

Behavioral Principles in Communicative Disorders

Applications to Assessment
and Treatment

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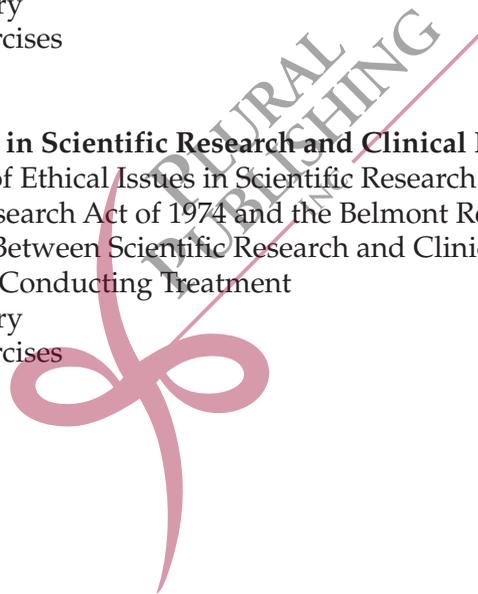


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Preface

Welcome to *Behavioral Principles in Communicative Disorders: Applications to Assessment and Treatment*. This book is an uncommon text in that it bridges two disciplines in one practical, application-focused volume. This interdisciplinary feature has shaped a valuable and unique contribution to the current available selection of textbooks for training in communicative disorders and in the field of applied behavior analysis (ABA). The authors of this book have presented information that is comprehensive while remaining focused on the goal of being truly applied. The book is geared toward speech-language pathologists (SLPs) but should also be useful to professionals in other disciplines, such as ABA and special education.

Therefore, this textbook can be considered an interdisciplinary introduction to behavior analysis and contains more than enough technical information to challenge even the most serious ABA student, including those pursuing the credential of board certified behavior analyst (BCBA). However, it is written primarily to speak to those who are in training for a career in communicative disorders by including examples relevant and pertinent to this discipline. In an ever-changing and increasingly interdisciplinary atmosphere, a textbook of this kind is appropriate and timely.

The authors of this book represent this professional diversity both in training and in specialized experience. The authors include two doctoral-level SLPs, a doctoral-level BCBA, and a combination SLP/BCBA. All authors have experience as university faculty (three in communicative disorders, one in psychology),

and all authors have practical experience working in clinical settings in a variety of capacities. Prior to entering the university setting, Christine A. Maul served as an SLP in the public schools, with a specialty in serving children and young adults with severe developmental and intellectual disabilities. She has been a faculty member in the Department of Communicative Disorders and Deaf Studies at California State University, Fresno (CSUF) for 17 years, as a lecturer and currently as an assistant professor. As part of her duties, she supervises students performing clinical practicum at the CSUF Speech, Language, and Hearing Clinic, where individuals across the life span with a wide range of communicative disorders are served. Brooke R. Findley serves as an SLP in a rural school district and part-time lecturer at CSUF. After becoming an SLP, she recognized the value in pursuing further education in the field of ABA and is currently also certified as a behavior analyst. Her areas of professional interest include verbal behavior, cultural and linguistic diversity, and educational leadership. She is currently pursuing a doctoral degree in Educational Leadership at CSUF. Amanda Adams started as a director for agencies providing autism services and then served as the lead behavior analyst for a large school district before accepting a faculty position in the psychology department at CSUF. In her 8 years at CSUF, she was the coordinator for the ABA master's program and the founder of the Fresno State autism center. She is now the CEO and executive director of the California Autism Center. In addition, another doctoral-level SLP, Frances Pomaville, also an assistant

professor at CSUF, stepped forward to write the chapter on verbal behavior to help us meet our deadline. She did a thorough job with a difficult topic, and we are grateful for her contribution. We would also like to thank graduate student assistant Victoria Riley who gave us much help in putting together the glossary.

