

Autism Spectrum Disorder Series: Introduction to Applied Behavior Analysis (ABA)

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Introductions and Disclosure

- Sylvia J. Acosta, PhD, Assistant Professor, Postdoctoral Psychology Fellowship Director, Center for Development and Disability
- Cassandra M. Cerros, MEd, BCBA, Postdoctoral Psychology Fellow, Center for Development and Disability
- The presenters have no financial relationships to this program.

Objectives

At the end of this presentation, participants will be able to:

- Describe the foundational principles of ABA
- Identify types of ABA interventions and describe how they are applied in the treatment of individuals with ASD
- Identify the qualifications for providers of Behavior Analytic services

Definition of Applied Behavior Analysis

“Applied Behavior Analysis is a **scientific** approach for discovering environmental variables that reliably influence **socially significant** behavior and for developing a **technology** of behavior change that takes **practical** advantage of those discoveries.”

-Cooper, Heron, & Heward (2007)

Definition of Applied Behavior Analysis

- **Scientific:** a systematic approach to obtaining and organizing knowledge.
 - ABA seeks to achieve a thorough understanding of behavior through:
 - Description: Objective, measurable definition of a targeted behavior or skill. Dimensions include frequency, duration, intensity, latency.
 - Prediction: Understanding the environmental variables that systematically co-vary with a target behavior (i.e. correlation: the relative probability of one event occurring based on the presence of another event)
 - Control: functional relation in which a specific change in one event (dependent variable) can reliably be produced by specific manipulations of another event (independent variable). The change in the dependent variable is unlikely to be the result of other extraneous factors (confounding variables).

Definition of Applied Behavior Analysis

- **Socially Significant**

- Target behaviors identified by individuals, caregivers, peers, etc. as important
- Improve quality of life:
 - Increased access and participation in education, employment, recreation, community services
 - Maintenance of healthy relationships
 - Ability to access supports when needed
 - Support an individual's sense of agency, autonomy, and overall emotional well-being



Definition of Applied Behavior Analysis

- **Technology**

- Empirically-derived interventions designed to address a measurable behavior and its controlling mechanisms present in the environment
- Data is used to measure intervention effectiveness and fidelity

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www.appliedbehavioranalysis.com

Definition of Applied Behavior Analysis

- **Practical:**

- Interventions are implemented in real-world settings (home, school, work, community, doctor's office, etc.)
- Designed to be socially valid
 - Aligned with values and practices of individuals and settings
 - Feasible given available resources
 - Judged to be effective by those implementing the intervention

Distinguishing between Principles of Behavior and Behavior Change Tactics

- Principle of Behavior, the “**How and Why**”:
 - Describes a functional relationship between behavior and one or more of its controlling variables
 - Examples: reinforcement, punishment, extinction

- Behavior change tactic, the “**What, Where, When, and Who**”:
 - Empirically-based technology involving consistent methodology for changing behavior
 - Derived from principles of behavior
 - Examples: prompting, shaping, time-out

Multiple Choice Question #1

Which is not a core element of the definition of ABA treatments?

- A. Scientific
- B. Practical
- C. Psychological
- D. Socially significant

Scientific, Professional, and Government Organizations' Positions on ABA

- **Autism Speaks**

- *“ABA is widely recognized as a safe and effective treatment for autism”; and “Behavior analysis is a scientifically validated approach to understanding behavior and how it is affected by the environment.”*

- **American Association on Intellectual and Developmental Disabilities**

- *Designated ABA-based procedures for the treatment of behavioral problems with individuals with intellectual disability and related disorders as "**highly recommended**" (Rush & Frances, 2000).*

Scientific, Professional, and Government Organizations' Positions on ABA

- **American Academy of Child and Adolescent Psychiatry**

- *“ABA techniques have been repeatedly shown to have efficacy for specific problem behaviors, and ABA has been found to be effective as applied to academic tasks, adaptive living skills, communication, social skills, and vocational skills.” (Volkmar et al., 2014).*

- **National Autism Center's National Standards Report (2015)**

- *ABA interventions were found to have an established level of evidence to support their use.*

Scientific, Professional, and Government Organizations' Positions on ABA

- **The Centers for Disease Control**

- *"... notable treatment approach for people with an ASD is called applied behavior analysis (ABA). ABA has become widely accepted among health care professionals and is used in many schools and treatment clinics...."*

