, Beverly, Massachusetts

Ms. Giles is a certified and licensed speech-language pathologist and behavior analyst. She is pursuing her doctoral degree in applied behavior analysis at Endicott College. Ms. Giles has a strong interest in collaboration between speech pathology and behavior analysis.

Jennifer Lynn Hilton, Ph.D., M.Ed., Associate Director, Applied Behavior Analysis Program, Endicott College, Beverly, Massachusetts

Jennifer Hilton received her master's degree in autism and applied behavior analysis (ABA) and her doctorate in ABA from Endicott College. Dr. Hilton has worked in the public education system with a variety of learners over the past 12 years. Her research interests include fluency-based instruction as applied to a variety of different learners as well as evidence-based techniques in higher education.

Jane S. Howard, Ph.D., BCBA-D, Chief Executive Officer, Therapeutic Pathways, Inc., Modesto, California

Jane Howard is a licensed psychologist and a Board Certified Behavior Analyst-Doctoral. She is the cofounder and chief executive officer of Therapeutic Pathways, Inc., an organization that provides evidence-based treatment to individuals with autism spectrum disorder. She has published research focusing on treatment outcomes for children with autism and other developmental delays. In addition to her work as a practitioner, Dr. Howard was a professor of psychology at California State University, Stanislaus, where she trained graduate students in psychology and special education. She also served as Past President of the board of directors of the Behavior Analyst Certification Board.

Lynn Kern Koegel, Ph.D., M.A., CCC-SLP, Clinical Professor, Stanford School of Medicine, Stanford, California

Lynn Koegel and her husband, Robert, are the developers of Pivotal Response Treatment, which focuses on motivation. The Koegels have published extensively and have been the recipients of many awards, including the first annual Children's Television Workshop Sesame Street Award for "Brightening the Lives of Children," the first annual Autism Speaks award for "Science and Research," and the International ABA award for "enduring programmatic contributions in behavior analysis." In addition, Dr. Lynn Koegel appeared on ABC's hit show *Supernanny* working

with a child with autism. The Koegels' work has also been showcased on ABC, CBS, NBC, PBS, and the Discovery Channel. The Koegels are the recipients of many state, federal, and private foundation gifts and grants for developing interventions and helping families with autism spectrum disorder.

Eric V. Larsson, Ph.D., LP, BCBA-D, Executive Director, Clinical Services, Lovaas Institute Midwest, Lecturer at the University of Minnesota, Minneapolis, Minnesota

At the Lovaas Institute Midwest, Dr. Larsson implements the intensive early intervention program using behavior therapy and conducts extensive evaluation research on the program. He engages in active advocacy on behalf of families to gain access to health care coverage for treatment. He teaches courses in behavior analysis and autism at the University of Minnesota.

Tracie L. Lindblad, M.Sc., Reg. SLP (CASLPO), M.Ed., BCBA, Clinical Director, Monarch House, Oakville, Ontario, Canada

Tracie Lindblad is a dually credentialed speech-language pathologist and Board Certified Behavior Analyst with more than 30 years' experience working within school settings and private practice. She has extensive experience working with children, youth, and adults with developmental disabilities, severe challenging behavior, autism spectrum disorder (ASD), complex communication needs, and dual diagnosis. She has presented workshops and training sessions to numerous school boards, agencies, and organizations throughout Canada, the United States, and Europe on a variety of topics related to the fields of speech-language pathology, ASD, augmentative and alternative communication for individuals with complex communication needs, applied behavior analysis (ABA), interprofessional education (IPE), and interprofessional practice (IPP).

Ms. Lindblad has also served as a research investigator on a number of projects within the fields of ABA and speech-language pathology for individuals with developmental disabilities, ASD, and acquired brain injury through partnerships with various local agencies and universities and through Monarch House.

Alison Moors Lipshin, M.A., BCBA, LBA, Educational Consultant, Academy for Precision Learning and Precision Learning Solutions, PLLC, Seattle, Washington

Ms. Lipshin is a passionate and dedicated teacher, behavior therapist, and educational consultant helping to improve the lives of students and their families for more than 25 years. She has had the pleasure of working with a wide variety of private and public school systems throughout the United States and is also very proud of her international work within many developing countries worldwide. She is the program founder for the Academy for Precision Learning, a nonprofit private school in Seattle, Washington. Since 2007, Academy for Precision Learning has been dedicated to the success of all students—including those who are typically developing and those across the autism spectrum—who are learning within an academically challenging and socially vibrant environment.

Joseph P. McCleery, Ph.D., Assistant Professor, Department of Psychology, Saint Joseph's University, and Director of Academic Programs, Kinney Center for Autism Education and Support, Saint Joseph's University, Merion Station, Pennsylvania

Joseph McCleery is Assistant Professor in the psychology department and Executive Director of Academic Programs in the Kinney Center for Autism Education and Support at Saint Joseph's University. He earned an undergraduate degree in psychology from Rutgers University and a master's and doctorate degree in psychology from the University of California, San Diego. Dr. McCleery's research is focused on social, communicative, and emotional functioning and development in individuals with autism spectrum disorder, including the development and testing of behavioral and cognitive-behavioral interventions. Dr. McCleery's research and ideas have been published in leading peer-reviewed journals in the fields of clinical psychology, psychiatry, and neuroscience, and his research has been supported by a number of organizations, including the National Institutes of Health, Autistica, Autism Speaks, the MIND (Medical Investigation of Neurodevelopmental Disorders) Institute, the Economic and Social Research Council, the Leverhulme Trust, and the McMorris Family Foundation.

Mary E. McDonald, Ph.D., BCBA-D, LBA, Professor, Hofstra University, Hempstead, New York

Dr. McDonald is a professor in the special education department at Hofstra University, where she directs the advanced certificate program in applied behavior analysis. Dr. McDonald completed her doctorate in learning theory at the City University of New York Graduate Center and is a Board Certified Behavior Analyst-Doctoral and a licensed behavior analyst. She serves as Associate Executive Director for Eden II's Genesis Program, where she supervises clinical work and research with individuals with autism using applied behavior analysis methodology. She continues to serve the community by serving on advisory boards, presenting nationally, and publishing chapters and articles on topics related to intervention for individuals with autism spectrum disorder.

Ian Terrell Melton, Ph.D., Director of Clinical Services and Adjunct Professor, Endicott College, Beverly, Massachusetts

Dr. Melton received his doctorate from Endicott College in applied behavior analysis. His research interests include evidence-based practices, effective interventions, and ethics of practice in autism spectrum disorder.

Corinne Murphy, Ph.D, BCBA-D, Dean of the College of Education and Behavioral Sciences, Western Kentucky University, Bowling Green, Kentucky

Corinne Murphy currently serves as the Dean of the College of Education and Behavioral Sciences at Western Kentucky University in Bowling Green, Kentucky. Dr. Murphy began supporting individuals with autism and their families over 20 years ago as a member of clinic- and school-based intervention teams. She is a

Board-Certified Behavior Analyst-Doctoral and has held a variety of direct service as well as leadership roles on many interdisciplinary teams.

Daniel Openden, Ph.D., BCBA-D, President and Chief Executive Officer, Southwest Autism Research and Resource Center, Phoenix, Arizona

Dr. Openden serves as the president and chief executive officer for the Southwest Autism Research and Resource Center, an internationally recognized nonprofit organization dedicated to autism research, education, evidence-based treatment, and community outreach to support individuals with autism and their families throughout their lifetimes. As a Board Certified Behavior Analyst-Doctoral, Dr. Openden has expertise in developing training programs for teaching parents and professionals to implement Pivotal Response Treatment. Dr. Openden is an adjunct professor at Arizona State University, is a founding member of the Council of Autism Service Providers, and serves on the Autism Speaks Mission Delivery Committee and the Scientific Council of the Organization for Autism Research.

Sally J. Rogers, Ph.D., Distinguished Professor of Psychiatry and Behavioral Sciences, MIND Institute University of California Davis Medical Center, Sacramento, California

Sally J. Rogers is a developmental psychologist who has been the principal investigator of several autism research programs. These include a 10-year Collaborative Programs of Excellence in Autism project from the National Institute of Child Health and Human Development (NICHD) and two National Institute of Mental Health (NIMH)/NICHD-funded Autism Centers of Excellence network projects. She is the director of an NIMH-funded T32 interdisciplinary postdoctoral training grant for interdisciplinary autism research and a LEND interdisciplinary training grant for professionals in neurodevelopmental disorders funded by the U.S. Department of Health and Human Services. She has carried out major clinical and research activities involving autism at the national and international levels, including past vice presidency and presidency of the International Society for Autism Research, in addition to being an associate editor of the journal *Autism Research*, a member of the Autism Speaks Global Autism Public Health Initiative, and a fellow of the American Psychological Association, the Association for Psychological Science, and the International Society for Autism Research. She was a member of the autism, pervasive developmental disorder, and other developmental disorders workgroup for the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)* (American Psychiatric Association, 2013).

