The R.E.A.L. Model, Rethinking Generalization

Recreating Environments to Accelerate Learning

A Practitioner's Guide to Teach for Generalization Within ABA Treatment for Autism and Other Disabilities

A Complimentary Preview and Note from the Author

Have you ever thought about what kind of behavior analyst or practitioner you are?

This is a very significant question, as it measures how mindful you are of your effect on others, the process of how you integrate what's required in your treatment delivery of ABA, and what others say about what you teach. It also includes what you observe and interpret while working with the children, parents, or staff involved in the treatment. In other words, are you A Behavioral Artist as a Behavioral Ambassador (Foxx, 1996)?

ABA needs to be delivered with compassion and provide an opportunity to build successful and collaborative relationships necessary for generalized behavior change of clinical staff, parents and the child.

ABA is not a commodity, but a comprehensive treatment process that needs to benefit the child in all aspects of life for generalization effectiveness.

ABA must include value-based treatment for the child, not just an implementation of programmed lessons where teaching for generalization provides new opportunities for learning and experiences across a wide range of environments.

When teaching for generalization within ABA treatment, programs have to be flexible to the changeable conditions of intervention so treatment goals remain attainable and benefit the child-family life as a whole. Parent training must be done in a more meaningful way to add value to the parent-child relationship while honoring the significant impact intervention has with family and generalized parent skills can be successful.

Chapter 1: A R.E.A.L. Look at Generalization in ABA Treatment

Generalization should be viewed as an active process of "skills learning"—which also requires a systematic approach to teaching.

All well-designed programs in Applied Behavior Analysis (ABA) address the deficits of children with Autism Spectrum Disorder (ASD)—specifically their challenges with language, play, self-help, routines, social skills, and other behaviors preventing them from full integration with typical peers. Common traits of those diagnosed with ASD are an inability to discriminate among different stimuli in the environment required for learning language and basic living skills, respond to multiple cues (stimulus over-selectivity), and generalize skills.

The last trait, an inability to generalize behavior, impedes a child's successful interaction with others and the environment in varied situations. For children with ASD to fully function in daily life, learning a vast range of skills and then performing them across many environments requires the behavior analyst practitioner to significantly increase learning opportunities for each lesson that's developed and implemented. Using the data collected on each learning opportunity, the behavior analyst can measure progress, what the child does and does not learn, which helps address concept and skill acquisition more systematically than typical learning environments.

The generalization of previously taught skills in ABA programs must be addressed in the same way. In other words, generalization should be viewed as an active process of "skills learning," which also requires a systematic approach to teaching.

This book approaches the conceptual aspects and technologies of generalization from a "skills teaching perspective." The focus is **generalized behavior change** for the child; the **generality process** is the responsibility of the behavior analyst practitioner to develop procedures that effectively teach for generalization of expected behaviors. This is best accomplished by providing a conceptual framework and a systematic, structured, technological process for teaching the generality of behavior—both within and outside of treatment lessons designed in ABA programs. A summary is provided of the generalization knowledge and skills you will gain from this book.

- Develop an expansive and effective verbal repertoire about generalization.
- Understand how to generalize behavior.
- Understand the generality of interventions and its relation to the generality of behaviors such as stimulus and response generalization and maintenance.
- Learn how to design, develop, and work with instructional materials and procedures that effect generalization of concepts, language, skills, and routines.

Understanding the R.E.A.L. Model

The R.E.A.L. Model takes you through five levels of generalization necessary for the successful treatment planning and progression of any well-designed ABA program. R.E.A.L. stands for "Recreating Environments to Accelerate Learning." Aspects of the R.E.A.L. Model were first addressed conceptually in the textbook *Behavior Analysis and Learning* (2nd edition) by Dr. David Pierce and Dr. Frank Epling and later included in editions 3–6 by Pierce and Cheney (2013/2017).

The R.E.A.L. Model was also detailed in an unpublished manuscript titled "Key Factors in Providing an Effective School Based Program for Children Diagnosed within the Autistic Spectrum Disorder" by Dr. Joseph Morrow, Dr. Phyllis Williamson, and myself in 2002. We presented the R.E.A.L. Model at professional conferences sponsored by the Association for Behavior Analysis International (ABAI, 1999) and received positive feedback on the application and results of this model. To summarize what we wrote and presented, R.E.A.L. provides practitioners with specific tools and guidelines toward achieving generalization for their clients. In brief:

- **R.E.A.L.** is used to assess barriers to generalizing skills and concepts in the natural environment.

