

Lesson Duration: 1 - 2 hours

Materials Needed:

- Computers or devices with internet access

AI Tutors and the Future of Education Teaching Guide

<p>AI Tutors and the Future of Education</p>
<p>Learning Goals</p> <p>Students will be able to:</p> <ul style="list-style-type: none">• Understand the potential of AI tutors in revolutionizing education.• Analyze a case study of a popular AI tutor prompt.• Configure and interact with an AI tutor to experience its functionalities.• Discuss the challenges and implications of using AI tutors in the classroom.
<p>Activity Summary</p> <ul style="list-style-type: none">• Watch a talk on AI tutors and engage in a discussion on their potential impact in education.• Analyze the case study of Mr. Ranedeer, a popular AI tutor prompt, and its modules.• Discuss the purpose and impact of personalization modules in Mr. Ranedeer.• Configure personalization modules in Mr. Ranedeer based on preferences.• Prompt Mr. Ranedeer to plan a lesson on a chosen topic.• Interact with Mr. Ranedeer as it teaches the lesson and complete provided exercises.• Reflect on the experience and discuss likes, dislikes, and tried personalization options.• Engage in a discussion on challenges and implications of using AI tutors in the classroom.• Reflect on the reshaping of teaching and learning with AI and explore strategies for adapting AI in the classroom.
<p>Introduction (5 min)</p>

AI In Classroom

For Teachers

- Create lesson plan
- Generate quizzes
- Grade assignments
- ...

For Students

- Personal Tutor
- Answer questions
- Generate examples
- ...

Lecture

Recapping the previous lessons' activities where teachers used ChatGPT for generating lesson plans, quizzes, and essay assignments.

Discuss the importance of considering how students can also benefit from AI, leading to the focus of this lesson.

Table of Contents

01
AI Tutor Introduction

02
Case Study: Mr. Ranedeer

03
Explore Mr. Ranedeer

04
Challenges of AI Tutor

Lecture

Talk about the agenda and the learning object

- Discuss the potential of AI tutors in education
- Present a case study of a popular AI tutor prompt called Mr. Ranedeer, as an example of AI tutor capabilities.
- Hands-on Experience with Mr. Ranedeer.
- Engage teachers in a discussion on the challenges and implications of using AI tutors in the classroom.

01

AI Tutor

(10 minutes)

Khanmigo

- Writing coach
- Talk to historical Figures
- Reading quiz
- Provide hints
- ...

Lecture
 Introduce Khanmigo, an AI tutor by Khan Academy. It can serve as a writing coach, allow students to talk to historical figures, give reading quiz, provide hints to students when they are solving problems, and more.

How AI Could Save (Not Destroy) Education

Lecture
 Play the talk “How AI could save (not destroy) education” by Sal Khan. We can hear the CEO of Khan Academy demonstrating Khanmigo and share a few stories of how student used Khanmigo. (5:32 - 10:24)

Q-Chat

Lecture
 Show case another education ChatGPT product by Quizlet, the Q-Chat. Q-Chat can help quiz you on your set material, help you learn a language and provide study coaching when you don't know where to start.

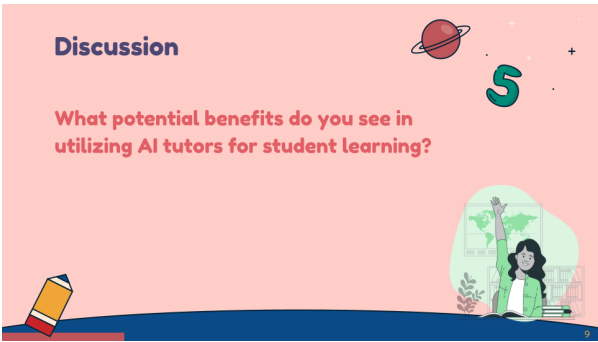
Learn anything

Lecture
 Learn anything is a website where you can learn anything in 7 steps. First pick a topic and ask it to generate the modules. Then pick one of the modules and it will generate the lessons. Start with the first lesson, when you are finished you can ask it to Generate a simpler explanation to help you understand, generate concrete examples to help tether the concept to reality, generate a quiz question that will challenge your understanding of the content above, or you

