

# Self-directed Language Learning with AI-driven Personalization



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# Motivation: Why Personalize Language Learning?

- Learning languages supports integration  
(European Committee of Ministers, 2008)
- To study you need motivation
- Vocabulary learning improves with:
  - **Context & Relevance**
- AI enables scalable personalization



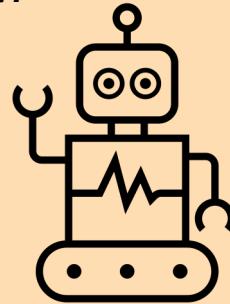
*“Vocabulary learning is more effective when learners are exposed to words in meaningful contexts.”*

- Zarfsaz & Yeganehpour, 2021, JLLS

# Motivation: What Does Research Say?

- **Personalization boosts motivation**  
(Heilman et al., 2010)
- Personalized AI-generated examples  
→ **more motivation**  
(Leong et al., 2024, CHI)

**First idea:**  
*Can AI create personally meaningful learning content?*

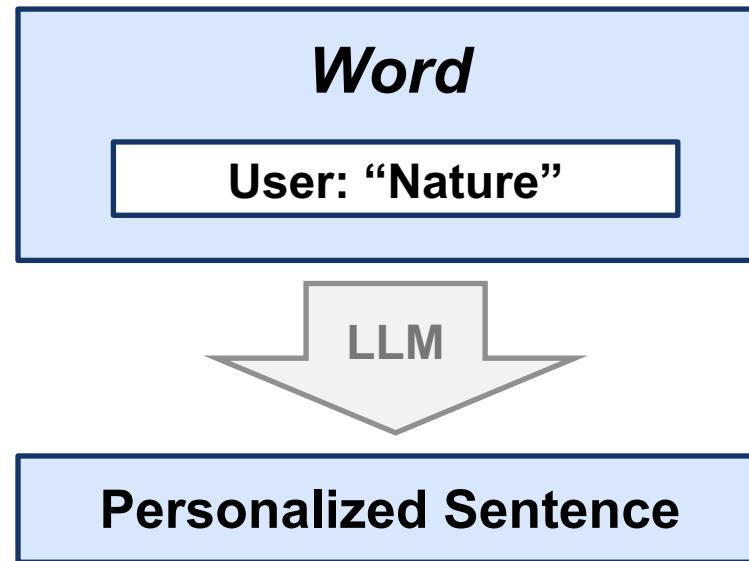


**RQ: How do learners experience and evaluate personalized AI-generated sentences for vocabulary learning?**



**Input for Personalization**

# Approach by Leong et al. (2024, CHI)



# Our Method: Pre-Questionnaire

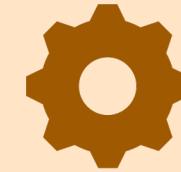


**User  
Factors**



**Favorite  
media**

**Specific  
interests**



**Learning  
preferences**

5. Please list up to 3 of your favorite movies:

Movie 1: \_\_\_\_\_

Movie 2: \_\_\_\_\_

