LESSONS LEARNED: ABA IN EDUCATION

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ABA Technologies®
IMPROVING LIVES THROUGH THE SCIENCE OF BEHAVIOR

OBJECTIVES

- Give examples of instructional technologies derived from ABA and use to increase learning

- Describe the importance of frequent active student responding (ASR) and how to incorporate ASRs in the classroom.

- Utilize the principles of reinforcement in the classroom.

- Identify common functions of challenging behavior, and generic interventions to address them

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DISCLAIMER

- This presentation is for informational purposes only, and does constitute nor infer a consultative or supervisory relationship between the speaker and audience.

WHAT IS ABA?
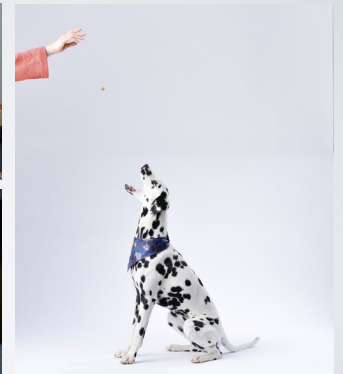
WHAT IS ABA?

- Applied Behavior Analysis:

  - is a science of human behavior

  - takes the same approach to its subject matter as physics, chemistry, or biology!

  - is NOT a treatment, it is the science that INFORMS effective and scientifically validated treatments

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APPLICATIONS

- Autism and Developmental Disabilities

- Education

- Business and Industry

- Wherever people are doing things!

- It's All Behavior!!

WHAT IS BEHAVIOR?

- Behavior is what we do!

- It is the action of the muscles and glands.

- Must pass the "dead man's test"

  - If a dead man can do it, it ain't behavior!

  - e.g., "noncompliance"

LEARNING

- Learning is a relatively permanent change in behavior, due to experience.

LEARNING

- Learning is a *relatively permanent* **change in behavior**, due to experience.

THE A-B-C S OF BEHAVIOR

A · Antecedent
  · environmental changes that precede the behavior

B · Behavior
  · Action of the individual

C · Consequence
  · environmental changes that follow the behavior (very often caused by the behavior)

THE A-B-C S OF BEHAVIOR

- This three-term contingency (Antecedent-Behavior-Consequence) leads us to the function of the behavior: why the behavior occurs.

A · Hungry (food deprivation)

B · Make Popcorn

C · Get Food

THE A-B-C S OF BEHAVIOR

- This three-term contingency (Antecedent-Behavior-Consequence) leads us to the function of the behavior: why the behavior occurs.

A · Difficult assignment

B · Whine "I Can't do it!"

C · Get Help

THE A-B-C S OF BEHAVIOR

- This three-term contingency (Antecedent-Behavior-Consequence) leads us to the function of the behavior: why the behavior occurs.
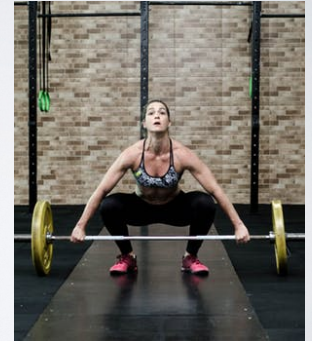
  A · Difficult assignment

  B · Exclaim "Math Stinks!" (Clean version)

  C · Get sent to office (away from assignment!)

TYPES OF CONSEQUENCES

- Consequences can have two effects on behavior
  · They can make a behavior **more likely** to occur in the future- **Reinforcement**

TYPES OF CONSEQUENCES

- Consequences can have two effects on behavior
  · They can make a behavior **less likely** to occur- **Punishment**

TYPES OF CONSEQUENCES

- Consequences involve two general types of environmental changes
  · Stimuli are **added** to the environment (something is presented, turned on, increased, etc.) - **Positive (+)**

TYPES OF CONSEQUENCES

- Consequences involve two general types of environmental changes
  · Stimuli are **withdrawn** or removed from the environment (something is removed, turned off, decreased, etc.) - **Negative (-)**

TYPES OF CONSEQUENCES

	Positive (+)	Negative (-)
Reinforcement ↑	**Positive Reinforcement** present something that results in a future increase in behavior (get something you like) "reward"	**Negative Reinforcement** remove something that results in a future increase in behavior (avoid/escape something you don't like) "relief"
Punishment ↓	**Positive Punishment** present something that results in a future decrease in behavior (get something you don't like) "pain"	**Negative Punishment** remove something that results in a future decrease in behavior (get something you like) "loss"

ACTIVE RESPONDING TIME!

