

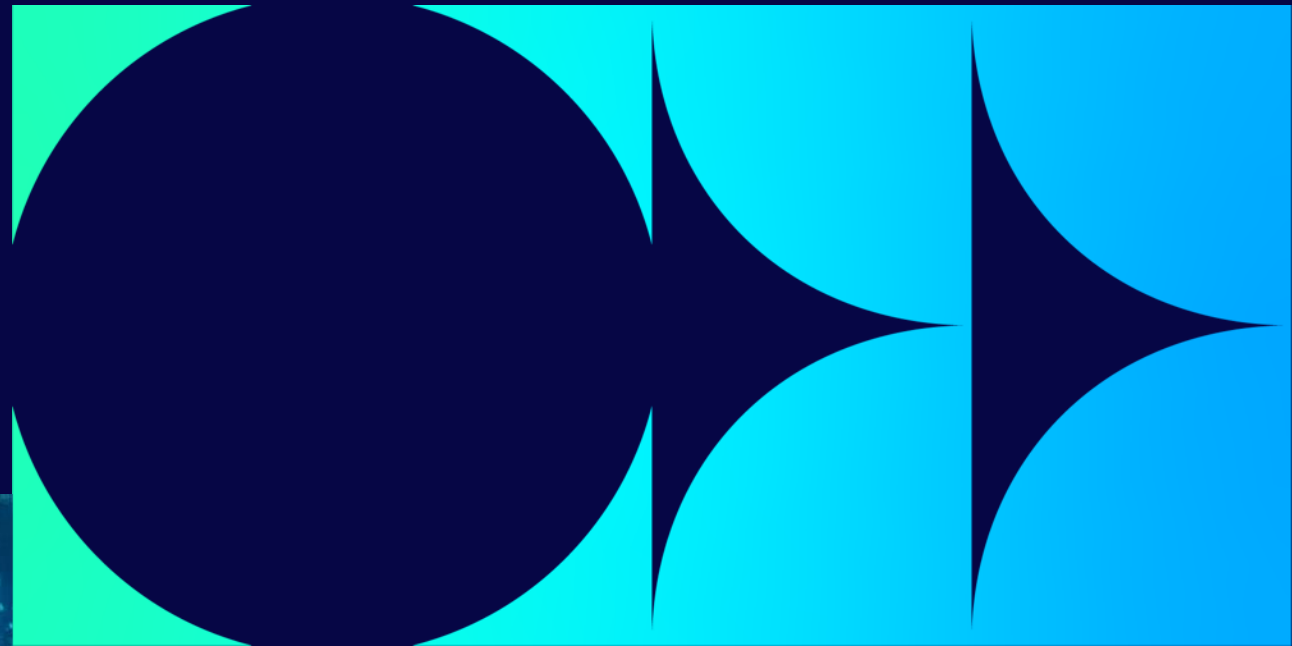
# Critical and ethical use of GenAI: Exploring Chinese language teachers' understanding, attitude and current practices

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# Contents

**Warm-up questions**

**Rationale and existing literature**

**Research questions**

**Methodology**

**Initial findings from**

- descriptive data
- metaphor analysis

# Warm-up question 1

**According to research by Li et al. (UC Riverside/UT Arlington), what is the projected global water withdrawal for AI by 2027 (including both direct cooling and electricity generation)?**

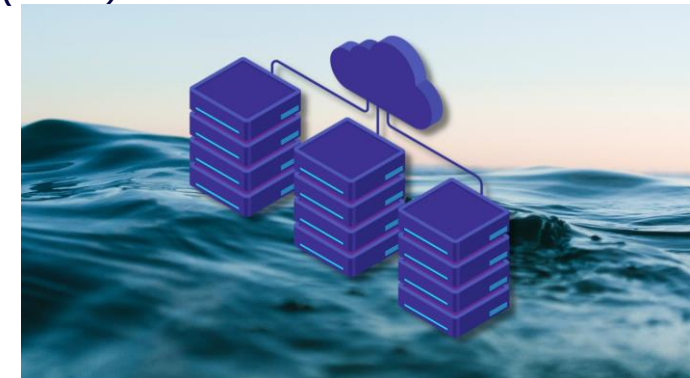
- A. equivalent to the annual water withdrawal of  $\frac{1}{4}$  of the UK
- B. equivalent to the annual water withdrawal of  $\frac{1}{2}$  of the UK
- C. equivalent to the total annual water withdrawal of the UK