Dr. Rogers has received many awards for her teaching, research, and clinical contributions, including the University of California, Davis School of Medicine Research Award in 2008 and the John W. Jacobsen Career Award from the American Psychological Association in 2013. The intervention model that she first developed with colleagues at the University of Colorado Health Sciences Center, and then elaborated with Geri Dawson and colleagues at the University of Washington

and her own team at the University of California Davis, is internationally known and was recognized by Time.com and Autism Speaks as one of the 10 main medical breakthroughs of 2012. The treatment manual *Early Start Denver Model for Young Children With Autism: Promoting Language, Learning and Engagement* (The Guilford Press, 2010) and the instrumentation for this approach have been translated into many languages and are being used across the globe. The self-help treatment manual for parents, *An Early Start for Your Child With Autism* (The Guilford Press, 2012), was awarded the number one Consumer Health publication of 2012 by the American Journal of Nursing.

Samantha Russo, Ph.D., Director, Intensive Behavior Support Program, Elwyn New Jersey, Media, Pennsylvania

Samantha Russo received her doctoral degree from Endicott College in applied behavior analysis, where she continues as an adjunct professor in the Master's in Applied Behavior Analysis and Autism program. She is the director of the Intensive Behavior Support Program at Elwyn New Jersey, where she works with young adults with autism who engage in severe challenging behavior. Dr. Russo's research interests include functional analysis, feeding disorders, and biofeedback.

Coleen Sparkman, M.A., CCC-SLP, President, Therapeutic Pathways, Inc., Modesto, California

Coleen Sparkman is a licensed and certified speech-language pathologist. She is Cofounder and President of Therapeutic Pathways, Inc., an organization that provides evidence-based treatment to individuals with autism spectrum disorder (ASD). She has published research focusing on treatment outcomes for children with autism. Ms. Sparkman helped write the *Guidelines for Effective Intervention* as a member of the Advisory Committee for the State of California Developmental Disabilities Task Force on Autism Spectrum Disorders. In addition, she was a conceptual reviewer for the National Standards Project, a national task force devoted to the identification of evidence-based treatment for individuals with ASD.

Aubyn C. Stahmer, Ph.D., Professor, University of California, Davis MIND Institute, Department of Psychiatry and Behavioral Sciences, Sacramento, California

Dr. Stahmer has been using and studying naturalistic developmental behavioral early intervention strategies with children with autism spectrum disorder and their families in research and community settings for 30 years. She is an expert in the translation of evidence-based autism research to community-based practice and delivery. The main goals of her research include developing ways to help community providers, such as teachers and therapists, help children with autism and their families by providing high-quality care. She is widely published and a frequent presenter at annual professional meetings in the field of services to children with autism.

Tracy Vail, M.S., CCC-SLP, Speech-Language Pathologist, Let's Talk Speech and Language Services, Inc., Raleigh, North Carolina

Ms. Vail has been working with children with autism since 1982 in a variety of settings, including public schools, private schools, homes, and private practice. She has received postgraduate training in many treatment strategies, including the Social-Communication, Emotional Regulation, and Transactional Support (SCERTS®), Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH), applied behavior analysis, Relationship Development Intervention (RDI), Developmental Individual-difference Relationship-based model (DIR)/Floortime, the Picture Exchange Communication System (PECS), and the Early Start Denver Model (ESDM).

Mary Jane Weiss, Ph.D., BCBA-D, Professor and Director of Programs in Autism and ABA, Endicott College, Beverly, Massachusetts

Mary Jane Weiss is a professor at Endicott College, where she directs the Master's Program in Autism and Applied Behavior Analysis and is a mentoring faculty member in the Applied Behavior Analysis Doctoral Program. Dr. Weiss has worked in the field of applied behavior analysis (ABA) and autism for more than 30 years. Her clinical and research interests center on defining best practice ABA techniques, exploring ways to enhance the ethical conduct of practitioners, evaluating the impact of ABA in learners with autism, teaching social skills to learners with autism, training staff to be optimally effective at instruction, and maximizing family members' expertise and adaptation.

Linda Bezjian Wright, M.A., CCC-SLP/L, BCBA, Clinical Director, Lovaas Institute, Haddon Heights, New Jersey

Ms. Wright is a certified behavior analyst and speech-language pathologist. She has implemented the Lovaas model of applied behavior analysis (ABA) for the past 30 years, after studying under Dr. O. Ivar Lovaas at the University of California, Los Angeles. She is the co-owner of the Lovaas Institute, along with her husband, Scott Wright, and serves as clinical director of the Lovaas Institute's Philadelphia and Southern New Jersey offices. She provides supervision of ABA services, training and mentoring of one-to-one therapists and supervisory staff, and quality control oversight.

Preface

Approximately 25 years ago, the editors of this book met at a conference where one of us was presenting to an audience of speech-language pathologists (SLPs) on the importance of integrating applied behavior analysis (ABA) into their work. That long-ago presentation did not go over well, despite our shared experience with the effectiveness of behavior analytic approaches. This was not because of the content but, rather, because of the delivery. The presentation was perceived as pushy and offensive to the SLPs in the room, and, unfortunately, in many cases, this reinforced their existing dislike of ABA. It was this moment that launched the journey we have been on for so many years. We learned that day that information is only half of the equation. The way this information is delivered is equally important.

The concept of this book was ignited by the two conflicting realities that have been a part of our collective professional experiences as SLPs for more than 25 years. On the one hand, we have both been dedicated to serving individuals with autism spectrum disorder (ASD) within the framework of evidence-based practice (EBP), and empirical evidence for the effectiveness of behavioral interventions has been well established. On the other hand, we have encountered frequent and often fierce resistance to the science of ABA from other colleagues in speech-language pathology. This was accompanied by similar resistance on the part of behavior analysts (BAs) toward EBP in speech-language pathology. We recognized this resistance as a serious problem because individuals with ASD present with primary learning needs that are best addressed by SLPs and BAs through collaborative interprofessional practice (IPP). Through formal surveys and informal conversations with SLPs and BAs across the country, we have discovered that a large portion of the resistance on each side was based on huge misunderstandings on the part of many SLPs about what ABA is and what it is not. Comparable misunderstandings were evident as we interacted with BAs about SLP practices. These findings led us to the realization that major work is needed to support interprofessional education (IPE) as a foundation for IPP involving SLPs and BAs. This book was conceived as a tool in the IPE process.

Misunderstandings held by SLPs about ABA are partly due to the way SLPs have typically been introduced to the science of ABA. Information about this science, including an understanding of strategies based on it, has been delivered to

SLP students in translation by other SLPs rather than directly by BAs. For this reason, all of the chapters of our book are coauthored by an SLP and BA working in collaboration. We believe that this format will lead to a more authentic and yet understandable description of the science of behavior analysis to SLPs who support learners with autism. A bidisciplinary understanding of ABA by SLPs and of SLP by BAs can go a long way toward reinforcing the foundation for IPP. *ABA for SLPs: Interprofessional Collaboration for Autism Support Teams* aims to help readers develop this bidisciplinary understanding.

HOW THIS BOOK IS ORGANIZED

The chapters in this book have been grouped into three sections addressing specific topics. Section I, “Introduction and Overview of Applied Behavior Analysis,” introduces fundamental concepts of ABA to practicing SLPs as well as students in training to become SLPs. Chapter 1, “Interprofessional Collaboration,” by Mareile A. Koenig and Joanne E. Gerenser, explores how professionals within SLP and ABA work together to serve individuals with ASD. In addition to describing historical barriers to effective collaboration, this chapter introduces the IPE/IPP model for collaboration. In Chapter 2, “What Is ABA?” by Corinne Murphy and Mareile A. Koenig, the authors present the origins and core principles of ABA, along with 10 guiding questions BAs use in their day-to-day work. Chapter 3, “Components of Behavioral Teaching,” by Mary E. McDonald and Dana Battaglia, delves deeper into ABA. It defines and explains basic concepts such as stimulus control and reinforcement, along with behavioral teaching strategies, and it discusses their applications for SLPs. Section I’s introduction of ABA concludes with Chapter 4, “Data Collection,” by Mary Jane Weiss, Ian Terrell Melton, Samantha Russo, and Melanie Olson Giles. This chapter provides a thorough overview of the measures, methods, and decision-making processes used in data collection.

Section II, “Applications of ABA Within Programs for Individuals With ASD,” presents several ABA-based intervention models that have proven effective in working with individuals with ASD. Each of these ABA-based intervention models has direct applications for SLPs’ work; in fact, some of the models presented, such as PRT and PECS, emerged from collaboration among professionals from each discipline. This section begins with Chapter 5, “The Lovaas Model of ABA,” by Linda Bejjian Wright and Eric V. Larsson, which explores one of the earliest ABA-based intervention models. Additional applications of ABA are described in Chapters 6, 7, 8, 9, 10, and 11, respectively, including “Pivotal Response Treatment” by Lynn Kern Koegel and Daniel Openden; “Incidental Teaching” by David A. Celiberti and Tracie L. Lindblad; “Verbal Behavior” by Lori Frost and Andy Bondy; “A Guide to the Early Start Denver Model” by Amy L. Donaldson, Sally J. Rogers, Aimee Bord, and Aubyn C. Stahmer; “Precision Teaching and Fluency” by Alison Moors Lipshin, Mary Jane Weiss, and Jennifer Lynn Hilton, and “A Guide to the Picture Exchange Communication System” by Joseph P. McCleery, Lori Frost, and Andy Bondy.