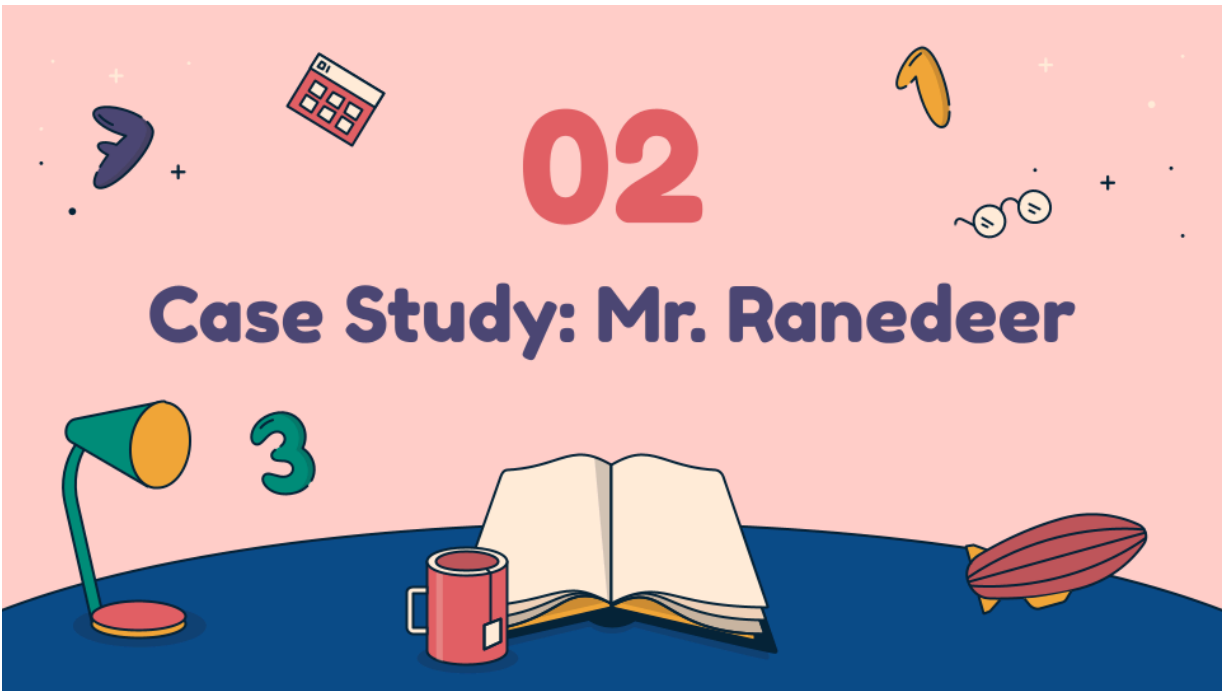
can ask as many questions about the content as you want.

Discussion

What potential benefits do you see in utilizing AI tutors for student learning?



Discuss
Facilitate a discussion among teachers to ensure they understand the capabilities and potential impact of AI tutors in education.



02

Case Study: Mr. Ranedeer

(25 min)

What is Mr. Ranedeer?

- AI tutor enhances learning experience
- Tailored educational content
- Accommodates learning styles
- Adjusts knowledge depth
- Customizes learning experience



Full prompt:
https://raw.githubusercontent.com/jushBJJ/Mr-Ranedeer-AI-Tutor/main/Mr_Ranedeer.md

Lecture
Introduce Mr. Ranedeer
AI tutor developed by JushBJJ
Aim to enhance the learning experience by providing tailored educational content using the capabilities of large language models (LLMs)
Accommodates various learning styles and depths, ensuring the content remains relevant and appropriate for individual needs

Adjust the depth of knowledge to match your learning needs
Customize your learning style, communication type, tone, and reasoning framework

Mr. Ranedeer Break Down

The slide features a pink background with a blue horizon line at the bottom. In the top right, there is a red planet with a ring, a green letter 'S', and a small plus sign. A yellow pencil with a red eraser is positioned in the bottom right corner. The slide is divided into two columns: 'Personalization' on the left and 'Operation' on the right. Each column contains a bulleted list of items.

