

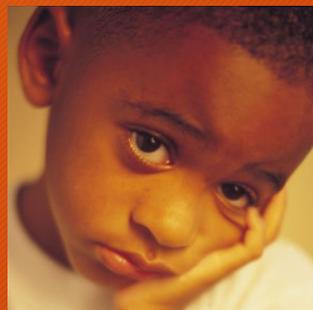
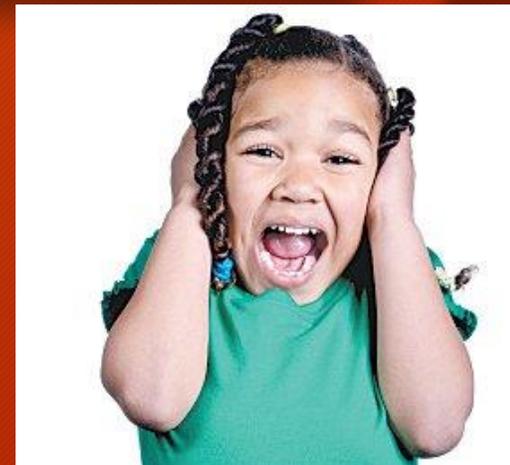
# Introduction to Autism and Applied Behavior Analysis

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Prepared for the Governor's Autism Work Group  
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Pierre, South Dakota

# Why We're Here: The Many Faces of Autism

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# Autism

Diagnosis, Characteristics, What Should Be Taught, Curriculum

# Autism

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- A developmental disability marked by severe impairment of communication, social, and emotional functioning
- Characteristics
  - Apparent sensory deficit
  - Severe affect isolation
  - Self-stimulation
  - Tantrums and self-injurious behavior
  - Echolalic and psychotic speech
- Prevalence
  - The Center for Disease Control (CDC) estimates that autism occurs in 1 in 88 children (ASAT website)
  - 5.7% of students receiving special education services nationally are served under the category of autism (Heward, 2013)
  - 942 children ages 0-19 in South Dakota have autism diagnoses (Health Management Associates report, 2014)
  - In 2010-2011, 4.12% of individuals with disabilities ages 3-21 who received special education services in South Dakota (Easter Seals, 2012) were served under the classification of “autism”
- Causes of autism
  - Recent research shows a clear biological and organic origin, although precise neurobiological mechanisms have not been discovered
- Effective treatment for children with autism
  - Intensive, behaviorally based early intervention (EIBI) has helped some children with autism learn communication and social skills
  - Applied behavior analysis (ABA)

The American Psychiatric Association's Diagnostic and Statistical Manual, Fifth Edition (DSM-5) provides standardized criteria to help diagnose Autism Spectrum Disorder (ASD).

## Diagnostic Criteria for 299.00 Autism Spectrum Disorder

- A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history (examples are illustrative, not exhaustive; see text):
- A. Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.
  - B. Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.
  - C. Deficits in developing, maintaining, and understand relationships, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties in sharing imaginative play or in making friends; to absence of interest in peers.

The American Psychiatric Association's Diagnostic and Statistical Manual, Fifth Edition (DSM-5) provides standardized criteria to help diagnose ASD.

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Specify current severity:

**Severity is based on social communication impairments and restricted, repetitive patterns of behavior.**

B. Restricted, repetitive patterns of behavior, interests, or activities, as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive; see text):

- B. Stereotyped or repetitive motor movements, use of objects, or speech (e.g., simple motor stereotypes, lining up toys or flipping objects, echolalia, idiosyncratic phrases).
- C. Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).
- D. Highly restricted, fixated interests that are abnormal in intensity or focus (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests).
- E. Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment (e.g. apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

# The American Psychiatric Association's Diagnostic and Statistical Manual, Fifth Edition (DSM-5) provides standardized criteria to help diagnose ASD.

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- *Specify* current severity:
- **Severity is based on social communication impairments and restricted, repetitive patterns of behavior.**
- C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).
- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.
- E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.
- **Note:** Individuals with a well-established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) communication disorder.

