

Functional Assessment of Behavior
Key Terms and Definitions
EDS 240

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Faulty Explanations for Behavior

1. Behavior occurs because of the student is bad
2. Behavior is caused by the disability
3. Behavior is caused by the student's family and poor parenting/discipline practices
4. Behavior occurs because the home is bad
5. Behavior is the result of prior trauma/bad experiences.

Chandler & Dahlquist (2010) 2

Key Terms and Definitions

- ✘ Pavlov's Classical Conditioning
- ✘ Skinner's Operant Conditioning
- ✘ Applied Behavior Analysis
 - ◆ Behavior
 - ◆ Consequences (Question 6)
 - Punishment } (Question 5)
 - Reinforcement } (Question 7)
 - ◆ Positive
 - ◆ Negative
 - ◆ Antecedents
 - Discriminative Stimulus (or S^D) } (Questions 2,3,4)
 - Motivating Operations (or MO)

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Key Terms and Definitions

- ✳ Functional Assessment
 - ◆ Functional Assessment (Question 8)
 - ◆ Functional Analysis Assessment
- ✳ Behavior Intervention Plan (Questions 8, 9, & 10)

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Functional Assessment Explanations for Behavior

1. Student behavior (not the student) is bad
2. Behavior produces a desired outcome
3. Behavior can be changed
4. The place to address behavior is in environments wherein it occurs NOW
5. Behavior can be addressed by changing variables within the current environment that trigger and support behavior

Chandler & Dahlquist (2010) 5

Pavlov's Classical Conditioning

Stimulus → Response

1. In classical conditioning, a **neutral stimulus** (e.g., a bell) is paired with an **unconditioned stimulus** (e.g., food).
2. The unconditioned stimulus (e.g., food) automatically yields an **unconditioned response** (e.g., salivation).
3. Overtime, and with repeated pairings, the neutral stimulus (e.g., the bell) becomes a **conditioned stimulus**.
 - ◆ When the neutral stimulus elicits the same response as the unconditioned stimulus (e.g., simply hearing the bell elicits salivation) it is referred to as the conditioned stimulus.

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Classical Conditioning and Student Behavior

- ❖ Help us to understand how students learn a **limited number of involuntary responses** (especially physiological and emotional responses).
- ❖ Neutral stimuli within the school environment can be associated with unconditioned stimuli and affect students' physiological and emotional responses.
- ❖ For example...

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Behavior Intervention for Classically Conditioned Behavior

- ❖ Classically conditioned responses can be very durable and difficult to eliminate.
- ❖ This emphasizes the importance of **prevention** activities and setting students up for early school success.
- ❖ School needs to provide students with a positive climate and be associated with positive emotions.
- ❖ We want students to associate school with positive stimuli (such as security and success) and not negative stimuli (such as panic/fear and frustration/anxiety).

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Behavior Intervention for Classically Conditioned Behavior

- ❖ Options for eliminating counter productive classically conditioned associations include:
 - ◆ Extinction (getting back on the horse)
 - ◆ Counter-conditioning more adaptive responses
 - ◆ Systematic Desensitization

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Skinner's Operant Conditioning

Response → Stimulus Reinforcing

- ❖ Classical conditioning accounts for only a relatively limited number of behaviors.
- ❖ In operant conditioning, a **voluntary response** (e.g., pressing a metal bar) is followed by a **reinforcing stimulus** (e.g., obtaining food).
- ❖ As a consequence of having been reinforced, the frequency, duration, and/or intensity of the **voluntary response increases** (frequently pressing the metal bar).
- ❖ Conversely, ...???



Reinforcement and Student Behavior

- ❖ Students can learn that certain behaviors are followed by what they **perceive to be** positive consequences. Consequently, they are likely to continue to display the behavior.
- ❖ For example...
 - ◆ A frequently disciplined student, who finds the school environment to provoke feelings of anxiety, fear, and pain, will find the result of being "sick" to be *negatively* reinforcing as it allows him to avoid "unpleasant" stimuli (i.e., school).
 - ◆ A student who likes candy, will find the result of being given candy for completing her school work to be *positively* reinforcing as it allows her to obtain "pleasant" stimuli.
 - ◆ A student who is likes candy, will find the result of being given points for completing her school work to be *positively* reinforcing as it allows her to obtain "pleasant" stimuli (i.e., after earning a given number of points, she can "purchase" candy).