**According to the EESI, how much water can a large data centre consume per day?**

- A. equivalent to the water use of a village of 1,000 people
- B. equivalent to the water use of a town of 5,000 people
- C. equivalent to the water use of a town of 10,000 to 50,000 people

*Li et al., "Making AI Less 'Thirsty'", arXiv (2023), expanded in Communications of the ACM (2025).*

<https://www.eesi.org/articles/view/data-centers-and-water-consumption>



# Warm-up question 2

**How much more energy does GPT-4o use for image creation compared to a text-based interaction?**

- A. About 5× more
- B. About 10× more
- C. About 20× more
- D. About 30× more

**How much energy does generating a single AI image consume?**

- A. About the same as sending 10 emails
- B. About as much as fully charging a smartphone
- C. About as much as boiling a kettle
- D. About as much as running a washing machine cycle

**How much energy does the CogVideoX model consume to generate a five-second video clip at 16 frames per second?**

- A. About 340,000 joules – equivalent to running a microwave for 6 minutes
- B. About 3.4 million joules – equivalent to running a microwave for over an hour
- C. About 34 million joules – equivalent to running a microwave for 10 hours
- D. About 340 million joules – equivalent to running a microwave for a full day

# Answers

- **According to research by Li et al. , what is the projected global water withdrawal for AI by 2027 ?**  
**Equivalent to the annual water withdrawal of ½ of the UK**
- **According to the EESI, how much water can a large data centre consume per day?**  
**Equivalent to the water use of a town of 10,000 to 50,000 people**
- **How much more energy does GPT-4o use for image creation compared to a text-based interaction?**  
**About 30× more**
- **How much energy does generating a single AI image consume?**  
**About as much as fully charging a smartphone**
- **How much energy does the CogVideoX model consume to generate a five-second video clip at 16 frames per second?**  
**About 3.4 million joules — equivalent to running a microwave for over an hour**

# Risks

## AI impacts

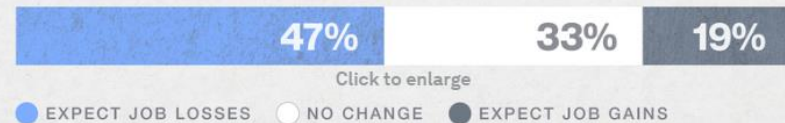
How will AI adoption impact global growth and employment over the next 10 years?



Growth:



Employment:

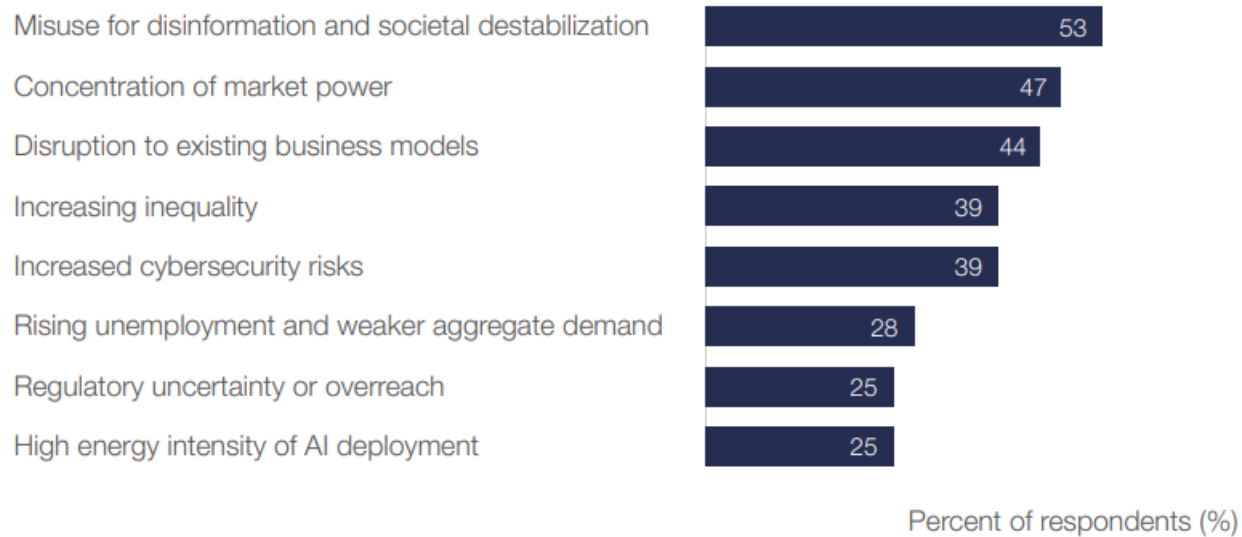


Click to enlarge

● EXPECT JOB LOSSES ● NO CHANGE ● EXPECT JOB GAINS

## Figure 30. AI growth impact risks

Through which channels do you expect AI to pose the greatest risks to sustained global GDP growth? (select the top 3)



Source: Chief Economists Survey. (2025, April).

## Rationales

- Current GenAI discourse in Chinese language teaching is **imbalanced**: strong focus on benefits, limited attention to **social and ethical implications**.
- Some teachers feel uncertain or **wary**, caught between **top-down policy pressures** and **bottom-up choice**.
- GenAI has **significant implications for assessment** (academic integrity) **and learning** (over-reliance).
- We now coexist with systems that can write 'with us, for us, or even as us' hence **Human agency and accountability must remain central** (Bannister, 2025).
- Technology is **not neutral** (the medium is the message); e.g. social media's role in the 'anxious generation'.
- Educators have a duty to ensure **critical** and **ethical** use of GenAI in teaching and learning.

# Why

# Existing research on the ethical and critical use of GenAI

## From the angle of:

- AI Literacy (e.g. Pegrum, 2025; Tour et al., 2025)
- Critical AI Literacy: through EDIA lens ( e.g. Open University)
- AI ethics (e.g. Kamali et al., 2024)
- Ethical and pedagogical implication (Aljabr et al. 2024)
- Applied ethics and the philosophy of technology (Waelen, 2022).