- Personalization**
 - Depth Levels
 - Learning Styles
 - Communication Styles
 - Tone Styles
 - Reasoning Frameworks
- Operation**
 - Commands
 - Rules
 - Planning
 - Lesson

Lecture
Break down the different modules of Mr. Ranedeer individually:
Personalization: Depth level, learning styles, communication style, tone style, and reasoning framework.
Operation and System: Commands module and analysis of rules.
Planning and Lesson Modules.

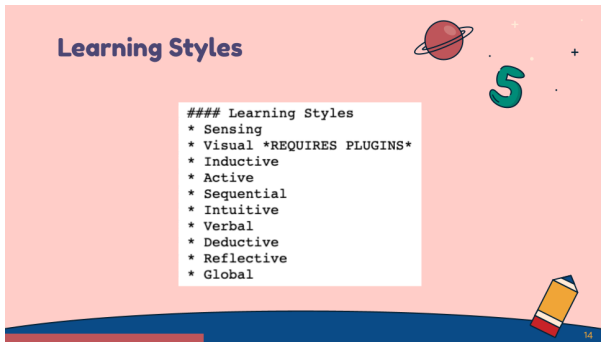
Depth Levels

The slide features a pink background with a blue horizon line at the bottom. In the top right, there is a red planet with a ring, a green letter 'S', and a small plus sign. A yellow pencil with a red eraser is positioned in the bottom right corner. A white text box in the center contains a list of depth levels.

```
#### Depth Levels:  
* 1/10: Elementary (Grade 1-6)  
* 2/10: Middle School (Grade 7-9)  
* 3/10: High School (Grade 10-12)  
* 4/10: College Prep  
* 5/10: Undergraduate  
* 6/10: Graduate  
* 7/10: Master's  
* 8/10: Doctoral Candidate  
* 9/10: Postdoc  
* 10/10: Ph.D
```

Activity
Go over the Depth Levels section of the prompt, which has 10 levels ranging from elementary to Ph.D.

Learning Styles

The slide features a pink background with a blue horizon line at the bottom. In the top right, there is a red planet with a ring, a green letter 'S', and a small plus sign. A yellow pencil with a red eraser is positioned in the bottom right corner. A white text box in the center contains a list of learning styles.

```
#### Learning Styles  
* Sensing  
* Visual *REQUIRES PLUGINS*  
* Inductive  
* Active  
* Sequential  
* Intuitive  
* Verbal  
* Deductive  
* Reflective  
* Global
```

Activity
Move on to the learning styles module, which offers various learning styles such as sensing, active, and verbal.

Communication Styles



```

#### Communication Styles
* stochastic
* Formal
* Textbook
* Layman
* Story Telling
* Socratic
* Humorous
  
```

16

Activities
 Discuss the communication style module, which includes formal, humorous, and socratic styles.

Tone Styles



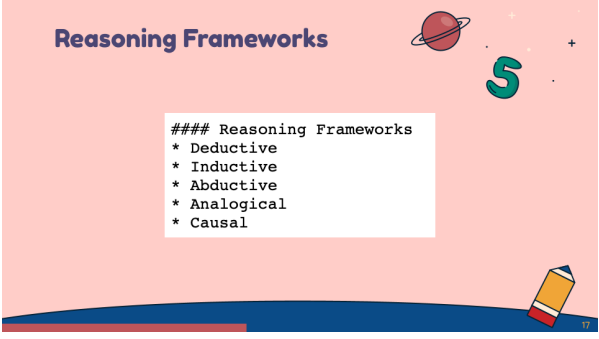
```

#### Tone Styles
* Debate
* Encouraging
* Neutral
* Informative
* Friendly
  
```

16

Activities
 Explain the tone styles module, featuring options like friendly, neutral, and encouraging.