- **R.E.A.L.** systematically identifies how to plan and teach for generalization throughout all phases of intervention.

- **R.E.A.L.** guides the development and progression of treatment designed individually for each child, informed by ABA.

- **R.E.A.L.** identifies deficits in the generality of concept discrimination, language, and basic learning of skills (self-care, play, etc.) across stimuli, responses, settings, activities, natural environments, social contexts, and the verbal community.

- **R.E.A.L.** identifies more readily individual learning styles and acquisition rates of concepts learned and generalized sooner than expected for remediation.

The R.E.A.L. Model begins the behavioral process to teach for generalization within ABA treatment during initial concept and skill acquisition, taught in a highly structured environment. The process continues when systematically introducing stimuli and contingencies representing what the child will encounter in the natural environment. There is a special emphasis on bridging concepts and skills to teach complex repertoires, establish multiple-control, and generalize social behavior to the verbal community where the focus is on performance accuracy, performance complexity, and performance quality in teaching social competence or adaptability.

As behavior analyst practitioners, we have a responsibility to provide ethical and effective ABA treatment to children with ASD. But due to the range of skills that must be taught and the intensity level of this treatment's implementation, practitioners run the risk of becoming curriculum-driven. When practitioners develop a child's ABA program based on a preset curriculum or intervention procedures, it can reinforce

many myths and misconceptions about ABA. Such myths include: “Discrete trial training (DTT) just does the same thing over and over again”; “Children become robotic and aren’t given choices”; “DTT doesn’t result in generalization”; and “One curriculum applies to all.” ABA is one of a very few disciplines that can be so easily watered down—sometimes to the point that it becomes unrecognizable as a scientific, evidenced-based treatment.

Academic education in behavior analysis, practicum experience in the field, and becoming a Board Certified Behavior Analyst (BCBA) do not equal expertise in ABA treatment for ASD: further training beyond the classroom is crucial. Practitioners can understand behavior analysis principles but assessing and developing programs for children with ASD is very specific, complex, and intense.

Children with ASD receive 25–40 hours each week of one-on-one, intensive behavioral treatment for an average of two to three years. This rigorous time commitment also means there are vast opportunities for generalized behavior change.

For children with ASD, generalizing behaviors taught within interventions and displaying generality of behavior outside of interventions is a massive undertaking for practitioners to program. If the child fails to generalize an expected behavior with specific skills acquired during intervention to a new setting—one with different materials, across a variety of situations and trainers—the practitioner must assess and troubleshoot why the generality of behavior did not occur. Concurrently the practitioner must continue programming and building on lessons in which the child did not have difficulty demonstrating the generalized behavior change. This example represents the enormous responsibility we have as behavior analyst practitioners to be clinically well-trained and current on how to provide this level of ABA treatment, which will affect the children we serve for the rest of their live

Every child needs to be taught how to generalize repeatedly throughout their developmental years, whether they are typical learners or have ASD or other behavioral disorders. Generalization is critical to children successfully learning new skills and acquiring more complex repertoires; this is true for engaging with family at home, doing things independently, interacting with peers at school, or adapting to social situations with different communities.

Children learn at different rates and generalize skills successfully in one situation and not others. However, children with ASD have exponentially many more barriers interfering with generalization of learned skills with common repertoires as communication, academics, play, or social situations; this is documented extensively in behavior analysis literature. The degree to which each child with ASD will vary in their difficulty generalizing skills is as varied as the disorder itself.

My research on generalization and why I’ve written this book lies in Bijou’s (1993, 1995) summary of the topic: In essence, behavior analysts generally know how to change behavior, but ensuring behavior changes are similar in function across relevant settings and are adaptable in supportive ways is complex.

Additionally, generalization is often seen as a failure to discriminate rather than as an active process involving conceptualization and technology (Stokes and Baer, 1977). Practitioners often recognize a failure to generalize only by default after targets mastered in structured teaching do not generalize to the child's natural environment.