Factors Influencing the Power of Reinforcement

- ❖ **Timing.**
 - ◆ Reinforcement is either immediately presented or is later presentation immediately acknowledge if presentation of the reinforcer itself is going to be delayed.
- ❖ **Magnitude and appeal**
 - ◆ The reinforcer is desired by the student and is of a magnitude that behaving in a specific way is viewed as being worthwhile.
- ❖ **Consistency**
 - ◆ Initially the reinforcer needs to be presented every time the behavior is displayed. However, once a behavior is established intermittent reinforcement is most effective at maintaining the behavior.

Eliminating Maladaptive Operant Conditioned Behaviors

1. Extinguishing responses
 - Remove the reinforcer
2. Reinforcing other behaviors
 - Reinforce the student for not displaying a behavior/response
3. Reinforcing incompatible behaviors
 - Reinforce the student for displaying a behavior that is incompatible with the target behavior
4. When these strategies prove ineffective, a form of punishment will need to be considered

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Punishment and Student Behavior

- ✱ Students can learn that certain behaviors are followed by what they perceive to be negative consequences. Consequently, they are unlikely to continue to display the behavior.
- ✱ For example...
 - A student who dislikes negative attention will find being verbally reprimanded for talking out in class to be punishing, and will talk out less frequently.
 - A student who likes peer attention will find being placed in a time-out (away from his peers) for off-task behavior to be punishing, and will be off-task less frequently.

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The Focus of EDS 240: Applied Behavior Analysis (ABA)

- ✱ ABA is based upon the principles of Operant conditioning.
- ✱ Elements of ABA include:
 1. Operational definition of both target (interfering, problem, or challenging) and replacement (desired) behaviors.
 2. Identification of unique individual characteristics that may predispose the student to specific behaviors
 3. Data collection of the frequency, duration, and/or intensity of the behaviors.
 4. Motivating and triggering (antecedent) and reinforcing (consequent) conditions are identified.
 5. Intervention plans are developed (plans focus on both target and replacement behaviors).
 6. Interventions are monitored for effectiveness and as indicated modifications are made.
 7. Interventions are phased out when target and replacement behaviors reach pre-determined levels.

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Applied Behavior Analysis (ABA)

- ❖ "Applied behavior analysis . . . involves studying behavior with significance to participants in naturalistic settings (e.g., school, playground, community)" (p. 157).
- ❖ It uses the methods of *Functional Assessment* "to identify antecedent and consequent events and to use this information in designing interventions to change socially significant behavior" (p. 157).
- ❖ Behavior analysis is more concerned with the function of the behavior than the behavior itself.
 - ◆ We are more interested in the goal or reason for the behavior (not its appearance).
 - ◆ In other words, the "*why*" (**the function**) is more important than the "*what*" (the topography).

Gresham, F. M., Watson, T. S., & Skinner, C. H. (2001). Functional behavior assessment: Principles, procedures, and future directions. *School Psychology Review, 30*, 156-172. 16

Antecedents and Consequences

- ❖ Functional assessments...
 - ◆ *determine under what conditions a behavior is most likely to occur (antecedents) and what happens in the environment as a result of that behavior and maintains that behavior (consequences).*

Steege & Watson (2009, p. 43) 17

Antecedents

- ❖ An *antecedent* is any event or stimulus that occurs before a behavior occurs. For any behavior there may be one or numerous antecedents. The dual purpose of an FBA is first to identify these antecedents and then to determine which are directly related to **triggering** the target behavior.
- ❖ Stimuli that precede the occurrence of behavior and signal that reinforcement following the behavior is likely to occur are called discriminative stimuli (S^D).
- ❖ A behavior that occurs at a higher rate in the presence of a given stimulus than it does in its absence is said to be under stimulus control.

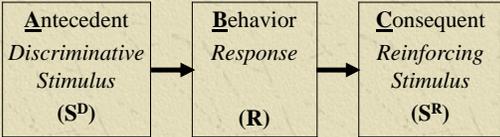
Steege & Watson (2009, pp. 44-47) 18

Consequences

✦ A **consequence** is any event or stimulus that occurs after a behavior. Again, there may be many things that happen after a behavior. The purpose of an FBA are to identify what actually happens after the target behavior and then determine which one or combination of these events are maintain (i.e., reinforcing) that behavior.