- **The National Institute of Mental Health**

- *Recognized ABA interventions as an effective treatment for individuals with autism*

- **The Surgeon General of the United States**

- *"Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior" (1999).*

Types of ABA Intervention Programs

- **Comprehensive vs. Focused:**
- Broad categories describing ABA procedures
- Distinguished by goals of treatment:
 - Amelioration of challenging behavior
 - Skill acquisition that supports improved global functioning
- Most children with ASD benefit from both types



Types of ABA Intervention Programs

- **Comprehensive ABA Interventions:**
 - Produce change in specific skills that have a global impact on functioning (such as IQ, adaptive skills, social skills)
 - Treatment often spans a number of years
 - Typically provided in home, school, community, or clinic settings
 - Skills frequently targeted:
 - Attention
 - Discrimination
 - Language/Communication
 - Socialization
 - Academic Skills



Types of ABA Intervention Programs

- **Comprehensive ABA Interventions:**

- Generally, techniques used include:

- Clear instructions
 - Reinforcement
 - Teaching small units of a skill or behavior
 - Repeated trials to maximize learning opportunities and access to reinforcement

- When implemented with young children, these programs are called “Early Intensive Behavioral Interventions”

- Research indicates comprehensive ABA interventions have the most robust positive impact on a child’s functioning when implemented immediately following a diagnosis of ASD and at an intensity of 25-40 hours per week.



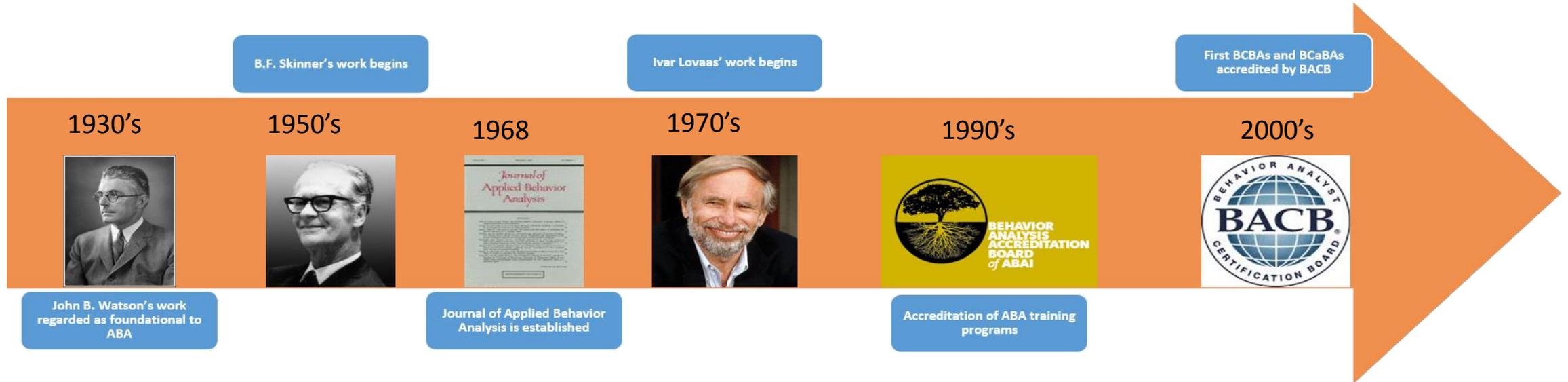
Types of ABA Intervention Programs

- Focused ABA interventions:
 - Time-limited
 - Target reduction of challenging behavior (aggression, self-injury, disruptive or socially unacceptable behavior)
 - Always involves an establishment of the function of a target behavior
 - Function-based treatments:
 - Altering the environment to minimize the occurrence of challenging behavior
 - Establishing and reinforcing adaptive behaviors
 - Withholding reinforcement for problem behavior



Common Myths and Misconceptions about ABA

- Myth: ABA is a new treatment for individuals with ASD



Common Myths and Misconceptions about ABA

- **Myth: ABA consists only of structured 'work' at a table**
 - Discrete Trial Teaching is an ABA technology that does indeed involve one-to-one teaching of a specific skill. Commonly, the most natural place to conduct discrete trials is at a table in order to support an individual's ability to attend and engage in the teaching session.
 - This is just one of numerous ABA technologies developed based on behavioral principles. Discrete trial teaching is not synonymous with ABA.
 - Remember that practicality and social significance of behaviors and interventions are among the central tenets of the practice of ABA. Thus, the practice of ABA involves teaching behaviors that can be generalized to real-world settings and have socially meaningful impacts on an individual's life.



