# Case Studies in Applied Behavior Analysis for Individuals with Disabilities

## Second Edition

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*For my brother Bruce. From baseball and football in the back yard to basketball in the driveway to ping pong downstairs and to APBA and Avalon Hill games upstairs we always had a great time (except of course when I lost!). Thanks for being my big brother!*

*K. S.*

*To my parents, Carol and Carl Haymes. You have instilled a love of learning in all your children and empowered us to do what we love. You are the best!*

*L. H.*

# Preface

This book is intended to give support providers the knowledge and skills for providing Applied Behavior Analysis services in schools, homes, employment, and community settings and thereby improve the quality of life for the individuals that they support. The rubber meets the road, not only in how to support an individual with a disability, but also in how to implement services and systems change so that positive quality of life outcomes occur.

This book responds to a critical need for highly qualified personnel who will become exemplary professionals because of their advanced knowledge, skills, and experiences in working with children, students, and adults with disabilities, including autism spectrum disorders (ASD). Since Board Certification for behavior analysts was introduced in 1999 there has been an expansion of training programs in applied behavior analysis to meet the demands from consumers (e.g., school districts, health insurers, and families). The Behavior Analyst Certification Board (BACB) is a private non-profit organization without governmental powers to regulate behavior analytic practice. However, it does wield the power to suspend or revoke certification from those certified if they violate the strict ethical guidelines of practice. While the BACB certification means that candidates have satisfied entry-level requirements in applied behavior analysis, it does not necessarily mean that they have the skills to develop and implement interventions which often are very complex and must involve a variety of funders and providers and be able to analyze the situation broadly (quality of life, person centered planning, or systems change for example). Most health insurance companies also recognize the BCBA credential as one conferring the capability and the right to practice independently in many states. The demand for expertise in Applied Behavior Analysis continues to grow and this demand has been spurred on by: (1) increased recognition of board certification and even licensure in many states, (2) recognition by health insurers and state legislation, (3) the need for behavior specialists in home, school, and other settings and (3) the increase in individuals with ASD who need ABA services. The BACB is endorsed by the Association of Professional Behavior Analysts, the Association

for Behavior Analysis International, Division 25 (Behavior Analysis) of the American Psychological Association, and the European Association for Behavior Analysis. The Behavior Analyst Certification Board has a Behavior Analyst Task List 5th edition which outlines the content areas across two major sections that are required for basic competency as a behavior analyst.

An advantage of this book is that universities, agencies, school districts, and organizations can easily use it in courses or trainings that address Applied Behavior Analysis as it covers methodology that is seldom covered in detail in most texts in Applied Behavior Analysis. Readers will find the information to be practical and easily implemented in applied settings. We see four main groups who would primarily be interested in this book:

1.  College instructors teaching courses in Applied Behavior Analysis, School Psychology, Special Education, or related areas.
    College instructors are likely to choose our book based upon:
    a.  The consistent format throughout the book.
    b.  The "practicality" and "readability" of the book for students in college.
    c.  The comprehensive analysis and coverage of developing supports for individuals with disabilities.
    d.  The direct applicability to applied settings.
    e.  The ability to use the case studies as assignments and/or exams.
2.  Individuals taking courses or studying for their BCBA exam.
3.  Individuals working in the disability field.
4.  Individuals studying to work in the disability field.

**K. S.**
**L. H.**

# Contents

## SECTION THREE — Case Studies Without Analysis

# Case Studies in Applied Behavior Analysis for Individuals with Disabilities

# Overview of Applied Behavior Analysis for Individuals with Disabilities

The foundation of Applied Behavior Analysis (ABA) is based upon the work of B. F. Skinner (1953, 1971). Skinner advocated that the focus of education and interventions should be on the behavior of individuals rather than on internal states (O'Donohue & Ferguson, 2001). Behavior may be defined as observable actions that a person does. Sitting in a seat, completing a math problem correctly, raising one's hand to answer a question, cursing, and running out of the room are all observable behaviors (verbal behaviors are classified as behaviors as well). These are all behaviors that can be changed (for better or worse). Being motivated, trying hard, and being unruly are not observable behaviors and thus cannot be directly changed.