Steege & Watson (2009, p. 44) 19

The Traditional Linear Models of Behavior Analysis



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graph LR; A["Antecedent Discriminative Stimulus (SD)"] --> B["Behavior Response (R)"]; B --> C["Consequent Reinforcing Stimulus (SR)"]
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What does the saying "Understanding behavior is as simple as ABC," mean?

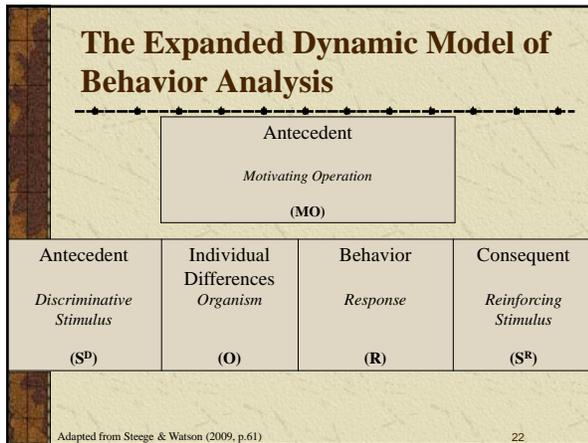
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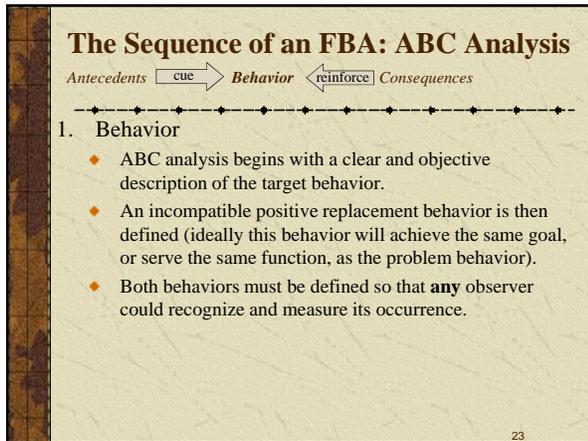
The Traditional Linear Models of Behavior Analysis

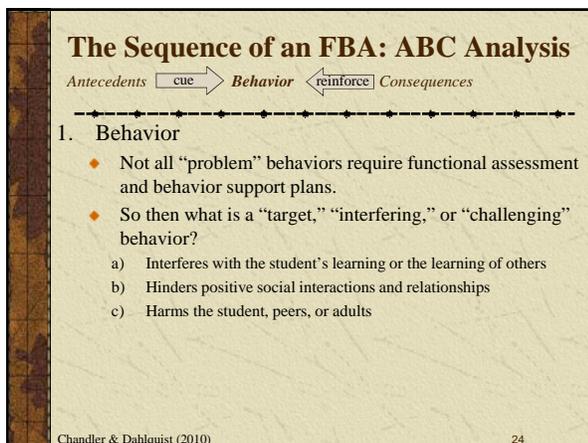


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graph LR; A["Antecedent Discriminative Stimulus (SD)"] --> B["Individual Differences Organism (O)"]; B --> C["Behavior Response (R)"]; C --> D["Consequent Reinforcing Stimulus (SR)"]
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Adapted from Steege & Watson (2009) 21







Functions of Behavior

Depending upon metacognitive abilities the student may or may not be aware of these functions

- ❖ **Social Communicative:**
Related to social interactions, a form of non-verbal communication. Behavior may communicate a variety of messages (e.g., "Leave me alone," "I need a break," "I want that," "Notice me").
- ❖ **Self-Regulatory**
Related to the interaction of environment and physical state. Behavior is a way to adjust arousal level (e.g., escape work when tired, obtain stimulation when bored).
- ❖ **Self-Entertainment or Play**
Related to social interactions and/or independent situations. Behavior is a way to entertain oneself and/or play with others (e.g., hitting as a way to initiate a play interaction).