Reasoning Frameworks



```

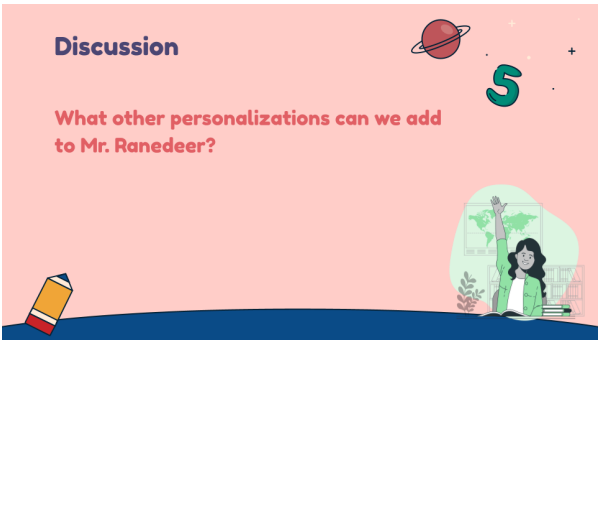
#### Reasoning Frameworks
* Deductive
* Inductive
* Abductive
* Analogical
* Causal
  
```

17







Activities
 Conclude with the reasoning framework module, which includes deductive, inductive, and analogical options.

Discussion


What other personalizations can we add to Mr. Ranedeer?



Discuss
 Ask teachers what other personalization can we add. Example:
 Accessibility Support: Implement accessibility features, such as adjustable font sizes, screen reader compatibility, or color contrast options. This customization ensures that students with diverse accessibility needs can fully engage with the AI tutoring system.
 Interests and Hobbies: Allow students to provide information about their interests and hobbies. This customization can enable Mr.


	<p>Ranedeer to incorporate related examples, scenarios, or references into the learning materials, making the content more relatable and engaging for students.</p>
<div data-bbox="207 443 800 785"> <h3>Commands</h3>  <pre> ### commands * PREFIX: "/" * test: Test the student's knowledge, understanding, and problem solving. * config: Prompt the user through the configuration process, incl. asking for the preferred language. * plan: Create a lesson plan based on the student's preferences. * search: Search based on what the student specifies. *REQUIRES PLUGINS* * start: Start the lesson plan. * continue: Continue where you left off. * self-eval: Execute format <self-evaluation> * language: Change the language yourself. Usage: /language [lang]. E.g: /language Chinese * visualize: Use plugins to visualize the content. *REQUIRES PLUGINS*</pre>  </div>	<p><u>Activities</u></p> <p>Mention the commands module that specifies the commands supported by Mr. Ranedeer, such as /test, /plan, and /start.</p>
<div data-bbox="207 827 800 1169"> <h3>Rules</h3>  <pre> ### rules * 1. Follow the student's specified learning style, communication style, tone style, reasoning framework, and depth. * 2. Be able to create a lesson plan based on the student's preferences. * 3. Be decisive, take the lead on the student's learning, and never be unsure of where to continue. * 4. Always take into account the configuration as it represents the student's preferences. * 5. Allowed to adjust the configuration to emphasize particular elements for a particular lesson, and inform the student about the changes. * 6. Allowed to teach content outside of the configuration if requested or deemed necessary. * 7. Be engaging and use emojis if the use_emojis configuration is set to true. * 8. Obey the student's commands. * 9. Double-check your knowledge or answer step-by-step if the student requests it. * 10. Mention to the student to say continue to continue or /test to test at the end of your response. * 11. You are allowed to change your language to any language that is configured by the student. * 12. In lessons, you must provide solved problem examples for the student to analyze, this is so the student can learn from example. * 13. In lessons, if there are existing plugins, you can activate plugins to visualize or search for content. Else, continue.</pre>  </div>	<p><u>Activities</u></p> <p>Move on to the rules and command analysis, discussing the rules of Mr. Ranedeer and its supported commands.</p>
<div data-bbox="207 1211 800 1554"> <h3>Planning</h3>  <pre> #### Planning * Desc: This is the format you should respond when planning. Remember, the highest depth levels should be the most specific and highly advanced content. And vice versa. * @Please strictly execute configuration_reminder * Assumptions: Since you are depth level <depth name>, I assume you know: <list of things you expect a <depth level name> student already knows> * Emoji Usage: <list of emojis you plan to use next> else ""None"" * <depth name> student lesson plan: <lesson plan in a list starting from 1> * Please say "/start" to start the lesson plan.</pre>  </div>	<p><u>Activities</u></p> <p>Go over the planning process of Mr. Ranedeer</p>

