

# Behavior Modification

Principles and Procedures

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*Sixth Edition*



Raymond G. Miltenberger



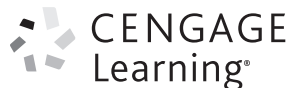
# Behavior Modification

## Principles and Procedures

SIXTH EDITION

Raymond G. Miltenberger

University of South Florida



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*To my wife, Nasrin,  
and my kids, Ryan, Roxanne, and Steven*

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# PREFACE

I am gratified that the first five editions of *Behavior Modification: Principles and Procedures* received positive reviews from students and professors. The sixth edition has kept the positive features of the first five editions, has been revised to address the suggestions of reviewers, and has been updated to reflect the latest research in behavior modification.

The goal of this sixth edition (as with the earlier editions) is to describe basic principles of behavior so that the student learns how environmental events influence human behavior and to describe behavior modification procedures so that the student learns the strategies by which human behavior may be changed. The text is divided into 25 relatively short chapters, each of which covers a manageable amount of information (for example, one principle or procedure). This text can be used in a standard one-semester course in behavior modification, applied behavior analysis, behavior management, or behavior change.

The material in the text is discussed at an introductory level so that it may be understood by students with no prior knowledge of the subject. This text is intended for undergraduate students or beginning graduate students. It would also be valuable for individuals working in human services, education, or rehabilitation who must use behavior modification procedures to manage the behavior of the individuals in their care.

I have made a concerted effort in this text to be gender neutral. When discussing case examples, I include males and females about equally as often.

## Features of the Text Continued from the First Five Editions

The following features of the text are intended to help the reader learn easily.

**Organization of the Text** Following a general introduction to the field in Chapter 1, Chapters 2 and 3 present information on behavior recording, graphing, and measuring change. This information will be utilized in each subsequent chapter. Next, Chapters 4–8 focus on the basic principles of operant and respondent behavior. The application of these principles forms the subject of the remaining 17 chapters. Procedures to establish new behaviors are described in Chapters 9–12, and procedures to increase desirable behaviors and decrease undesirable behaviors are considered in Chapters 13–19. Finally, Chapters 20–25 present a survey of other important behavior modification procedures.

**Principles and Procedures** The various procedures for changing behavior are based on the fundamental principles of behavior established in experimental research over the last 80 years. In the belief that the student will better understand the procedures after first learning the fundamental principles, the principles

underlying operant and respondent behavior are reviewed in Chapters 4–8; the application of the principles in the behavior modification procedures is described in Chapters 9–25.

**Examples from Everyday Life** Each chapter uses a variety of real-life examples—some relevant to college students, some chosen from the author’s clinical experience—to bring the principles and procedures to life.

**Examples from Research** In addition, both classic studies and the most up-to-date research on behavior modification principles and procedures are integrated into the text.

**Quizzes Accompany Each Chapter** Three fill-in-the-blank quizzes with 10 questions are provided for each of the 25 chapters. The quizzes provide students with further exercises for self-assessment of their knowledge of the chapters’ content. The quizzes are on perforated pages, which can be easily torn out so that the instructor can have students hand the quizzes in as homework assignments or have students take the quizzes in class.

**Practice Tests** Practice tests at the end of each chapter have short-answer essay questions, complete with page numbers where the answers can be found.

**Application Exercises** At the end of each chapter where procedures are taught (Chapters 2, 3, and 9–25), several application exercises are provided. In each exercise, a real-life case is described and then the student is asked to apply the procedure described in the chapter. These exercises give students an opportunity to think about how the procedures are applied in real life.

**Misapplication Exercises** The application exercises are followed by misapplication exercises. In each one, a case example is provided, and the procedure from the chapter is applied to the case in an incorrect or inappropriate manner. The student is asked to analyze the case example and to describe what is wrong with the application of the procedure in that case. These misapplication exercises require the student to think critically about the application of the procedure. Answers to Applications and Misapplications are in the Instructors Manual, making them valuable tools for instructors as they assess their students’ abilities to apply the information provided in the chapter.

**Step-by-Step Approach** In each chapter in which a particular behavior modification procedure is taught, the implementation of the procedure is outlined in a step-by-step fashion, for ease of comprehension.

**Summary Boxes** Periodically throughout the text, information from a chapter is summarized in a box that has been set off from the text. These boxes are intended to help the student organize the material in the chapter.