# General Characteristics of Autism: What Autism Looks Like Behaviorally

- Characteristics
  - Limited communication skills
  - Slow acquisition rates for learning new skills
  - Poor generalization and maintenance of newly learned skills
  - Impaired physical and motor development
  - Deficits in self-help skills
  - Stereotypic and challenging behavior

# What Should Be Taught?

1. Communication skills
2. Age-appropriate skills
3. Functional skills - activities of daily living skills (ADLs)
4. Skills in making choices and self-managing appropriately
5. Recreation and leisure skills

# Instructional Methods: How Should Children Be Taught?

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- Instruction must be carefully planned, systematically executed, continuously monitored
  - The individual's current level of performance must be assessed
  - The skill to be taught must be defined clearly
  - The skill may need to be broken down into smaller component steps
  - The provider/teacher/caregiver must provide a clear prompt to cue the individual
  - The individual must receive feedback and reinforcement
  - Strategies that promote generalization and maintenance must be used
  - The individual's performance must be directly and frequently assessed

# Evidence-Based Interventions (National Autism Center's National Standards Project, 2012)

## Methods and Strategies for Intervention

1. Established Evidence
2. Emerging Evidence
3. Unestablished Evidence

# ABA and Autism Services

- ABA interventions have been identified by the National Autism Center as the only interventions for individuals with autism that have established effectiveness (2009, 2012).
- ABA procedures are based upon the principles of learning, and emphasize the lawful, predictable nature of observable behavior. Decision-making is based upon objective data, instead of on opinions or individual preferences.
- To increase appropriate behavior, ABA programs focus on reinforcing desired behavior and systematically “catching people being good.”
- To reduce inappropriate, challenging behavior, ABA programs use differential reinforcement programs and mild punishment by penalty (loss of access to reinforcing activities).

## Here are a few key points to remember as you review the results of National Standards Project 2 (Phase 2, 2013):

For children, adolescents, and young adults under 22 years of age:

- There are 14 Established Interventions that have been thoroughly researched and have sufficient evidence for us to confidently state that they are effective.
- There are 18 Emerging Interventions that have some evidence of effectiveness, but not enough for us to be confident that they are truly effective.
- There are 13 Unestablished Interventions for which there is no sound evidence of effectiveness.

The following interventions have been identified as falling into the Established level of evidence:

1. Behavioral Interventions
2. Cognitive Behavioral Intervention Package
3. Comprehensive Behavioral Treatment for Young Children
4. Language Training (Production)
5. Modeling
6. Natural Teaching Strategies
7. Parent Training
8. Peer Training Package
9. Pivotal Response Training
10. Schedules
11. Scripting
12. Self-management
13. Social Skills Package
14. Story-based Intervention

# How to Intervene: Evidence-Based Psychological, Educational and Therapeutic Interventions *Established Evidence*

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- Interventions Based on Applied Behavior Analysis
- Early Intensive Behavioral Treatment (EIBT)

# What needs more research

## Emerging Evidence

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- Augmentative and Alternative Communication
- Developmental therapies
- Denver Model
- Social Communication, Emotional Regulation, and Transactional Support (SCERTS)
- Relationship Development Intervention (RDI)
- Developmentally-based Individual-difference Relationship-based Intervention (DRI) Floor Time (Greenspan Method)
- Music Therapy
- Project TEACCH (Treatment and Education of Autistic and Related Communication-handicapped Children)
- Socialization Related Classes
- Social Skills Groups
- Social Stories
- Recreational Sports/Exercise
- Applied Verbal Behavior

# What doesn't work or is untested

## *Unestablished Evidence*

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- Animal Therapy
  - Dolphin Therapy
  - Pet Therapy
- Art Therapy
- Auditory Integration Therapy (AIT)
  - Tomatis Method
  - Berard Method
  - Fast Forward
  - Earobics
- Bonding (Attachment) Therapies
  - Gentle Teaching
- Facilitated Communication (FC)
- Glasses (see Vision Therapy)
- Holding Therapy
- Oral-Motor Training/Therapy
  - Kaufman Method
  - Prompts for Restructuring Oral Muscular Targets (PROMPT)
  - Rosenfeld-Johnson Method