Common Myths and Misconceptions about ABA

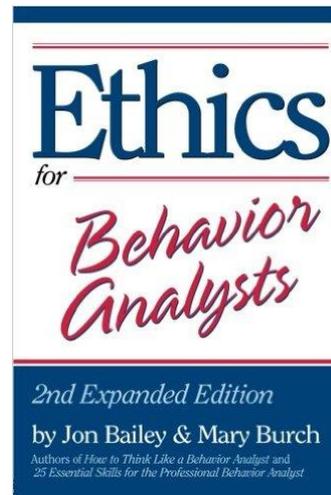
- **Myth: Children with ASD must receive 40 hours per week of ABA therapy in order to achieve positive effects**
 - The number of hours of ABA therapy a child receives is dependent on their skill levels at the start of therapy and how quickly they demonstrate progress.
 - ABA is most effective for children with ASD when a program is comprehensive, individualized, intensive, and begun immediately following a diagnosis
 - The term “intensive early intervention” refers to ABA therapy delivered at 25-40 hours per week to children under the age of 4 years.
 - The National Standards Report recommends children with ASD are engaged in 25 hours per week, 12 months per year “in systemically planned, and developmentally appropriate educational activity toward identified objectives.” Furthermore, these hours will “vary according to a child’s chronological age, developmental level, specific strengths and weaknesses, and family needs.”



Common Myths and Misconceptions about ABA

- **Myth: ABA uses punishment in their teaching procedures**

- In the early stages of the development of ABA interventions, aversive punishment procedures were used to get an individual to cease performing an undesired behavior
- Punishment involving aversives in ABA has long been abandoned as an effective or acceptable element of ABA treatments
- The ethical principals as established by the Behavior Analyst Certification Board direct ABA practitioners to use positive reinforcement strategies over punishment whenever possible.
- Currently, punishment in the form of a verbal correction (saying “no”) or temporary loss of access to reinforcement are the only accepted punishment practices within the ethical guidelines.



Common Myths and Misconceptions about ABA

- **Myth: ABA uses food and toys to bribe children**

- Recall the core deficits of ASD (social interaction and communication). Many children with autism need support in acquiring foundational learning skills including being motivated by positive social feedback, learning contingencies, and finding natural or intrinsic reinforcement in activities.
- Tangible reinforcers (such as favorite foods or toys) can be used effectively in teaching these foundational learning skills during beginning teaching phases.



Common Myths and Misconceptions about ABA

- **Myth: ABA uses food and toys to bribe children**

- Qualified ABA practitioners understand that tangible reinforcers should **always** be paired with more naturalistic, social reinforcement. Thus, over time, children become motivated by the positive attention and sense of accomplishment.
- It is understood that, in the long run, the use of extrinsic tangible reinforcers is generally not socially acceptable and should be discontinued once naturalistic reinforcers have been established.
- A **promise** versus a bribe: A promise is the agreement that a reward is contingent upon desired behavior. A bribe is delivered in response to undesired behavior as a way of gaining compliance.