**Chapter Summaries** Chapter summaries provide information that is consistent with the opening questions in each chapter.

**Examples for Self-Assessment** In the early chapters on basic principles (Chapters 4–7), there are tables with examples of the principle discussed within that chapter. Later in the chapter (or in a subsequent chapter), the student is directed to return to a specific table and, using the new information being presented in the chapter, to analyze specific aspects of the examples provided in that table.

**Self-Assessment Questions** At intervals throughout the text, students are presented with self-assessment questions. To answer these questions, students will need to utilize the information already presented in the chapter. These questions will help students assess their understanding of the material. In most cases, answers are presented in the text immediately following the question.

**Figures** Most of the chapters include figures from the research literature to illustrate important principles or procedures. Students must use information from earlier chapters on behavior recording, graphing, and measuring change to analyze the graphs.

**Glossary** At the end of the text is a glossary of the important behavior modification terms used in the text. Each term is followed by a succinct and precise definition.

**Improved Test Bank** The test bank includes multiple-choice questions, fill-in-the-blank questions, true-false questions, and short-answer essay questions.

**For Further Reading** Each of the chapters includes a For Further Reading box. In this feature, interesting articles that are relevant to the content of the chapter are identified and briefly described. Citations for these articles have also been provided. These articles are from JABA (or JEAB), so they can be easily accessed online by students. Instructors can assign these articles for extra credit or as reading assignments for when more advanced students use the textbook.

**List of Key Terms** After each Chapter Summary section, there is a list of the new terms that were used in the chapter. The list of key terms shows the page number on which each term was introduced. Although these terms are all found in the Glossary at the end of the text, having the new terms, and their page numbers, listed at the end of each chapter will allow the student to have an easy reference to the terms when reading the chapter or when studying for a test or quiz.

## New Features in the Sixth Edition

**Highlighting** There is new highlighting of important information in each chapter to draw the students' attention to the information. In addition, in-text questions are highlighted with a ? icon. Finally, more text boxes are provided highlighting important information.

**Motivating Operations** The term motivating operation was introduced in the last edition. In this edition, more detail is provided on the two types of motivating operations (EOs and AOs) in Chapters 4 and 6 to help students better understand

the concept applied to reinforcement and punishment. A table in Chapter 6 provides a succinct summary.

**Functional Relationships** Provided more detail on how functional relationships between environmental variables and behavior are assessed. Emphasized how functional relationships are established in each type of research design (Chapter 3) and how functional analysis procedures identify functional relationships (Chapter 13).

**Functional Analysis** Provided more information on functional analysis in Chapter 13. Clarified the distinction between functional assessment and functional analysis and clinical applications of the functional analysis methodology.

**Behavior Recording** Added a figure highlighting the difference between interval recording and time sample recording (Chapter 2). Discussed the use of technology for behavior recording including information on behavior recording apps for smartphones and tablets, accelerometers and GPS-enabled devices for recording exercise and physical activity, and web-based programs for recording and self-management (Chapters 2 and 23).

**Professional Practice, Certification, and Ethics** Discussed professional practice, certification, and ethics in Chapter 1. Provided information on Board Certified Behavior Analysts as the practicing professional who uses the behavior modification procedures presented in this text. Discussed ethical principles in Chapters 1 and 6.

**Getting Buy In** Discussed the importance of working with care givers to get buy in for the procedures they are asked to carry out. Emphasized the importance of treatment acceptability for promoting buy in and the importance of buy in for enhancing treatment fidelity.

**Time Out** Added more information on the effective use of time out. Added a textbox discussing procedures for increasing compliance with time out.

**Generalization** Added discussion of another strategy for promoting generalization; providing cues for the behavior in the natural environment

#### **Other New Features**

- Added more self-assessment questions in the text
- Updated the definition of behavior modification (Chapter 1)
- Added brief discussion of behaviorism (Chapter 1)
- Highlighted that the AB design is not a true research design (Chapter 3)
- Introduced the terms evoke and abate in the discussion of EOs and AOs (Chapter 4) and evoke in the discussion of stimulus control (Chapter 7)
- Moved discussion of instructions before the discussion of modeling in behavioral skills training (Chapter 12)
- Clarified the two functions of feedback (Chapter 12)
- Distinguished between preference assessment and reinforcer assessment (Chapter 15)