Navigate to: PollEv.com/coreyroberts312

or

text COREYROBERTS312 to 22333 once to join, then text A, B, C, or D

ACTIVE RESPONDING TIME!

Which is an example of behavior?

1. Anger

2. Aggression

3. Hitting

4. Not using your words

ACTIVE RESPONDING TIME!

Which is an example of behavior?

1. Noncompliance

2. Defiance

3. Not following directions

4. Following directions

ACTIVE RESPONDING TIME!

The ABCs of behavior are:

1. Act, Behave, Control

2. Anticipate, Be Mindful, Collaborate

3. Autism, Behavior, Consultant

4. Antecedent, Behavior, Consequence

ACTIVE RESPONDING TIME!

When the teacher gives Andy a difficult assignment, he doodles in his notebook, daydreams, or puts his head down and goes to sleep. Often, the teacher doesn't catch this until the end of class, when Andy hasn't finished any of the questions. Andy often wastes time in class. His behavior is likely maintained by:

1. Positive reinforcement

2. Negative Reinforcement

3. Positive punishment

4. Negative punishment

ACTIVE RESPONDING TIME!

When Little Johnny throws a toy, his teacher comes up and says "No Johnny, here is how we play with cars!", and plays with him for a few minutes. In the future, the rate of Johnny's car throwing increases. This is an example of:

1. Positive reinforcement

2. Negative Reinforcement

3. Positive punishment

4. Negative punishment

ACTIVE RESPONDING TIME!

When George calls out in class, his teacher always tells him he is supposed to raise his hand, and then asks him what he wants. George calls out in class throughout the day. This is due to:

1. Positive reinforcement

2. Negative Reinforcement

3. Positive punishment

4. Negative punishment

ACTIVE RESPONDING TIME!

Getting Damien to clean up the toys after center time is always a struggle. He cries, goes limp, and will even hit and kick his teacher if she tries to physically prompt him. Due to this, she typically gives up and cleans the toys up herself. Damien's behavior is likely maintained by:

1. Positive reinforcement

2. Negative Reinforcement

3. Positive punishment

4. Negative punishment

TEACHING

- So how does this fit in with Teaching/Learning?

  - We know that consequences can increase behaviors --reinforcement

  - So we must design contingencies that increase the behaviors we want to see

FIRST THINGS FIRST!

- Building relationships

- "Rapport building"

- "Establishing Instructional Control"

- "Pairing"

- It's easier to change behavior if the person **likes** you!
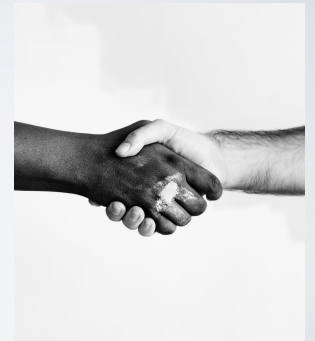
THE LEARN UNIT

- **A** •Antecedent- opportunity to respond, WHEN should the desired skill occur, what is the signal?

- **B** •Behavior- the specific response we are trying to teach

- **C** •Consequence- the reinforcer we are delivering to try and increase the new skill

THE LEARN UNIT
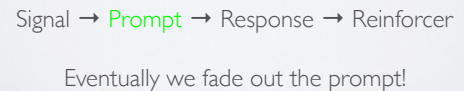
Signal → Response → Reinforcer

"What is → "St. Paul" → "That's Right!"
the capital
of Minnesota?"