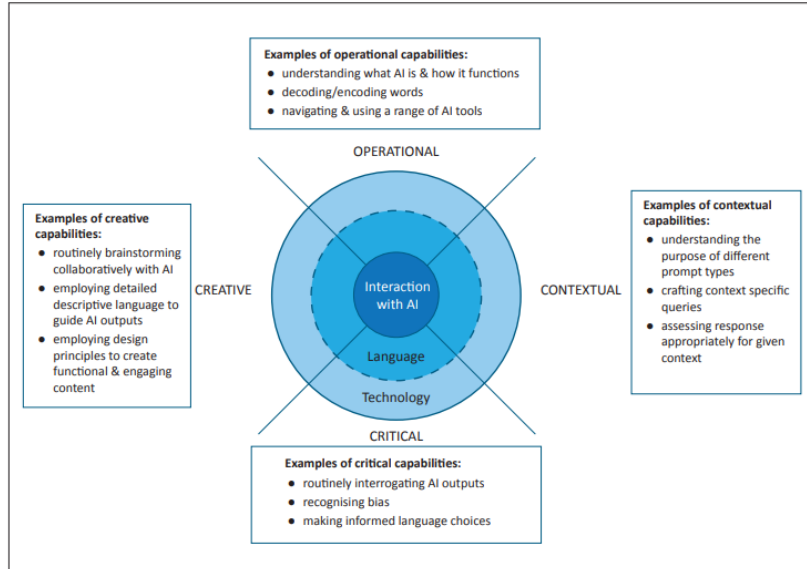
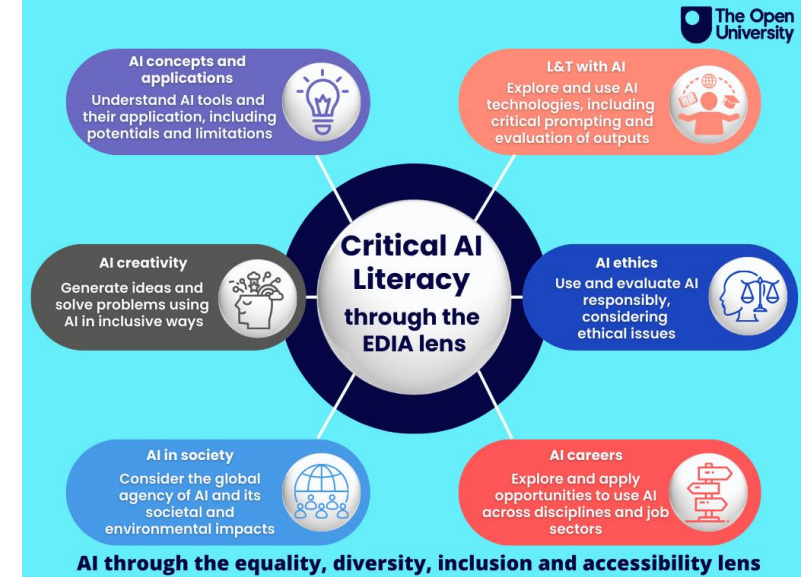


Figure 1. An elaborated sociocultural model of AI literacy for language learning contexts



Figure 1: Ethical AI Framework Development



# Existing research on the ethical and critical use of GenAI

## Current research indicates:

- Overlapping elements regarding what ethical and critical use of AI entails
- *"diverse and often contradictory perspectives", "highlighting a general lack of awareness and inconsistent application of ethical principles"* (Kamali et al., 2024)
- *Frameworks tend to be 'top-down'*

# Overarching research questions

In the context of teaching Chinese as foreign language:

- 1) How do teachers of Chinese understand critical and ethical use of GenAI?**
- 2) What are their attitudes towards GenAI tools?**
- 3) What are their current practices of using GenAI tools?
- 4) What are the main external factors that influence the above?
- 5) How can teachers merge AI tools in the teaching/learning process while preserving the ethical considerations?

# Methodology and research instruments

- Quantitative: **online survey**
- Qualitative:
  - **metaphor analysis**
  - in-depth interview

This presentation focuses on the questionnaire data, in particular, the analysis of metaphors

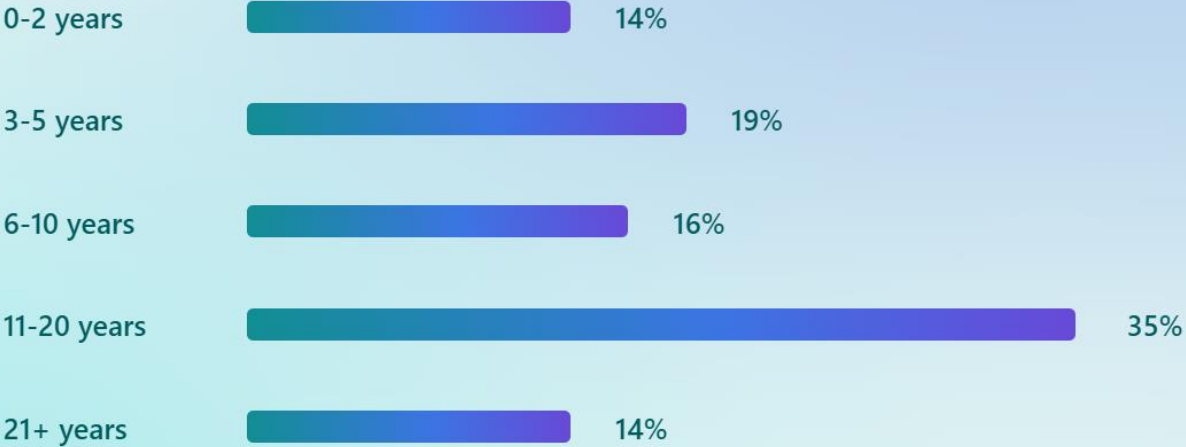
# Survey findings: Participants' profile (n=78)