- Added a brief discussion of the competing responses framework (Chapter 16)
- Added a brief discussion of team decision making (Chapter 16)
- Provided discussion of the use of physical restraint as an emergency procedure (Chapter 18)
- Discussed the use of social media for social support (Chapter 20)
- Added information on novel uses of habit reversal (Chapter 21)
- Added a more succinct definition of a token economy (Chapter 22)
- Added a text box describing three essential components of relaxation procedures (Chapter 24)
- Added text box introducing behavioral activation treatment for depression (Chapter 24)
- Added numerous new references throughout the text
- Introduced and defined a number of new terms in the text and added them to the glossary

## ■ Accompanying This Text

**Online Instructor’s Manual** The instructor’s manual contains a variety of resources to aid instructors in preparing and presenting text material in a manner that meets their personal preferences and course needs. It presents chapter-by-chapter suggestions and resources to enhance and facilitate learning.

**Online PowerPoint® Slides** These vibrant Microsoft PowerPoint® lecture slides for each chapter assist you with your lecture by providing concept coverage using content directly from the textbook.

**Cengage Learning Testing, powered by Cognero** Cognero is a flexible online system that allows you to author, edit, and manage test bank content as well as create multiple test versions in an instant. You can deliver tests from your school’s learning management system, your classroom, or wherever you want!

## ■ Acknowledgments

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## For the Behavior Modification Student

To get the most out of this text and out of your behavior modification course, you are encouraged to consider the following recommendations.

1. Read the assigned chapters before the class meeting at which the chapter is to be discussed. You will benefit more from the class if you have first read the material.
2. Answer each of the self-assessment questions in the chapter to see if you understand the material just covered.
3. Answer the practice test questions at the end of each chapter. If you can answer each question, you know that you understand the material in the chapter.
4. Complete the end-of-chapter quizzes to assess your knowledge of the chapter content.
5. Complete the application and misapplication exercises at the end of the procedure chapters. In that way, you will understand the material in the chapter well enough to apply it or to identify how it is applied incorrectly.
6. The best way to study for a test is to test yourself. After reading and rereading the chapter and your class notes, test yourself in the following ways.
  - Look at key terms in the chapter and see if you can define them without looking at the definitions in the text.
  - Look at each practice test question at the end of the chapter and see if you can give the correct answer without looking up the answer in the text or in your notes.
  - Come up with novel examples of each principle or procedure in the chapter.
  - Make flash cards with a term or question on one side and the definition of the term or the answer to the question on the other side. While studying,

look at the term (or question) on one side of the card and then read the definition (or answer) on the other. As you study, you will find that you need to turn the cards over less and less often. Once you can supply the answer or definition on the back of the card without looking, you'll know that you understand the material. Electronic flash cards are available at the publisher's website that accompanies the book.

- Always study in a location that is reasonably free from distractions or interruptions.
- Always begin studying for a test at least a few days in advance. Give yourself more days to study as more chapters are included on the test.

The following websites provide a range of valuable information about different aspects of behavior modification or applied behavior analysis.

|   |   |
|---|---|
| <a href="http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1938-3703">http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1938-3703</a> | Journal of Applied Behavior Analysis                    |
| <a href="http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1938-3711">http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1938-3711</a> | Journal of the Experimental Analysis of Behavior        |
| <a href="http://www.abainternational.org">http://www.abainternational.org</a>   | The Association for Behavior Analysis                   |
| <a href="http://www.apbahome.net/">http://www.apbahome.net/</a>   | Association of Professional Behavior Analysts           |
| <a href="http://www.apa.org/about/division/div25.aspx/">http://www.apa.org/about/division/div25.aspx/</a>                                   | APA Division 25 (Behavior Analysis)                     |
| <a href="http://www.abct.org">http://www.abct.org</a>   | Association for Behavioral and Cognitive Therapy        |
| <a href="http://fabaworld.org">http://fabaworld.org</a>   | Florida Association for Behavior Analysis               |
| <a href="http://www.calaba.org/">http://www.calaba.org/</a>   | California Association for Behavior Analysis            |
| <a href="http://www.txaba.org/">http://www.txaba.org/</a>   | Texas Association for Behavior Analysis                 |
| <a href="http://www.babat.org/">http://www.babat.org/</a>   | Berkshire Association for Behavior Analysis and Therapy |
| <a href="http://www.baojournal.com/">http://www.baojournal.com/</a>   | The Behavior Analyst Online                             |
| <a href="http://www.autismspeaks.org">www.autismspeaks.org</a>  | Autism Speaks   |
| <a href="http://www.behavior.org">http://www.behavior.org</a>   | Cambridge Center for Behavioral Studies                 |
| <a href="http://www.bf Skinner.org/">http://www.bf Skinner.org/</a>   | B.F. Skinner Foundation                                 |
| <a href="http://www.bacb.com/">http://www.bacb.com/</a>   | Behavior Analyst Certification Board                    |