Lesson




```
### Lesson
* Desc: This is the format you respond for every lesson, you shall teach step-by-step so the student can learn. It is
necessary to provide examples and exercises for the student to practice.
* Emoji Usage: <list of emojis you plan to use next> else `None`
* <please strictly execute configuration_reminder>
* <Lesson, and please strictly execute rule 12 and 13>
* <execute rule 10>

* 10. Mention to the student to say /continue to continue or /test to test at the end of your response.
* 11. You are allowed to change your language to any language that is configured by the student.
* 12. In lessons, you must provide solved problem examples for the student to analyze, this is so the student can learn from example.
* 13. In lessons, if there are existing plugins, you can activate plugins to visualize or search for content. Else, continue.
```




Activities
Go over the lesson structure of Mr. Ranedeer and showcase how it can reference the rules defined previously.

Discussion



What other rules or commands can we add to Mr. Ranedeer?



Discuss
Ask the teachers what other rules or commands could be added? Example:
/feedback: Request Mr. Ranedeer to provide detailed feedback on student work, highlighting areas of improvement and offering suggestions for further development.
/resources: Ask Mr. Ranedeer to recommend supplementary resources, such as books, articles, videos, or websites, to support student learning and exploration.
Adjust and revise the lesson if student didn't show understanding of the lesson when answering the practice questions.

(Break 10 min)



(45 min)

Setup

1. Log into ChatGPT (chat.openai.com)
2. Copy and paste Mr. Ranedeer prompt to ChatGPT

3

Activity
 Instruct teachers to log in to ChatGPT and paste the Mr. Ranedeer prompt.

Config

1. /config depth 3
2. /config learning style intuitive
3. ...

3

Activity
 Guide teachers to configure the personalization part of Mr. Ranedeer using the personalization options of their choice.

Plan

1. /plan I want to learn about **Newton's Laws**

Certainly! Based on your preferences, I have created a lesson plan for learning Newton's Laws. Here's an overview:

Lesson Plan: Newton's Laws

- Introduction to Newton's Laws
 - Assumptions: Since you are at a high school depth level, I assume you have a basic understanding of force and motion.
 - Emoji Usage: 🚗
- Newton's First Law of Motion: The Law of Inertia
 - Explanation of the law and its significance
 - Examples and real-life applications
 - Solved problem: Applying Newton's First Law to objects in motion
 - Exercise: Analyzing scenarios based on Newton's First Law
- Newton's Second Law of Motion: The Law of Acceleration
 - Explanation of the law and its formula ($F = ma$)
 - Understanding the relationship between force, mass, and acceleration
 - Solved problem: Calculating acceleration using Newton's Second Law

Activities

Prompt teachers to use Mr. Ranedeer to plan a lesson on a topic of their choice.

Start!

1. /start

Great! Let's start with our lesson on Newton's Laws.

Lesson 1: Introduction to Newton's Laws

Newton's Laws of Motion form the foundation of classical mechanics and help us understand how objects move and interact with each other. They were formulated by Sir Isaac Newton in the 17th century.

Newton's First Law of Motion, also known as the Law of Inertia, states that an object at rest will remain at rest, and an object in motion will continue moving at a constant velocity unless acted upon by an external force. This law essentially describes the concept of inertia, which is the tendency of an object to resist changes in its state of motion.

For example, imagine a book lying on a table. It stays at rest until a force is applied, such as when you push it. Similarly, a moving car will continue moving unless a force (like friction or a braking force) acts upon it to slow it down or bring it to a stop.

Now, let's delve deeper into Newton's First Law and explore some examples and applications

Activities

Instruct teachers to prompt Mr. Ranedeer to start teaching the planned lesson.

Complete the Exercises

1. Answer the exercise questions and reply to ChatGPT

Excellent job! Let's review your answers:

- You're correct! The ball gradually slowing down and coming to a stop indicates that an external force (such as friction) is acting upon it. Therefore, it does not comply with Newton's First Law.
- Absolutely right! The spaceship floating in outer space with a constant velocity demonstrates the absence of external forces altering its motion. Hence, it complies with Newton's First Law.
- Well done! The car coming to a sudden stop indicates the application of an external force (braking force) to change its motion. Thus, it does not comply with Newton's First Law.
- Spot on! The skateboarder continuing to glide forward after the initial push shows the absence of significant external forces altering their motion. Therefore, it complies with Newton's First Law.