Section III, “Integrating ABA and SLP for Successful Intervention,” is designed to help SLPs synthesize all they have learned in Sections I and II and use this knowledge to collaborate effectively with BAs, thereby improving outcomes for individuals with ASD. Chapter 12, “Integrating Behavior Analytic Concepts With Communication Interventions: ABA Terms, Demystified,” by Tracy Vail and Mareile A. Koenig, provides a model for thinking about traditional communica-

tion intervention from a behavioral perspective. Assessment, which is crucial to both setting goals and measuring progress, is covered in Chapter 13, “Assessment in SLP and ABA,” by Mareile A. Koenig and Corinne Murphy. Considerations for setting objectives and the process of doing so are addressed in Chapter 14, “Behavioral Objectives That Guide Effective Intervention,” by Jane S. Howard and Coleen Sparkman. Chapter 15, “Assessing and Treating Challenging Behavior Within and Beyond Speech Therapy Sessions,” by Joanne E. Gerenser and Frank R. Cicero, discusses how to address severe challenging behaviors associated with ASD to minimize their impact on learning and improve overall quality of life for individuals with ASD. Finally, Chapter 16, “Strategies to Enhance SLP–ABA Collaboration: Working Toward Interprofessional Practice,” by Joanne E. Gerenser and Mareile A. Koenig, reviews the importance of and potential barriers to SLP–ABA collaboration. In addition, this chapter describes components of IPP that have been used successfully in health care and related fields—presenting strategies readers can use to improve collaboration and establish IPP between SLPs and BAs.

Each chapter of this book begins with a set of learning objectives and includes reflection questions, placed throughout the chapter and aligned with the learning objectives, to help readers solidify their understanding of the concepts discussed and apply these concepts to their work. Vignettes illustrate how an SLP or BA would implement the interventions described.

THE POWER OF SLP–BA COLLABORATION

SLPs and BAs have so much to learn from one another, and interprofessional collaboration between the two has so much potential benefit for the individuals with ASD who receive speech-language or behavioral services. As just one example of how SLP–BA collaboration can positively affect people’s lives, we offer an experience shared by one of our colleagues, Melissa Slobin, M.A., CCC-SLP, BCBA/LBA.

Dan’s Story: A Case Study in Collaboration

Dan was an 18-year-old male who was diagnosed with autism and attended his local high school’s self-contained life skills program. Dan used speech and complex sentences to communicate with others. His primary use of language was to request and reject objects and actions. In addition, Dan would ask questions of his teachers and peers in order to obtain information.

Because Dan attended a general education high school, he followed the routine of navigating the crowded halls to make the transition from class to class each day. During this hectic 4 minutes between the first and second bells, students would scurry to their next classes in fear of being late. Dan developed the behavior of asking unusual questions to some students as he passed them in the hallway. He would pose the same series of questions to any student whom he did not know:

- “What is your favorite diner?”
- “What is your middle name?”
- “What is your password?”

This interaction would often evoke laughter, a startled look, or the recipient would simply ignore Dan’s questions. Although some students were kind and compassion-

ate regarding Dan's disability, it did not make his seemingly strange questions any more acceptable.

In due time, the reactions of others resulted in an increase in Dan's perseverative and challenging behavior. In addition, he made a spectacle of himself and developed a reputation as the kid who was trying to break into everyone's accounts.

As an SLP, I recognized the function of Dan's language. Even though he was not pragmatically appropriate, so to speak, he was trying to obtain information from others. I was not well versed in the functions of behavior, however, at that time. In collaboration with his BA, I learned that Dan was trying to obtain the attention of others, and he did not have the necessary skills to initiate a conversation in a socially appropriate manner. Nevertheless, appropriate topic initiation with peers became one of his pragmatic language goals during his speech sessions.

Following behavior analytic principles, we used written scripts and script-fading procedures to teach Dan to initiate with his peers. Proper initiation was practiced using role play during his therapy sessions, and his data was graphed and analyzed over time. Through collaboration between the SLP and the BA, Dan learned appropriate ways to start a conversation in a therapy situation, which over time generalized to interactions with his peers in other settings. In addition, Dan was taught to self-monitor his behavior of asking inappropriate questions, which was an effective tool in decreasing this behavior.

Although this SLP-ABA collaborative example may seem somewhat elementary, the outcome was significant for Dan. He not only gained several new friends, but the overall student population also eventually affectionately accepted him as a peer. Ultimately, my collaboration with his BA enabled my speech sessions to be significantly more effective. This positive interdisciplinary relationship also inspired me to obtain my BCBA certification.

CLOSING THOUGHTS

As we have both spent the better part of our professional lives intersecting across the fields of speech-language pathology and ABA, we greatly value what we have learned from both disciplines. Our work with children and adults with autism has benefitted from our interprofessional collaboration with both BAs and SLPs. At the same time, despite the value and importance of bringing these two disciplines together, it sometimes seems that just the opposite is happening. We see this missed opportunity for connection and collaboration as a tremendous loss to the autism community. We hope that this book will serve as a vehicle to open up the important conversations and dialogue that need to happen among the different and essential disciplines that support individuals with ASD.

Acknowledgments

This book would not have been possible without the generous contributions of our chapter authors. We sought to have each chapter coauthored by a speech-language pathologist (SLP) and a behavior analyst (BA) for the sake of authenticity and in the interest of modeling the spirit of interprofessional practice (IPP). Everyone we reached out to for participation was both excited and eager to contribute to this project. We know how busy all of you are and are so grateful that you took the time out of your already hectic lives to write a chapter for this book.

We must also express our sincere gratitude for the team at Paul H. Brookes Publishing Co. Specifically, we would like to thank Tess Hoffman, Astrid Pohl Zuckerman, and Stephanie Henderson for their thoughtful feedback and the enthusiasm with which they approached this project. They were both sufficiently patient and demanding to make sure we were able to bring this book to the finish line.

In the early years of our work, only a small handful of SLPs collaborated successfully with BAs. Today, we are so grateful to have a large group of talented and bright professionals in both fields who share their experiences, challenges, ideas, and opinions daily on the Speech Pathology–Applied Behavior Analysis, or SPABA, Facebook page. We especially want to thank Nikia Dower for all the time she devotes to moderating this very active group and all of the participants of this group who post their questions, comments, articles, ideas, and much more. SPABA members provided constant motivation for us as we worked on this project, and the issues debated by this group provided a strong reminder of why this book needed to be written in the first place.

We would both like to thank all of the children and adults with autism spectrum disorder as well as their families who we have had the privilege of working with across the years. They have taught us more than we can express, and most important, they have taught us that we must put our egos and biases aside in order to truly remember what is important.

To the staff, families, participants, and board members of the Eden II Programs, thank you for providing me with such a great place to work all of these years. You have taught me the true meaning of interprofessional collaboration and teamwork. To Mareile, thank you for always challenging me to be better and to be the voice of reason when I can't seem to find any. To all of the behavior analysts and speech-language pathologists who have been willing to get together and create great things, you will always be my inspiration. ~*JG*

I'd like to thank the children with ASD, their families, and the therapists with whom I have had the privilege of working over the past 30 years. Thank you to my tribe, the Unicorns, and all members of SPABA who inspire me daily and enhance every professional conference I attend. Thank you to my Department of Communication Sciences and Disorders colleagues at West Chester University, who have welcomed my dedication to the science of behavior analysis. And Joanne, thank you for your constant influence on so many levels. I truly cherish your insights, humor, engaging communication style, passion for Ohio State University football, and so much more. Prost! ~*MK*

I

Introduction and Overview of Applied Behavior Analysis

1

Interprofessional Collaboration

Mareile A. Koenig and Joanne E. Gerenser

LEARNING OBJECTIVES

After completing this chapter, the reader will be able to

- Describe and distinguish between the services provided by both speech-language pathologists (SLPs) and behavior analysts (BAs)
 - Discuss the ways that both SLP and BA services support individuals with autism spectrum disorder (ASD)
 - Explain why it is important for SLPs and BAs to understand the foundations of both disciplines and collaborate together effectively
 - Understand historical barriers to collaboration between SLPs and BAs
 - Understand guidelines for effective SLP–BA collaboration and list ways to apply these guidelines in practice
-

Children with ASD present with a complex range of needs, and it takes a village to support those needs. The family is at the center of the village, and professionals who support the family typically include educators, SLPs, BAs, and many others, depending on a child's specific profile. The strength of this support system rests not only on the expertise of individual professionals but also on the degree to which professionals from different disciplines collaborate with each other. This chapter focuses specifically on collaboration between SLPs and BAs in the service of children with ASD. It 1) briefly highlights selected symptoms of ASD that can be supported by the overlapping services of SLPs and BAs, 2) summarizes the range of services provided by SLPs and BAs, 3) discusses the importance of SLP–BA collaboration, 4) addresses barriers to collaboration, and 5) introduces guidelines for supporting the collaboration process.

WHY CHILDREN WITH ASD NEED SLP AND ABA SUPPORT SERVICES

Consider the example of Katrina as an illustration of how and why SLPs and BAs need to work together to support children with ASD.

Managing Katrina's Behavior: SLP–BA Collaboration

Katrina is a 4-year-old with ASD who receives center-based early intervention in a small classroom, five mornings per week. The SLP's role within Katrina's classroom is to engage small groups of students in a routine circle activity. Whenever Katrina is present, however, she kicks and scratches the students sitting on either side, which disrupts the small-group activity and is a safety hazard. The SLP attempts to manage Katrina's behavior by increasing the space between children, grouping her with different children, redirecting her attention, and blocking her challenging behaviors. Regardless of the intervention, Katrina's behaviors always escalate, however, until the SLP sends her to time out.