The focus of this textbook is on behavioral principles derived from learning theory, as discovered by the work of behavioral scientists, chief among them B. F. Skinner. The authors admittedly share a significant bias toward the behavioral viewpoint presented in this text. Although we acknowledge the contributions of other approaches, it was our intent in writing this text to present basic behavioral principles and propose ways in which those principles can effectuate positive change in communicative behaviors. It is not within the scope of the text to thoroughly examine the great theoretically oriented debates that have spun around behaviorism, particularly the cognitive-linguistic versus the behavioral viewpoints. Such theoretical discussion regarding other approaches is largely omitted from this text due to our desire to maintain a clinically oriented focus on behavioral principles.

We also acknowledge that bias against behaviorism still exists in many modern-day circles, although we find this to be unfortunate. Criticisms regarding behaviorism were easier to understand before the 1980s, before we had a body of research supporting the applied extensions of the basic and theoretical work resulting from Skinner's research. In the 1960s, the use of behavioral techniques in applied settings increased, improving outcomes in people with mental and developmental disabilities. Then, in the 1970s and 1980s, the methodology to empirically validate

behavioral techniques progressed, and the number of scientific publications demonstrating the value of those techniques consequently increased. Currently, the evidence supporting the application of behavioral principles to effectuate change in human behavior is vast, and people seeking to improve their communicative behaviors should have access to treatment that incorporates those principles. In writing this textbook, it was our intent to present material specifically focused on empirically validated behavioral techniques that have shown efficacy in enhancing clinicians' skills and clients' outcomes.

In addition to our advocacy for the science of behaviorism, we also share a dedication to putting professional territorialism behind us and embracing interdisciplinary collaboration to provide the best evidence-based services possible to the people we serve. This is a highly personal devotion among the authors of this book, one of whom is the parent of a young man with autism and mental illness. Participating in clinical intervention techniques not only as a professional but also as a parent may be one of the most profound ways of experiencing the importance of scientific collaboration in maximizing outcomes for a loved one. This is a measure of success that can be achieved only if theoretical turf battles are abandoned in favor of interdisciplinary collaboration among professionals dedicated to pursuing common goals within an evidence-based framework. Our clinical fields are experiencing a shift, and professionals from complimentary disciplines (SLP, school psychology, BCBA, special education teachers, etc.) are working together more than ever before. This is happening not only in public schools but also, to an increasing degree, within the private sector. Being knowledgeable about the

valuable methods and techniques used by our colleagues in neighboring fields of practice is extremely helpful in strengthening our own practice as clinicians and, more important, will be of benefit to the

clients we serve. We hope that you find this book to be challenging, informative, and useful in your professional growth and clinical work.

—Amanda Nicolson Adams,
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Chapter 2

To M. N. Hegde



CHAPTER 1

Introduction to Behaviorism

Chapter Outline

- Why Should SLPs Learn the Principles of Behaviorism and How to Apply Them?
- Definition and History of Behaviorism
 - Early Behavioral Scientists
 - Pavlov (1849–1936)
 - Watson (1878–1958)
 - B. F. Skinner (1904–1990)
- Principles of Behaviorism
 - Operant Conditioning and Respondent Conditioning
 - Positive and Negative Reinforcement
 - Differential Reinforcement
 - Positive and Negative Punishment
 - Stimulus Discrimination and Generalization
- Behavior Modification: The Early Days
- Philosophical Underpinnings
- Early Experimentation in Behavior Modification
- Applied Behavior Analysis
 - Definition of ABA
 - Who Are Board Certified Behavior Analysts (BCBAs)?
 - How Can SLPs and BCBAs Collaborate?

Why Should SLPs Learn the Principles of Behaviorism and How to Apply Them?

Speech-language pathologists (SLPs) are in the business of changing communicative behaviors in the clients that they serve. SLPs seek to establish new communicative behaviors in their clients, rehabilitate communicative behaviors that may have been lost, strengthen and maintain existing communicative behaviors, and, often simultaneously, decrease communicative behaviors that are undesirable. SLPs are ethically charged to engage in evidence-based practice to achieve these goals, taking into consideration scientific evidence reported in peer-reviewed journals, the preferences of their clients, and their own clinical expertise (American Speech-Language-Hearing Association, 2005). The well-researched principles of behaviorism, therefore, are highly relevant to the field of speech-language pathology because it is a science that has resulted in an evidence-based, systematic set of methods applied to modify the behaviors of others. On that basis alone, it is beneficial for SLPs to have knowledge of those methods and understand how they can be applied in the assessment and treatment of their clients. However, there are other good reasons why SLPs should know and apply principles of behaviorism.