Evans, I. M., & Meyer, L. (1985). *An educative approach to behavior problems*. Baltimore: Brooks. 28

Types of Punishers & Reinforcers

Reinforcers <ul style="list-style-type: none">•Primary•Secondary	<ul style="list-style-type: none">• Primary satisfy basic physical needs.• Secondary become reinforcing via learned associations (classical conditioning) with primary reinforcers.
Punishers <ul style="list-style-type: none">•Punishment I•Punishment II	<ul style="list-style-type: none">• PI (or positive punishment) = presentation of an aversive.• PII (or negative punishment) = removal of a pleasant stimulus

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Types of Punishers & Reinforcers

<ul style="list-style-type: none">• Positive Reinforcement	<ul style="list-style-type: none">• Obtaining desirable stimuli.
<ul style="list-style-type: none">• Negative Reinforcement	<ul style="list-style-type: none">• Escape - terminating an aversive stimuli• Avoidance - learning to stay away from an aversive stimuli

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Types of Punishers & Reinforcers

	<i>Primary</i> Automatic reinforcer	<i>Secondary</i> Learned reinforcer
Positive Obtaining desired stimuli	Physical pleasure	Money
Negative Escape/avoid undesired stimuli	Physical pain	<u>School</u>

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Reinforcers:

Consequences that increase the frequency of behavior.

- ✦ Positive Reinforcement
The behavior obtains something (or achieves an outcome) that is perceived as rewarding (pleasurable or desirable).
- ✦ Negative Reinforcement
The behavior escapes/avoids something (or achieves an outcome) that is perceived as punishing (aversive or undesirable).
- ✦ Automatic reinforcement
Positive: *The behavior obtains a physiological sensation that is perceived as rewarding (or pleasurable).*
Negative: *The behavior escapes/avoids a physiological sensation that is perceived as punishing (or aversive)*

We know a behavior's consequence is reinforcing if following that consequence the behavior ... ???

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Positive Reinforcers:

Consequences that increase the frequency of behavior.

- ✦ Specific Environmental (or external) Outcomes
 - ◆ Obtains rewarding attention
 - ◆ Obtains rewarding tangibles
 - ◆ Obtains rewarding activities
- ✦ Specific Physiological (or internal) Outcomes
 - ◆ Obtains rewarding arousal levels
 - ◆ Obtains rewarding sensory stimulation

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Negative Reinforcers:
Consequences that increase the frequency of behavior.

- ✦ Specific Environmental (or external) Outcomes
 - ◆ Escapes/Avoids punishing social situations/individuals
 - ◆ Escapes/Avoids punishing activities
- ✦ Specific Physiological (or internal) Outcomes
 - ◆ Escapes/Avoids punishing sensory stimulation

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Punishment:
Consequences that decrease the frequency of behavior.

- ✦ Positive Punishment
 - ◆ Presentation of an aversive stimuli
 - Verbal reprimand
 - Restitution and over-correction
- ✦ Negative Punishment
 - ◆ Removal of a pleasant stimuli
 - Time out
 - Response cost

We know a behavior's consequence is punishing if following that consequence the behavior ... ???

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The Sequence of an FBA: ABC Analysis

Antecedents $\xrightarrow{\text{cue}}$ Behavior $\xleftarrow{\text{reinforce}}$ Consequences

- Antecedents
 - ◆ Next, functional assessment carefully examines environmental variables that precede the target and replacement behaviors.
 - ◆ Motivating operations and discriminative stimuli are different types of antecedents to behavior/consequent contingencies. An antecedent is potentially any stimulus that precedes a given behavior.
 - While the SD signals the *availability* of the reinforcing consequence, the MO alters the *value* of the reinforcing consequence.
 - MOs change how much people *want* something; SDs change the *chance* of getting it.

Steege & Watson (2009, p. 53) 36

Immediate Antecedents: Predict Behavior

- ❖ These variables have a **historical relationship** with behavior > consequence contingencies.
- ❖ They signal to the student that if a given behavior is displayed, a given consequence is likely to follow. That the **availability** of or **opportunity** for reinforcement is present.
- ❖ In other words, the student has learned that a correlation exists between certain stimuli (i.e., immediate antecedents) and certain behavior/consequence contingencies.
- ❖ Consequently, the presence of these discriminative stimuli can be used to predict the occurrence of the behavior.

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Immediate Antecedents: Predict Behavior

S^D = Substitute Teacher (Antecedent)
 R = Talking to a classmate (Behavior)
 S^R = Escape from seatwork (Consequence)

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Motivating Operations: Influence Behavior

- ❖ These variables influence behavior by affecting the power of behavioral consequences to **motivate** behavior.
- ❖ They make the typical consequences of a given behavior more or less **valued** by the individual and thus more or less **effective** in prompting behavior.
- ❖ Consequently, they influence the display of behaviors that historically obtain the associated behavioral consequence.