Common Myths and Misconceptions about ABA

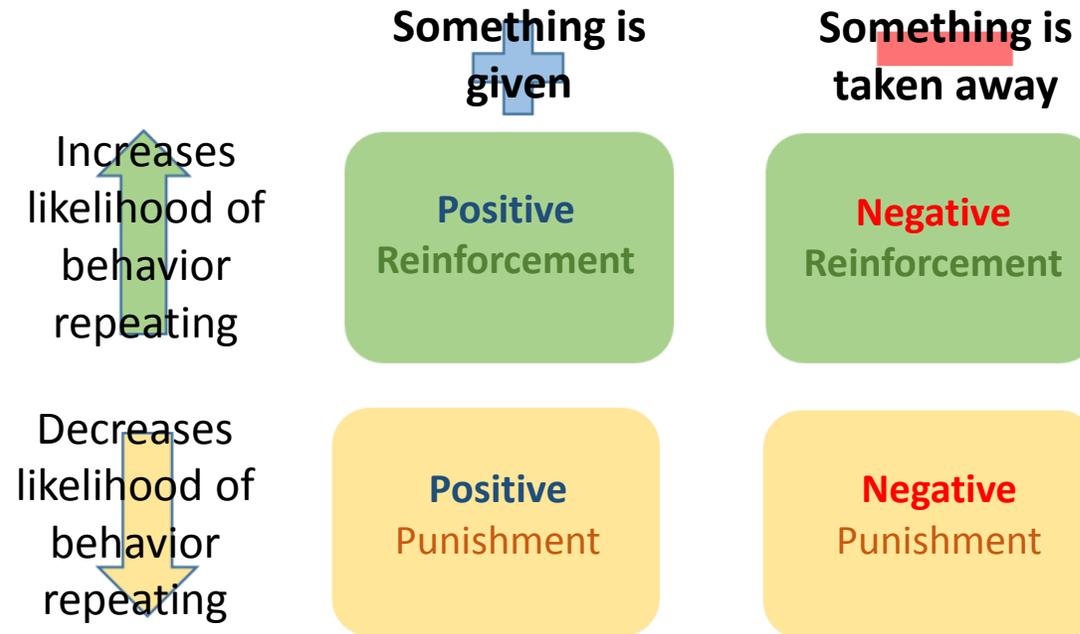
- **Misconception: Negative Reinforcement means Punishment**

- **Reinforcement** is the key term: Reinforcement **always** means a rewarding consequence that occurs after a behavior that serves to increase the likelihood that that behavior will recur in the future.
- Two types of reinforcement: Positive and Negative
 - Positive: gain access to a reward as a desired consequence for a behavior
 - Examples: a paycheck; a child earns extra recess time for an “A” on a test
 - Negative: make an undesired stimulus stop as a consequence of a behavior
 - Examples: putting on your seatbelt in the car to turn the warning sound off; a child eats their broccoli so they can leave the dinner table
 - BACB ethical guidelines favor positive reinforcement over negative whenever possible, as the experience of rewards promotes greater global well-being

Common Myths and Misconceptions about ABA

- **Misconception: Negative Reinforcement means Punishment**

- Punishment: an undesired consequence that decreases the likelihood that a behavior will be performed again in the future
 - Examples: speeding ticket; a child is on time-out during recess for hitting