# More of what doesn't work or is untested

## *Unestablished Evidence*

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- Patterning
- Psychoanalytic and Humanistic Play Therapy
- Rapid Prompting Method (RPM)
- Sensory Integration Therapy (Sensory Integration, SI, or SIT)
- Sensory-Motor Therapies
- Son Rise (Options)
- Vision Therapy
  - Irlen lenses
  - Glasses
  - Eye exercises
  - Rapid Eye Therapy
  - Ambient lenses
  - Yoked prisms

# ABA Intervention Process

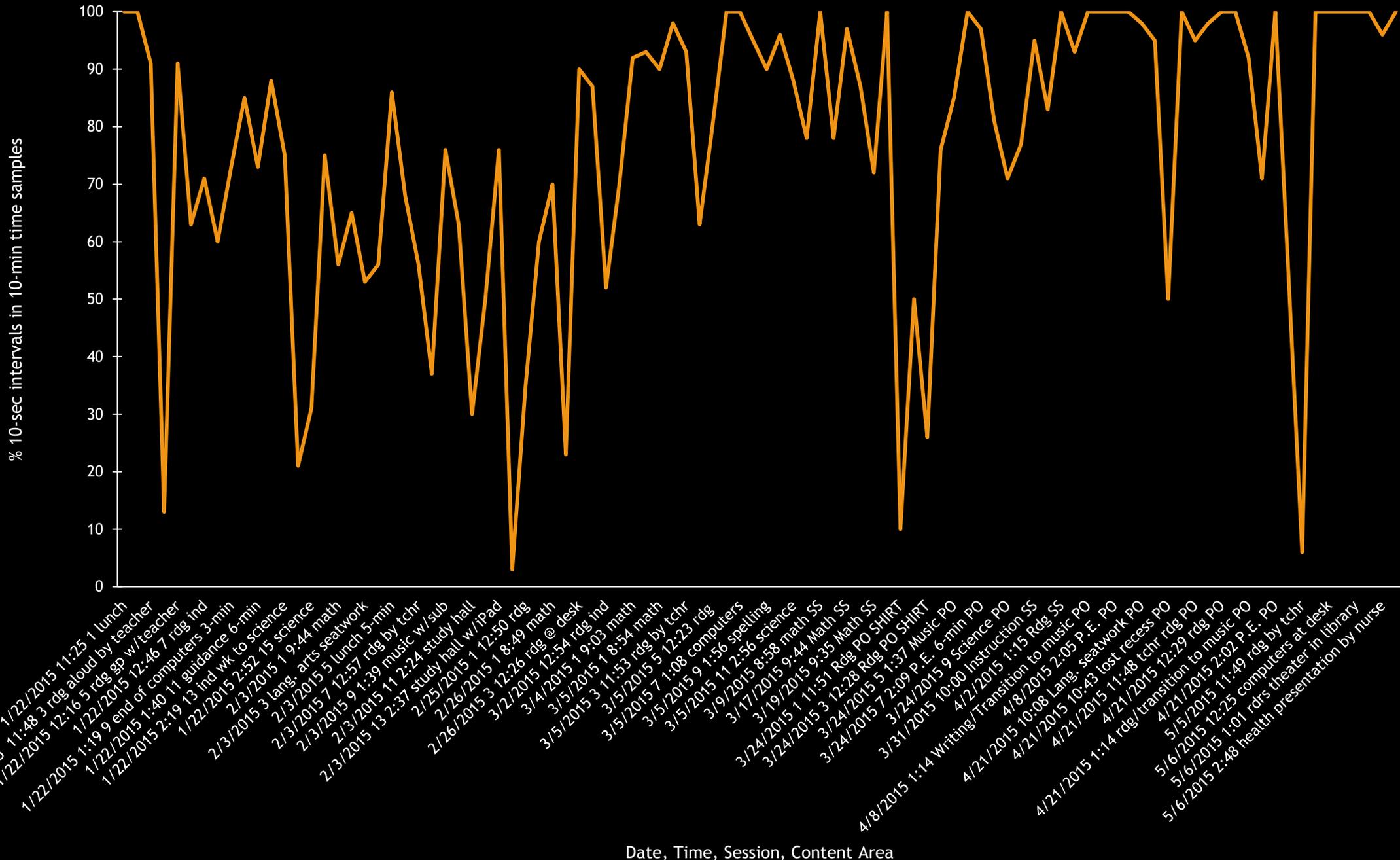
Assessment, Intervention, Providers

# Treatment Process

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- Conduct functional behavior assessment (FBA) [O’Neill, Horner, Albin, Sprague, Storey, & Newton (1997)]
  - Records review
  - Interviews with key stakeholders
  - DIRECT OBSERVATION
  - Write report, including intervention recommendations
- Begin intervention
- Graph data daily to interpret intervention effectiveness
- “Tweak” intervention throughout as the data indicate necessity