Movie 3: \_\_\_\_\_

9. Do you have any specific interests or hobbies?

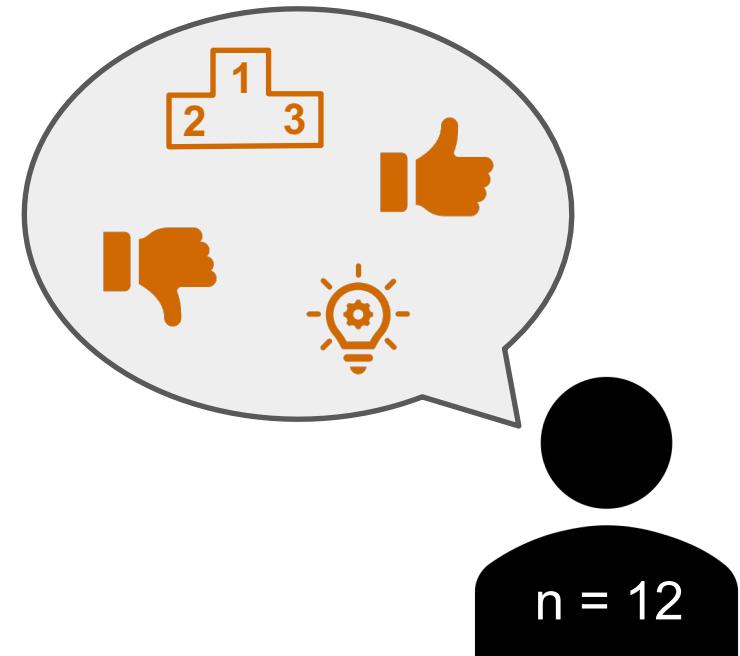
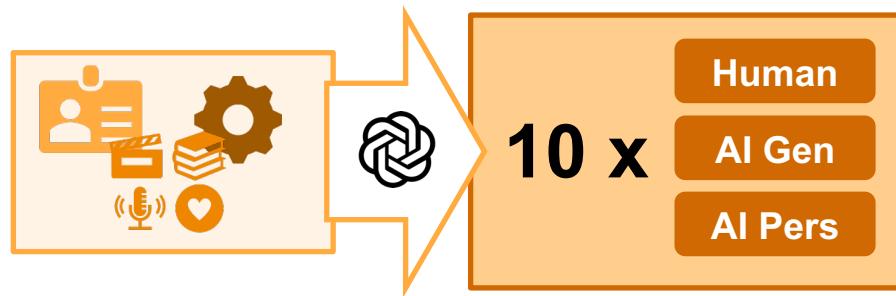
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14. Do you prefer sentences that are...

Related to your everyday life

Related to pop culture or current events

# Study Design



## Examples: Zwodder

Human

1. Without my morning coffee, I remain in a zwodder all day.

AI-Gen

3. After staying up all night, I spent the whole morning in a zwodder, barely able to think straight.

M33a

## Examples: Zwodder

Human

1. Without my morning coffee, I remain in a zwodder all day.
2. After a late-night *Star Wars* marathon, I spent the whole morning in a zwodder, barely able to tell a lightsaber from a screwdriver.
3. After staying up all night, I spent the whole morning in a zwodder, barely able to think straight.

AI-Pers

M33a

AI-Gen

## Examples: Zwodder

AI-Pers

1. Still half-lost in a zwodder after a late-night *Merge Garden* session, she sipped coffee and tried to focus on the *political podcast* playing in the background.

Human

2. Without my morning coffee, I remain in a zwodder all day.

AI-Gen

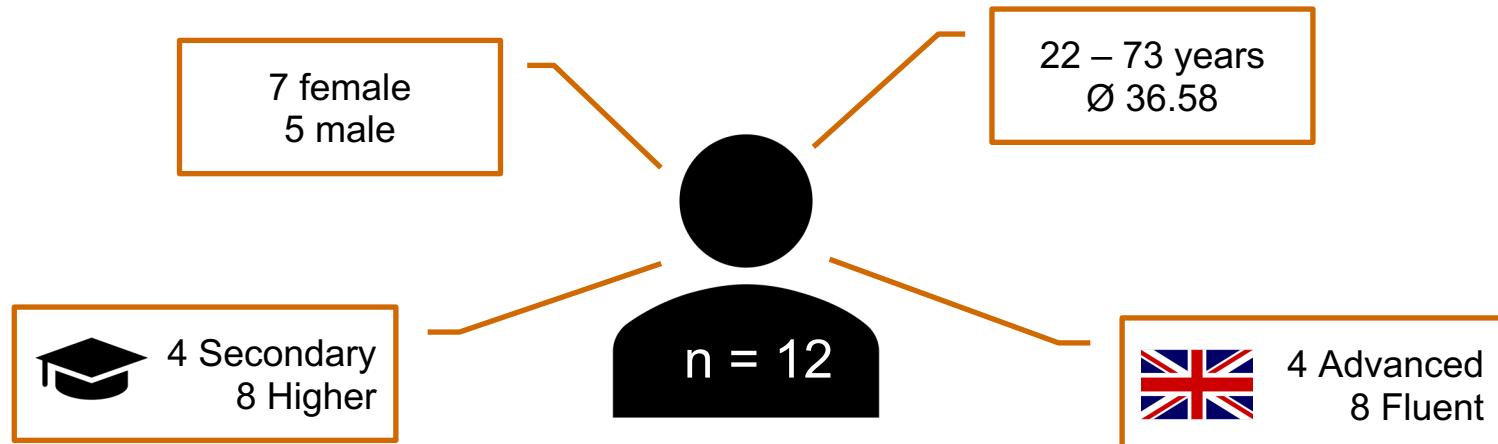
3. After staying up all night, I spent the whole morning in a zwodder, barely able to think straight.