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Establishing Operations: Influence Behavior

MO = Missed medication (Antecedent)
R = Talking to a classmate (Behavior)
SR = Escape from seatwork (Consequence)

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Antecedents

- * Unconditioned MOs (do not require learning)
 - ◆ Reinforcer-Establishing effects (increase behavior)
 - ◆ Reinforcer-Abolishing effects (decrease behavior)
- * Conditioned MOs (require learning)
 - ◆ Reinforcer-Establishing effects (increase behavior)
 - ◆ Reinforcer-Abolishing effects (decrease behavior)

Steege & Watson (2009, pp. 48-51)

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Antecedents

Activity: Use the terms ...

- availability
- effectiveness/value
- opportunity
- motivation

to define motivating operations (MO)
and immediate antecedents (S^D)

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Behavioral Analysis

Antecedents $\xrightarrow{\text{cue}}$ Behavior $\xleftarrow{\text{reinforce}}$ Consequences

❖ The antecedent's power to influence, control, or cue behavior is generated by a behavior's consequences. Consequences are potentially any stimuli that follow a given behavior. To the extent a behavior's consequences are judged reinforcing [i.e., they either obtain desired stimuli (positive reinforcement) or escape/avoid undesired stimuli (negative reinforcement)], the presence of associated antecedents may increase behavior. Conversely, to the extent consequences are judged punishing (i.e., result in undesired/unpleasant stimuli), the presence of associated antecedents may decrease behavior.

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Behavioral Analysis

Antecedents $\xrightarrow{\text{cue}}$ Behavior $\xleftarrow{\text{reinforce}}$ Consequences

❖ **I** = child with ADHD who finds sustained attention to task to be aversive...

A	B	C
MO: Medicated? SP: Teacher proximity?	R: Off-task (i.e., not doing an assigned task)	SR: Avoiding or Escaping school work

MO: If the student is not medicated the need to avoid/escape will be increased.
SP: If the teacher is physically removed from the student the chances of behavior being reinforced is increased.

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Behavioral Analysis

Antecedents $\xrightarrow{\text{cue}}$ Behavior $\xleftarrow{\text{reinforce}}$ Consequences

Individual/Organism Variables		
Antecedents	Behavior	Consequences
$I[(MO) (S^D \Rightarrow R \Rightarrow S^R)]$		

MO = Motivating Operations (influence)
These events provide the motivation (thus the use of the term Motivating Operations) for behavior and by virtue of their presence or absence make it more or less likely that a behavior will be displayed. They influence behavior by affecting the value or effectiveness of reinforcers.

SP = Immediate Antecedents (predict)
These events signal opportunity for behavior to be reinforced. They are predictors of behavior because they are associated with the availability of behavioral reinforcers.

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Behavioral Analysis

Antecedents $\xrightarrow{\text{cue}}$ Behavior $\xleftarrow{\text{reinforce}}$ Consequences

Individual/Organism Variables		
Antecedents	Behavior	Consequences
I[(MO) (S ^D \Rightarrow R \Rightarrow S ^R)]		

R = Behavior
This is the response a student offers that is prompted by Antecedents and supported by Consequences.

S^R = Consequences
These are the events that typically follow behavior and are necessarily viewed by the student as contingent upon behavior. By virtue of their presence or absence Consequences make it more or less likely that a behavior will be strengthened (i.e., displayed with more or less frequency).

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Functional Assessment

Functional assessment “derives from operant learning theory that is grounded in a philosophy of science known as *functionalism*. Functionalism rejects an understanding of behavior based on topography (form or structure) because behavioral topographies are merely descriptive, and as such, explain nothing about the controlling functions of behavior” (Gresham et al., 2001, p. 157).

Gresham, F. M., Watson, T. S., & Skinner, C. H. (2001). Functional behavior assessment: Principles, procedures, and future directions. *School Psychology Review, 30*, 156-172.

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Functional Assessment

Same topography, different function

1. What might be the functions of these behaviors?
2. What additional information would help us to validate they hypothesized function?

Juan, a 16-year-old who reads at a second grade level, *feels embarrassed* to be seen with an elementary text and reacts by **shoving his book and workbook to the floor** when the teacher asks him to read.

Sumi, an 8-year-old who reads Stephen King novels *for recreation*, finds her reading assignments boring and, therefore, **shoves her book and workbook to the floor** when the teacher asks her to read.

Source: Center for Effective Collaboration and Practice

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Functional Assessment
Same topography, different function

1. What might be the functions of these behaviors?
2. What additional information would help us to validate they hypothesized function?