SLPs are ethically charged to engage in _____ - _____ .

Clients served by SLPs often present with accompanying behavioral difficulties. In the adult population, behavior problems are a frequently occurring effect of stroke and traumatic brain injury (TBI). Also, the comorbidity of speech-language

difficulties and social emotional behavior disorders (SEBDs) in children has been well documented. It has been reported that 21.6% of the child and adolescent populations in the United States exhibit behaviors that warrant the diagnosis of some type of psychiatric disorder (Carter et al., 2010). Among children who are diagnosed with language disorders, there is a much higher prevalence of SEBD; estimates by various researchers range between 50% and 70% (Redmond & Rice, 1998). Therefore, SLPs working in all settings are likely to encounter behavioral difficulties in a significant percentage of the clients they attempt to help. Often behavior problems must be addressed before clients can fully benefit from treatment.

It is also becoming increasingly likely for SLPs to be asked to take part in collaborative, multidisciplinary efforts to help children overcome behavioral difficulties that may impede their access to educational curriculum (Bopp, Brown, & Miranda, 2004). In particular, SLPs may be called upon to work closely with board certified behavior analysts (BCBAs) who are experts in discovering and describing problem behaviors in children and adults and then writing behavior plans to address those problems. BCBAs have special expertise in **applied behavior analysis (ABA)**, a systematic set of methods designed to discover aspects of a person's environment that contribute to problem behavior through **functional behavior assessment (FBA)**. In addition, BCBAs are experts in applying ABA principles to build and shape new behaviors that may be nonexistent or deficient in clients who do not necessarily exhibit problem behaviors. SLPs can therefore collaborate with BCBAs in assisting clients with a wide range of communicative difficulties, with or without accompanying behavior disorders. This chapter ends with a further dis-

discussion of the origin of applied behavior analysis and professional collaboration between SLPs and BCBA.

Clients with behavioral difficulties will benefit from collaboration between SLPs and _____-_____.

Finally, although principles of ABA are more closely associated with assessment and intervention for children with autism and other severe disabilities, those principles have much broader application to the entire gamut of types of communicative disorders, levels of severity, and behaviors that simply interfere with the delivery of therapy. SLPs who understand the principles of ABA can address problems as critical as helping a nonverbal individual obtain a system of communication to as mild as helping a child stay in seat during therapy.

In summary, SLPs should learn and apply principles of behaviorism because (a) there is a well-established evidence base for the efficacy of methods based on behaviorism, (b) many clients on SLPs' caseloads are likely to exhibit challenging behaviors, (c) there is an increasing need for SLPs to collaborate with BCBA in providing assessment and intervention for children with behavior disorders, and (d) the principles of behaviorism are broadly applicable across types and levels of severity of communicative disorders.

Definition and History of Behaviorism

Behaviorism as a philosophy is grounded in the principles of **empiricism** and **determinism**. These principles are not compat-

ible with **mentalism**, another widely held philosophy that emphasizes assumed internal processes such as thought and perception as the key to understanding why human beings behave the way they do.

Empiricism is the belief that knowledge can be derived only from sensory experiences—from that which can be seen, heard, touched, tasted, or smelled. Therefore, direct observation is inextricably necessary in establishing a knowledge base. It is a well-founded principle of behaviorism that human behavior must be defined in terms of that which can be observed and measured. For example, it is not acceptable to a behaviorist to describe a behavior as an internal emotional event, such as joy. A behaviorist would instead describe and quantify behaviors that might indicate the person is joyful, such as smiling, laughing, jumping up and down, or making cheering noises.

Empiricists also do not accept an idea simply because it appears to be logical, well argued, or coherent. They insist on putting ideas to the empirical test, a scientific experiment arranged to directly experience the truth or untruth of a statement or hypothesis. Principles of behaviorism have been thoroughly examined through empirical research, most often utilizing single-case research design methodology, which is described in more depth in Chapter 9.