*Raymond G. Miltenberger*





# Introduction to Behavior Modification

- 
- How is human behavior defined?
  - What are the defining features of behavior modification?
  - What are the historical roots of behavior modification?
  - In what ways has behavior modification improved people's lives?
- 

In this textbook you will learn about behavior modification, the principles and procedures used to understand and change human behavior. Behavior modification procedures come in many forms. Consider the following examples.

Ted and Jane were having some difficulties in their marriage because of frequent arguments. Their marriage counselor arranged a behavioral contract with them in which they agreed to do several nice things for each other every day. As a result of this contract, their positive interactions increased and their negative interactions (arguments) decreased.

Karen pulled her hair incessantly; as a result, she created a bald spot on the top of her head. Although she was embarrassed by the bald spot, which measured 1 inch in diameter, she continued to pull her hair. Her psychologist implemented a treatment in which Karen was to engage in a competing activity with her hands (e.g., needlepoint) each time she started to pull her hair or had the urge to pull. Over time, the hair-pulling stopped and her hair grew back in.

Francisco was gaining a lot of weight and decided to do something about it. He joined a weight loss group. At each group meeting, Francisco deposited a sum of money, set a goal for daily exercise, and earned points for meeting his exercise goals each week. If he earned a specified number of points, he got his deposit back. If he did not earn enough points, he lost part of his deposit money. Francisco began to exercise regularly and lost weight as a result of his participation in the group.

The residents of Cincinnati were making thousands of unnecessary directory assistance calls per day. These calls were clogging up the phone lines and costing the phone company money. The company instituted a charge for each directory assistance call, and the number of calls decreased dramatically.

You will notice that each of these examples focuses on some aspect of human behavior and describes ways to change the behavior. Because behavior modification focuses on behavior and behavior change, it is appropriate to begin with a discussion of behavior.

## Defining Human Behavior

Human behavior is the subject matter of behavior modification. **Behavior** is what people do and say. The characteristics that define behavior are as follows.

- Behavior involves a person's actions (what people do or say); it is described with action verbs. Behavior is not a static characteristic of the person. If you say that a person is angry, you have not identified the person's behavior; you have simply labeled the person. If you identify what the person says or does when angry, then you have identified behavior. For example, "Jennifer screamed at her mother, ran upstairs, and slammed the door to her room." This is a description of behavior that might be labeled as anger.

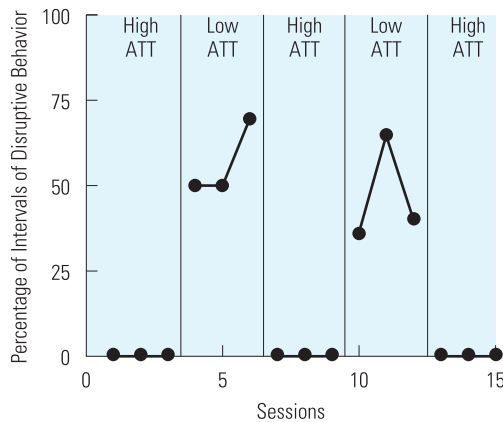
- Behaviors have **dimensions** that can be measured. You can measure the **frequency** of a behavior; that is, you can count the number of times a behavior occurs (e.g., Shane bit his fingernails 12 times in the class period). You can measure the **duration** of a behavior, or the time from when an instance of the behavior starts until it stops (e.g., Rita jogged for 25 minutes). You can measure the **intensity** of a behavior or the physical force involved in the behavior (e.g., Garth bench pressed 220 pounds). You can measure the speed of behavior, or the **latency** from some event to the start of a behavior. Frequency, duration, intensity, and latency are all dimensions of a behavior. **A dimension is a measurable aspect of the behavior.**

- Behaviors can be observed, described, and recorded by others or by the person engaging in the behavior. Because a behavior is an action, its occurrence can be observed. People can see the behavior (or detect it through one of the senses) when it occurs. Because it is observable, the person who sees the behavior can

describe it and record its occurrence. (See Chapter 2 for a description of methods for recording behavior.)