John Watson is often credited as being the first behavioral psychologist. In his 1913 manifesto he wrote that, "Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior." For Applied Behavior Analysis the key words are "prediction" and "control." Good support providers[1] are effective at predicting what will work in their intervention situation (such as in a classroom using active responding strategies, reinforcing classroom rules, and using cooperative learning strategies) and then controlling the environment around that individual so that these behaviors occur. Sometimes support providers have concerns with the concept of control and view control as being a bad thing. However, not positively controlling the support situation only leads to anarchy and poor outcomes. For instance, by doing things such as having set routines, classroom rules, and praising students for completing assignments the teacher is

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1. By support providers we mean to include parents, teachers, behavior specialists, school psychologists, job coaches, supported living staff and others who are providing services to individuals with disabilities.

"controlling" student behavior. Having a teacher controlling a classroom environment in this way is good teaching and is not deceitful or wrong. In other words, the focus is on the cause-and-effect relationship between the environment and the behavior of the student (Nye, 1992). This cause and effect is not a one-way process as there is the issue of counter control where the behavior of the student also influences the environment (e.g., the behavior of the teacher).

As they read this, many support providers may be thinking "I do this every day." Good support providers use these types of strategies all the time. In this text, we are presenting a coherent and systematic approach to understanding the purpose of Applied Behavior Analysis and how support providers can implement these strategies to arrive at the desirable results for carefully targeting the behaviors that need changing, as opposed to a "hit or miss" strategy that many support providers use.

In applied behavior analysis, it is assumed that the behavior of an individual is lawful. This means that an individual does things for a reason such as being previously reinforced for a behavior (such as putting dishes in the dishwasher) or being punished for a behavior (such as making a socially inappropriate remark to a peer). In other words, each individual has a history of behavior being reinforced or punished and this history influences their current behavior. For example, if a student consistently receives reinforcement for turning in homework (praise from teachers, positive feedback on the homework, good grades, and/or positive notes home to parents) then the student is likely to continue to turn in homework consistently. A student whose behavior does not receive this reinforcement for turning in homework is less likely to turn in homework assignments consistently.

The three basic assumptions of applied behavior analysis are:

1. All behavior is learned or is a physiological response (such as sneezing due to allergies).
2. Behavior can be changed by altering antecedents and/or consequences.
3. Factors in the environment (the home, classroom, school, etc.) can be changed to increase and maintain specific behaviors or to decrease specific behaviors.

Behavior analysts agree that people feel and think, but they do not consider these events (feeling and thinking) as causes of behavior. It is the observable behaviors of the individual that are relevant for analysis and an intervention to change those behaviors. For instance, a child

with autism spectrum disorder (ASD) may engage in certain "challenging" behaviors (such as screaming, throwing kitchen utensils, hitting siblings, or refusing to brush their teeth). To analyze these behaviors as "feelings" of the child is not helpful as it is an inference as to the causes and the support provider cannot directly change the feelings of a child.

Applied behavior analysis focuses on the behavior of people. Behavior is not considered to be an expression of inner causes like personality, cognition, and attitude. Poor performance on coursework, not attending school, engaging in self-stimulatory behavior, or not keeping a job are analyzed as problems of behavior rather than examples of a person having a "poor attitude," being "unreasonable" or having a "disability label" such as Down Syndrome. Interventions for these and other challenging behaviors are directed at changing environmental events (teacher behaviors, parent behaviors, a job coach teaching specific work tasks) to improve behavior (e.g., to increase desirable behavior). For example, engaging in peer tutoring for coursework and using a self-management strategy to increase specific job performance skill such as task completion could change the person's undesirable behaviors for the better and by doing so could change the "poor attitude" or "unemployability" of the person. But this is accomplished only by changing specific behaviors of the person.

So the focus is not only on the behaviors of an individual but also on understanding why that individual engages in certain behaviors (e.g., the function of the behavior).

Kazdin (2008) succinctly summarizes this issue:

> Even today, even at our most scientifically precise, we can't always or even often locate the exact source of a behavior problem....We know how to change behavior for the better, regardless of its exact cause, and our best bet is to just go ahead and change it. Instead of treating the child as if there's something wrong inside her that needs to be fixed, let's treat the behavior as the something wrong, and address it directly. In practice, that means locating the problem in the relationship between the child and the situation around him, in how he interacts with other people and things, (which might well include flaws in the therapy or how it's delivered) (p. 169).

