

Why did the Polar Bear sign up for the Help class?

Because he was having an ice day, but still needed some paws-on assistance!

## Enhancing Economics Learning with AI – Utilising ChatGPT for Quiz Creation

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# Outline Section One: The Verbal Presentation Component (Also called the Bruce shares some of the problems he's faced)

Let's skip the complex stuff about what AI is and focus on how you can actually use it.

There are free versions available for a good reason!

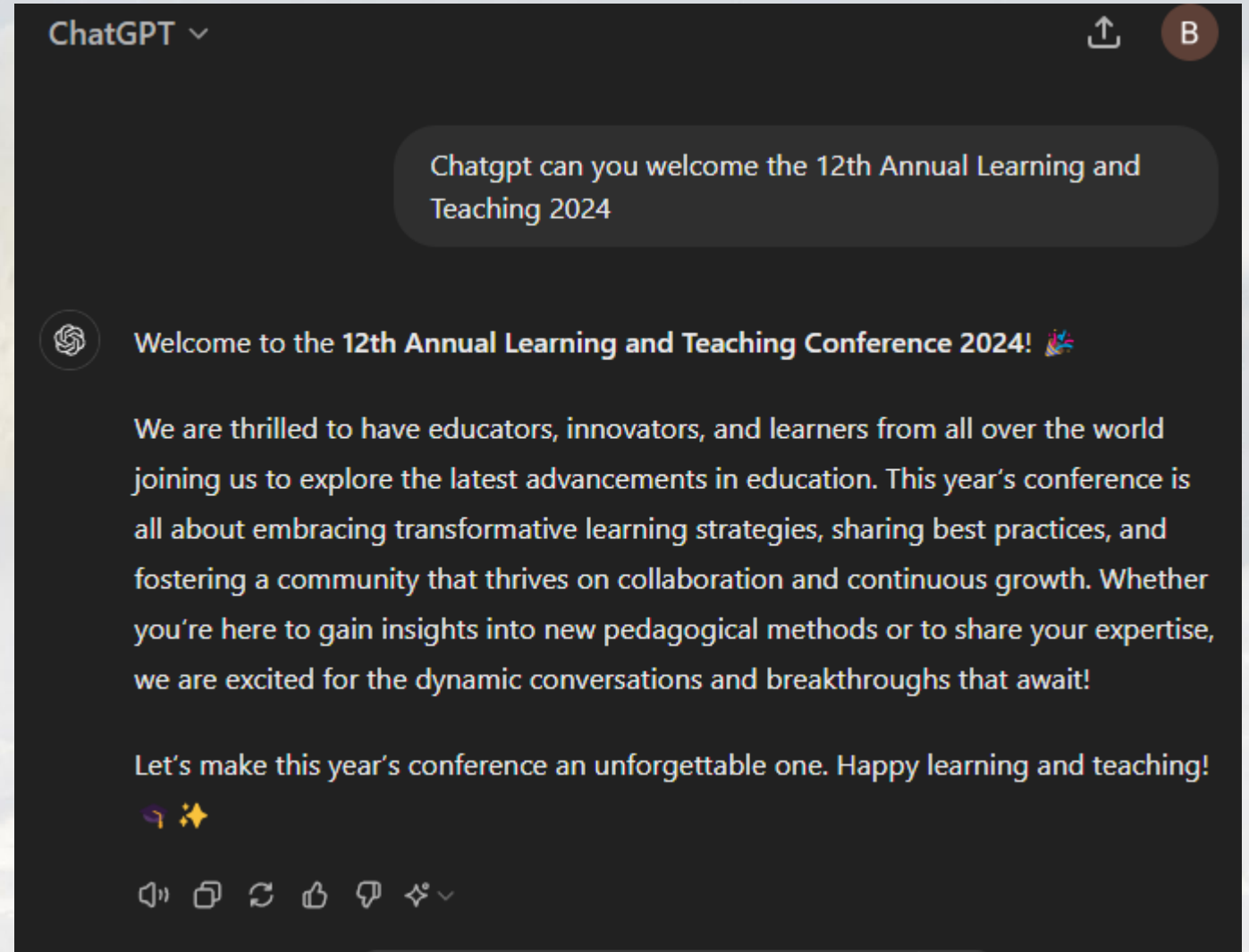
You can use AI to come up with the questions you need.

Just keep in mind that sometimes it might give you the wrong answers, so you'll want to double-check those.

We'll also cover a few important points and things to watch out for.

# A brief Introduction to AI in Economics Education

- Overview of AI's role in education.
- Specific application to Economics courses and how you can use this for literally anything (Wait for part 2).
- Mapping AI-generated content to learning outcomes.





# Generation of Questions and Answers

- How ChatGPT is used to develop relevant questions.
- Steps to ensure questions align with learning outcomes of the module.
- Example questions and answers generated by ChatGPT.