When the SLP consults with a resident BA for advice on managing Katrina's behavior, the BA conducts a **functional behavior assessment (FBA)**. The FBA results indicate that Katrina's kicking and scratching function as a means of allowing her to escape the group activity. The BA recommends **functional communication training (FCT)** for teaching Katrina an appropriate way to request a break. The SLP assists by recommending the appropriate communication modality (in this case, a visual "break" card). The BA assists in follow-up by designing a behavioral program for gradually increasing the length of Katrina's circle participation time once she has learned to request breaks consistently without kicking or scratching. Katrina learns to participate in the complete group circle event without incident within 3 weeks.

ASD is characterized in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013)* by "a persistent deficit in social communication and social interaction" (p. 50) and by the presence of "restricted, repetitive patterns of behavior, interests, or activities" (p. 50). Clearly, deficits in social-communication are a central feature of this disability. The profiles of individual children with ASD vary widely depending on 1) the number and severity of symptoms associated with each of these deficit areas and 2) the presence or absence of disabilities that may accompany ASD, such as intellectual impairments, atypical responses to sensory stimulation, sleep disturbances, and obsessive compulsive behavior. An exhaustive description of ASD is beyond the scope of this chapter. A brief consideration of selected communication deficits is provided, however, to illustrate the need for overlapping support from SLP and applied behavior analysis (ABA) professionals.

Children with ASD generally do not spontaneously acquire adaptive communication skills at the same rate or with the same range of expression as typically developing children. Most will learn a variety of means to express themselves when they are provided with support, but their primary communication modalities may vary. Some will learn to use speech and language as a primary means of communication. Others will learn to use augmentative and alternative communication (AAC) systems, such as manual sign language, the Picture Exchange Communication System (PECS; Frost & Bondy, 2002), or computer-assisted speech-generating devices (SGDs). Learning to use communication signals appropriately in social

contexts is challenging for all, regardless of the modality; and learning to express a normal range of semantic content and use more advanced linguistic forms is challenging for most.

Like typically developing children, many children with ASD begin to communicate at a prelinguistic level, either through direct manipulation of their caregivers or by using nonlinguistic vocalizations that are interpreted by caregivers as communication signals. Children with ASD, however, present with deficits in the development of **joint attention**—that is, the ability to share attention to an object or other stimulus simultaneously with another person. Joint attention is a crucial context for language learning (e.g., Dominey & Dodane, 2004; Tomasello & Farrar, 1986). Some children may learn to use conventional signals in an atypical manner without strategic environmental support, as seen in the case of children who use echolalia. They may use idiosyncratic vocal or nonvocal signals that are difficult for others to interpret, or they may produce challenging behavior (e.g., hitting, pinching, kicking, eloping, screaming) to achieve their goals when other signals are unavailable or ineffective. For example, a child may learn to use hitting as a means for escaping a nonpreferred or difficult task. Challenging behavior may also occur if the skills required for the use of specific communication signals exceed a child's performance repertoire or his or her motivation. For example, it may be easier for a child to kick or pinch than to say, "I need a break." Support for the prevention/reduction of challenging behavior and for the use of adaptive functional communication skills requires expertise in two areas:

1. Systematic analysis of environmental variables (antecedents, consequences)
2. Selection of appropriate replacement behaviors (e.g., Carr & Durand, 1985; Keen, Siagfoos, & Woodyatt, 2001).

In ABA, **antecedents** are events that occur immediately before the target behavior, and **consequences** are events that immediately follow it. A **replacement behavior** is a socially appropriate behavior a child is taught to use instead of a challenging behavior (e.g., a child may learn to raise his or her hand to request a break instead of kicking or punching someone).

Instruction does not always progress smoothly when children receive support for communication development. For example, children may pay attention to irrelevant stimuli, or they may lack the motivation to perform a particular task. Thus, children may need to alter their behaviors (e.g., focusing on a task rather than irrelevant distractions, performing a task that is not intrinsically motivating to them) for communication instruction to be effective. Sundberg (2014) described 23 different barriers to learning that may be observed during language instruction. The identification and reduction of these barriers requires expertise in behavior analysis. Barriers to language learning may continue to develop and become increasingly more difficult to manage without this type of support.

Clearly, supporting the communication needs of children with ASD involves professionals with expertise in communication modalities (e.g., speech, language, AAC), communication processes, linguistic forms, developmental sequences, and the use of interventions to promote development. It also requires professionals who are skilled in the analysis of behavior and in the application of positive behavior support procedures for preventing and reducing the performance of maladaptive behavior used to communicate. As a whole, these needs involve the combined

expertise of SLP and BA professionals. The next section provides a brief overview of the expertise offered by both groups of professionals to support these needs.

REFLECT *What communication and behavior challenges are commonly associated with ASD? Why is a child with ASD likely to need services from both an SLP and a BA?*

CREDENTIALS AND SCOPES OF PRACTICE: SLPs AND BAs

A scope of practice typically defines the breadth of service that providers are permitted to undertake in keeping with the terms of their professional credentials. The credentialing bodies for SLPs and BAs are the American Speech-Language-Hearing Association (ASHA) and the Behavior Analyst Certification Board (BACB), respectively. The following paragraphs summarize the credentials, range of service delivery, and service delivery strategies used by SLP and BA service providers, followed by a summary of similarities and differences.

SLP Credentials and Service Delivery

Members of ASHA are individuals who have earned the Certificate of Clinical Competence in SLP (CCC-SLP) after completing a graduate degree in SLP, passing a standardized national professional exam, and performing up to standards during a supervised clinical fellowship period. The SLP Scope of Practice (ASHA, 2016d) states that the overall objective of SLP service delivery is to enhance the quality of life by assisting individuals across the life span through **evidence-based practice (EBP)** to improve impaired communication and swallowing skills using strategies based on research evidence, clinician expertise, and family values. The domains of SLP service delivery and the service delivery areas specified by the SLP Scope of Practice are summarized in Tables 1.1 and 1.2.

The service delivery strategies used by SLPs are grounded in the principles of EBP (ASHA, 2005). The term *EBP* refers to an approach in which current, high-quality research evidence is integrated with practitioner expertise and client preferences and values into the process of clinical decision making to provide high-quality services reflecting the interests, values, needs, and choices of the individuals served. In this context, high-quality research evidence can be derived from a wide range of disciplines with different conceptual frameworks, including SLP, ABA,

Table 1.1. Domains of SLP service delivery (American Speech-Language-Hearing Association, 2016d)

Collaboration
Counseling
Prevention and wellness
Screening
Assessment
Treatment
Modalities, technology, and instrumentation
[Supporting] populations and systems [in gaining access to/providing service delivery]

Table 1.2. SLP service delivery areas

Fluency (stuttering, cluttering)
Speech production (motor planning and execution, articulation, phonological)
Language (spoken, written, listening, reading)
<ul style="list-style-type: none"> • Phonology • Morphology • Syntax • Semantics • Pragmatics
• Prelinguistic communication (joint attention, intentionality, communicative signaling)
• Paralinguistic communication (gestures, signs, body language)
• Literacy (reading, writing, spelling)
Cognition (attention, memory, problem solving, executive functioning)
Voice (phonation quality, pitch, loudness, alaryngeal voice)
Resonance (hypernasality, hyponasality, cul-de-sac resonance, forward focus)
Feeding and swallowing (oral phase, pharyngeal phase, esophageal phase, atypical eating—food selectivity/refusal, negative physiologic response)
Auditory habilitation/rehabilitation
<ul style="list-style-type: none"> • Speech, language, communication, and listening skills affected by hearing loss and deafness • Auditory processing

From AD HOC Committee on the Scope of Practice in Speech-Language Pathology. (2016). *List of speech-language pathology service delivery areas* (pp. 13–14). Rockville, MD: American Speech-Language-Hearing Association; adapted by permission.

developmental psychology, developmental psycholinguistics, education, literacy, and others. Many of the evidence-based strategies used to assess the communicative performance of children, however, are based on developmental sequences, and many of the teaching strategies are behavioral (e.g., Hegde & Maul, 2006; Paul & Norbury, 2012).

REFLECT *How do you or your colleagues use, or plan to use, EBP in working as SLPs? What practices or strategies do you use that are based in ABA?*

BA Credentials and Service Delivery

With some exceptions, BA service providers are individuals who have earned one of three credentials offered by the BACB. The two credentials representing the highest and most autonomous levels are the Board Certified Behavior Analyst-Doctoral (BCBA-D) and the Board Certified Behavior Analyst (BCBA). Both are earned by completing graduate degrees in behavior analysis, education, or psychology; passing a standardized national professional exam; and meeting performance standards during a defined period of supervised clinical practice. The BCBA-D requires the completion of a doctorate in behavior analysis, whereas the BCBA requires a master's degree. The third credential is the Board Certified Assistant Behavior Analyst (BcABA). Individuals with this credential may practice only under the supervision of individuals with either of the other two BCBA credentials. In this chapter, for the sake of simplicity, our use of the term *BA* will be restricted to those individuals with either of the graduate-level BCBA credentials. It should

Table 1.3. Dimensions of behavior analysis

Dimension	Description
Applied	Target behaviors must be socially significant.
Behavioral	Behaviors must be observable and measurable.
Analytic	Intervention must demonstrate the controlling variables of which the target behavior is a function. This can be done through time-series research designs (e.g., multiple baseline, reversal, alternative treatments), and the data are used for making programming decisions.
Technological	Procedures must be described accurately, clearly, and concisely so that they can be replicated by others.
Conceptual systems	Consistent with principles that have been determined to be effective as documented in the literature (e.g., stimulus control, extinction, reinforcement).
Effective	Interventions must produce pragmatic behavior change, and the change must be large enough to produce socially significant results for the individuals affected by the intervention.
Generality	Interventions must be reproducible in a variety of behaviors and settings.