78 responses submitted

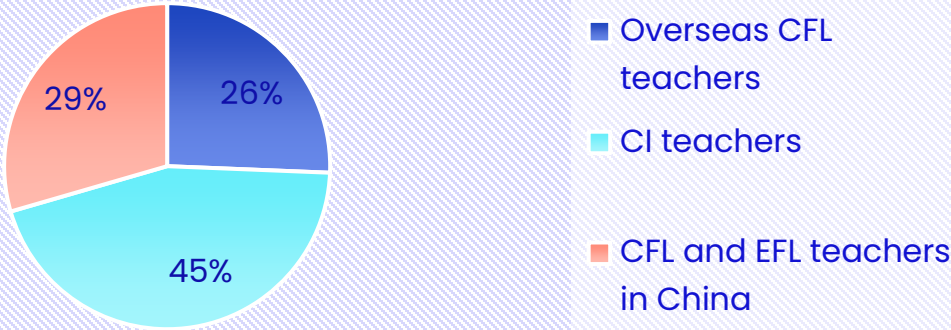
## What is your main teaching role?



## How many years of teaching experience do you have?

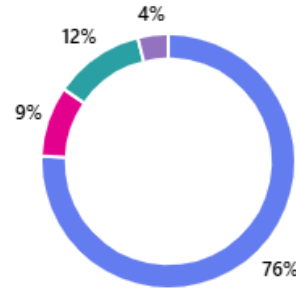
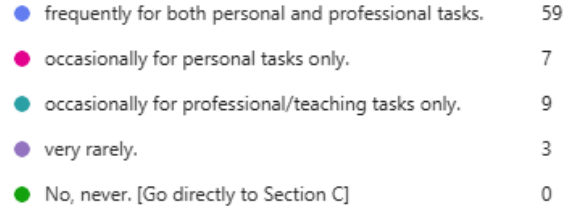


## Categories of teachers



# Survey findings (continued)

5. How often and for what purpose have you used GenAI tools?



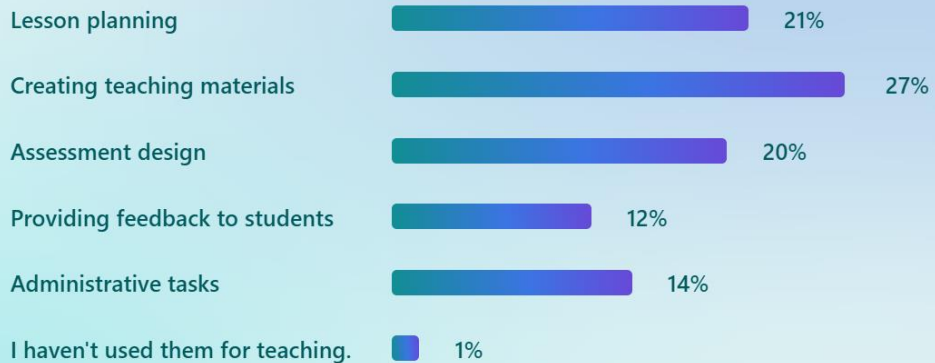
Overall, how do you view the potential of GenAI in CFL teaching?