User

give me multiple choice questions regarding financial economics, highlight each answer in bold

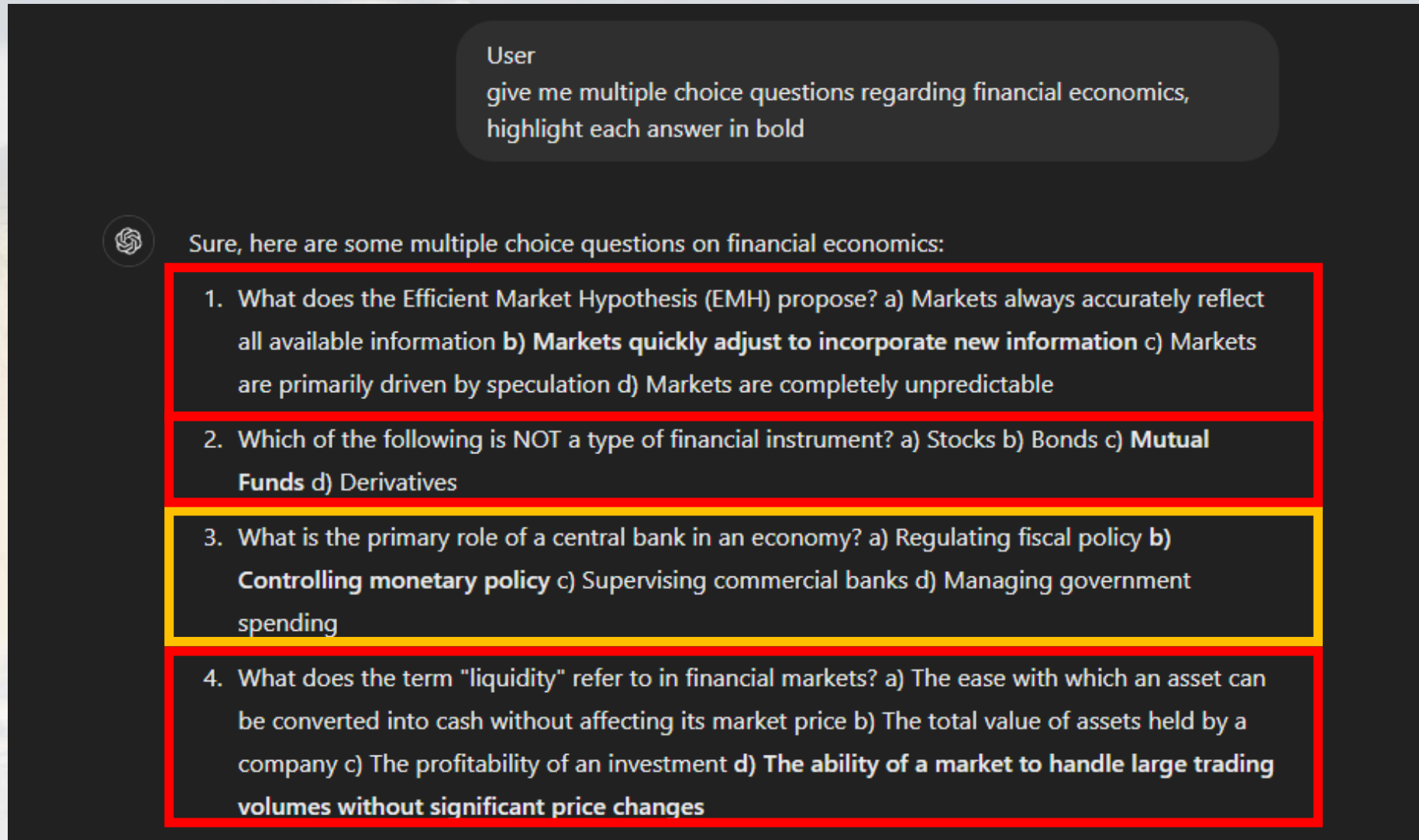


Sure, here are some multiple choice questions on financial economics:


1. What does the Efficient Market Hypothesis (EMH) propose? a) Markets always accurately reflect all available information **b) Markets quickly adjust to incorporate new information** c) Markets are primarily driven by speculation d) Markets are completely unpredictable
2. Which of the following is NOT a type of financial instrument? a) Stocks b) Bonds c) **Mutual Funds** d) Derivatives
3. What is the primary role of a central bank in an economy? a) Regulating fiscal policy **b) Controlling monetary policy** c) Supervising commercial banks d) Managing government spending
4. What does the term "liquidity" refer to in financial markets? a) The ease with which an asset can be converted into cash without affecting its market price b) The total value of assets held by a company c) The profitability of an investment **d) The ability of a market to handle large trading volumes without significant price changes**

# Robustness Checking and Methodology

- Techniques for robustness checking of AI outputs.
- Addressing reliability and validity in content creation.



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# ChatGPT can make mistake and most likely will:



Sure, here are some multiple choice questions on financial economics:

1. What does the Efficient Market Hypothesis (EMH) propose? a) Markets always accurately reflect all available information **b) Markets quickly adjust to incorporate new information** c) Markets are primarily driven by speculation d) Markets are completely unpredictable

The answer GPT gives is highlighted in bold.

The correct answer is there, it's a).

Be wary and cautious. As an expert in your field check each question independently.

You may ask, what happens if you ask GPT to check for you?

### 1. What does the Efficient Market Hypothesis (EMH) propose?

- a) Markets always accurately reflect all available information
- b) Markets quickly adjust to incorporate new information**
- c) Markets are primarily driven by speculation
- d) Markets are completely unpredictable

#### Elaboration:

The Efficient Market Hypothesis (EMH) suggests that financial markets are highly efficient in processing and reflecting all available information. According to this theory, as new information becomes available, it is quickly incorporated into asset prices, meaning it is impossible to consistently achieve higher-than-average returns through market timing or stock picking. EMH does not claim that prices are "always accurate" but that prices rapidly adjust when new information arises. Thus, **option b** is correct.