Source: Baer, Wolf, and Risley (1968).

be noted, however, that there are also highly competent BAs who have not earned certification from the BACB. These are individuals at the doctoral and master's levels who were practicing behavior analysis long before the BACB began offering certifications and simply did not choose to earn the certification.

The BACB does not define a scope of practice per se, but a general description of services provided by BA professionals can be found on the BACB web site (BACB, 2018). Broadly speaking, the BACB defines ABA as a systematic approach for influencing socially important behavior through the identification of reliably related environmental variables and the production of behavior change techniques that make use of those findings. BA professionals deliver services consistent with the seven critical dimensions of ABA defined by Baer, Wolf, and Risley (1968). These dimensions are summarized in Table 1.3, and they are discussed further in Chapter 2. The services provided by BA professionals have application across a wide range of human concern, including but not limited to managing the behavioral deficits and excesses of individuals with ASD.

A more detailed description of behavior analytic tasks can be found in the Fourth Edition Task List for individuals preparing to meet the standards of certification (BACB, 2013). The Task List is divided into three sections: 1) Basic Behavior-Analytic Skills, covering a set of commonly used procedures that practicing BAs will perform with some, but probably not all, clients; 2) Client-Centered Responsibilities, including tasks related to working with all clients, and 3) Foundational Knowledge, including concepts that should be mastered prior to entering BA practice. Table 1.4 summarizes key skill areas associated with each section.

Although a detailed description of the Fourth Edition Task List is beyond the scope of this chapter, it is relevant to note that skills related to collaboration with other professionals are included within Section II of the Task List. Specifically, Skill G-07 indicates that BAs must learn to “provide behavior analytic services in collaboration with others who support and/or provide services to one’s clients” (BACB, 2013, p. 6).

Table 1.4. Summary of skills associated with each section of the Fourth Edition Task List

Task List section	Concept
I: Basic Behavior-Analytic Skills	A. Measurement B. Experimental Design C. Behavior-Change Considerations D. Fundamental Elements of Behavior Change E. Specific Behavior-Change Procedures F. Behavior-Change Systems
II: Client-Centered Responsibilities	G. Identification of the Problem H. Measurement I. Assessment J. Intervention K. Implementation, Management, and Supervision
III: Foundational Knowledge	<ul style="list-style-type: none"> • Explain and Behave in Accordance with the Philosophical Assumptions of Behavior Analysis • Define and Provide Examples of [basic behavioral concepts] • Distinguish Between the Verbal Operants

Source: Behavior Analyst Certification Board, Inc. (2012).

REFLECT *Identify a behavior that an SLP or BA might choose to work on with a child who has ASD. This can be a behavior the practitioner wants to teach or increase or one the practitioner wants to decrease. Referring to Table 1.3, describe*

- *How this behavior is socially significant*
- *How it is observable and measurable*
- *The intervention a practitioner might use to increase or decrease the behavior*

There is a tendency for individuals who are unfamiliar with ABA to view the service delivery strategies of BAs as consisting of **discrete trial instruction (DTI)** or interventions collectively known as the **Verbal Behavior Approach (VBA)** (e.g., Barbera, 2007). In brief, *DTI* can be defined as repeated opportunities to practice a target response following a given antecedent (e.g., an instruction) and consequated by performance feedback (e.g., “nice work”) as described in Chapter 5. The *VBA* refers to the application of behavior analysis for teaching the full range of basic **verbal behavior (VB)** functions described in Chapter 8. Although *DTI* is an important behavior analytic teaching strategy, and *VB* analysis is an important framework for language program design, these are only two of many features based on the science of ABA. A detailed description of the specific strategies and analysis procedures listed on the Fourth Edition Task List can be found in Cooper, Heron, and Heward’s (2007) *Applied Behavior Analysis, Second Edition*. In addition, the remaining chapters of this book describe the science of ABA and selected teaching/analysis procedures in greater detail. The purpose of these descriptions is not to transform the reader into a BA but to provide readers with a depth of understanding about the science of ABA, the procedures used by BAs, and some of the terminology associated with the procedures. An understanding of these basic concepts will support improved communication and collaboration between SLP and ABA professionals.

Table 1.5. Variety of needs addressed by BAs

Improvements in organizational functioning
Staff performance
Management and pay structure interventions
Skill deficits
Communication
Adaptive behavior
Challenging behavior
Aggression
Self-injurious

The BACB web site lists no service domains per se. BA services, however, target problems of social significance involving measurable behavior or validated reports, which is consistent with the seven dimensions of behavior analysis (Baer, Wolf, & Risley, 1969). The BACB web site states that common services provided by BAs include, but are not limited to, conducting behavioral assessments, analyzing data, writing and revising behavior analytic treatment plans, training others to implement the plans, and overseeing the implementation of treatment plans (<http://bacb.com/about-behavior-analysis>). Table 1.5 lists the variety of needs addressed by BAs as described on the web site.

SLP and BA Service Delivery: Similarities and Differences

Table 1.6 summarizes the similarities and differences in service delivery provided by SLP and BA professionals. The overarching goals of service delivery are quite similar for each profession. Both seek to enhance the quality of life of the individuals they serve and to improve their socially valued skills through the use of science-based procedures. Each professional service domain, however, includes areas that overlap with the other as well as independent areas. SLP service delivery is restricted to the domains of communication and swallowing, whereas ABA service delivery extends across a wider range of human behavior, including organizational behavior management and challenging behaviors demonstrated by individuals. The latter include adaptive behavior deficits, communication deficits, and maladaptive behaviors that take a wide range of verbal and nonverbal forms. Overlaps between SLP and BA services exist in the areas of communication deficits and in the prevention/treatment of challenging behaviors resulting from deficient communication skills. Differences can be seen in the range of strategies used to address target skills. SLPs follow the guidelines of EBP that include evidence from a variety of disciplines with different conceptual frameworks. For example, evidence-based developmental assessment protocols and behavioral intervention strategies can be applied to autism treatment. BAs utilize only those strategies and analysis procedures consistent with the dimensions of ABA.

REFLECT *Reflect on your own experiences working (or training) as an SLP. In what ways has your experience prepared you to find common ground with someone who works as a BA? What unfamiliar aspects of ABA would you like to learn more about?*

Table 1.6. Comparison of SLP and ABA breadth of service delivery guidelines

	SLP	ABA
Overarching goal	To enhance quality of life by assisting individuals across the life span through EBP to improve impaired communication and swallowing skills using strategies based in research evidence, clinician expertise, and family values	To provide services consistent with the dimensions of ABA, which is defined as a systematic approach for influencing socially important behavior through the identification of reliably related environmental variables and the production of behavior change techniques that make use of those findings
Service domains	Collaboration Counseling Prevention and wellness Screening Assessment Treatment Modalities, technology, and Instrumentation Supporting access to services	Conducting behavioral assessments Analyzing data Writing and revising behavior analytic treatment plans Training others to implement treatment plans Overseeing the implementation of treatment plans Collaboration (See the Fourth Edition Skill List at http://www.BACB.com for a more detailed listing of skills offered by BAs.)
Service strategies	EPB (ASHA, 2005) includes strategies based on research produced by disciplines with different conceptual frameworks	Evidence-based strategies consistent with the dimensions of ABA (Baer, Wolf, & Risley, 1968)
Service areas	Communication deficits Swallowing deficits	Organizational function Skill deficits (e.g., communication, adaptive behavior) Challenging behavior

THE IMPORTANCE OF COLLABORATION

This chapter began by noting that ASD is a complex disability, typically including SLP and BA professionals as key team members. Here, it defines *collaboration* and highlights the advantages of collaboration between SLP and ABA professionals in supporting children with autism and their families.

What Is Collaboration?

The World Health Organization (WHO) stated, “Collaborative practice . . . occurs when multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families, caregivers, and communities to deliver the highest quality of care across settings” (2010, p. 13). Although this definition was developed to characterize collaboration within the medical community, it has been adapted by ASHA as a model for SLPs and audiologists to follow when treating individuals in medical, educational, and community environments (ASHA, 2016c).

Traditional Models The type of collaboration that occurs is determined by the way in which members of a support team interact with each other and with

a child's family. Three traditional models— multidisciplinary, interdisciplinary, and transdisciplinary—illustrate the range of collaborative behavior among team members (e.g., ASHA, 2016a; Paul, Blosser, & Jakubowitz, 2006).

Multidisciplinary teams involve professionals who work separately and independently. They come together to report assessment results and intervention outcomes from the perspective of their own disciplines, and they do not engage in joint planning or intervention. The actual integration and collaboration resulting from this model is left up primarily to the consumer.

Interdisciplinary teams include professionals who discuss and share perspectives to set goals and identify intervention priorities. They collaborate and communicate for assessment and intervention with the aim of providing less fragmentation of services.