**42%**  
Somewhat positive - It has useful applications with proper implementation.

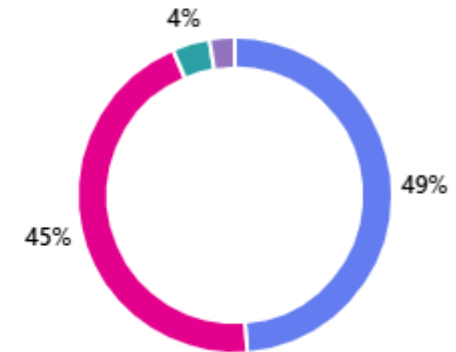
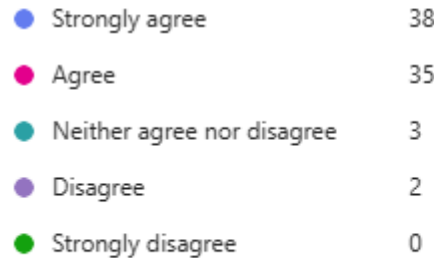
**41%**  
Very positive - It will significantly enhance teaching and learning.

**17%**  
Neutral - It has both benefits and drawbacks.

If you have used GenAI tools for teaching purposes, what have you used them for? (Select all that apply)



9. To what extent do you agree: "GenAI tools can enhance teacher productivity and efficiency?"



# Survey findings (continued)

To what extent do you agree: "GenAI tools can improve student learning outcomes?"

53%  
Agree

26%  
Strongly agree

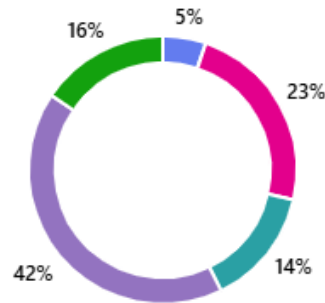
19%  
Neither agree nor disagree

What are your main concerns about students using GenAI tools? (Select all that apply)



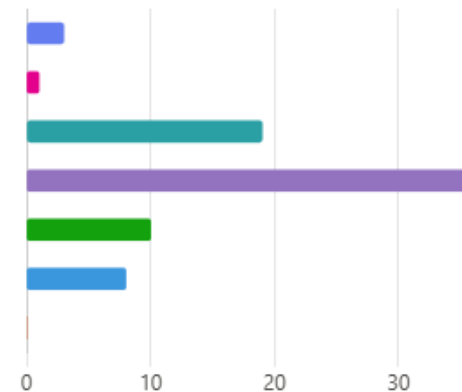
12. Does your institution have a formal policy regarding student use of GenAI tools?

- Yes, it's completely banned. 4
- Yes, it's allowed with restrictions. 18
- Yes, it's encouraged with guidelines. 11
- No formal policy exists. 32
- I'm not sure. 12



13. How do you currently address GenAI use in your classroom?

- I explicitly forbid its use. 3
- I discourage its use but don't actively monitor. 1
- I neither encourage nor discourage its use. 19
- I encourage its use with proper acknowledgement. 36
- I actively teach students how to use it effectively. 10
- I haven't addressed it yet. 8
- Other 0



## Methodology 2: metaphor

1. Please use a metaphor to describe GenAI in your own words. (e.g. AI is an accelerator.)
1. Please use an expression or a metaphor to describe your understanding of AI ethics in your words. (e.g. AI ethics is moat of humanity)

**\*\* *Type in chat or write on paper***

# Why metaphor?

- Metaphor elicitation is widely used to study understandings of complex phenomena (like AI): Prompting participants to describe “AI is like...” enables researchers to uncover how people conceptualise abstract, unfamiliar technologies in terms of everyday experiences and analogies (Ghazinoory & Aghaei, 2024)
- Metaphors reveal hidden assumptions and feelings about AI: Imaginative Metaphor Elicitation shows that metaphor-based responses surface tacit beliefs, emotions, and uncertainties, helping participants make sense of complex and evolving systems such as AI (Cömert & Gürol, 2023).
- Using metaphor aligns with established interdisciplinary practice: Research in education, social sciences, and applied contexts demonstrates that elicited metaphors are a robust way to investigate how people understand specialised or technical domains (e.g. scientific or computational concepts), making it particularly suitable for exploring public perceptions of AI (Deignan et al, 2026)