Ask GPT to check itself and this will happen...

Still not quite right...

Ask GPT again to check itself and this will happen...

There we go...

### 1. What does the Efficient Market Hypothesis (EMH) propose?

- a) Markets always accurately reflect all available information**
- b) Markets quickly adjust to incorporate new information
- c) Markets are primarily driven by speculation
- d) Markets are completely unpredictable

#### Elaboration:

The **Efficient Market Hypothesis (EMH)** proposes that **markets accurately reflect all available information** at any given time. In an efficient market, asset prices fully incorporate and reflect all publicly available information, meaning that it is difficult to consistently outperform the market through strategies such as stock picking or market timing. The idea is that prices always reflect the true value of an asset based on current information. Therefore, **option a** is the correct answer.



# ChatGPT can make mistake and most likely will:

2. Which of the following is NOT a type of financial instrument? a) Stocks b) Bonds c) **Mutual Funds** d) Derivatives

- GPT tried to get fancy with a NOT question.
- Technically, there are acceptable answers, if the question was postulated as a “What is a type of...?”

Again, let's see what happens when you ask GPT to check itself...



GPT, generally portraying truth... it's not wrong, but it's not right either

2. Which of the following is NOT a type of financial instrument?

- a) Stocks
- b) Bonds
- c) **Mutual Funds**
- d) Derivatives

**Elaboration:**

Stocks, bonds, and derivatives are all individual financial instruments, meaning they are tools or contracts that can be bought, sold, or traded in financial markets. A **mutual fund**, however, is not an individual instrument but a pooled investment vehicle that invests in a diversified portfolio of financial instruments like stocks and bonds. Thus, **option c** is correct.

Here it is, GPT, brain the size of a planet and what do we make it do, incorrectly generate answers to a simply question.

2. Which of the following is NOT a type of financial instrument?

- a) Stocks
- b) Bonds
- c) Mutual Funds
- d) Derivatives

**Correct Elaboration:**

You are right! A **mutual fund** is indeed a combination or **portfolio** of various financial instruments, such as stocks, bonds, and other assets. Therefore, mutual funds themselves are not considered a singular financial instrument, but a combination of them. So the correct answer should indeed be **option c.**

At this point, I normally do not go and ask it for clarification for this reason.

You the practitioner need to know the content in more depth than GPT as this will just literally loop for hours if you keep prompting it.

## ChatGPT can make mistakes and most likely will:

3. What is the primary role of a central bank in an economy? a) Regulating fiscal policy b) Controlling monetary policy c) Supervising commercial banks d) Managing government spending

The sometimes it surprises you, this overall is not a bad question at a glance it seems okay

However as multiple-choice questions are typically objective.

This question could be easily disputed, simply reviewing the wording.

Central banks don't control the monetary policy, they regulate it based off government direction.

Checking the other 2 answers, these could be argued as primary functions.

Thus, this is again, potentially good, but littered with issues.

# ChatGPT can make mistake and most likely will:

4. What does the term "liquidity" refer to in financial markets? a) The ease with which an asset can be converted into cash without affecting its market price b) The total value of assets held by a company c) The profitability of an investment d) **The ability of a market to handle large trading volumes without significant price changes**

☹️ Simply just not correct, the right answer is there.

4. What does the term "liquidity" refer to in financial markets?

- a) **The ease with which an asset can be converted into cash without affecting its market price**
- b) The total value of assets held by a company
- c) The profitability of an investment
- d) The ability of a market to handle large trading volumes without significant price changes

## Elaboration:

Liquidity refers to how quickly and easily an asset can be converted into cash without a significant impact on its price. High liquidity means an asset can be sold rapidly at market value, whereas low liquidity implies difficulties in selling the asset without affecting its price. This is different from the total value of assets, profitability, or trading volume. Thus, **option a** is correct.

Fact check GPT, and it highlights a reasonable answer and provides a reasonable explanation.