F31

# Participants

## Target group: adults

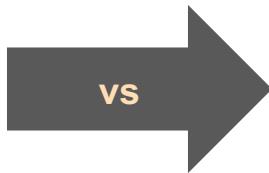
“Adult language learners were rather underrepresented” (Yang, 2025, EAIT)



## Results: Ranking Shift

Before Definition:

Personalized AI: 41



After Definition:

Personalized AI: 36

**Understandability over personalization after definition**

# Results: Key Themes

## 1. Simplicity supports learning:

M22: "I prefer simple sentences [...] they are easier to understand."

## 2. Valued personalization:

F26: "Because the second one [...] because Naruto is in this context, and you can remember the context behind it."

# Results: Key Themes

## 3. When personalization fails:

M22: "I found it annoying after the 4<sup>th</sup> question."

## 4. Concerns about data protection:

F30: "I'm against the social media stuff."

# Results: Depth of Personalization

## Positive

**F25:** “Especially with the **Asta** one because Asta is, like, is a specific character [...] So there was a scenario I could really, like, **imagine in my head** and this helped me with trying to find an explanation for this word.”

## Negative

**F29:** “Only the noun changed.”

**M22:** “It helps to catch your eye, but after a while, **it just feels like somebody is just, toying with your privacy**...even though I provided the information, it just feels annoying.”

# Discussion

## Cultural Sensitivity



## Depth of Personalization



## Privacy & Control

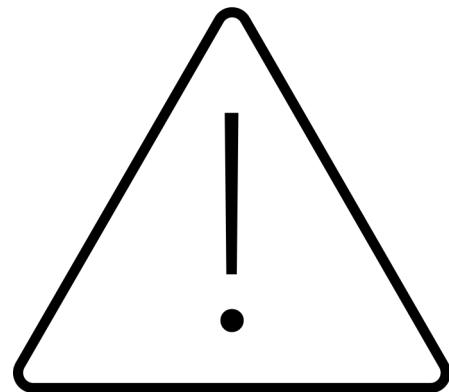


## Quality Assurance



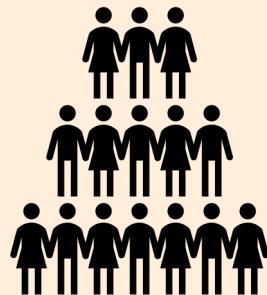
# Limitations

- Small, non-diverse sample (N = 12)
- No statistical testing  
exploratory, qualitative study
- Confounds possible  
Word selection & language proficiency
- Sentence quality varied  
Some examples too complex or unnatural