Transdisciplinary teams involve an even higher degree of collaboration. Team members coordinate and collaborate for assessment and intervention frequently and consistently, and professional boundaries are blended. For example, this model includes arena assessment, in which one professional serves as the facilitator to interact with the child to perform the assessment while other team members observe. The observing team members may also ask the facilitator to present certain tasks to the child, but they do not interact with the child directly. Professionals assume flexible professional roles, and they must be comfortable with some degree of role release to support the sharing of tasks and across disciplines. Professionals must engage in systematic cross-disciplinary information sharing for planning and intervention for this to be successful. Intervention goals are determined jointly, and responsibility for documentation of student outcomes is also shared.

The IPE/IPP Model A fourth model was recently added to the traditional models (ASHA, 2016a, d). This model is known as **interprofessional education (IPE) and interprofessional collaborative practice (IPP)**, or the IPE/IPP model. It represents the highest effort yet toward collaborative integration, and it is still in its infancy. As previously indicated, IPE/IPP is adapted from the model developed by the WHO (2010). ASHA (2016c) defined *IPE* as

An activity that occurs when two or more professions learn about, from, and with each other to enable effective collaboration and improve outcomes for individuals and families whom we serve. ASHA defines IPP as service that occurs when multiple service providers from different professional backgrounds provide comprehensive health care or educational services by working with the individuals and their families, caregivers, and communities to deliver the highest quality of care across settings. (<https://www.asha.org/Practice/Interprofessional-Education-Practice>)

The IPE/IPP model was proposed as a response to two cultural forces. One force is the increase in science and technology that has improved pediatric medical care, thereby increasing the viability of greater numbers of children who need and can benefit from intervention. Similar forces operate at the level of geriatric care. The second force is that the current method of health care service delivery and payment (fee-for-service) is unsustainable, given massive increases in the need for care. At a more concrete level, the IPE/IPP model was proposed to reduce avoidable errors, duplication of services, missed referrals, and inefficient service delivery (i.e., overuse, misuse, underuse) arising from health care silos and hierarchies (Rogers & Nunez, 2013). Theoretically, the IPE/IPP model will address these situa-

tions through greater integration and ongoing communication and the preservice and service delivery levels.

The degree of attention given to the education of professionals at the preservice level is one of the major differences between the IPE/IPP model and the traditional transdisciplinary model. The complete implementation of IPE will require transdisciplinary professionalism (Holtman, Frost, Hammer, McGuinn, & Nunez, 2011; Institute of Medicine of the National Academies, 2013). Specifically, “students and professionals across disciplines [must be acculturated] to a common vision, including adopting professional values that align with collaborative, team-based care” (ASHA, 2015, para. 9). Transitioning the health care and school systems to a true IPE/IPP will take years of reorganization at systems levels and in the way professionals conduct their work. Advancement of the IPE/IPP model is Objective 2 of ASHA’s “Strategic Pathway to Excellence” targeted for full implementation in 2025 (ASHA’s strategic pathway and you: Focus on objective 2, 2016).

REFLECT *What advantages does the IPE/IPP model have compared with traditional models of collaboration? How are these advantages relevant to your own current or future work as an SLP?*

Current SLP–ABA Collaboration Patterns

Koenig and Gerenser (2015) described three different patterns observed in the current educational, community, and home environments when SLP and ABA professionals work together: **collaboration**, **shared practice**, and **encroachment**. The first two terms are related. Collaboration occurs when professionals from different disciplines work together to support a client in complementary performance domains. For example, while working with the same client, an SLP may be targeting particular communication skills (e.g., vocabulary expansion), whereas a BA may be targeting an adaptive replacement behavior (e.g., replacing repetitive object manipulation with socially appropriate object play). Shared practice is a special case of collaboration that occurs when professionals from different disciplines support a client’s needs within overlapping performance domains. For example, while working with the same client, an SLP may be targeting an increase in a child’s vocabulary skills, whereas a BA may be increasing the repertoire of the same child’s VB functions in manding (requesting) and tacting (naming). Vocabulary growth does not occur in a functional vacuum, and VB functions (e.g., requesting, naming) do not occur without consideration of linguistic form. Here, the SLP and BA are targeting skills within a similar performance domain. A collaborative approach could enhance each effort and eliminate service redundancy.

Although collaboration and shared practice are positive results of working together, the third result, encroachment, is a negative term. A publication by the Coordinating Committee of the Vice President for Speech-Language Pathology Practice stated that this term is used when questions are raised “about professional boundaries and ambiguous situations in which there is an overlap in scope of practice with other professions” (2009, para. 1). The committee exemplified this overlap in reference to the roles of SLPs and literacy specialists. Applied to SLP–ABA collaboration, shared practice may be perceived as encroachment if it involves SLP and BA professionals who do not understand each other’s scopes of

practice and have not taken steps to collaborate. For example, it may be perceived as encroachment when an SLP targets skills that may appear to be outside of the communication and swallowing domains (e.g., nonverbal social behavior) or when a BA makes decisions about targeting a communication skill that requires specialized skills (e.g., knowledge of linguistic structure) not included within the Fourth Edition Task List (BACB, 2013). Encroachment is a barrier to collaboration; the following sections discuss this and other barriers together with guidelines for overcoming barriers and collaborating effectively.

REFLECT *Which pattern of collaboration have you most commonly experienced in working with BAs or other professionals (e.g., teachers)? Describe specific examples of times that general collaboration, shared practice, or encroachment has occurred in your work.*

Benefits of SLP–ABA Collaboration

The benefits of collaboration are obvious to those who are already engaged in the process. We will shine a light on the positive consequences of successful collaboration, however, because the collaborative process can sometimes be challenging and some members of each profession may feel guarded about engaging in the process.

An overarching advantage of successful collaboration is that it can enhance the efficiency and quality of service delivery. Three features of collaboration can be tied directly to this advantage:

1. Collaboration can improve efficiency by reducing unnecessary duplication of services.
2. Collaboration can improve professionals' ability to spot problems and develop solutions.
3. Collaboration can improve professionals' ability to consistently communicate with families.

First, collaboration can reduce unnecessary duplication of services. For example, SLP and ABA professionals will both need to obtain history information about a child with ASD and his or her social environment as these relate to communication. If this information can be obtained once and shared by both professionals, then the time needed to obtain it will be cut in half. Moreover, families are comforted knowing that professionals with expertise about their child's needs share relevant information (ASHA, 2016a).

Second, collaboration among professionals with overlapping expertise can lead to the identification of problems or solutions that may be missed if either professional worked independently. This is particularly relevant because SLP and ABA professionals are both involved in supporting communication development. SLPs can provide important information about the prelinguistic and linguistic skills related to all components of language (e.g., modality, form, content, use), whereas BAs can offer valuable insights about the functional values and controlling features of various communication behaviors (Koenig & Gerenser, 2011). Each perspective is crucial and complements the other. Many highly successful SLP–ABA collaborators have already contributed important, evidence-based therapeutic approaches

and practices. Examples include PECS (Frost & Bondy, 2002), Pivotal Response Treatment (PRT; Koegel & Koegel, 2019), and others (e.g., Dyer & Kohland, 1991; Gerenser, 2005; Mirenda, 1997; Reichle & Wacker, 1993).

Third, successful collaboration can eliminate the frustration experienced by parents when they receive a different or even contradictory set of recommendations from each profession for their child's language intervention program. If SLP and ABA professionals discuss their recommendations in advance, then they can develop an evidence-based prioritization of recommendations. This will provide parents with a framework for understanding intervention options without the potential confusion caused by a mismatch when recommendations are offered from each professional independently.

The accuracy and speed associated with the development of high-quality communication programming is not trivial to families. According to the Centers for Disease Control and Prevention (CDC; 2015b), a diagnosis of ASD can be made reliably by 2 years of age, but most children are not diagnosed with ASD until after 4 years of age. Early intervention is effective (e.g., Harris & Handleman, 2000; National Research Council, 2001), so the clock is ticking. There is no time to spare by providing unnecessary duplication of services, allowing for delays related to discrepancies among different programming recommendations for the same performance domain, or missing opportunities to identify problems that are not obvious when professionals view the evidence independently.

Collaboration also offers at least three advantages for the professionals who serve as SLPs and BAs:

1. Working closely with someone who has complementary expertise is a win-win because the content offered by each professional can enrich the other (Daw, Holman, & Heilicser, 2014; Koenig & Gerenser, 2011, 2015).
2. Healthy collaboration can reduce the perception of encroachment so that professionals can work together more effectively to meet the needs of the individuals receiving their services.
3. Professionals who engage in healthy collaborative activities tend to enjoy their work because they see progress in their clients and a growth in their own skill sets.

Finally, effective collaboration benefits children with ASD. The prevalence of autism is high, with a rate of 1 in 59 children (CDC, 2018), so it is no longer a low incidence disability. If the duplication of services and the complications of shared practice can be resolved, then the best possible support for communication development can be provided to a larger number of children. Moreover, the best possible outcomes can be expected as these children increase their repertoires of socially valued communication skills. This is arguably the most important advantage of healthy collaboration.

REFLECT *Consider your experiences working or training as an SLP. What have you found most challenging in working effectively with children, families, or other practitioners? Describe how effective collaboration with a professional from another discipline could help address this challenge.*

BARRIERS TO COLLABORATION

Barriers to SLP–ABA collaboration can be classified in relation to four related themes: 1) historical issues in the evolution of each discipline, 2) issues related to interprofessional communication, 3) misunderstanding of each discipline by the other, and 4) the perception of encroachment. Each of these is summarized next.