To simply rely on structured skill teaching puts practitioners in a "train and hope" situation regarding the generalization of skills the child has mastered under trained conditions. This assertion is based on working with the many behavior analysts at my company, Applied Behavior Consultants, Inc., to learn how to teach children with ASD to generalize.

The issue is not a lack of resources about what is necessary to bring about generalized behavior change— there is a lot of literature available to practitioners. Most ABA authors acknowledge the distinction between generalized responding regarding child behavior and procedures used to help train for generalization and include a summary of Stokes' and Baer's generalization technologies to promote the generalization of behavior change.

So why, as practitioners today, does generalization remain among the most significant challenges we face in ABA treatment for children with ASD?

First and foremost, ASD is a very complex disorder and the wide range of skill deficits and barriers for each child have different effects. There are many books on designing effective curriculum for children with ASD that are good resources for treatment development. Though a solid curriculum is helpful for identifying appropriate skills to teach, it is not what makes ABA effective. ABA treatment effectiveness lies in the practitioner's understanding of the theoretical principles of behavior analysis. These principles inform how to target, define, and teach the skills each child needs to acquire in daily life—and how to manage or remove barriers interfering with learning these skills. Most importantly, though, ABA gives practitioners the conceptual framework necessary to critically analyze contextual variables that lead to behavior change—or not—through causal or functional analysis, reliability, and validity.

Thus, systematic programming in how to teach for generalization deserves the same attention and specificity that curriculum development has gotten for treating ASD. Unfortunately, this is significantly lacking and practitioners' skills are often judged on their knowledge rather than what they're actually able to do effectively.

I believe this deficit reflects the inadequate systematic guidelines around teaching for generalization as a part of treatment planning. Moving practitioners away from a "train and hope" orientation—and toward successfully teaching the generality of skills from intervention to a child's everyday life—requires more than just the knowledge of how to do so. This conclusion comes from the 25 years of experience I've had training practitioners to provide ABA intervention services to children diagnosed with ASD or related disorders.

I thought I'd share some common questions from practitioners over the years—probably some that you have also asked your professors, mentors, or trainers. Each will be addressed throughout the remaining chapters.

> "How do you teach a child whose main deficit is generalization in a situation where teaching with multiple exemplars has failed?" *Ontario, CA*

> "I know that the child has issues with generalization, but how do I systematically troubleshoot where the generalization deficits lie within the concept I'm teaching?" *Valencia, CA*

> "I was taught the use of generalization probes as a troubleshooting technique but was not given any formal way to teach for generalization in program development and progression. How do I incorporate these skills?" *Sacramento, CA*

These questions indicate the need for systematic guidelines and training for practitioners in teaching for generalized behavior change. This applies specifically to teaching children with ASD, where generalization of most concepts and skills previously taught have proven difficult or absent. In other words, where the child has failed to discriminate to the degree necessary to adapt the concepts and skills taught in treatment to other areas of life. No matter how much intensive behavioral intervention a child has received, once treatment has ended the child will confront all aspects of life where stimuli are constantly changing and it's critical to respond competently. The question goes back to how practitioners can program for generalization of this magnitude effectively—and avoid the default trap of "train and hope."

Generalization Literature Summary

The concept of generalization has been well defined in introductory academic behavior analysis textbooks such as *Applied Behavior Analysis* by Cooper, Heron, and Heward, (2007) and *Behavior Analysis and Learning* by Pierce and Cheney (2013 and 2017), with the first edition written in 1995 by Epling and Pierce.

Dr. Trevor Stokes and Dr. Donald Baer (1977) delineate generalization as a technology in their journal article "An Implicit Technology of Generalization" (1977) and Dr. James Johnston makes the case for distinguishing between generalization and generality of behaviors and procedures used to teach for generality (1979).

Dr. Christina Whalen's book on generalization for children with ASD, *Real Life, Real Progress*, (2009), provides strategies for successful generalization incorporated in a variety of well-known interventions such as *The Picture Exchange Communication System* (Bondy and Frost, 1994); *Social Stories* (Gray, 1998); and *Pivotal Response Training* to enhance generalization in treatment settings. Included in Whalen's body of work are strategies to increase generalization in the use of behavioral techniques when training others on treatment procedures.