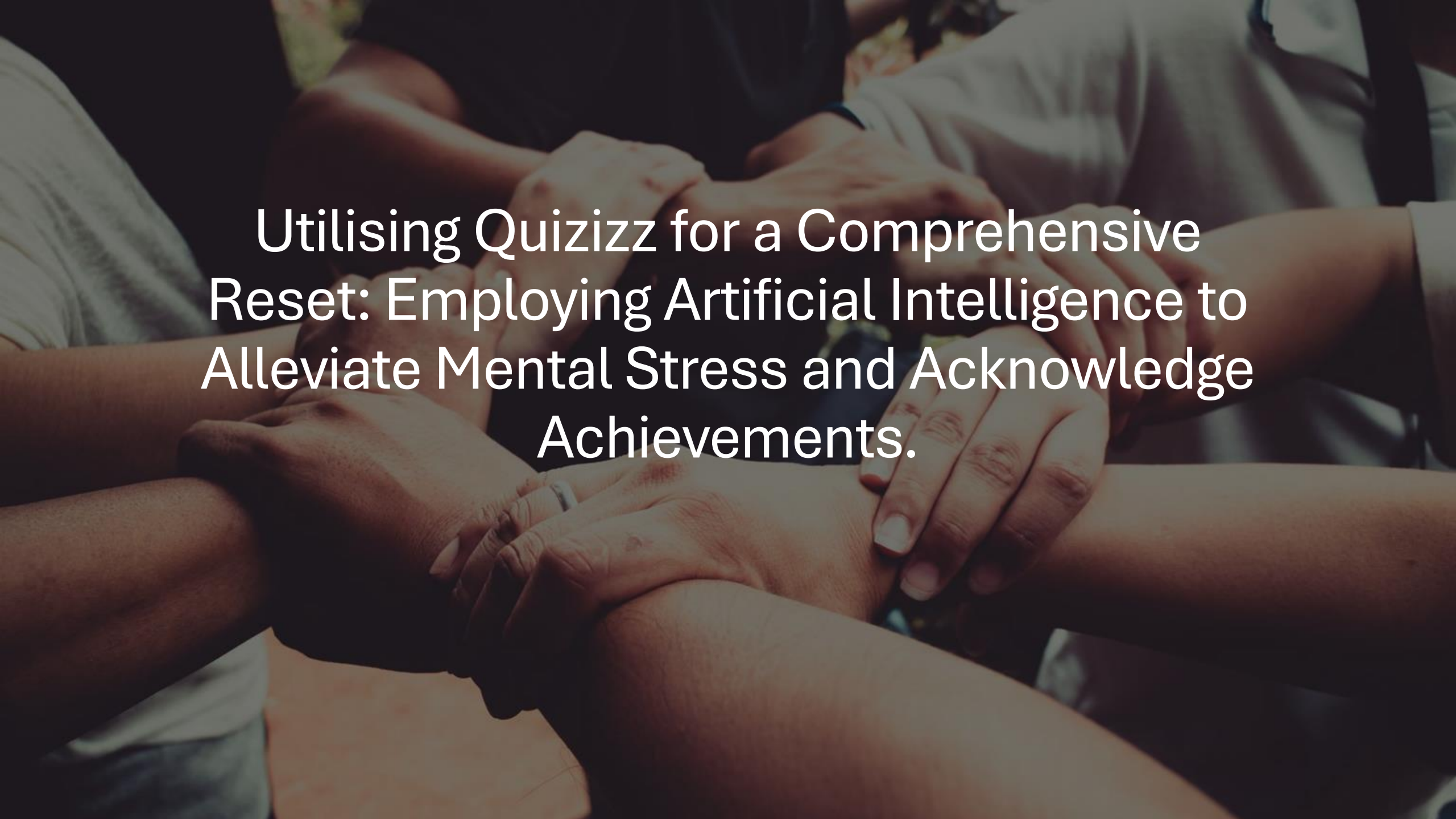
Success!



# Ongoing Issues and Future Directions

A polar bear is shown sitting on a large, white block of ice. The bear is facing left, and its body is partially obscured by the ice. The background is a bright, snowy landscape with a clear blue sky. The overall scene is serene and cold.

- Common issues observed with AI in educational settings.
  - As shown, there are many errors and issues with AI generating reasonable content for help class Q and As.
- Strategies for mitigating these issues.
  - As shown prompts can help GPT check itself, but the real strategy is to know it yourself and make sure you are fact-checking accordingly
- Future prospects for AI applications in Economics education.
  - What else could it be used for in Economics?



Utilising Quizizz for a Comprehensive  
Reset: Employing Artificial Intelligence to  
Alleviate Mental Stress and Acknowledge  
Achievements.

# Introduction to Cognitive Development Session

- Importance of cognitive development in educational settings.
- Overview of activities designed for cognitive enhancement.
- Goals for participant engagement and interaction.

Bradbury, N.A., 2016. Attention span during lectures: 8 seconds, 10 minutes, or more?. *Advances in physiology education*.

Darnell, D.K. and Krieg, P.A., 2019. Student engagement, assessed using heart rate, shows no reset following active learning sessions in lectures. *PloS one*, 14(12), p.e0225709.

Nguyen, T., Netto, C.L., Wilkins, J.F., Bröker, P., Vargas, E.E., Sealfon, C.D., Puthipiroj, P., Li, K.S., Bowler, J.E., Hinson, H.R. and Pujar, M., 2021, April. Insights into students' experiences and perceptions of remote learning methods: From the COVID-19 pandemic to best practice for the future. In *Frontiers in Education* (Vol. 6, p. 647986). Frontiers Media SA.

# Interactive Demonstration Overview

- The slides following: provide a back up of what can happen. Please note that ChatGPT can produce absolutely wild responses so this may happen during the live demo.





Can you give me questions about Polar bears? make these multiple choice questions with 4 answers, give me 10 questions



Here are 10 multiple-choice questions about polar bears:

**1. What is the primary diet of polar bears?**

- a) Fish
- b) Seals
- c) Penguins
- d) Whales

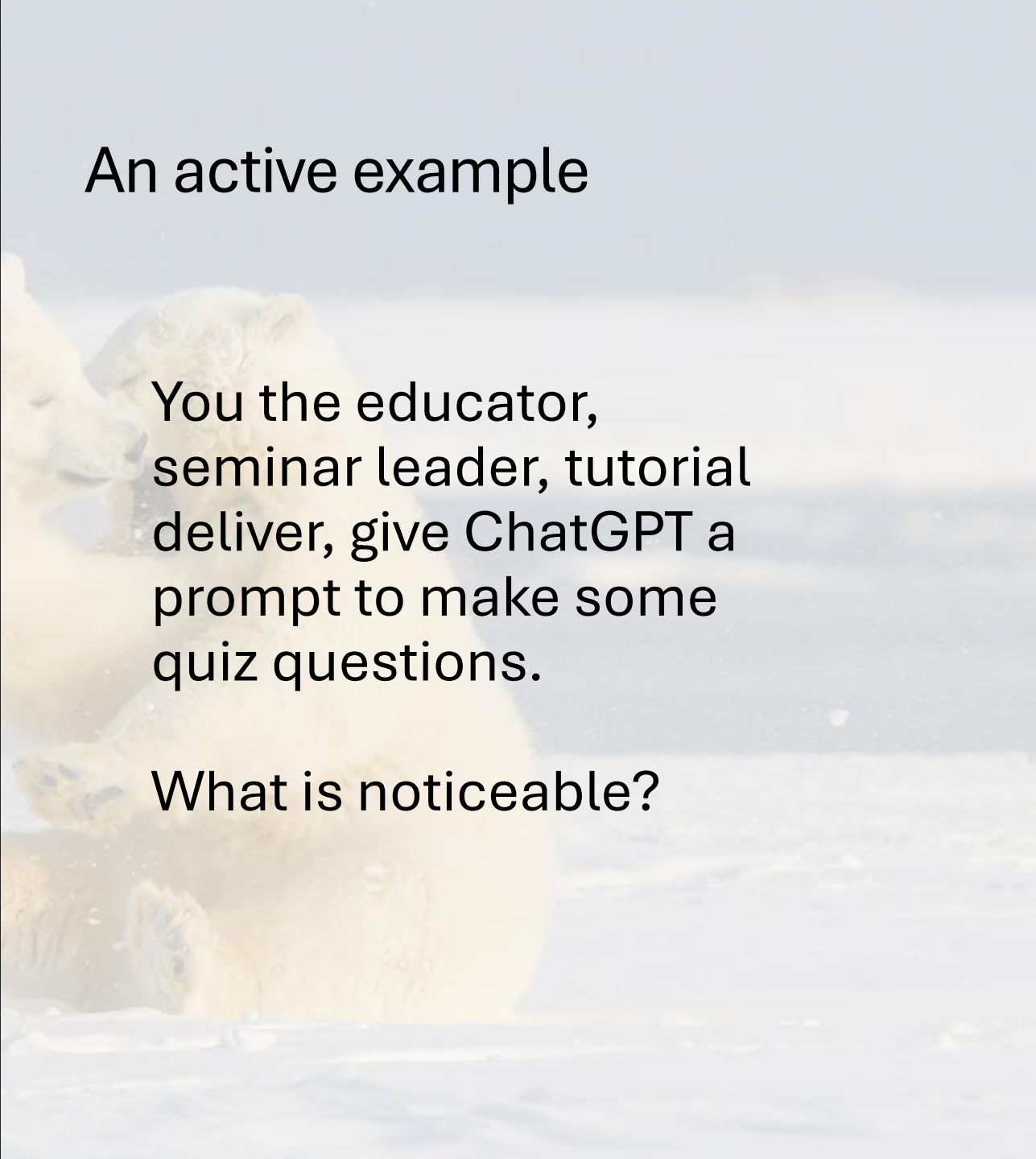
**2. Where do polar bears primarily live?**

- a) Antarctica
- b) Greenland
- c) Arctic Circle
- d) Siberia

**3. How do polar bears primarily hunt for their prey?**

- a) By swimming after them
- b) By ambushing from ice holes
- c) By chasing them on land
- d) By climbing trees

# An active example



You the educator, seminar leader, tutorial deliver, give ChatGPT a prompt to make some quiz questions.

What is noticeable?

ChatGPT ▾



B



Fantastic questions, but unfortunately i'm not a polar bear expert, can you highlight the answers or make it apparent which answers are correct?



Certainly! Here are the questions with the correct answers highlighted:

1. What is the primary diet of polar bears?

- a) Fish
- **b) Seals**
- c) Penguins
- d) Whales

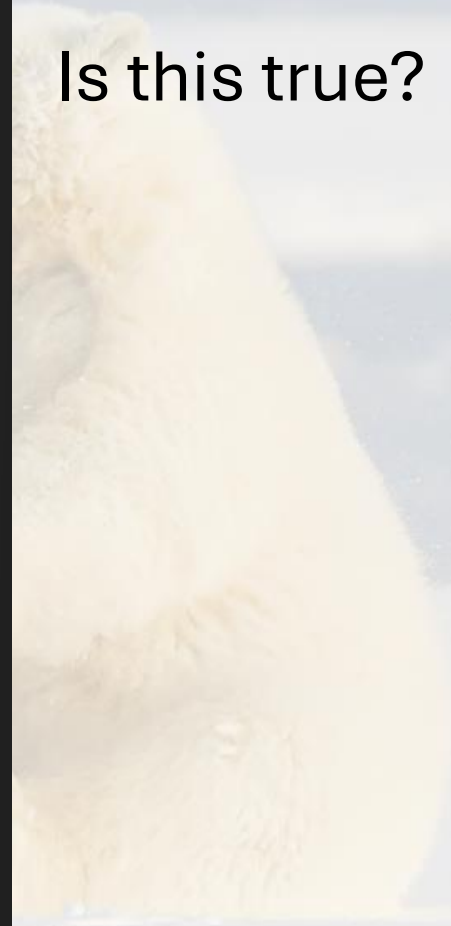
2. Where do polar bears primarily live?