## COMPONENTS OF APPLIED BEHAVIOR ANALYSIS

There are three factors that influence behavior: antecedents (what

occurs before a behavior), consequences (what occurs after a behavior), and motivation.

Antecedents become effective at producing desirable behavior only when they are a signal for a predictable consequence. For instance, if a child knows that she gets points each time that she completes each part of her bedtime routine (putting on pajamas, brushing teeth, washing face, etc.) and that points can be traded in for backup reinforcers (backup reinforcers are things or activities that are delivered at a later time such as an extra story at bedtime, popcorn and a video, or playing a favorite table game) then she may be more likely to be complete her bedtime routine independently and timely. In fact, the presence of the point board evokes instances of completing the bedtime routine (a response class of behaviors).

Consequences affect behavior by strengthening the behavior (increasing its probability of occurrence) or by weakening the behavior (decreasing its probability of occurrence). In the example above, the completion of bedtime routine was strengthened through positive reinforcement (the token economy). The behaviors of refusing to put on pajamas or dawdling could be weakened (decreased) through consequences with the use of punishment (such as a response cost system where the child is fined points for not completing tasks in a timely manner).

Motivation has a major role in the effectiveness of the consequences. A motivating operation (MO) is a variable that can either strengthen or weaken the value of a consequence for a behavior (Laraway et al., 2014) and has been used as a more generic term. Motivation operations effect behavior through two mechanisms; value-altering effect or behavior-altering effect. Let's look at an example of value-altering effects. An example of value-altering effects is an adolescent loves tacos, and will complete after school chores and homework to get tacos. If the adolescent comes home from school starving given that she missed lunch, that increases the value of the tacos as reinforcers. In this case the food deprivation increases the effectiveness of a reinforcer this called an establishing operation (EO) (Laraway et al., 2003). An MO that decreases the effectiveness of the reinforcer is an abolishing operation (AO) (Shillingsburg et al., 2014). In the case of an AO, the same adolescent had a party at school at the end of the day and ate cake, she comes home stuffed, with no interest in tacos. Now the value of tacos as a reinforcer has decreased due to her satiation. The cake ingestion altered the value of tacos as reinforcers having a reinforcer-abolishing effect. These examples provide a glimpse into the

value-altering effect of MOs, the behavior-altering effect of MOs may not be as clear in these examples. The behavior-altering effect can increase (EO) or decrease (AO) the frequency of behavior because of an evocative or abative effect (Poling et al., 2017). If the adolescent is under a more extreme deprivation state, missing lunch and breakfast, she may engage in a greater frequency of all chores, doing them quicker, including doing chores that she previously had not done and that had not been reinforced in the past. This would be a demonstration of a behavior-altering evocative effect (Cooper et al., 2020). A behavior-altering abative effect would be seen if the adolescent was completely satiated from food and decreased the current frequency of behaviors, more than just chores and homework, that had been reinforced by food.

In applied behavior analysis there is an emphasis on objective description with a focus on observable events. There is also a focus on absolute unit-based measurement, e.g., behaviors that have clear, limited extensions in space and time and have easy to determine onsets and offsets (Baer, 1986).

Applied behavior analysis relies upon experimental analysis to determine if interventions are effective or not. This analysis often involves the use of single case research designs (also known as single subject designs) that involve one or a small number of participants (these may be individual students or all of the students in the classroom, for example) and the design involves data that are taken frequently over an extended time period which allows for detailed analysis of variables that might be effecting the behavior (Gast & Ledyard, 2014; Kazdin, 2020). In single case designs the replication of the effect of the intervention is very important. In other words, the experimenter demonstrates repeatedly that it is the intervention that leads to the change in the student behavior and not something else. That means that the independent variable (intervention) has a functional relationship with the dependent variable (target behavior). For example, it is the teacher increasing her rate of praise for students turning in homework rather than something that parents may be doing at home that is increasing the rate of students turning in their homework.

Applied behavior analysis stresses the understanding of functional relations between the individual and their environment (school, home, community, worksite). The behavior of an individual is not random. There is some variance in behavior as people are not always consistent in what they do, and people can have "good days" and "bad days" due to a variety of reasons. But there are lawful relationships between what