# Teachers' metaphors for GenAI and AI ethics

## metaphors for GenAI (examples)

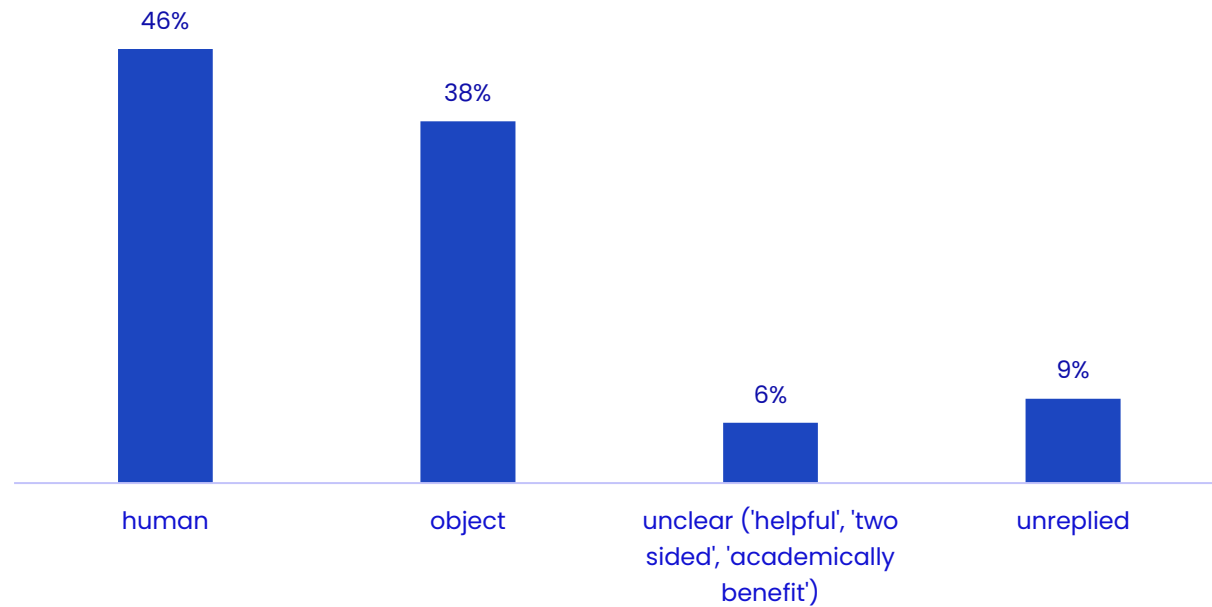
- ▶ Ai is an instructor.
- ▶ AI is a treasure box.
- ▶ 人工智能是一只领头羊 (Artificial intelligence is a leading sheep/leader)