The belief that knowledge can be derived only from sensory experiences is called _____.

Determinism is the belief that nothing that happens in the world is haphazard. Determinists believe that there is a systematic order in which phenomena relate to each other. Every effect has a cause, and it is possible through scientific experimentation

to discover, understand, and exert control over a cause-effect relationship.

The belief that every effect has a cause is called _____.

The philosophical concepts of empiricism and determinism demand explanations of human behavior that cannot be derived from a mentalistic viewpoint. Mentalism is the belief that humans act the way they do because of internal, unobservable phenomena, such as mind, thought, and free will. There are a myriad of other hypothetical constructs that mentalistic authors have set forth. Freud (1949), for example, described id, ego, and super ego as the prime determinants of human behavior. Chomsky (1965) proposed an internal language acquisition device (LAD) as the mechanism by which children acquire language. Modern-day authors have proposed many models showing how the brain processes information in much the same way as a computer does without the neurological data to prove such processes (e.g., Schyns, Gosselin, & Smith, 2009). All of these are examples of hypothetical constructs that do not lend themselves to observation and measurement and therefore cannot be subjected to empirical testing. Behavioral scientists therefore argue that, although such constructs may be a part of the human experience, they do not contribute much to a functional understanding of why human beings behave the way they do.

The belief that humans act the way they do because of internal, unobservable phenomena is called _____.

Early Behavioral Scientists

Behavioral principles have been in operation since the beginning of the history of humankind. In response to the conditions of their environments, humans learn to seek shelter when it is cold, to hunt and to farm in order to obtain food, to run in times of danger, to swim instead of drown, and so forth. Parents teach their children by praising them when they are behaving in a desirable way and by punishing them when they are not. People repeat behaviors that result in rewards such as a paycheck from a boss, a kiss from a spouse, a hug from a child, or a smile from a friend. Although these are everyday occurrences that are taken for granted by the general public, the way in which behavioral principles shape our lives was not fully described or understood until scientists began to systematically study how living organisms respond to environmental stimuli. Three scientists who contributed to the founding of behavioral science were Ivan Pavlov (1849–1936), John B. Watson (1878–1958), and B. F. Skinner (1904–1990).

Pavlov (1849–1936)

To understand Pavlov's pioneering work, it is necessary to distinguish between an **unconditioned stimulus**, which elicits an unconditioned response, and a **conditioned stimulus**, which elicits a conditioned response. Unconditioned stimuli automatically elicit an unconditioned response; living organisms, including human beings, react to certain stimuli in certain ways from birth, and those reactions persist throughout the life span. For example, the presentation of good food elicits salivation, touching a hot plate elicits a rapid removal of the hand, experienc-

ing pain elicits moaning, pollen in the air elicits sneezing, and so forth. In each of these examples, there is an unconditioned stimulus (such as pollen) and an unconditioned response (such as sneezing).

Pavlov established that it is possible to elicit an unconditioned response to neutral stimuli that do not ordinarily elicit such a response. In his classic experiments, he presented a variety of neutral stimuli, most famously the sound of a bell, prior to the presentation of food to a dog. The food, the unconditioned stimulus, elicited the dog's salivation. However, after repeated pairings of the bell tone with presentation of the food, the dog salivated upon hearing the bell. At that point, the tone became a **conditioned stimulus** and the dog's salivation became a **conditioned response** (Figure 1-1).

Pairing a neutral stimulus to an unconditioned stimulus to eventually elicit an unconditioned response by presentation of the neutral stimulus alone is currently referred to as **respondent conditioning**. "Pavlov's dog" became an icon for the

establishment of a set of behavioral techniques based on respondent conditioning, which, when applied ethically, can help people overcome irrational fears, such as fear of flying, or cease undesirable habits, such as smoking or excessive alcohol consumption. This type of respondent conditioning, also called Pavlovian or **classical conditioning**, has limited application to the treatment of communicative disorders. However, Display Box 1-1 shows an example of the importance of understanding the concept of respondent conditioning.