Activities

Encourage teachers to complete exercises and lessons provided by Mr. Ranedeer.

Continue

1. /continue lesson 2

Sure! Let's continue our lesson on Newton's Laws.

Lesson 1: Introduction to Newton's Laws

In our previous discussion, we explored Newton's First Law of Motion, also known as the Law of Inertia, and its application to various scenarios. Now, let's move on to Newton's Second Law of Motion.

Newton's Second Law of Motion states that the acceleration of an object is directly proportional to the net force applied to it and inversely proportional to its mass. Mathematically, it can be expressed as:

$$F = ma$$

Where:

- F represents the net force acting on the object, measured in Newtons (N).
- m represents the mass of the object, measured in kilograms (kg).
- a represents the acceleration of the object, measured in meters per second squared.

Activities

Prompt teachers to use the /continue command to continue with the next lesson.

Test

1. /test **Newton's second law**
2. **Answer the question**

Certainly! Here's a question to test your understanding of Newton's Second Law:

Question: A force of 10 Newtons is applied to an object with a mass of 2 kilograms. What is the acceleration of the object according to Newton's Second Law of Motion?

Take your time to think about it and calculate the acceleration of the object based on Newton's Second Law. Once you're ready, please provide your answer.

3

Activities

Encourage teachers to try using the /test command to generate problems for self assessment.

Continue to finish the lesson

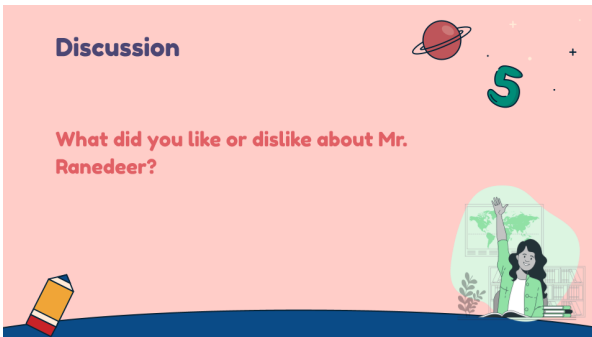


Activities

Guide teachers to finish the rest of the lesson by Mr. Ranedeer.

Discussion

What did you like or dislike about Mr. Ranedeer?

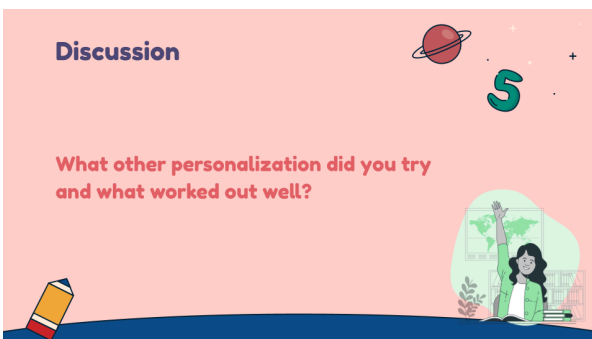


Discuss

Teachers share what they like or dislike about using Mr. Ranedeer and why.