# Student's Engagement UPDATED THRU 5/6/2015



# Who Provides Services?

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- Board Certified Behavior Analyst (BCBA) or BCBA-D (Doctoral) or other qualified professional (Master's-level or higher)
  - Completes FBA
  - Writes report
  - Develops Behavior Intervention Plan (BIP) or Behavior Support Plan (BSP)
  - Provides parent services
- BCaBA (Board Certified Associate Behavior Analyst, Bachelor's-level) or Registered Behavior Therapist (RBT) (Pre-Bachelor's level)
  - Provides in-home services under supervision of BCBA or BCBA-D or other qualified professional
  - Implements BIP/BSP
  - Does NOT design BIP/BSP or provide parent services

# A Primer on Applied Behavior Analysis

The Basics

# Problems, problems, problems? See a Board Certified Behavior Analyst!

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- Marital/relationship problems?
- Trychotillomania?
- Weight gain?
- Noncompliant, tantrumming student in your classroom?
- Is your city experiencing excessive directory assistance calls (I hate it when THAT happens!)?
- Pedestrian safety threats in your city?
- Employee productivity waning?

# Behavior: What is it?

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- What people do and say
- Observable actions
- Impacts the environment (physical and/or social)
- Overt
  - Can be observed & recorded by someone other than the behave-er
- Covert
  - CanNOT be observed & recorded by someone other than the behave-er

# Dimensions of behavior

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- Frequency
  - # of occurrences
- Duration
  - How long occurrences last
- Intensity
  - Physical force

# Behavior is lawful.

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- Occurrence is systematically influenced by environmental events
- Behavioral principles describe *functional* relationships between behavior and environmental events
  - After you know the events in the environment that cause the behavior to occur, you can change those events and then change the behavior.
    - Cool, huh? 😊

*The “F” Word in ABA is FUNCTION!!!!*

# Behavior modification aka applied behavior analysis

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- Analyzing: identifying functional relationship between environment and behavior to understand cause
- Modifying: developing and implementing procedures to help people change their behavior

# IMPORTANT

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Applied behavior analysis is used by professionals or paraprofessionals to help a person change socially significant behaviors with the goal of improving some aspect of his/her life.

# Characteristics of Applied Behavior Analysis

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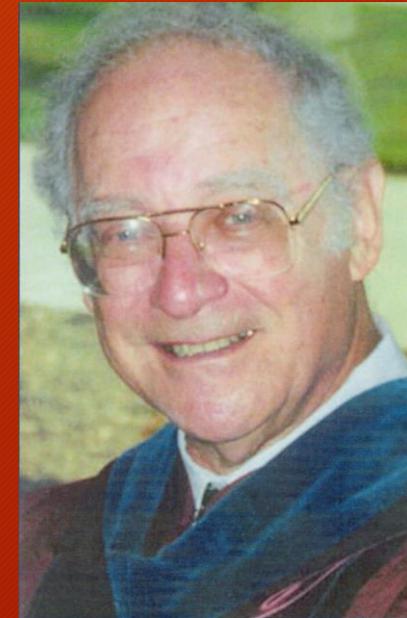
- Focus is on OBSERVABLE BEHAVIOR
- Does it change *autism*?
  - *Is “autism” observable?*
- Behaviors can occur in excess
- Or in deficit
- Experimental analysis of behavior is the scientific study of behavior.
- Emphasis on current environmental events
  - De-emphasis on what?
    - *Past events as causal factors*
    - *Hypothetical underlying causes*
- Requires precise description
- Requires measurement

# Baer, Wolf, & Risley (1968) Current Dimensions of Applied Behavior Analysis

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1. **Applied**
  - ✓ Important; socially significant
2. **Behavioral**
  - ✓ Ask not merely “was bx changed?” but also “*whose* bx changed?”
3. **Analytic**
  - ✓ Requirement of a believable demonstration
4. **Technological**
  - ✓ Complete identification and description
5. **Conceptual**
  - ✓ Relevance to principle
6. **Effective**
  - ✓ Does the application produce large enough effects for practical value?