THE LEARN UNIT

Signal → Response → Reinforcer

Need to
use → Raise Hand → Teacher gives
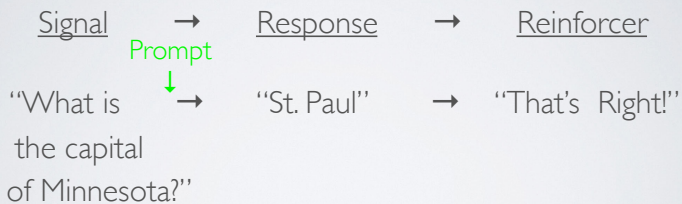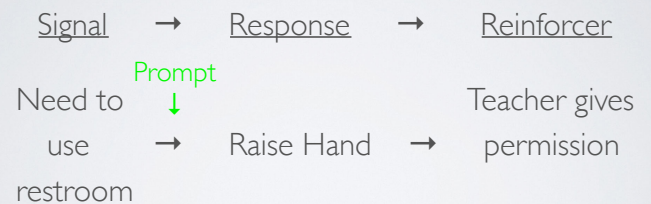restroom permission
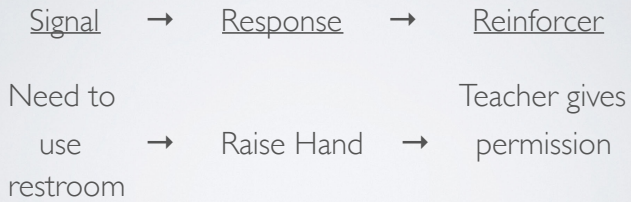
PROMPTING

- If the response doesn't occur when the opportunity is presented (and it usually doesn't when we are starting out), we help the behavior occur, so we can reinforce it!

- The idea is to get the contingency established (when this happens, if you do this, you get this) so the behavior will increase and be maintained!

Signal → Prompt → Response → Reinforcer

Eventually we fade out the prompt!

THE LEARN UNIT

Signal → Response → Reinforcer
    Prompt
    ↓
"What is → "St. Paul" → "That's Right!"
the capital
of Minnesota?"

THE LEARN UNIT

Signal → Response → Reinforcer
    Prompt
    ↓
Need to
use → Raise Hand → Teacher gives
restroom permission

ABA AND EDUCATION

- All this seems simplistic, but it is the building block of learning for all types of tasks!

- The goal in an educational setting is to deliver as many learn units as possible so that the skill can be practiced and acquired!

ABA AND EDUCATION

- Features of Instructional Technology based on ABA:

  - Highly structured

  - Fast Paced

  - High level of Active Student Responding!!

 - Extensive use of supportive and corrective feedback

ACTIVE STUDENT RESPONDING

- Student-emitted responses that are observable and can be measured (usually rate of response, but can lend to percent correct)

  - As opposed to:

  - "paying attention"

  - "listening" (active or otherwise!)

  - watching others respond

ACTIVE STUDENT RESPONDING

- Although many high tech options are available, there are several options that can be incorporated into traditional classrooms:

ACTIVE STUDENT RESPONDING
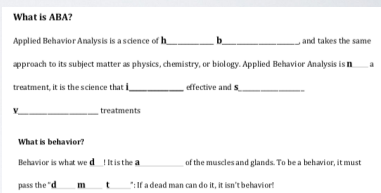

- Response Cards

  - Preprinted or write-on
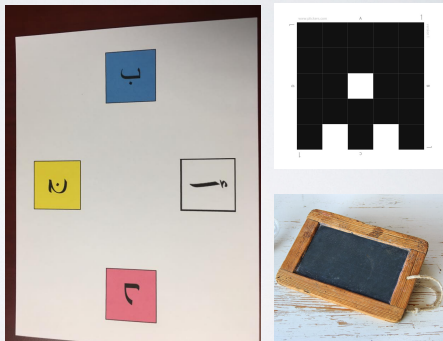
ACTIVE STUDENT RESPONDING

- Choral Responding

ACTIVE STUDENT RESPONDING

- Guided Notes

  - More effort up front, take-home study guide, good for higher level learners

ABA AND EDUCATION

- Examples of Instructional Technologies based on ABA:

  - Programmed Instruction (Headsprout)

  - Personalized System of Instruction (Keller Method)

  - Direct Instruction (SRA's Reading Mastery)

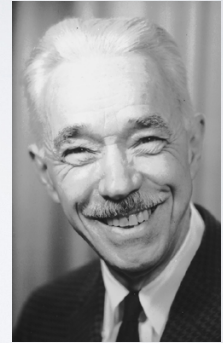 - Precision Teaching (fluency-based)

PROGRAMMED INSTRUCTION

- Small frames of information
- Student-paced
- immediate feedback - move on to new information, or review
- Teaching machine or computer

PERSONALIZED SYSTEM OF INSTRUCTION

- "Keller Method"
- Student-paced
- Optional Lectures
- Unit tests
  - 100% mastery
  - proctors

DIRECT INSTRUCTION

- Teacher-delivered script
- Fast paced
- high rate of active student responding
- examples and non examples

PRECISION TEACHING

- Fluency-based
  - fast, accurate responding
  - Fluency drills
- Uses celeration charts to track <u>rate of learning</u>

AN EXAMPLE:
FL TECH'S ABA ONLINE PROGRAM

- Weekly Units
- Video-delivered lectures
  - Guided Notes
  - Multiple-choice ASRs
- Reading assignments and quizzes (Bonus points)
- Fluency activities (SAFMEDS)

AN EXAMPLE:
FL TECH'S ABA ONLINE PROGRAM

- Weekly live review meeting
  - fast paced
  - examples and non-examples
  - frequent active student responding
- Unit tests (two chances, better score remains)

ACTIVE RESPONDING TIME!

The learn unit consists of an opportunity to respond, a learner response, and a:

1. graded worksheet

2. reinforcer

3. antecedent

4. discrete trial

ACTIVE RESPONDING TIME!

A(n) _____ is a way of helping a person engage in the desired behavior so they can receive the reinforcer.

1. instruction

2. signal

3. prompt

4. fade

ACTIVE RESPONDING TIME!

Instruction based on Applied Behavior Analysis typically involves a lot of:

1. active student responding

2. clapping and saying "yay"

3. progressive instruction

4. rote memorization

GROUP ACTIVITY 1

Think about a lesson you teach.

How can you increase the rate of active student responding, focusing on the behavior change the learning objectives set out to achieve?

Share with your colleagues!

DEALING WITH "PROBLEM" BEHAVIORS

- So, you're doing everything right, but Johnny B. Good is still engaging in "problem" behavior!

- What do we do now??

DEALING WITH "PROBLEM" BEHAVIORS

- Four Questions:

  1. What's the problem?

  2. Why is it a problem?

  3. Why do they do it?

  4. What could/should they do instead?

1. WHAT'S THE PROBLEM?

- Behavior!

  - Observable

  - Measurable

2. WHY IS IT A PROBLEM?

- If it was a problem for them, they wouldn't be doing it!

  - There's no such thing as "maladaptive" behavior

  - All behavior is adaptive!

"PROBLEM" BEHAVIORS

- Dangerous to self or others

- Would result in more restrictive placement if left untreated

- Affects dignity, interferes with relationships

- Disrupts environment for self or others

3. WHY DO THEY DO IT?

- What's the function?

- What do they get, or avoid?

- Identify the antecedents that occasion the behavior, and the specific consequences that may be maintaining it.

FUNCTIONAL (A-B-C) ASSESSMENT

- Record antecedents and consequences when behavior occurs-direct observation.