Historical Issues Within the Disciplines

The professions of ABA and SLP are both relatively young, and each developed in relation to different influences. The history of each field and the relationship between the two is briefly summarized next.

ABA The primary influence of behavior analysis was and continues to be the view of behavior as a natural science. The origins of behavioral psychology can be traced back to Watson's (1913) description of "Psychology as the Behaviorist Views It." The experimental analysis of behavior began in 1939 with B. F. Skinner's publication of *The Behavior of Organisms*, and the first documented application of behavior analysis to human behavior occurred in 1949 by P. R. Fuller (in Cooper et al., 2007). Since that time, the application of behavior analysis has expanded across many areas of human concern, including the behavioral needs of children with ASD.

Since the mid-1990s, ABA has received strong endorsements from multiple independent sources as an effective, evidence-based intervention for children with autism (e.g., CDC, 2015c; Larsson, 2013; Maurice, 1993; National Research Council, 2001; Satcher, 1999). For example, Catherine Maurice wrote a book about the recovery of her two children from autism, attributing the lion's share of the children's improvement to early intensive behavioral intervention. *Mental Health: A Report by the Surgeon General* stated, "Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior" (Satcher, 1999, p. 164). This report was based in large part on the treatment efficacy research generated by Lovaas and colleagues (e.g., Lovaas, 1987; McEachin, Smith, & Lovaas, 1993). Later, the National Research Council, including representatives of multiple disciplines, endorsed behavioral procedures for teaching children with autism and concluded, "There is now a large body of empirical support for more contemporary behavioral approaches using naturalistic teaching methods that demonstrate efficacy for teaching not only speech and language but also communication" (2001, p. 53). The NIMH stated, "Among the many methods available for treatment and education of people with autism, applied behavior analysis (ABA) has become widely accepted as an effective treatment" (2008, p. 18). The findings and conclusions of the National Standards Project, Phase 2, included ABA and related behavioral procedures among the list of "Established Interventions for Children, Adolescents, and Young Adults Under 22 Years" (NAC, 2015). Thus, although the education of BAs does not include the same depth of knowledge about the linguistic features of speech, language, and communication, evidence-based behavioral methods have been recognized as highly effective for teaching speech, language, and communication to individuals with ASD.

Currently, the Autism Special Interest Group (SIG) has the largest membership of any other SIG within the Association for Behavior Analysis International (ABAI). The BACB has developed practice guidelines specific to ABA treatment for children with ASD (BACB, 2014), and ABAI's Autism SIG has developed consumer guidelines to assist families in selecting BAs to coordinate their children's ABA programs (Autism SIG, 2018). The ABA community also established the Association for Science in Autism Treatment (ASAT), which offers research summaries to help families and professionals make informed choices about the full array of autism treatments. It is not surprising that many SLPs are extremely interested in learning more about the ABA framework for treating children with autism. In fact, as of August 9, 2018, more than 379 SLPs established dual certification in ABA by earning BCBA-D, BCBA, or BCaBA (Dower, 2018).

Speech-Language Pathology Origins of the SLP profession can be traced back to 1925 when members of the National Association of Teachers of Speech (NATS) formalized their interest in scientific, organized work in the field of speech correction, leading to the American Academy of Speech-Correction. As the profession expanded its scope of practice to include impairments of speech, language, communication, literacy, and swallowing, the name of the organization evolved gradually into its current form—ASHA. It is the nation's leading professional, credentialing, and scientific organization for SLPs, audiologists, and speech/language/hearing scientists. ASHA has a variety of special interest groups, including Language Learning and Education, which addresses the speech, language, and communication issues relevant to individuals with ASD and related disorders.

The title “SLP” does not name a conceptually consistent clinical practice framework. Instead, approaches to treatments used by SLPs are eclectic and evidence based. The source and type of evidence have evolved over the years. Some of these changes actually widened the gap between the fields of SLP and ABA, whereas others had the opposite effect. During the period between 1950 and 1975, the application of behavioral strategies to clinical practice was frequently reported in the SLP literature and in other literature consumed by SLP professionals:

Some of the earliest articles refer to stimulus presentation and reinforcement (e.g., Enquist & Wagner, 1950), as well as response shaping and modeling (e.g., Backus & Beasley, 1951; Bloodstein, 1950). Moreover, behavioral techniques were used to treat a variety of speech-language problems, including disorders of articulation (e.g., McReynolds, 1966; Sommers et al., 1966), fluency (e.g., Brookshire & Martin, 1967; Brutten & Shoemaker, 1967), voice (e.g., Shriberg, 1971), and child language (e.g., Baer & Guess, 1971; Holland & Harris, 1968; Sailor & Tackman, 1972; Schiefelbusch, 1978). An excellent review of details regarding the integration of behavioral techniques within the profession of SLP is provided by Ogletree & Oren (2001). (Koenig & Gerenser, 2006, p. 3)

The field of SLP eventually became increasingly influenced by models of generative grammar and generative semantics (e.g., Bloom, 1980; Brown, 1973; Chomsky, 1957). These models relied heavily on mentalistic concepts incompatible with ABA. Language behaviors were seen as the manifestation of a more basic, underlying, neurologically programmed abstract rule system, and the appropriateness of using behavioral techniques for teaching a generative language system was questioned (e.g., Prizant, 1982). Instead, SLP professionals became “facilitators of the

language-learning process who did not strictly control stimuli and responses in treatment but [rather] worked in natural, non-intrusive ways” (Ogletree & Oren, 2001, p. 104). Unfortunately, there was a dearth of published evidence showing the effectiveness of these nonintrusive techniques for treating children with autism. Moreover, several popular books consumed by families of children with autism describe their experiences with the limitations of speech-language therapy compared with intensive behavioral treatment (e.g., Barbera, 2007; Maurice, 1993).

The Relationship Between the Disciplines The publication of Chomsky’s (1959) review of Skinner’s (1957) *Verbal Behavior* was a related complication as both disciplines evolved. This review contributed to a serious rift between the professions of ABA and SLP (e.g., MacCorquodale, 1970; Palmer, 1986). By this time, Chomsky’s impact on linguistics was seen as revolutionary (Searle, 1972), and SLPs generally gravitated to the developmental research that was inspired by linguistic models (e.g., Brown, 1973; Slobin, 1985). McCorquodale’s careful analysis of Chomsky’s review, however, revealed serious misrepresentations of Skinner’s framework and flaws in Chomsky’s understanding of *Verbal Behavior*. Hence, Chomsky’s ideas were not only dismissed by BAs for being mentalistic but also for being misleading. Still, the ideas in Chomsky’s critique of *Verbal Behavior* were passed down to SLP students at the university level. For example, in an article by McCormack (2015), a clinically certified SLP stated, “I have vivid memories of a professor in graduate school essentially condemning the field of Applied Behavior Analysis (ABA) as the most ‘robotic’ and ‘unnatural’ way to help a child learn communication skills” (<https://blog.difflearn.com/tag/danielle-mccormick/>). It is highly likely that McCormack’s experiences were not unique. Similar sentiments can be found in other blogs (e.g., https://www.reddit.com/r/slp/comments/2wylvy/what_do_slps_think_about_aba_therapy_and_aba/).

The pragmatics revolution, which overlapped with the Chomsky revolution between 1975 and 2000, was the next major influence on the practice of SLP (Duchan, 2011). A consideration of pragmatics caused SLPs to rethink and reframe ideas about language in consideration of communicative, linguistic, cultural, and everyday contextual influences (Bates, 1976; Bruner, 1981; Halliday, 1975; Searle, 1969). At about the same time, ASHA began to emphasize the importance of EBP as a fundamental principle of clinical practice. This refocused the thinking of SLPs to the importance of managing observable behavior, environmental interventions, outcome measures, and single-subject design to assess treatment efficacy (Byiers, Reichle, & Symons, 2012). With respect to ASD, a number assessment/intervention approaches were developed by SLP researchers and clinicians operating within the developmental-social-pragmatics (DSP) frameworks (e.g., Prizant, Wetherby, Rubin, Laurent, & Rydell, 2006; Wetherby & Prizant, 2002). In addition, the emphasis on EBP brought SLP practice standards in closer alignment with those of ABA, and SLPs began to reconsider evidence-based behavioral interventions for children with autism.

REFLECT *What is one historical circumstance that contributed to distance or conflict between the disciplines of SLP and ABA? What developments in recent decades have helped to bridge the gap between these disciplines?*

Barriers Related to Interprofessional Communication

Interprofessional communication between SLP and ABA professionals can be characterized overall as including both strengths and limitations. This section focuses primarily on the barriers that seem to limit the collaborative process. One of these is the structure of disciplines that seems to discourage the interprofessional sharing of information. For example, disciplines typically have their own technical terminology, organize their own professional conventions, sponsor their own professional journals, and write their own textbooks for use at the university level, which serves to reinforce the knowledge base of professionals within a discipline. In the case of SLP and ABA professionals, however, it also creates a set of parallel universes about issues related to shared practice in language instruction. Table 1.7 lists a few examples of different terms used by SLPs and BAs for referring to very similar concepts. These different terms reflect differences between the developmental-linguistic and behavioral models of language development. Communication about individual children's programming needs can become complicated when SLPs and BAs are not informed about each other's terminology, and consumers can become confused about how the technical terms in each field relate to each other.