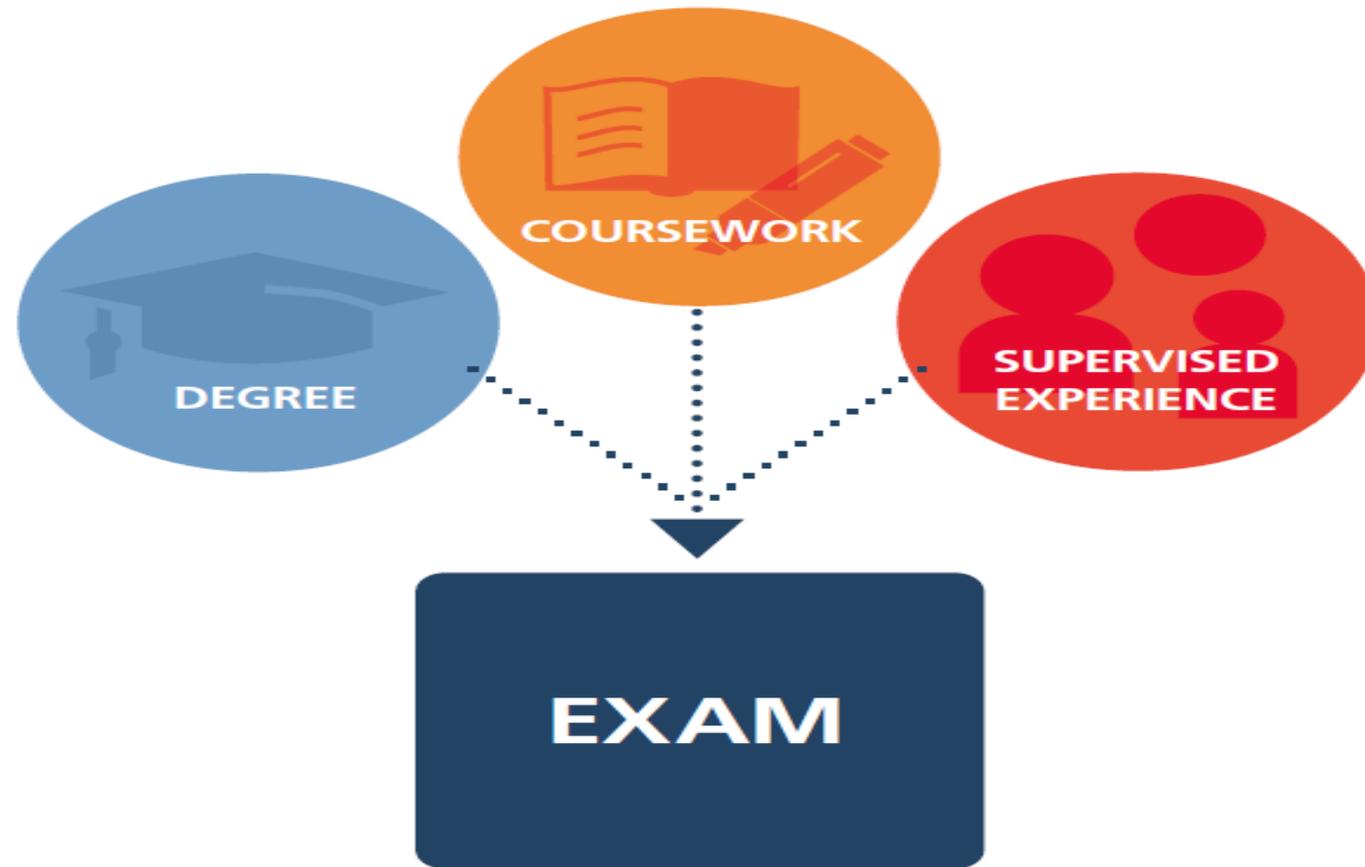


Multiple Choice Question #2

Negative Reinforcement

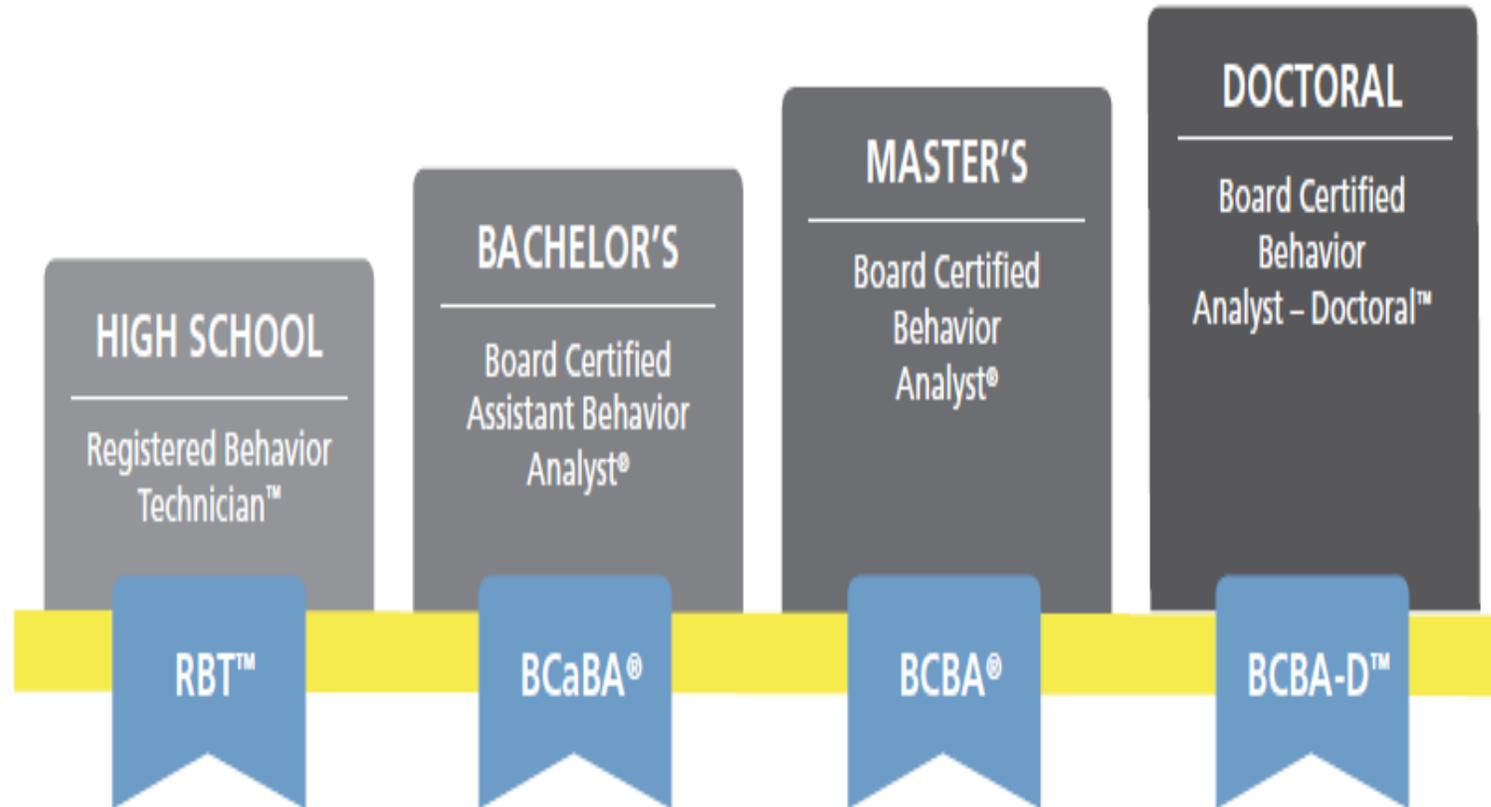
- A. Decreases the likelihood that a behavior will recur in the future
- B. Increases the likelihood that a behavior will recur in the future
- C. Is an undesired consequence of a behavior
- D. Is punishment

