Mike Berndt of Apollo High School, St. Cloud, Minnesota, received a 2023 APA TOPSS Charles T. Blair-Broeker Excellence in Teaching Award.

Mike Berndt

The Human Maze (Day 1) 50 minute class period

National Standard Area: Learning
Content Standard 2: Operant Conditioning
Content Standard 3: Observational learning, social learning theory, and mental processes in learning

Objectives:

- Students will be able to describe and give examples of the Law of Effect and Cognitive Maps.
- Students will demonstrate and employ the Law of Effect and Cognitive Maps while trying to complete the maze demonstration.
- Students will recall and review Bandura's Observational Learning when watching and copying fellow students trying to complete the maze demonstration.

Materials:

- Computer
- YouTube video clip
- Google link of the PBS Nature Video, "Inside the Animal Mind: Are Animals Intelligent?"
- Masking tape
- The buzzer from the game "Taboo" or download a buzzer app on your phone.

Procedure:

- Class begins with power point slides about the definition and examples of Thorndike's Law of Effect . A brief video clip of a recreation of Thorndike measuring the rate of learning with a cat in a puzzle box is shown from YouTube: https://www.youtube.com/watch?v=Vk6H7Ukp6To

- Next, we discuss the definition and give examples of Tolman's Cognitive Maps. The class then watches a video clip (the first 18 minutes) from "Inside the Animal Mind: Are Animals Intelligent?" that features a cab driver in London trying to navigate through the city. The video clip also shows elephants, hummingbirds, and the Clark's Nutcracker bird utilizing cognitive maps in the wild.

Inside the Animal Mind: Are Animals Intelligent
https://drive.google.com/file/d/1jkFZEkaPtpTcWz3E-A-mlpQchQal6SgN/view?usp=share_link

- Finally, the class goes to another room to complete the maze demonstration. Please see the next page for instructions for how to do the maze demonstration. The maze demonstration allows students to apply the concepts of the Law of Effect and Cognitive Maps and see these concepts in action. If Bandura's Social Learning theory has already been taught, the maze demonstration provides an excellent example and review of Observational Learning.

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Maze Demonstration

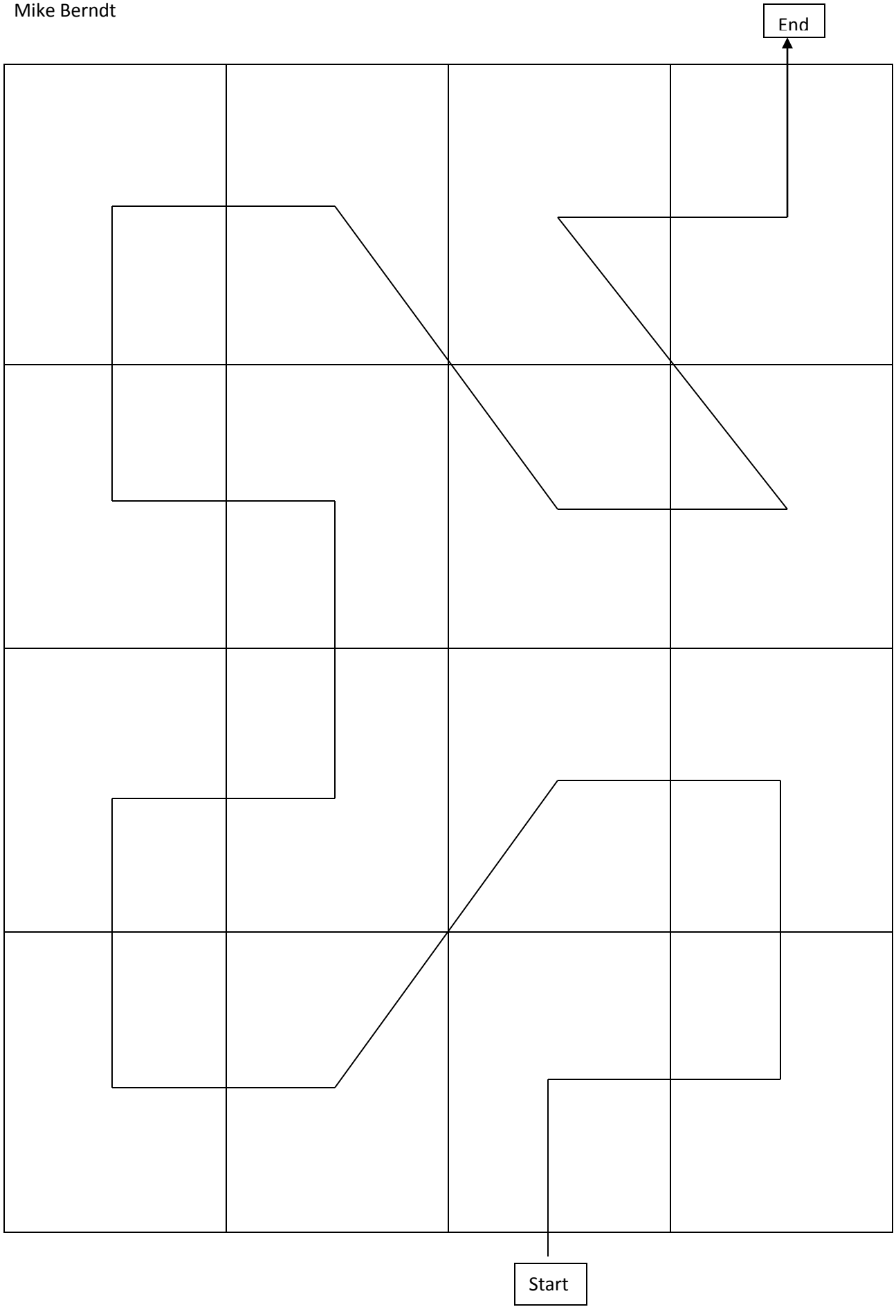
Procedure:

• Make a 4 x 4 grid on the floor so there is a total of 16 squares. The squares need to be large enough for students to get both feet in a square easily. The area you build the maze needs to be large enough that all students can watch fellow students trying to solve the maze. On the next page, I diagramed the correct route through the maze. It works best if you use masking tape to create the grid. If you don't want to recreate the maze year after year, use Duct Tape and a 10' x 10' tarp. Each new square that is learned through trial and error, I announce "correct" to the class. If they step on an incorrect square, I buzz them with the Taboo buzzer and they have to go to the back of the line. Students get to keep trying until someone successfully finishes the maze. After a winner is declared, we discuss how the Law of Effect, Cognitive Maps, and Observational Learning were essential to solving the maze. It usually takes about 15 minutes for classes to complete the maze.

Rules:

- Students cannot talk while trying to solve the maze, but it important that they watch others try to solve the maze.
- Students cannot draw the maze out on paper or their hand while waiting in line; it must be a cognitive map!
- Students must stay in the same single-file order while trying to solve the maze.
- Students can move horizontally, vertically, or diagonally. They can also move forwards and backwards.
- Students can only step on adjacent squares. They cannot hop over squares.
- The entrance to the maze is not given to students; they have to find it in the first row of four squares.
- The exit to the maze is also not given to students; they have to find it in the last row of four squares.
- The first student to correctly step out of the maze wins! I usually give them a cheese stick and some extra credit for positive reinforcement.

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Are You Smarter Than A Pigeon? (Day 2) 50 minute class period

National Standards Area: Learning
Content Standard 1: Classical Conditioning
Content Standard 2: Operant Conditioning

Objectives:

- Students will be able to describe and give examples of the following concepts: Generalization, Discrimination, Spontaneous Recovery, and Extinction.
- Students will be able to apply and evaluate how Generalization, Discrimination, Spontaneous Recovery, and Extinction could relate to the Baby Albert Experiment.
- Students will recognize and discuss how an Operant Chamber and positive reinforcement changes the behavior of animals.
- Students will complete the assessment that has examples that differentiate Classical Conditioning from Operant Conditioning. Students will also identify examples of Generalization, Discrimination, and Extinction.

Materials:

- Computer
- YouTube video clip: https://www.youtube.com/watch?v=U1kj6_7x4PY from "Inside the Animal Mind: Are Animals Intelligent?"

Procedure:

- Class begins with lecture slides with definitions and examples of Generalization, Discrimination, Spontaneous Recovery, and Extinction. It is emphasized that these concepts can either be Operant or Classical Conditioning, depending on whether behavior is voluntary or involuntary.
- Next, we revisit the Baby Albert experiment that was previously taught in class. Students have to apply and give examples of how Baby Albert's behavior changed or would hypothetically change through Generalization, Discrimination, Spontaneous Recovery, and Extinction.
- We then examine Cardiff University professor Dr. John Pearce's research with pigeons in regards to spatial relationships and the pigeons' ability to discriminate between various stimuli. The class watches a clip from the PBS Nature Video, "Inside the Animal Mind: Are Animals Intelligent," in which Dr. Pearce uses an Operant Chamber to demonstrate that pigeons can discriminate between pictures of trees and non-tree pictures with the proper positive reinforcement. Dr. Pearce also demonstrates that pigeons can discriminate between Picasso's artwork and Monet's artwork. Generalization is also shown in the video clip because the pigeons struggle to discriminate between Picasso's artwork and Matisse's artwork. Finally, the video clip illustrates how pigeons can discriminate a spatial relations task quite easily, even though most humans struggle with the same task. I have my students compete against the pigeons in the final spatial relations task and the pigeons easily beat the students every time! A copy of the specific clip from the PBS Nature Video, "Inside the Animal Mind: Are Animals Intelligent?" can be found at the above YouTube link.

Assessment:

- Students will complete the assessment that has examples that differentiate Classical Conditioning from Operant Conditioning. Students will also identify examples of Generalization, Discrimination, and Extinction. Unfortunately, the source of the following assessment is unknown.

Classical or Operant Conditioning Name_____

For each sentence, point out in the first column whether the underlined behavior is learned through classical or operant conditioning. Then in the second column, indicate what principle is being expressed.

First column choices:
a) classical conditioning
b) operant conditioning

Second column choices:
a) extinction
b) discrimination
c) generalization

1. _____ 1. _____
2. _____ 2. _____
3. _____ 3. _____
4. _____ 4. _____
5. _____ 5. _____
6. _____ 6. _____
7. _____ 7. _____
8. _____ 8. _____

1. John Nasalpassages walks into his first period history class. His <u>adrenaline starts flowing</u> because he has to take a test (and flunked the last history test).
2. When he flunked the last history test, John used an old pencil, so this time he <u>pulls out</u> a new pencil.
3. John <u>does not ask</u> Mr. Rondo any questions during the test because Mr. Rondo ridiculed him the last time he asked a question.
4. Every time John sees someone who resembles Mr. Rondo he starts to <u>sweat</u> uncontrollably
5. Mr. Tinker looks like Mr. Rondo, and John sweats at first, but every day Mr. Tinker encourages John to participate, and eventually John <u>does raise his hand</u> in Mr. Tinker's class, but not in Mr.Rondo's class.
6. And he <u>stops sweating</u> in Tinker's class!
7. After John's test, blond Tina walks with him and smiles, John blood pressure rises, In his next class he talks with another blond, Imelda, and his <u>blood pressure rises.</u>
8. Imelda, however, is rude to john. So eventually, his <u>blood pressure rises</u> when Tina talks with him, but not when Imelda does.