Maurice, a 10-year-old who finds multiplication of fractions difficult, becomes frustrated and **throws tantrums** when asked to complete math worksheets.

Kerry, a 12-year-old who has problems paying attention, is so over-stimulated by what she sees out of the window and hears in the nearby reading group, she **throws tantrums** when asked to complete math worksheets.

Source: Center for Effective Collaboration and Practice 49

Functional Assessment

FBA's make use of functional assessment to gather information about the antecedents (precursors) and consequents (results) of behavior. This is done to determine the function (reason for) behavior.

Functional assessment requires an understanding of the unique characteristics of the individual student and an exploration of the environmental factors that accompany a behavior (Antecedents), as well as the events that follow and maintain the Behavior (Consequences).

Functional Assessment is a collection of assessment procedures (primarily observation, interview, and record review) used to determine the function of a behavior. The function is the behavioral goal (i.e., what the individual obtains from behavior). Answers to the question: "What needs or desires are met by the behavior?" provide the function of the behavior.

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FBA vs. FAA

Functional Assessment <i>Procedures used to determine the function of a behavior</i>	
Functional Behavioral Assessment (FBA) Makes use of descriptive or correlational statements about the operant function of behavior.	Functional Analysis Assessment (FAA) Makes use of experimental manipulations to make causal inferences about the operant function of behavior.

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Behavior Intervention Plan (BIP) Goals

- ❖ **BIPs make target behaviors *irrelevant*.**
 - ◆ The need, motivation, and/or opportunity to display the problem behavior is eliminated or minimized.
- ❖ **BIPs make target behaviors *ineffective*.**
 - ◆ The problem behavior is not reinforced.
- ❖ **BIPs make target behaviors *inefficient*.**
 - ◆ It is much more effortful to obtain behavioral goals via the problem behavior.
 - ◆ It is easier to obtain behavioral goals via the replacement behavior.

Contingency Management
Environmental Adjustments

Source: O'Neill et al. (1997). *Functional Assessment and Program Development for Problem Behavior*. Pacific Grove, CA: Brooks/Cole. 52

Behavior Interventions: General considerations

- ❖ Behavioral interventions respect the student's human dignity and personal privacy. They assure the student's physical freedom, social interaction, and individual choice.
- ❖ Before intervening consider the meaningfulness, appropriateness, and accessibility of the learning environment.
- ❖ Always begin with the least restrictive behavioral interventions.
 - ◆ Remember that each student's perception of what is restrictive is unique. What may be highly restrictive to one student may not be very restrictive to another.
 - ◆ Restrictive procedures are different from general classroom procedures, which are used with all students as part of the routine educational program. With a general classroom procedure no student is singled out and treated differently from his or her classmates.

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Behavior Interventions: General considerations

- ❖ The goal should always be to use strategies that enhance the student's life in the least intrusive an most natural way and to plan for the use of less restrictive procedures as soon as possible.
- ❖ **Positive behavioral interventions must emphasize the development of desirable and adaptive behaviors, rather than elimination or suppression of undesirable behaviors.**

Source: San Joaquin County Office of Education 54

Behavior Interventions: General considerations

Intervention procedures should be implemented to:

1. Minimize or prevent antecedents to target behaviors.
2. Minimize or prevent reinforcement of target behaviors.
3. Allow for reinforcement of replacement behaviors.
4. Draw student's attention to the target behavior, let them know the behavior is inappropriate and that it will not be reinforced (NOTE: be sure doing so is not reinforcing in and of itself).
5. Encourage the student not to engage in the target behavior to avoid undesired consequences.
 - a) All procedures must be implemented in a calm and consistent manner.
 - b) If time-out is required, use the least restrictive form and ensure that the student is returned to the original activity and reinforced for replacement behavior ASAP.

Source: San Joaquin County Office of Education 55

Behavior Interventions: General considerations

Intervention procedures should always consider medical issues.

1. Consider medical conditions as a cause of behavior.
2. Consider possible harm from interventions.
3. The following issues will typically require medical consultation:
 - a) Medications are prescribed
 - b) The student has allergies
 - c) The student has seizures
 - d) The student has shunts
 - e) The behavior involves wetting, soiling, vomiting, spitting, biting.
 - f) There is concern regarding communicable disease.

Source: San Joaquin County Office of Education 56