Qualifications for Behavior Analytic Providers



(BACB, 2014)

Qualifications for Behavior Analytic Providers



(BACB, 2014)

Multiple Choice Question #3

What is the association that governs the credentialing of ABA providers?

- A. Autism Speaks
- B. Association for Behavior Analysis International
- C. Behavior Analyst Certification Board
- D. Association of Professional Behavior Analysts

Multiple Choice Question #4

Who is **not** qualified to provide behavior analytic treatments?

- A. A master's-level clinician with a BCBA
- B. A Registered Behavior Technician under supervision of a BCBA
- C. A licensed psychologist with a BCBA-D
- D. A licensed psychologist from a non ABAI accredited program with less than 1,000 hours of experience with ABA

Specific Treatment Applications of ABA commonly used for children with ASD

- Verbal Behavior Approach

- Specifically focuses on teaching language and communication skills
- Treats verbalizations as operant behaviors:
 - Mand: a request (“Can I have the **airplane?**”)
 - Tact: a comment to share interest or draw attention (“Look at the **airplane!**”)
 - Intraverbal: a word used to answer a question (How did you get to Disneyland? “We took an **airplane.**”)
 - Echoic: an imitated word (Say airplane “**Airplane**”)
- Main goal is to teach a child that communication produces positive results
- Used with young children and others with delayed or disordered language
- Commonly used curricula:
 - Assessment of Basic Language and Learning Skills, Revised (ABLLS-R)
 - Verbal Behavior Milestones Assessment and Placement Program (VB-MAPP)



Specific Treatment Applications of ABA commonly used for children with ASD

- Pivotal Response Treatment (PRT)

- Used primarily with preschool and elementary school aged children
- Play-based application of ABA methods
- Targets “pivotal” areas that are thought to provide global improvements in children’s social behavior, academic skills, communication, and reduce disruptive behavior:
 - Motivation: use of natural reinforcement
 - Responsivity: building skills in attending and accurately generalizing skills across environments
 - Self-management: understanding the function of challenging behavior and teaching acceptable replacement behaviors
 - Initiation: reducing dependence on prompts and building skills in starting and maintaining social interactions



Specific Treatment Applications of ABA commonly used for children with ASD

- Picture Exchange Communication System (PECS)

- Teaches language and communication skills to individuals of all ages who are nonverbal or have limited verbal abilities
- Focuses on symbolic communication skills: a picture is used as a spoken word to represent an idea
- Uses ABA techniques to teach communication: requesting, commenting, initiating and reciprocating verbal exchanges
- An **augmentative communication support**: not intended to teach or replace the development of speech
- The pictures are designed to be universally recognizable, thus increasing a person's access to diverse settings and communities