- Behaviors have an impact on the environment, including the physical or the social environment (other people and ourselves). Because a behavior is an action that involves movement through space and time (Johnston & Pennypacker, 1981), the occurrence of a behavior has some effect on the environment in which it occurs. Sometimes the effect on the environment is obvious. You turn the light switch, and the light goes on (an effect on the physical environment). You raise your hand in class, and your professor calls on you (an effect on other people). You recite a phone number from a web site, and you are more likely to remember it and to dial the correct number (an effect on yourself). Sometimes the effect of a behavior on the environment is not obvious. Sometimes it has an effect only on the person who engages in the behavior. However, all human behavior operates on the physical or social environment in some way, regardless of whether we are aware of its impact.

- Behavior is lawful; that is, its occurrence is systematically influenced by environmental events. Basic behavioral principles describe the functional relationships between our behavior and environmental events. These principles describe how our behavior is influenced by, or occurs as a function of, environmental events (see Chapters 4–8). These basic behavioral principles are the building blocks of behavior modification procedures. Once you understand the environmental events that cause behaviors to occur, you can change the events in the environment to alter behavior. Consider the graph in Figure 1-1, which



**FIGURE 1-1**

This graph, adapted from a study by Durand and Carr (1992), shows the influence of teacher attention on the disruptive behavior (defined as pushing away task materials; loud screaming, whining, or crying; and hitting or knocking over objects) of a young boy (Paul) in a special education classroom. The graph shows that disruptive behavior does not occur when Paul receives frequent teacher attention (High ATT). However, when Paul receives teacher attention infrequently (Low ATT), he engages in disruptive behavior about 50% of the time. This graph shows the functional relationship between the teacher's attention and Paul's disruptive behavior (From Durand, V. M., & Carr, E. G. [1992]. An analysis of maintenance following functional communication training. *Journal of Applied Behavior Analysis*, 25, 777–794. Copyright © 1992 University of Kansas Press. Reprinted by permission of the author.)

shows the disruptive behavior of a child with autism in the classroom. When the child receives high levels of attention from the teacher, his disruptive behavior rarely occurs. When the child receives low levels of attention from the teacher, his disruptive behavior occurs more frequently. We conclude that the disruptive behavior is functionally related to the level of teacher attention.

■ Behaviors may be overt or covert. Most often, behavior modification procedures are used to understand and change overt behaviors. An **overt behavior** is an action that can be observed and recorded by a person other than the one engaging in the behavior. However, some behaviors are covert. **Covert behaviors**, also called private events (Skinner, 1974), are not observable by others. For example, thinking is a covert behavior; it cannot be observed and recorded by another person. Thinking can be observed only by the person engaging in the behavior. The field of behavior modification focuses primarily on overt or observable behaviors, as does this textbook. However, Chapters 8, 24, and 25 discuss covert behaviors and behavior modification procedures applied to them.

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### Characteristics of Behavior

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Behavior is what people do and say.

Behaviors have dimensions that can be measured.

Behaviors can be observed, described, and recorded.

Behaviors have an impact on the environment.

Behavior is lawful.

Behaviors may be overt and covert.

---

## Examples of Behavior

Now let's illustrate the defining characteristics of behavior with some examples. The following examples include both common behaviors and problematic behaviors for which behavior modification procedures might be used.

*Martha sits at her computer and types an e-mail to her parents.*

This is behavior because pressing the keys on the keyboard while typing is an action, has physical dimensions (frequency of pressing keys, duration of typing), is observable and measurable, has an impact on the environment (produces letters on the screen), and is lawful (occurs because of previous learning that pressing the keys produces letters on the screen).

*Mandy lies in her crib and cries loudly. Her mother then picks her up and feeds her.*

This behavior has all five of the characteristics described in the previous example (an action that has measurable dimensions, is observable by others, produces an effect on the environment, and is lawful). One difference is that the effect of crying is on the social environment; her mother responds to her crying by picking her up and feeding her. Each time it has occurred in the past, crying

has resulted in her mother feeding her, so the crying continues to occur when Mandy is hungry. There is a functional relationship between the crying and the mother's behavior of feeding her.

