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Final Project: Unit Plan
SEDC 73600 Curriculum Design
Hunter College, Fall 2022

Impacts of Artificial Intelligence and Machine Learning: How the A.I. BOTS in Our Lives Learn

Lesson 5: Training an A.I. Bot, Teaching New Knowledge to Zhorai, part 2 (Classification & Ethics) (Alana):

- **Learning Target:** Students will practice training the A.I. Bot Zhorai, an artificial intelligent conversational agent, and learn how A.I. learns through interaction.
- **Standards:**
 - K-1.CT.2 Computational Thinking - Data Analysis & Visualization**
Identify different kinds of data that can be collected from everyday life.
- **2-3.IC.1 Impacts of Computing**
Identify and analyze how computing technology has changed the way people live and work.
- **2-3.IC.3 Impacts of Computing**
Discuss and explain how computing technology can be used in society and the world.

- **2-3.IC.5 Impacts of Computing**

Identify and discuss how computers are programmed to make decisions without direct human input in daily life.

- **4-6.CT.1 Computational Thinking - Modeling & Simulation**

Develop a computational model of a system that shows changes in output when there are changes in inputs.

Introduction/Hook (I do): The teacher says in our last session we interacted with Zhorai, our conversational A.I. agent. Now that we have some experience talking with Zhorai, how do you think Zhorai learns new things?

The teacher shows the video [Machine Learning - Artificial Intelligence: How A.I. Learn](#). After watching the video and using the video as their guide, students brainstorm with their elbow partner ways that they think A.I. bot's like Zhorai learn new things.

Mini-Lesson (We do):

The teacher reviews the slides below and discusses types of machine learning, supervised and unsupervised learning.

1. Source: Google Desk Talks Program

■ Google.Desk.Talk.Artificial Intelligence & Machine Learning Grade.pdf

2. Source: Code.Org

<https://studio.code.org/s/aiml-2022/lessons/2>

■ CSD AI & Machine Learning - Lesson 2 - How Computers Learn

The Teacher reviews lesson notes with video examples of A.I. learning. The Teacher discusses the difference between supervised learning and unsupervised learning. The Teacher reviews several scenarios of supervised and unsupervised learning and asks students to identify which scenario is supervised learning and which is unsupervised learning listed in the AI & Machine Learning Lesson

Independent Activity (You do): Students work on teaching Zhorai: [Teaching Zhorai activity 2](#)

Source: <https://raise.mit.edu/zhorai.html>

1. The teacher introduces the second module which is about teaching Zhorai. The teacher asks students, "Let's think about an animal that lives in one of these ecosystems. How might Zhorai know where this animal lives without us telling Zhorai explicitly?"
2. Let's try it! The teacher guides students into describing animals without saying the animal name (i.e., Taboo).

- a. Here are some example sentences that enable Zhorai to classify the animal correctly and notice how descriptive they are. The teacher then tries to have students talk about the climate and vegetation that the animal lives around.
 - i. Bees fly around from plant to plant spreading pollen
 - ii. Birds fly from tree to tree
 - iii. Camels live in hot dry places with lots of sand and they don't need much water
 - iv. Cows graze in fields and eat lots of grass
 - v. Dolphins swim around in the sea and blow the water out of their blowholes
 - vi. Fish are found in wet places with seaweed
 - vii. Polar bears live near icebergs in the arctic
 - viii. Whales are the largest animal in the sea and they blow the water out of their blowhole
3. Afterward, the teacher shows the students the mindmap that Zhorai builds for the animal they discuss.
4. Now students train Zhorai on their own. The teacher says that Zhorai knows a little bit about ecosystems but doesn't know about what animals live in each ecosystem. You all now have to teach Zhorai about these animals.
5. When students begin to work on their own they will see that there is a prompt on-screen that says, "Zhorai would like to know about *camels*. Could you teach it about them?") Sample student response would be (students then describe the camels' ecosystem by saying): Camels are big and brown. They walk on the sand all day. Camels live in hot temperatures and they drink very little water.
Zhorai: Wow, camels sound really interesting! Let me think for a bit and then I'll show you my thoughts.

Wrap-Up-Debrief/Reflection: How do you want to be assessed? Peer or Self Assessment

Conversation Talk about the activity with your peer (Peer Assessment)

- What did you learn about A.I. from this activity?
- What are you still confused about or have a question about?
- What did you enjoy about the activity?

Exit Ticket (Self-Assessment)

Choose one question to answer

- What did you learn about A.I.?
- What did you enjoy about this activity?
- List 3 examples of A.I. in your life and what makes it A.I.?
- What do you still have a question about or are confused about?