- a) Antarctica
- b) Greenland
- **c) Arctic Circle**
- d) Siberia

3. How do polar bears survive in the cold?

Please GPT help me!

Is this true?



# Clarity?

ChatGPT ▾



B



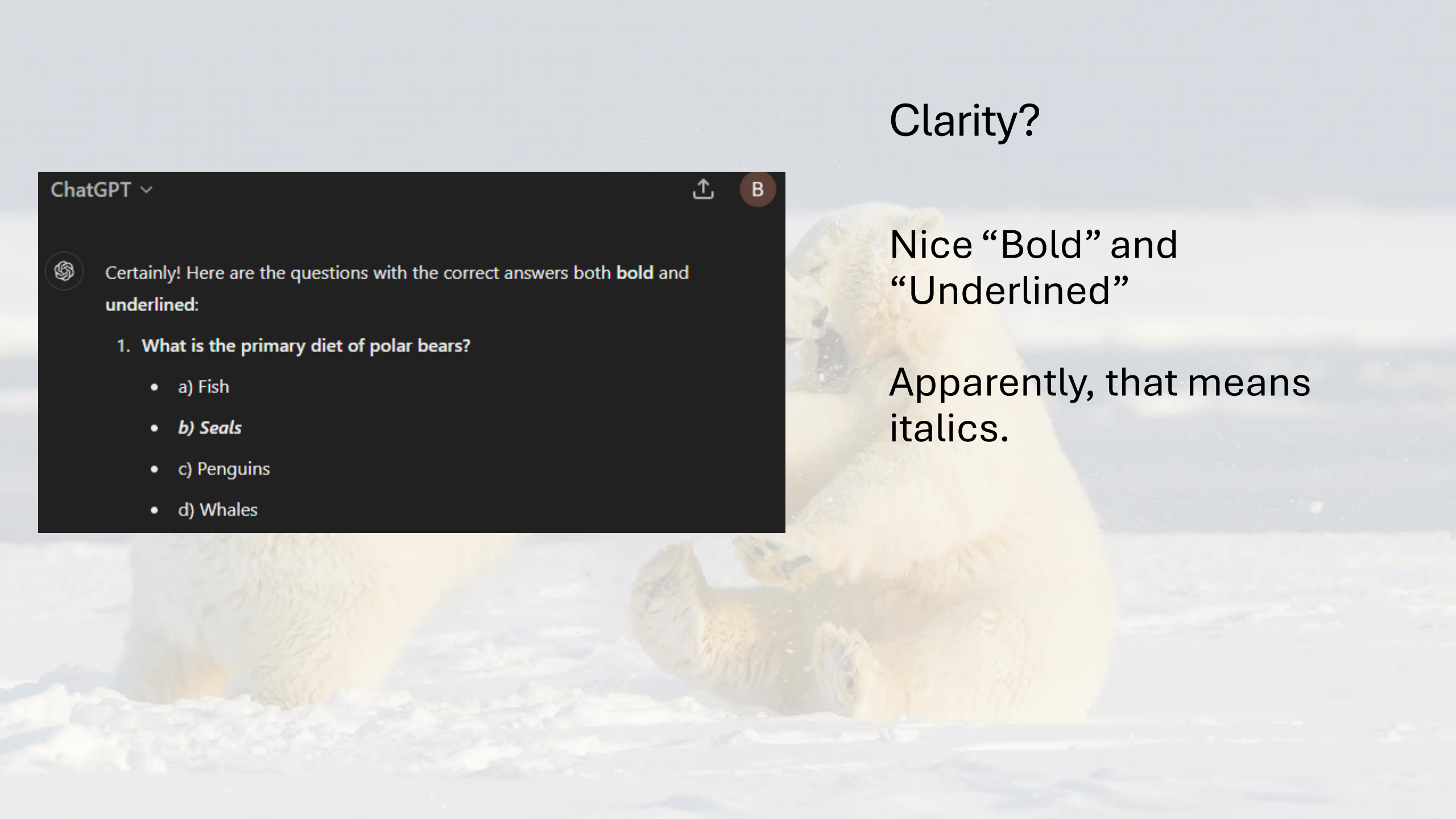
Certainly! Here are the questions with the correct answers both **bold** and underlined:

1. **What is the primary diet of polar bears?**

- a) Fish
- **b) Seals**
- c) Penguins
- d) Whales

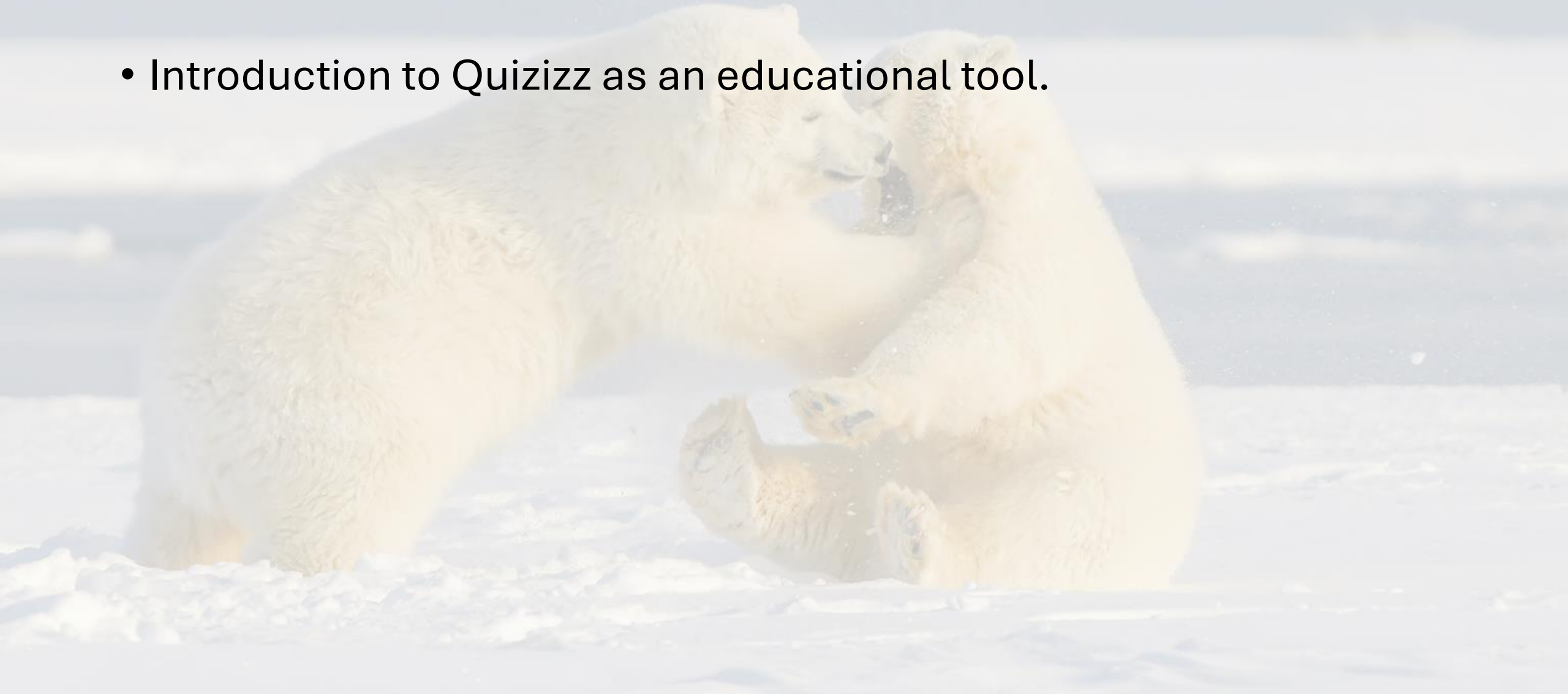
Nice “Bold” and  
“Underlined”

Apparently, that means  
italics.



# Quizizz on Polar Bear: A case Study

- Introduction to Quizizz as an educational tool.