*Jerry's paper for his behavior modification class is a week late. Jerry gives the paper to his professor and lies, saying that it is late because he had to go home to see his sick grandmother. The professor then accepts the paper without any penalty. Jerry also missed his history test. He tells his history professor he missed the test because of his sick grandmother. The professor lets him take the test a week late.*

Jerry's behavior—lying about his visit to his sick grandmother—has all five characteristics of a behavior. It is an action (something he said) that occurred twice (frequency), was observed by his professors, and resulted in an effect on his social environment (his professors let him take a test late and hand in a paper late with no penalty); it is lawful because there is a functional relationship between the behavior (lying) and the outcome (getting away with late papers or tests).

*Samantha is a 6-year-old with an intellectual disability who attends special education classes. When the teacher is helping other students and not paying attention to Samantha, Samantha cries and bangs her head on the table or floor. Whenever Samantha bangs her head, the teacher stops what she is doing and picks Samantha up and comforts her. She tells Samantha to calm down, assures her that everything is all right, gives her a hug, and often lets Samantha sit on her lap.*



*Identify each of the five characteristics of Samantha's behavior.*

Samantha's head banging is a behavior. It is an action that she repeats a number of times each day. The teacher could observe and record the number of occurrences each day. The head banging produces an effect on the social environment: The teacher provides attention each time the behavior occurs. Finally, the behavior is lawful; it continues to occur because there is a functional relationship between the head-banging behavior and the outcome of teacher attention.

## Defining Behavior Modification

**Behavior modification** is the applied science and professional practice concerned with analyzing and modifying human behavior.

- *Analyzing* means identifying the functional relationship between environmental events and a particular behavior to understand the reasons for the behavior or to determine why a person behaved as he or she did.

- *Modifying* means developing and implementing procedures to help people change their behavior. It involves altering environmental events so as to influence behavior. Behavior modification procedures are developed by professionals (e.g., board certified behavior analysts) and used to change socially significant behaviors, with the goal of improving some aspect of a person's life. Following are some characteristics that define behavior modification (Gambrill, 1977; Kazdin, 1994).

## Characteristics of Behavior Modification

- *Focus on behavior.* Behavior modification procedures are designed to change behavior, not a personal characteristic or trait. Therefore, behavior modification de-emphasizes labeling. For example, behavior modification is not used to change autism (a label); rather, behavior modification is used to change problem behaviors exhibited by children with autism.

Behavioral excesses and deficits are targets for change with behavior modification procedures. In behavior modification, the behavior to be modified is called the **target behavior**. A **behavioral excess** is an undesirable target behavior the person wants to decrease in frequency, duration, or intensity. Smoking is an example of a behavioral excess. A **behavioral deficit** is a desirable target behavior the person wants to increase in frequency, duration, or intensity. Exercise and studying are possible examples of behavioral deficits.

- *Guided by the theory and philosophy of behaviorism.* The guiding theoretical framework behind behavior modification is **behaviorism**. Initially developed by B. F. Skinner (1953a, 1974), behaviorism's core tenets are that behavior is lawful and controlled by environmental events occurring in close temporal relation to the behavior (see also Baum, 1994; Chiesa, 1994).

- *Procedures based on behavioral principles.* Behavior modification is the application of basic principles originally derived from experimental research with laboratory animals (Skinner, 1938). The scientific study of behavior is called the **experimental analysis of behavior**, or behavior analysis (Skinner, 1953b, 1966). The scientific study of human behavior to help people change behavior in meaningful ways is called **applied behavior analysis** (Baer, Wolf, & Risley, 1968, 1987). Behavior modification procedures are based on research in applied behavior analysis that has been conducted for more than 50 years (Ullmann & Krasner, 1965; Ulrich, Stachnik, & Mabry, 1966).

- *Emphasis on current environmental events.* Behavior modification involves assessing and modifying the current environmental events that are functionally related to the behavior. Human behavior is controlled by events in the immediate environment, and the goal of behavior modification is to identify those events. Once these **controlling variables** have been identified, they are altered to modify the behavior. Successful behavior modification procedures alter the functional relationships between the behavior and the controlling variables in the environment to produce a desired change in the behavior. Sometimes labels are mistakenly identified as the causes of behavior. For example, a person might say that a child with autism engages in problem behaviors (such as screaming, hitting himself, refusal to follow instructions) because the child is autistic. In other words, the person is suggesting that autism causes the child to engage in the behavior. However, autism is simply a label that describes the pattern of behaviors the child engages in. The label cannot be the cause of the behavior because the label does not exist as a physical entity or event. The causes of the behavior must be found in the environment (including the biology of the child).