Donald M. Baer



## #7. Generality (Baer, Wolf, & Risley, 1968, pg 96)

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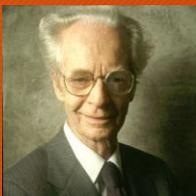
- “A behavioral change may be said to have generality of it proves durable over time, if it appears in a wide variety of possible environments, or if it spreads to a wide variety of related behaviors.”
- “Generality is not automatically accomplished whenever behavior is changed.”

# Historical roots

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- Pavlov
- Respondent conditioning (conditioned reflex)
  
- Thorndike
  - Law of effect
    - A behavior that produces a favorable effect on the environment is more likely to be repeated in the future
- Watson
  - Observable behavior is the proper subject matter of psychology



- Skinner
  - Distinguished respondent from operant behavior

# Application Areas

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- Developmental disabilities and autism
- Mental illness
- Education and special education
- Rehabilitation
- Community psychology
- Clinical psychology
- Business, industry, and human services
- Self-management
- Child management
- Prevention
- Sports psychology
- Health-related behaviors
- Gerontology

# ABA

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- ABA teaches us that new skills are learned continuously, and that each day is filled with hundreds of teachable moments. We capitalize on naturally-occurring opportunities during intervention services to address our clients' long- and short-term needs.
- Parents are a vital part of this process, as they provide critical insights into their children's learning histories and preferences, and are part of the intervention process to address generalization of their child's skills from a 1:1 training setting to other settings where newly-acquired skills must be demonstrated.

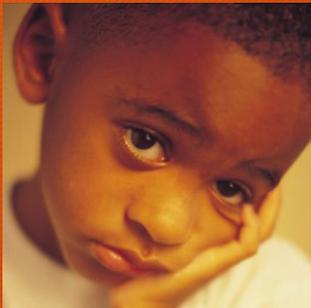
- Where should ABA teaching be conducted?
  - Everywhere!
- Newly-acquired skills will not generalize easily from a 1:1 training setting to more typical settings. Because of this, we use programming methods that encourage generalization, and apply the generalization-promoting strategies of Stokes and Osnes (1989).

# ABA

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- What are the components of an ABA program, and what skills are taught?
- ABA programs consist of teaching new skills; managing behavior that interferes with the learning process; generalizing skills to new situations and more “normalized” environments that are outside the training settings; and maintaining skills across time.
- Any skills necessary for the client’s success can be taught, including social and play skills, language and communication, self-help and toileting, and academic skills and school integration.

# Once Again: The Many Faces of Autism



# Resources

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- 2014 State Autism Profiles. (2014). Easter Seals. [www.easterseals.com](http://www.easterseals.com)
- Association For Science In Autism Treatment (ASAT)
- Baer, D.M., Wolf, M.M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, 1, 91-97.
- Behavior Analyst Certification Board (BACB)
- Diagnostic and Statistical Manual of Disorders: Fifth Edition. (DSM-5). (2013). Arlington, VA: American Psychiatric Association.
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- O'Neill, R.E., Horner, R.H., Albin, R.W., Sprague, J.R., Storey, K., & Newton, J.S. (1997). Functional assessment and program development for problem behavior: A practical handbook, Second edition. Pacific Grove, CA: Brooks/Cole Publishing Company.
- Heward, W. L. (2013). *Exceptional Children: An Introduction to Special Education, 10<sup>th</sup> Edition*. Boston: Pearson.
- South Dakota Autism Study. (November, 2014). Health Management Associates, Lansing, MI.
- Stokes, T. F. and Osnes, P. G. (1989). An operant pursuit of generalization. *Behavior Therapy*, 20, 337-355.



← My backyard, and I'm happy to be back in this beautiful state to see it every day.

Thank you for your attention!

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