- Can interview using assessment tools (M.A.S., F.A.S.T.)- better not to rely solely on these

- Look for patterns of antecedents and consequences

SAMPLE A-B-C RECORDING SHEET

Date/ Time	Antecedent What was happening right before the behavior occurred? How was Ct. interacting with the environment?	Behavior What did the behavior look like, sound like, how long did it last, how many times was it repeated?	Consequence How did the environment change as a result of the behavior? Did Ct get what he wanted, or get "punished"?
8/24 10:00A	I told Johnny I couldn't play with him because I had to do the dishes	Johnny started crying and holding on to my leg	I told him to calm down and explained that I had things I had to do. When he calmed down I played with him before doing the dishes.
8/27 11:00A	Johnny wanted to go outside, but I told him it was too hot	He cried and screamed and started banging on the sliding glass door	I sat him on the couch and explained to him that this was inappropriate behavior, that he can't scream every time he wants something. When he calmed down we went outside.
9/1 10:30A	I told Johnny it was time to clean up his toys	He started crying and screaming "NO clean up!".	I ignored him and after a few minutes, he calmed down.

SAMPLE A-B-C CARD

A-B-C CARD

STUDENT:_____   DATE:_____
LOCATION/ACTIVITY:_____   TIME:_____

ANTECEDENTS	BEHAVIOR	CONSEQUENCES
☐ Lack of Social Interaction	☐ Noncompliance	☐ Interruption/Blocking
☐ Asked to Do Something	☐ Off Task	☐ Behavior Ignored
☐ Free Time	☐ Physical Aggression	☐ Redirection to Activity
☐ Could Not Get Desired Item/Activity	☐ Verbal Aggression	☐ Physical Restraint
☐ Loud/Disruptive Environment	☐ Property Destruction	☐ Removed From Room/Area
☐ Ongoing Behavior Interrupted	☐ Provoking/Teasing Others	☐ Separation Within Room/Area
☐ Other Student Provoking	☐ Running Away/Out of Designated Area	☐ Required to Continue Activity
☐ Stopped From Doing Activity	☐ Screaming/Tantrum	☐ Loss of Privilege
☐ Transitional Time	☐ Other (Specify)_____	☐ Reprimand/Warning
☐ Difficult Task		☐ Peer/Adult Attention
☐ Interruption in Routine		☐ Timeout (Duration:_____)
☐ Consequences Imposed for Negative Behavior		☐ ISS (Duration:_____)
☐ Other (Specify)_____		☐ Change in Expected Activity (How or What?_____)
		☐ Detention (Duration:_____)
		☐ Other (Specify)_____

6BA101ABC Card - 7/13/98

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4. WHAT COULD/SHOULD THEY DO INSTEAD?

- What's the missing skill?

- What do we need to teach or reinforce?

- What's the functionally-equivalent replacement behavior?

- Focus on teaching!

DATA

- Any behavior worth changing is worth taking data on

- Data tells you how big the problem is before we intervene, and whether the intervention is effective as we implement it.

- Frequency, duration, interval recording, momentary time sample

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INTERVENTIONS

- Want to make the "problem" behavior:
  - Irrelevant
  - Inefficient
  - Ineffective

- While increasing the relevance, efficiency and effectiveness for the replacement behavior!
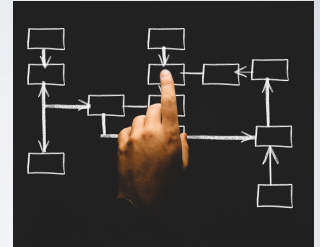
ANTECEDENT INTERVENTIONS

- Making the "problem" behavior <u>irrelevant</u> means it doesn't need to occur

  - Often addresses the motivation for the problem behavior

  - Give the reinforcer noncontingently, or for replacement skill

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ANTECEDENT INTERVENTIONS

- Positive reinforcement

  - Attention

  - Access to items/activities

- Either provide noncontingently, or contingent upon replacement behavior

  - at HIGHER FREQUENCY than problem behavior

ANTECEDENT INTERVENTIONS

- Negative reinforcement

  - Escape/Avoidance

- Can program for escape for replacement behaviors (requesting break, choice of order, finishing task)

- Can reduce aversiveness of task

ANTECEDENT INTERVENTIONS

- Can reduce aversiveness of task

  - work is at appropriate level for student

  - Make it fun!