Watson (1878-1958)

Watson was the mentalist's biggest foe. He soundly denounced the idea that scientific inquiry in the field of psychology should be concerned with unobservable mental states (e.g., thought, mood, dreams, theoretical constructs of consciousness, etc.). He proposed instead that studies be conducted solely to discover the causes of observable behavior, with the ultimate

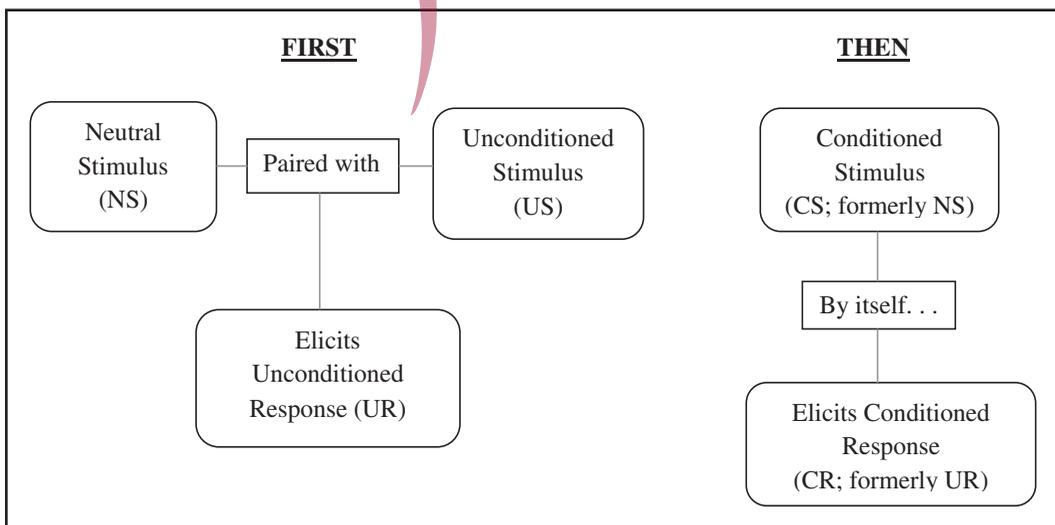


Figure 1-1. The process of respondent conditioning.

Display Box 1–1. Keep Those White Coats in the Closet!

Although respondent conditioning has little application to the treatment of communicative disorders, it is beneficial for clinicians to understand how people can have reflexive, conditioned reactions to stimuli that would not ordinarily elicit such reactions. For example, fear responses from a child may be elicited by a clinician wearing a white lab coat. Previous trips to the doctor's office, in which people often wearing white coats administer vaccinations, may have conditioned the children to react in such a manner. Similarly, the mere sight of a tongue depressor may elicit a backward jerk of the head or even a gag reflex in clients who have previously experienced oral facial examinations.

Based on the schematic given in Figure 1–1, identify the unconditioned stimuli and the unconditioned responses, leading to the conditioned stimuli and conditioned responses described here.

goal of devising methods by which human behavior can be predicted and controlled. His ideas formed the foundation for behaviorism as a purely objective natural science leading to understanding the relationships between environmental stimuli and responses of living organisms to those stimuli.

Watson was a colorful character with strong opinions that led him in various directions, most notably into animal behavior, childrearing, and marketing. In his most controversial experiment, he applied the Pavlovian principle of respondent conditioning to an 11-month-old child, dubbed "Little Albert," presenting a furry little white rat to the child simultaneously with the disturbingly loud noise of an iron rod clanging (Watson & Rayner, 1920). Albert had exhibited no previous fear of the rat, but he understandably

reacted with fear to the clang of the iron rod. After several simultaneous presentations of the two stimuli, the child began to exhibit fearful reactions to the presentation of the rat alone and also to other animals and objects that had any kind of resemblance to the rat. Thus, Watson proved that fear could be a conditioned response that could generalize to related objects. Watson did not attempt to de-condition Little Albert, and because the little boy died at the age of 6 from hydrocephalus, it was not possible to determine what effect this experiment might have had on his life. This type of experimentation, coupled with Watson's penchant for strongly worded hyperbolic statements, discredited him and the newly proposed science of behaviorism in the eyes of many. Display Box 1–2 presents one of Watson's most controversial statements.