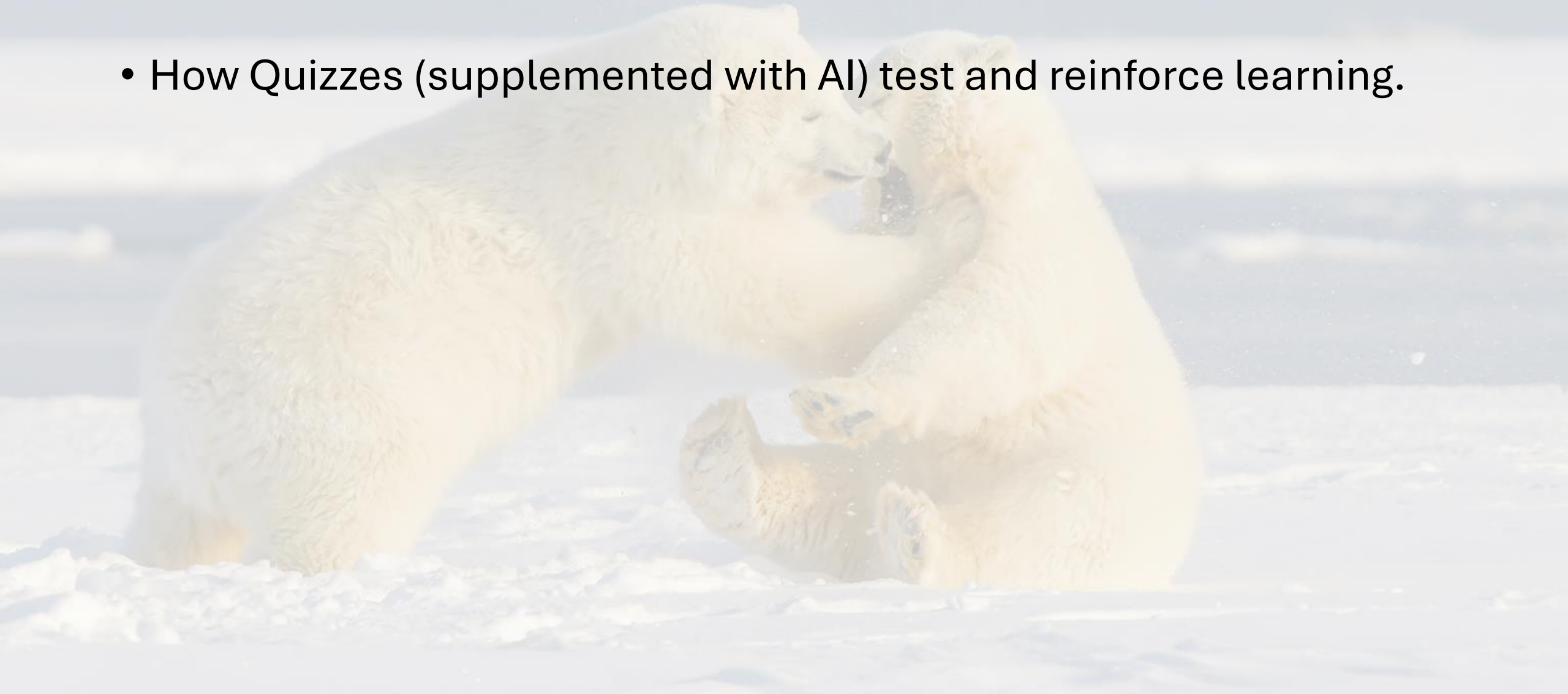


Quiz Time ->



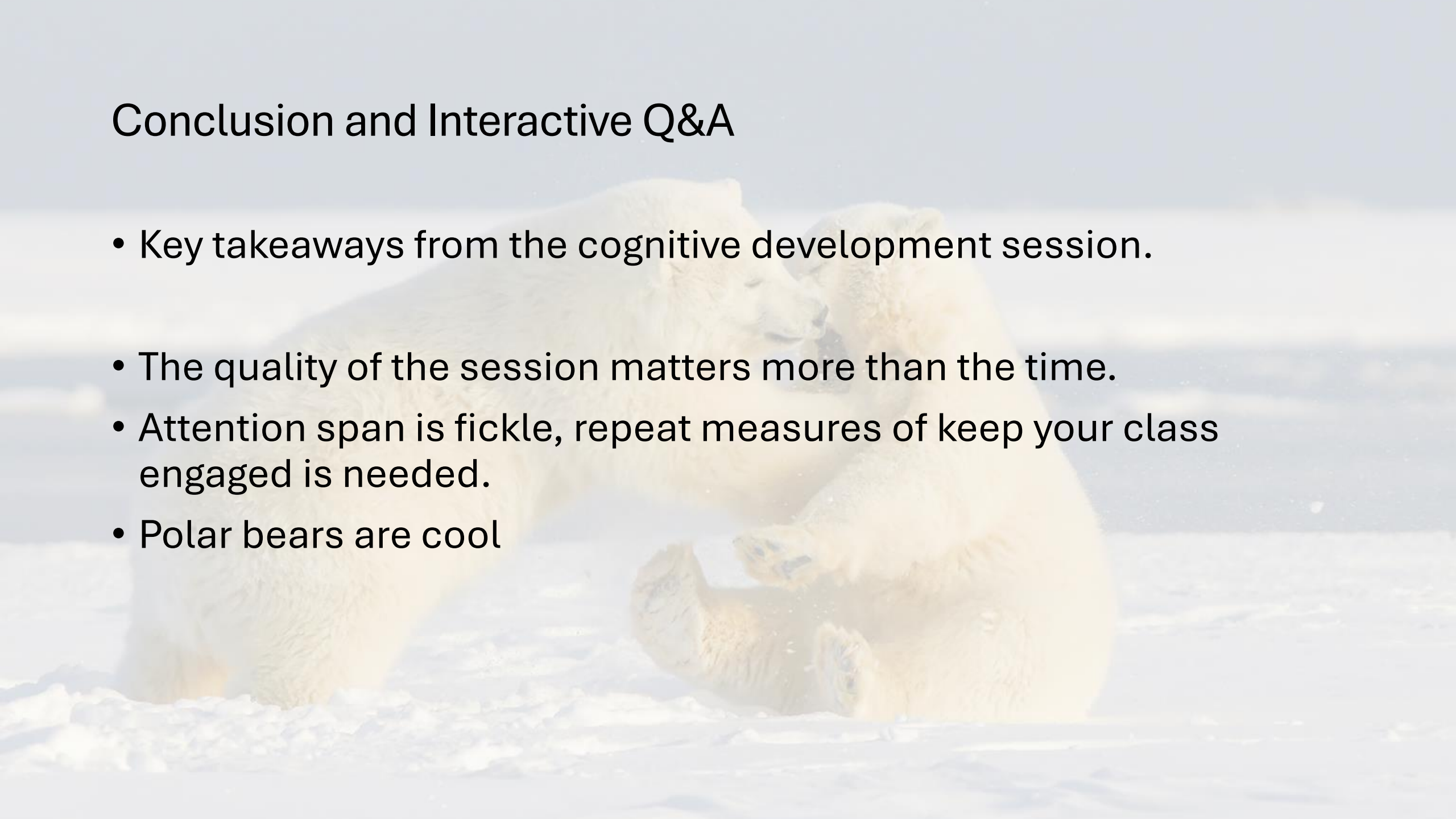
# Enhancing Learning Through AI-Generated Quizzes

- How Quizzes (supplemented with AI) test and reinforce learning.



## Conclusion and Interactive Q&A

- Key takeaways from the cognitive development session.
- The quality of the session matters more than the time.
- Attention span is fickle, repeat measures of keep your class engaged is needed.
- Polar bears are cool





A photograph of two polar bears in a snowy, icy environment. One bear is on the left, and the other is on the right, nuzzling its head against the first bear's face. The background is a bright, overcast sky and a vast, flat expanse of snow and ice.

# Thanks for your attention!

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