  - Scaffolding (fading in demands)

    - Start with a lot of help then fade out

  - Scheduling of tasks

TEACHING SKILLS

- We want to teach a skill that will replace the undesired behavior- one that serves the same function. Many times undesired behaviors occur because of some underlying skill deficit

- We can make the problem behavior _inefficient_ by making reinforcement easier and more likely to get with the replacement skill

  - rate of reinforcement for replacement skill is higher than "problem" behavior

INTERVENTIONS

So to summarize:

1. Determine the function of the undesired behavior.

2. Decide on a functional replacement skill.

3. Write a task analysis.

4. Teach the skill.

5. Prompt the skill when it should occur.

6. Reinforce it when it does!

INTERVENTIONS

- Behaviors maintained by attention

  - Give lots of attention, noncontingently

  - Minimize attention for undesired behavior

INTERVENTIONS

- Behaviors maintained by attention

  - Teach and give attention for replacement skill

    - Practice with child

    - Prompt when condition arises

    - Give attention every time!

INTERVENTIONS

- Behaviors maintained by access to desired items/activities

  - Never give access for undesired behavior

  - Access should be contingent on replacement behavior

    - Asking appropriately

    - Waiting for item/activity

INTERVENTIONS

- Behaviors maintained by escape

  - Reduce motivation for escape

    - Introduce demands slowly (ask easy task, then another, then get to the more 'aversive task)

    - Make it fun!

    - Scaffolding- help, then fade help gradually

INTERVENTIONS

- Behaviors maintained by escape

  - Teach replacement behaviors

    - Asking for help

    - Taking short breaks

  - Design consequences for attempting/finishing task

  - Do not allow escape for inappropriate behaviors!!

SELECTING REINFORCERS

- How do we choose reinforcers for our interventions?

- First, look at the consequences for the problem behavior! You may want to use the same reinforcer for the replacement behavior.

- Consider what the typical or natural outcome of the behavior would be, and try to use that.

- Assess for other, less natural reinforcers, if necessary

SELECTING REINFORCERS

- Preference Assessment

  - Ask: reinforcer surveys

  - Observe: watch the person in their free time

    - Premack Principle (Grandma's Law): access to a highly preferred activity, when made contingent on completion of a lesser preferred activity, can reinforce the lesser preferred activity.

  - Offer: structured preference assessments

SELECTING REINFORCERS

- Stickers, Points, Tokens

  - Can become conditioned reinforcers

  - Can help deliver tangible reinforcers more efficiently

  - May not necessarily compete with function of problem behavior and should only be chosen as a result of functional assessment and with consultation by a behavior analyst

    - May lead to "tool-box" approach that is ineffective.

REDUCING UNDESIRED BEHAVIORS

"But, what do I do when the undesired behaviors occur?"

• We try to prevent undesired behaviors by focusing on reinforcement of replacement skills that render the undesired behavior irrelevant, or inefficient

• But this takes time, and there is a history of reinforcement for the undesired behavior, isn't there?

REDUCING UNDESIRED BEHAVIORS

• Making the problem behavior **ineffective** means that the behavior no longer works for them.

REDUCING UNDESIRED BEHAVIORS

• Procedures:

   • Extinction

   • Punishment

      • Positive Punishment

      • Negative Punishment

EXTINCTION

• Extinction is a procedure that results in a future decrease in behavior.

• It involves withholding reinforcement for a previously reinforced behavior.

• Based on function

   • Attention- ignore

   • Access to item- don't present

   • Escape- don't remove task

EXTINCTION

• Example: Soda Machine

   • Extinction Burst

      • Increase rate, novel behaviors, emotional outbursts, aggression

   • Long term effect: decrease in behavior

   • Spontaneous recovery

      • behavior can reappear later on- if it is reinforced when this occurs, rate may return to baseline.

EXTINCTION

• Works best if:

   • You teach and reinforce a replacement skill at the same time

   • You inform the individual (but not during, if behavior is attention based!)

   • You are consistent

PUNISHMENT

- Definition: a consequence that results in a <u>decrease in the future frequency of behavior</u>.

- This is important, because if you are continually delivering a consequence, IT IS NOT PUNISHING!

PUNISHMENT

- Two types:

  - Positive Punishment- presentation of an aversive stimulus that results in a future decrease in the frequency of behavior.

