Slide 1

Another area that evidence-based instruction has focused on

Slide 2

Last lecture we talked about the important role that the recombination of repertoires plays in the adduction of contingencies

By way of review

By contingency adduction, we mean the meeting of reinforcement criteria of a new situation without direct training

When we talk about a new situation, we mean one that has different stimuli than previous situations
--This was Skinner's definition of a problem

A problem is a situation in which you have not had training
--It's a new situation in which you do not know how to be successful.

We deal with new problems by recombining the behaviors that have, in the past, brought us success in similar situation

Slide 3

Recall the pigeon and box experiment

The pigeons were placed in a problem situation. They had never been placed under those contingencies and had never been trained to solve the problem

Some had been trained in all of the behaviors relevant to that situation.

Others were only trained in some

The pigeons that solved the problem were with training in the relevant skills

When the pigeons had all of the relevant skills, the stimuli that were present when those behaviors were trained recruited those behaviors when the pigeon was placed in a new situation

Slide 4

Behaviors come under the control of different stimuli
--The color of a traffic light

Have contingencies shape that behavior

Two ways to learn what the color of a traffic light signifies
-Drive through a green light and see what happens
-Drive through a yellow light and see what happens
-Drive through a Red light and see what happens
--Not a good idea

Rule-governed behavior
-You could also ask someone
"Drive through a green light. Stop at a red light. At a yellow light, do whatever is easiest."

Slide 5

Behavior that is rule-governed is under the control of verbal stimuli

What that means:

Verbal stimuli are words that we use to communicate
--“This is an example of verbal stimuli.”

Control means that it makes a response more (or less) likely
--“Sold out,” on a pop machine

Examples of rule-governed behavior

I before e, except after c

Slide 6

There are different kinds of rules

One kind of rule is what we call a principle
--It states how two concepts are related

By way of review, a concept is a stimulus class
--A group of things to which responding in a different way than to other groups of things is reinforced

Concepts can be related to each other in many ways

Snakes----slithering
Snakes slither
Dogs---cats
Dogs chase cats
Cars---road
Cars drive on roads
Catholics---Mass
(most) Catholics attend mass

Slide 7

Principles have conditions and actions

Actions say something that you can do
--How you can use a principle

Example
“You dial 911 if you need the police”
--The action here is “dial 911”--Dialing 911 is something you can do

Conditions say when to do something
--The condition here is “you need the police”—when you need the police is when you dial 911

Slides 8-9

Conditions and actions can be stated implicitly or explicitly

Implicit means “implied” meaning “not stated outright”

Explicit just means they come right out and say

Slide 10

The relationship between two concepts is stated

The actions and conditions are not

Slide 11

Which principle to use isn't always clear.

Strategies help us recruit principles and apply them to a new situation

Slide 12

Ask the class to try it with eyes closed

One feature of a good strategy is that it is organized

Slide 13

Organization is a critical feature of a strategy

Adaptiveness
What else might make this easier?
Having the first and fourth letters written in capital letters

Slide 14

Now all we have to do is count them

Slide 15

Knowing the end, you must ask yourself what state you will be in when you are ready to make the final step

Slide 16

Working backwards doesn't help
--If you knew the end, it would be easy

Best strategy
Be careful to cover all possible combinations

Slide 17

Conservative focusing
--Hold all variables constant, except the ones you are testing

Hypothesis testing
--Take your best guess, try it out

Slide 18

This is an example of a rule-finding problem

Rule-finding problems are often found on intelligence tests

One of the many reasons such tests are unfair

Slide 19

An effort to correct those biases

Use problems that contain almost no prerequisite content

Slide 20

Difficult skill to teach to children

Requires thinking

Thinking cannot be directly observed
-Cannot be corrected
-Cannot be reinforced

How do we know that they are thinking

Slide 21

Thinking is difficult to learn
-Cannot be learned through observation
-Does not (directly) get reinforced or corrected

Many kids will emulate some of the behaviors that are observed of someone who is thinking

Examples

Slide 22

Think aloud.
-Allows for reinforcement
-corrective feedback
-shaping

Think Aloud Problem Solving

Verbalizing your thoughts of reasoning
--Allows for reinforcement of good problem solving methods
--Allows for feedback on poor problem solving

Slide 23

Created by Arthur Whimbey and Jack Lochhead

Evidence-based program that has been tested in college and elementary settings
Used at Morningside Academy

Shows boosts on tests like the IQ test
Which scores, note, are supposed to show innate intelligence
Meaning that boosts should not be possible

Teaches users to verbalize their thoughts while working through a problem
-this method works best with a partner
-also works solo

Slide 24

Positive Attitude
-Strong belief that problems can be solved through reasoning

Concern for Accuracy
-Take great care to make sure they understand all aspects of problem

Breaking the Problem into parts
-Breaking it into smaller steps

Avoiding Guessing
-Checking the accuracy of their assumptions and conclusions

Activeness in Problem Solving
-They work hard to understand and answer difficult problems

Slide 25

Check accuracy of
-Computations
-conclusions

Never let them get ahead of their own reasoning

Does not work separately

Only points out errors,
-The problem solver should do all of the work