## metaphors for AI ethics (examples)

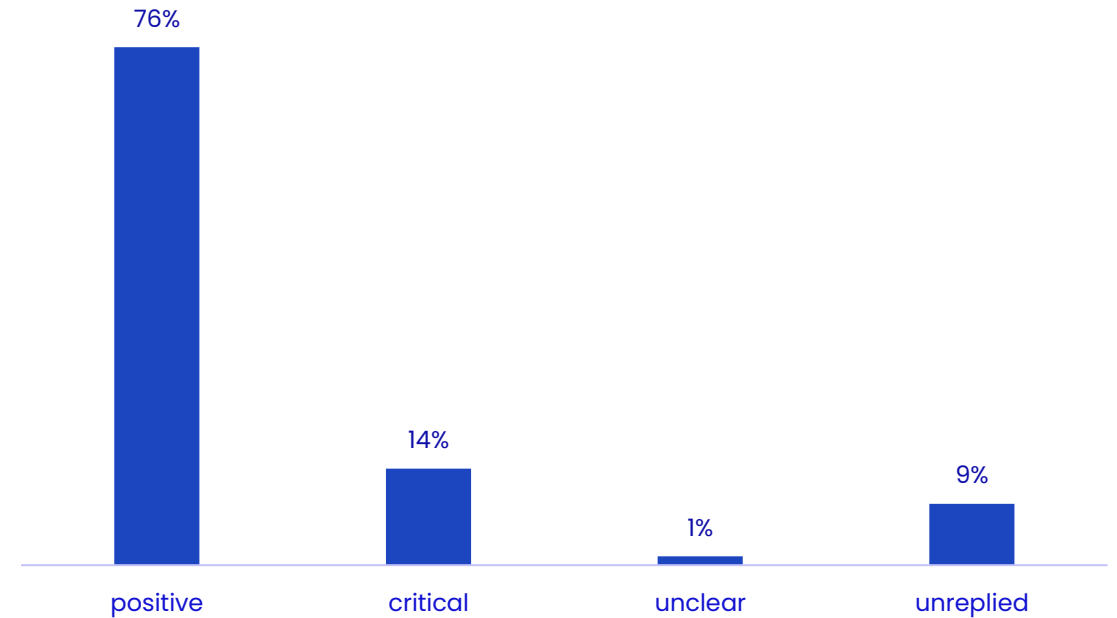
- ▶ AI ethics is the compass in a rising storm – without it, the ship of progress sails blindly into darkness.
- ▶ AI ethics is the gravity that holds the expanding universe of technology in moral orbit. 是让其不会偏离人道轨道的引力。

# Teacher's perception & attitude

Seeing AI as human or object



Attitudes revealed from metaphors



# How we coded the metaphors

## AI ETHICS METAPHOR OVERVIEW



# Conclusions

- GenAI is being widely used.
- The main reason for teachers to use GenAI is to 'save time'.
- More teachers hold positive attitudes towards GenAI.
- Not all teachers have a clear idea about the role of ethics when using GenAI tools.
- There are mixed or even contradictory attitudes towards AI ethics.
- Teachers' metaphors reveal the complexity of AI ethics in CFL teaching contexts.

# Reflections

1. To avoid following an adamant mentality ( *'it's just a tool', 'just use it, if you don't like it, try another one'* )
2. To avoid blindly following tech giants' narrative ( *'AI is for a better future'* )
3. The deployment of AI tools should not be 'top-down'.
4. To avoid slipping into the 'lazy' use of GenAI tools.
5. To upgrade prompting skills and to develop critical thinking
6. To consider the concept of 'Frugal AI'
7. To encourage students' ethical AI use
8. To reform assessment and re-think the true value of education .....

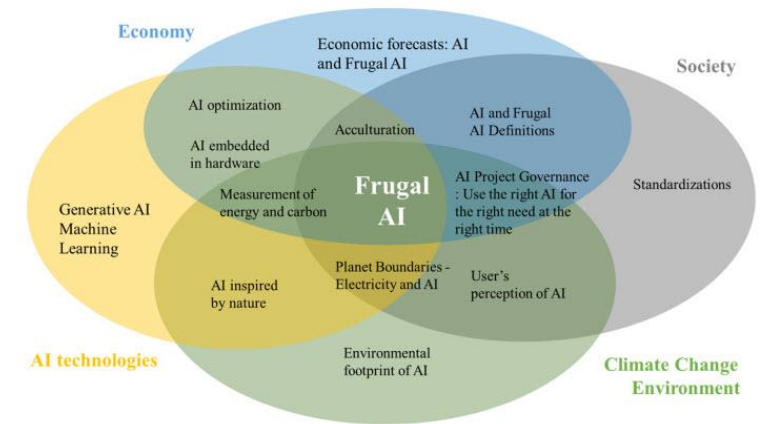


Figure 1: Frugal AI: what impact and what solutions for the environment?

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谢谢 Thank you!



Please complete the short survey