Specific Treatment Applications of ABA commonly used for children with ASD

- Positive Behavior Supports

- Targets a reduction in challenging behavior and an increase in quality of life
- ABA methods are applied to:
 - 1. Understand the function of a behavior
 - 2. Teach replacement skills that achieve the same function in more adaptive, socially acceptable ways
 - 3. Arrange the physical and social environment to reduce the likelihood a challenging behavior will occur
 - 4. Implement reinforcement strategies to increase the occurrence of adaptive, positive social behaviors
- Emphasis on **Valued Outcomes**: what is important to an individual and the people around them
- Implemented on an individual level **AND** system level (school, workplace)



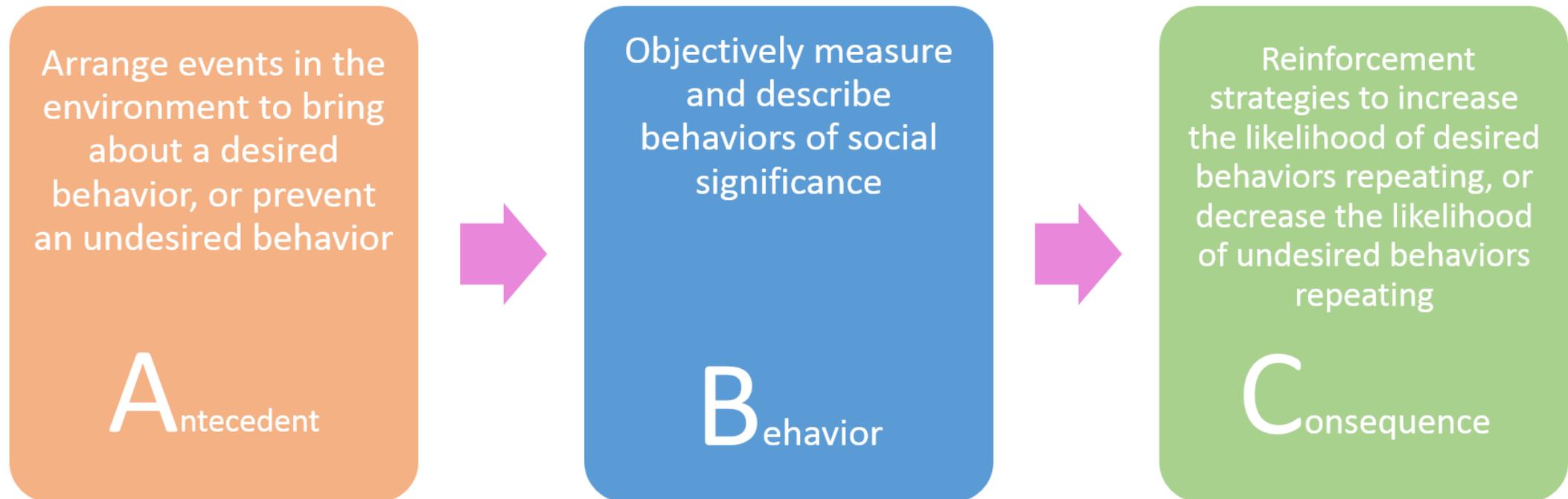
Multiple Choice Question #5

Comprehensive ABA interventions

- A. Target skills that support an individual's global functioning
- B. Focus on specific challenging behaviors
- C. Are time-limited
- D. Involve only Discrete Trial Teaching technologies

In Summary

ABA can be applied to treat the core deficits of ASD: Social interaction, Communication, and Repetitive behaviors



Resources

- Behavior Analyst Certification Board

<http://www.bacb.com/>

- Autism Speaks

<https://www.autismspeaks.org/what-autism/treatment/applied-behavior-analysis-aba>

- UNC Frank Porter Graham Child Development Institute: comprehensive guide to Evidence-based Practices for Individuals with ASD

<http://autismpdc.fpg.unc.edu/sites/autismpdc.fpg.unc.edu/files/2014-EBP-Report.pdf>

- National Autism Center: National Standards Project

<http://www.nationalautismcenter.org/national-standards-project/>

Resources

- Pivotal Response Treatment

<http://education.ucsb.edu/autism/pivotal-response-treatment>

- Picture Exchange Communication System

<http://www.pecsusa.com/pecs.php>

- Association for Positive Behavior Support

http://www.apbs.org/new_apbs/genintro.aspx

- Technical Assistance Center for Social Emotional Intervention

<http://challengingbehavior.fmhi.usf.edu/explore/pbs/process.htm>

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