Another source of confusion is that many of the teaching strategies that SLPs learn during their preprofessional education are derived from the ABA literature (e.g., modeling, prompting, shaping, chaining, differential reinforcement, mand-model procedures). These strategies, however, are typically taught as individual procedures outside of the science of ABA. In addition, these concepts are taught to students by communication sciences and disorders (CSD) faculty who may actually be resistant to the science of ABA. Similarly, textbooks on clinical methods in SLP tend to be authored by CSD scholars who present behavioral concepts without formal training in ABA. In the end, the acquisition of terminology and concepts about isolated behavioral strategies may lead to the perception that SLPs understand more about the science of ABA than they have actually been taught.

Professional literature and professional conventions are other potential sources of interprofessional communication. The good news is that literature in SLP and ABA is accessible to members of each profession. There is a tendency, however, for individuals within each profession to consult the journals within their own disciplines. Similarly, professional conventions are technically open to professionals from other disciplines, but the registration fee is typically greater for nonmembers of a professional association. The registration fee for nonmembers for

Table 1.7. Parallel terms used by SLP and ABA professionals

SLP terminology	ABA terminology
Language	Verbal behavior
Request/requesting	Mand/manding
Label/labeling	Tact/tacting
Conversational turn-taking	Intraverbal behavior
Imitation	Echoic
Communicative temptations	Establishing operations

ASHA conventions is almost prohibitive. In the interest of being fair and balanced, however, some improvements have occurred over the years. In 1999, ABAI developed a SIG for SLPs who use the science of ABA in their practice. It is known as SPABA (Speech Pathologists using Applied Behavior Analysis), and it has a vibrant and growing membership including SLPs who attend ABAI conventions (<http://www.behavioralspeech.com>). Unfortunately, there is not a parallel group within ASHA for BAs who are interested in learning more about speech, language, and communication processes.

Another level on which members of different professions can learn more about each other's contributions to shared practice is to include speakers from the other profession as presenters at their national conferences. Until recently, this has occurred at a relatively low rate. For example, Koenig and Gerenser (2015) reviewed ASHA and ABAI convention programs for the academic year of 2010–2011, tallying the number of presentations pertaining to ASD and the number of ASD presentations involving interprofessional influence as determined by the title of the presentations or the authors' professional credentials. They found that 12 (8%) of the ASD presentations at the ABAI convention included at least 1 SLP author; and 4 (7%) of the 58 ASD presentations at the ASHA convention featured issues related to ABA. It is surprising that the rates of interprofessional presentation were not greater, given the overlap between SLPs and ABAs in supporting the communication needs of children with ASD. Yet, there is reason to believe that this is increasing.

Perhaps one of the best ways for professionals from different disciplines to communicate with each other is through in-service delivery contexts. Several sources of information indicate that this does not always progress smoothly, however (e.g., Koenig, Connell, McGinley, Quinn, & Stackiewicz, 2014; Koenig & Gerenser, 2011). For example, Koenig and Gerenser conducted a pilot study to assess the perceptions of SLPs and BAs regarding the SLP–ABA collaboration process. Surveys were sent to 424 members of an SLP–ABA discussion group and 15 directors of programs for ASD in the United States, and 135 (about 32%) were returned. The respondents included 64 SLPs, 50 ABA professionals, and 21 individuals with dual certification (CCC-SLP, BCBA). All participants were employed in settings that served individuals with ASD, and their academic credentials were earned from more than 50 different educational institutions across the United States. One of the key survey questions was, “What (if anything) do you find challenging about collaborating with [ABA or SLP] professionals?” Responses were open ended, and pattern analysis procedures were used to categorize and summarize themes. It was found that 40% of SLPs and 20% of BAs reported no problems in collaboration. Yet, more than half of each group reported some kind of an issue. The most frequently perceived “SLP deficit” as reported by ABA professionals was that SLPs lack knowledge about ABA; and the most frequently perceived “ABA professional deficit” as reported by SLPs was a lack of knowledge about development, linguistic processes, and communication. Interestingly, responses to the opposite question (“What, if anything, do you find rewarding about collaborating with [ABA or SLP] professionals?”) showed that ABA professionals appreciated the expertise of SLPs in the areas of development, language, speech, and oral mechanism processes. They also identified positive professional qualities such as intelligence, creativity, willingness to learn, and enthusiasm about children's progress. The benefits noted by SLPs in collaboration with ABA professionals included access to

expertise in complementary areas (e.g., positive behavior support, data collection, functional goal development) and professional qualities (e.g., insight, creativity, effective programming skills).

Misunderstanding of Each Discipline by the Other

Misconceptions about SLP and ABA professionals have developed over the years, probably as a result of the historical issues described earlier (e.g., Chomsky-Skinner debates) and the other barriers to interprofessional communication (Koenig & Gerenser, 2015). In our clinical experience, we have heard mischaracterizations of SLPs as professionals who only do play therapy, do not collect data, only do pull-out therapy, and do not use science-based methods. Similarly, we have heard mischaracterizations of BAs as professionals who teach children to perform like robots, use bribery, are obsessed with data collection, and know nothing about developmental processes. Our interpretation is that these stereotypes reflect the worst examples of each profession, and the worst example does not define any group. For example, much has been made about the adoption of facilitated communication (FC) as a treatment procedure by some SLPs prior to ASHA's adoption of EBP as a basic practice standard. The fact that most SLPs never adopted this method and that ASHA has joined other professional organizations to publish a position statement indicating that FC is not an evidence-based method and may be harmful to consumers (<http://www.asha.org/policy/PS1995-00089>) has not deterred some individuals from asserting that SLPs use FC. FC is not a strategy endorsed by ASHA, however, and should not be used to characterize SLPs as professionals who fail to use science-based methods. A similar scenario could be painted about the use of cattle prods by Lovaas to reduce the self-abusive behaviors of individuals with autism (Chance, 1974). Focusing on professional errors as the defining feature of a discipline is totally inappropriate.

REFLECT *Review the misconceptions about SLPs and BAs previously described. How have you encountered these misconceptions and stereotypes in your own training and practice? Give an example of one misconception you have heard someone express, and describe what you could say to correct this misconception.*

Barriers Related to the Perception of Encroachment

Encroachment occurs when professionals engage in service delivery practices that are within another profession's scope of practice and for which members of the other profession lack specialized training. The risk of encroachment may be particularly high in contexts where SLPs and BAs are both charged with responsibilities for supporting the communication programs of children with autism and where shared service delivery has not been discussed by the therapists from each discipline. Koenig et al. (2014) used a focus group format and gathered information about the perceptions of SLPs who worked in settings with BAs to support children with ASD and related developmental disabilities. One of the observations reported by an SLP involved a BA who targeted speech production using instructional models that were insensitive to the effects of coarticulation. Specifically, the BA was asking a child to imitate /də/ + /ʊ/ + /gə/ with the eventual aim of combining

sounds to produce /d ɔ g/ (“dog”). If an SLP had been involved in the design of the intervention, then it is likely that the teaching sequence would not have included /gə/ to model the final consonant (e.g., Gerenser, 2008). Another report involved a BA who recommended communication goals to a family without first consulting with the SLP who was also supporting the child’s communication program. Similar examples could be given involving SLPs who implement behavioral strategies without a full understanding of the science (e.g., placing children in time-out for an inappropriate behavior without first assessing the function of the behavior). Again, our view of these isolated examples is that the perception of encroachment is likely to occur when interdisciplinary communication is absent. It is the responsibility of service providers from each profession to recognize their roles within the larger scope of a shared practice system and to treat their colleagues from the other profession with respect. This includes the initiation of a conversation about the content of shared practice recommendation prior to presentation to a parent.

RECOMMENDATIONS FOR IMPROVING INTERPROFESSIONAL PRACTICE

Koenig and Gerenser (2006) recognized a need to improve interprofessional collaboration between SLP and ABA professionals and offered seven initial recommendations. All seven were based on an increase in the frequency and quality of interprofessional sharing. Specifically, it was recommended that practitioners within each profession share

1. Treatment efficacy data
2. Innovative teaching procedures
3. Basic information about his or her discipline
4. Experiences of successful collaboration
5. Key articles in professional journals
6. Concerns about particular shared practice events
7. Lunch

Yes, it was recommended that SLP and ABA professionals share lunch. Because lunch tends to be a more relaxed context outside of a formal team meeting, information exchange can be more reflective, thoughtful, and sensitive to the needs of each conversational partner. Since the publication of our 2006 paper, we have added to our list of recommendations based on ongoing clinical experience and on ASHA’s goal toward IPE/IPP. We expand on these recommendations in the final chapter of this book.

CONCLUSION: THE NEED FOR EFFECTIVE SLP–ABA COLLABORATION

Our aim in this chapter was to introduce the need for interprofessional collaboration in support of children with autism and their families. To set the stage for this discussion, we summarized symptoms of autism that require the support of SLP and ABA professionals, and we described credentials plus the scopes of practice for each discipline. Furthermore, we described the importance of collaboration

and advantages, as well as barriers, to SLP–ABA collaboration. Finally, we introduced some recommendations to improve interdisciplinary collaboration, including the importance of information sharing that is provided in this book. Further recommendations for improving SLP–ABA collaboration are discussed in the last chapter.

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