    - Examples: social disapproval, spanking, but also electric shock, water mist, noxious fumes, bad taste, etc.

    - Usually prohibited.

PUNISHMENT

- Two types:

  - Negative Punishment- removal of an appetitive stimulus that results in a future decrease in the frequency of behavior.

    - Examples: lose a privilege, fines, response cost, timeout

    - Timeout: short for "timeout from positive reinforcement"

      - A contingent period of removal of access to a reinforcer

      - In order to be effective you MUST identify the Time-IN (the reinforcer)

PUNISHMENT

5 reasons why you don't want to use punishment:

1. Punishment doesn't teach the person what to do instead.

2. Emotional side effects

3. Counter control

4. Models the use of punishment

5. Addictive to person delivering punishment (through negative reinforcement)

ACTIVE RESPONDING TIME!

When Johnny is presented with a difficult assignment, he often becomes disruptive and defiant. Which strategy might make this challenging behavior **irrelevant**?

1. Teach Johnny to ask for a break or for help, and always give it to him when he does, but never give him a break or help if he is disruptive

2. Introduce new skills slowly, with lots of support, so it is easy for Johnny

3. Never give Johnny escape when he becomes disruptive or defiant- keep presenting the task

4. Send Johnny to the dean's office when he becomes disruptive.

ACTIVE RESPONDING TIME!

When Johnny is presented with a difficult assignment, he often becomes disruptive and defiant. Which strategy might make this challenging behavior **inefficient**?

1. Teach Johnny to ask for a break or for help, and always give it to him when he does, but never give him a break or help if he is disruptive

2. Introduce new skills slowly, with lots of support, so it is easy for Johnny

3. Never give Johnny escape when he becomes disruptive or defiant- keep presenting the task.

4. Send Johnny to the dean's office when he becomes disruptive.

ACTIVE RESPONDING TIME!

Which is NOT a valid reason to avoid the use of punishment procedures? Punishment:

1. doesn't work

2. can result in attempts at counter control

3. reinforcers the deliverer of punishment

4. doesn't teach a replacement skill

ACTIVE RESPONDING TIME!

Linda engages in disruptive behavior because, in the past, her father has given her attention in the form of verbal reprimands and redirection. An extinction procedure would involve:

1. Removing all objects that can be damaged when she escalates so there is less for her to disrupt

2. Giving her praise for asking her dad to engage in an activity with her

3. Directing Linda to a chair when she engages in disruptive behavior, where she is to sit for two minutes; no one is to interact with her.

4. Ignoring disruptive behavior when it occurs.

ACTIVE RESPONDING TIME!

Damien cries, goes limp, and will even hit and kick his mother if she tries to physically prompt him to clean up his toys. Usually she gives up and cleans the toys herself. An extinction procedure in this case would involve:

1. Ignoring Damien when he does this.

2. Taking Damien's toys away when he does this.

3. Continuing to request that Damien pick up the toys and use physical prompting.

4. Restraining Damien so he can't hit.

SUMMARY

- ABA as a science of learning has a lot to offer Education!

- Learning is a relatively permanent change in behavior - so we teach by engaging our students- high rates of active responding!

- Filling the time with directed activities tends to prevent challenging behavior

SUMMARY

- When we do experience challenging behavior, we want to determine

  - What the problem is

  - Why it's a problem

  - Why they do it

  - What they could/should do instead!

SUMMARY

- We want to make the problem behavior

  - Irrelevant

  - Inefficient

  - Ineffective

- While teaching the person a better way to get what they want, and supporting the new behavior!

GROUP ACTIVITY II

With your group, identify a "problem" behavior that you have experienced in your classroom. Define why this behavior constitutes a problem for the individual.

Although we can't do proper direct assessment today, attempt to recall/describe the related antecedents and consequences so that you can hypothesize the function of the behavior.

Then develop some interventions including Antecedent interventions (addressing motivation), a replacement skill to teach, and what to do when the targeted behavior for reduction does occur.

Q & A

THANK YOU

contact: behaviorguy@gmail.com