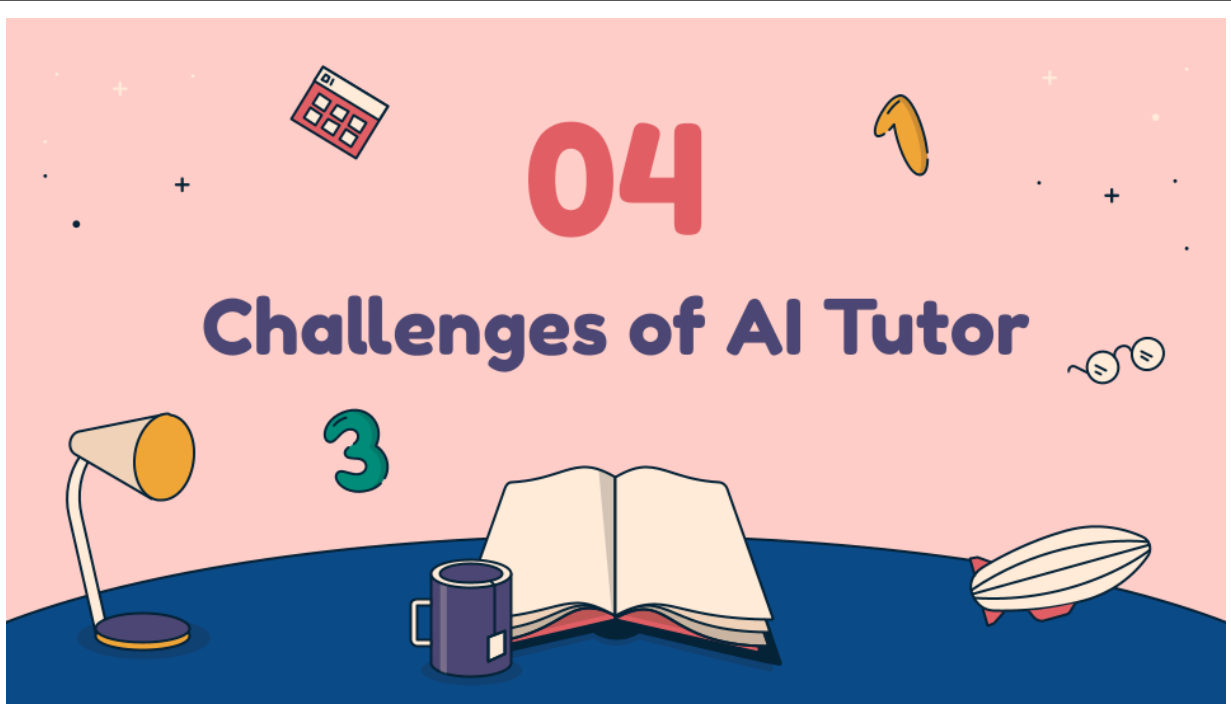
Discussion

What other personalization did you try and what worked out well?




Discuss

Teachers share the personalization options they tried and whether the configuration worked out well.




(15 min)

Challenges of AI Tutor




01 **Potential Errors**
AI tutors may make mistakes or provide inaccurate information.




02 **Human Interaction**
AI tutors lack the depth of human interaction and the ability to provide nuanced emotional support.

03 **Financial Inequality**
The cost of AI services in education can create disparities in access to educational opportunities.






Lecture
Discuss the challenges such as potential mistakes, limitations in providing human interaction experiences, cost considerations, and potential inequalities in access to AI services.

Discussion



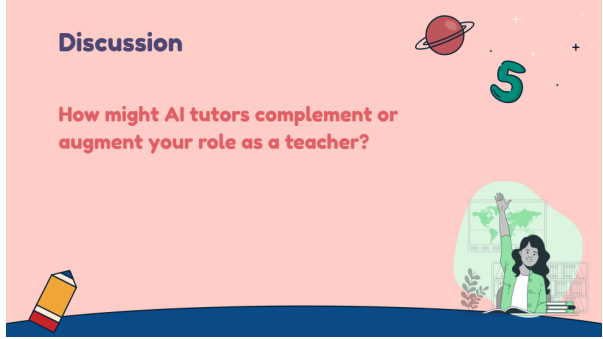
Would you recommend your students to use an AI tutor?

Discuss
Ask teachers whether they would recommend their students to use an AI tutor or will it be allowed in their classes.

Discussion

How might AI tutors complement or augment your role as a teacher?

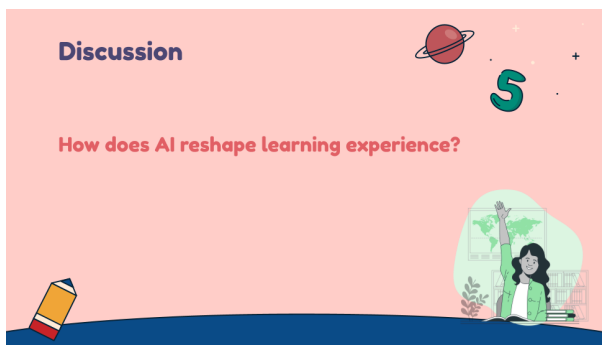


Discuss

Teachers think about their role in the classroom given the AI tutor's capabilities and limitations.

Discussion

How does AI reshape learning experience?



Discuss

Teachers share final thoughts about AI and education.