Finally, we have evaluation tools such as the Verbal Behavior and Milestones Program Placement (VBMAPP) and Barriers to Learning Assessment by Dr. Mark Sundberg (2006) that identify generalization barriers in learning language and social skills for children diagnosed with ASD or other language disorders. Additionally, Dr. Mark Dixon's P.E.A.K. (Promoting the Emergence of Advanced Knowledge) Relational Training System module (2014) is used for assessing and targeting curricula specific to teaching generalization using multiple exemplar training (MET) to individuals with autism.

Content Parameters

I want to clarify what this book is—and what it isn't. *The R.E.A.L. Model, Rethinking Generalization* is my attempt to help practitioners use the knowledge they already have about generalization in ways that can be more effective in treatment planning and programming. I intentionally developed the R.E.A.L. Model to be used within the seven dimensions of applied behavior analysis that characterize our discipline to ensure treatment integrity. Below is a summary of how the seven dimensions govern interventions for generalized behavior change in ABA treatment:

- Applied: Generalization skills targeted will enhance the person's quality of life and will be socially significant and important to the individual.

- Behavioral: Generalization skills targeted will be specific to ensure precise measurements of mastery criteria, demonstrating the individual did generalize the behavior targeted.

- Analytic: Generalized behavior change demonstrates experimental control over the occurrence/non-occurrence of the behavior. Functional relation is demonstrated.

- Technological: Written descriptions of all procedures to teach for generalization of targeted skills are explained in terms that can be replicated.

- Conceptually Systematic: Interventions for generalized behavior change are derived from the basic principles of behavior.

- Effective: The generalized behavior or skill is beneficial to the individual.

- Generality: Generalization of concepts and skills are targeted for treatment across stimuli, environments (trained and untrained), time, staff, and functional and social activities in natural environments.

Equally important is to point out what this book is not. Much literature and research on generative responding and relational frame theory (RFT)—specifically Acceptance and Commitment Therapy (ACT)—has received a lot of attention by the ABA community over the past several years. I believe the future growth of behavior analysis lies in this area, especially with teaching higher verbal skills. I bring this up in the context of how generalization relates to current research on language and cognition. And though I will address this topic from time to time, it will not be covered in the detail it deserves, as it goes beyond the scope of this book.

Rethinking Generalization takes a molecular approach, focusing on how to systematically teach for generalization within ABA treatment programs for children with ASD. Part I covers the assessment context: how the child's treatment needs should be evaluated behaviorally and guided by typical developmental milestones including the fundamentals of ABA programming and common challenges practitioners face. Some readers may find this information more detailed than necessary, others may find the behavioral terminology too technical.However, dumbing down the science of behavior analysis

would contaminate the book's integrity and make those chapters less valuable—they should be seen as a foundation for how practitioners should be informed by scientific behavioral principles when analyzing and developing a child's treatment needs. Part II provides an introductory chapter on generalization focusing on how to use the R.E.A.L Model and a general description of the program components detailed in each level of generalization that follows. Part III details the R.E.A.L. Model in practice to plan, develop and progress intervention lessons within ABA treatment. Included are sample case profiles that demonstrates using R.E.A.L. as an analysis tool for assessing the child's current generalization ability across the day, identifying skills where teaching for generalization is needed and the generalization analysis used for determining the child's progress in demonstrating generalization.

It is my hope that this book provides practitioners with the needed information to effectively teach for generalization and fills in the gap between theory and practice. Practitioners must provide ABA treatment that addresses all areas of the child's life impacted by the disorder. Due to the complexity of ASD, the range of skill deficits and barriers will vary across children; treatment must be individualized for every child. The following should be kept in mind by all practitioners:

- Curricula designed to address the treatment needs of children with ASD are not why ABA is effective in treating the disorder.
- ABA treatment effectiveness lies in the practitioner's knowledge and understanding of theoretical principles in the practice of behavior analysis.
- Basic behavioral principles inform the practitioner how to target, define, and teach the skills each child needs— and how to manage or remove barriers that interfere with learning or the quality of the child's life.
- Most crucially, ABA gives practitioners the conceptual construct to critically analyze the contextual variables that bring about behavior change, or do not, by way of causal or functional analysis, reliability, and validity.
- Systematic programming to teach generalization deserves the same attention and specification that curriculum development has received for treating ASD.
- ABA needs to be delivered with compassion and provides an opportunity to build successful and collaborative relationships necessary for generalized behavior change of clinical staff, parents and the child.