# Future Work

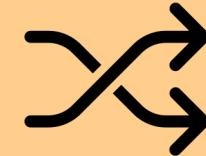
Scale up & diversify



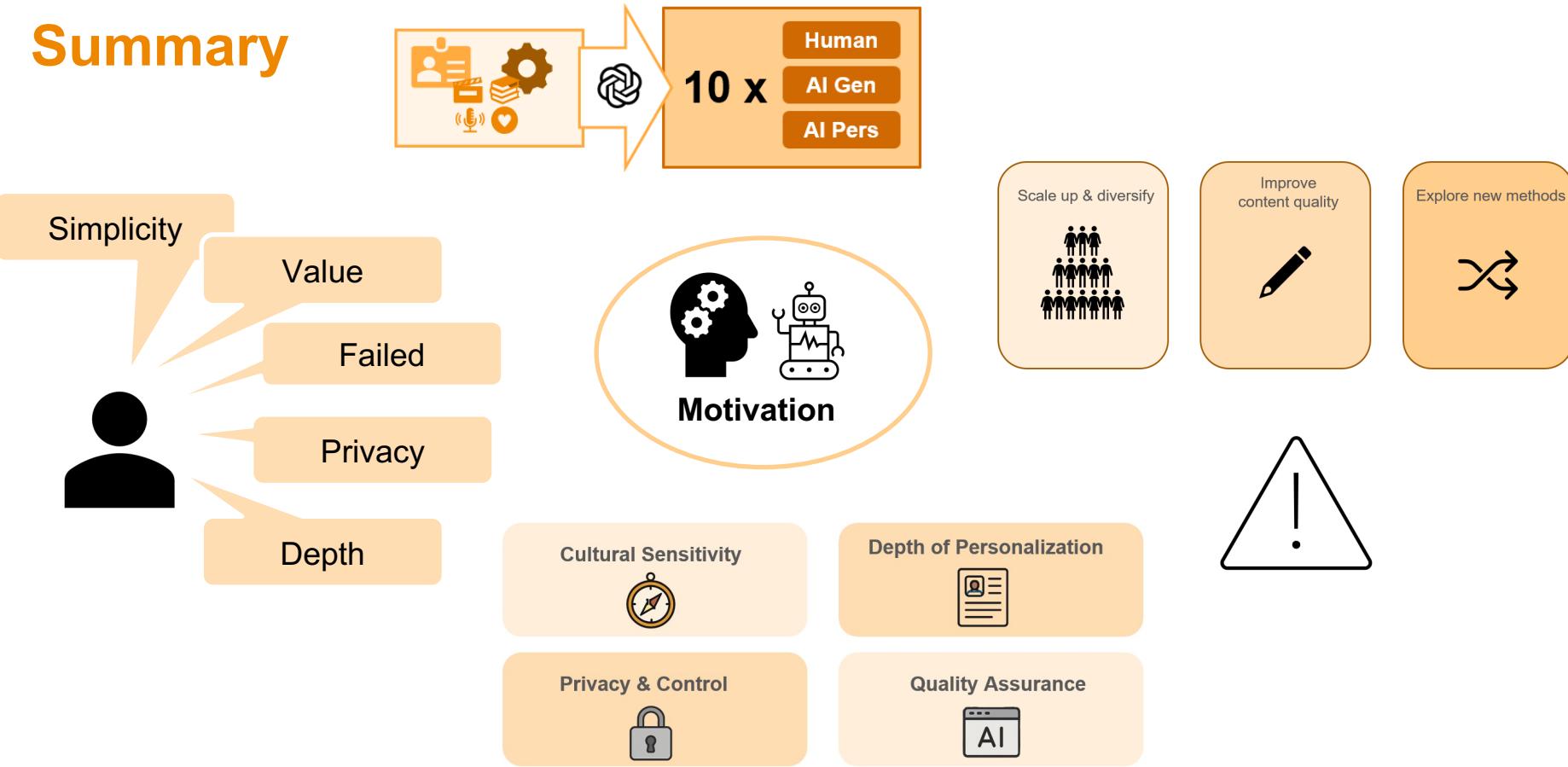
Improve content quality



Explore new methods



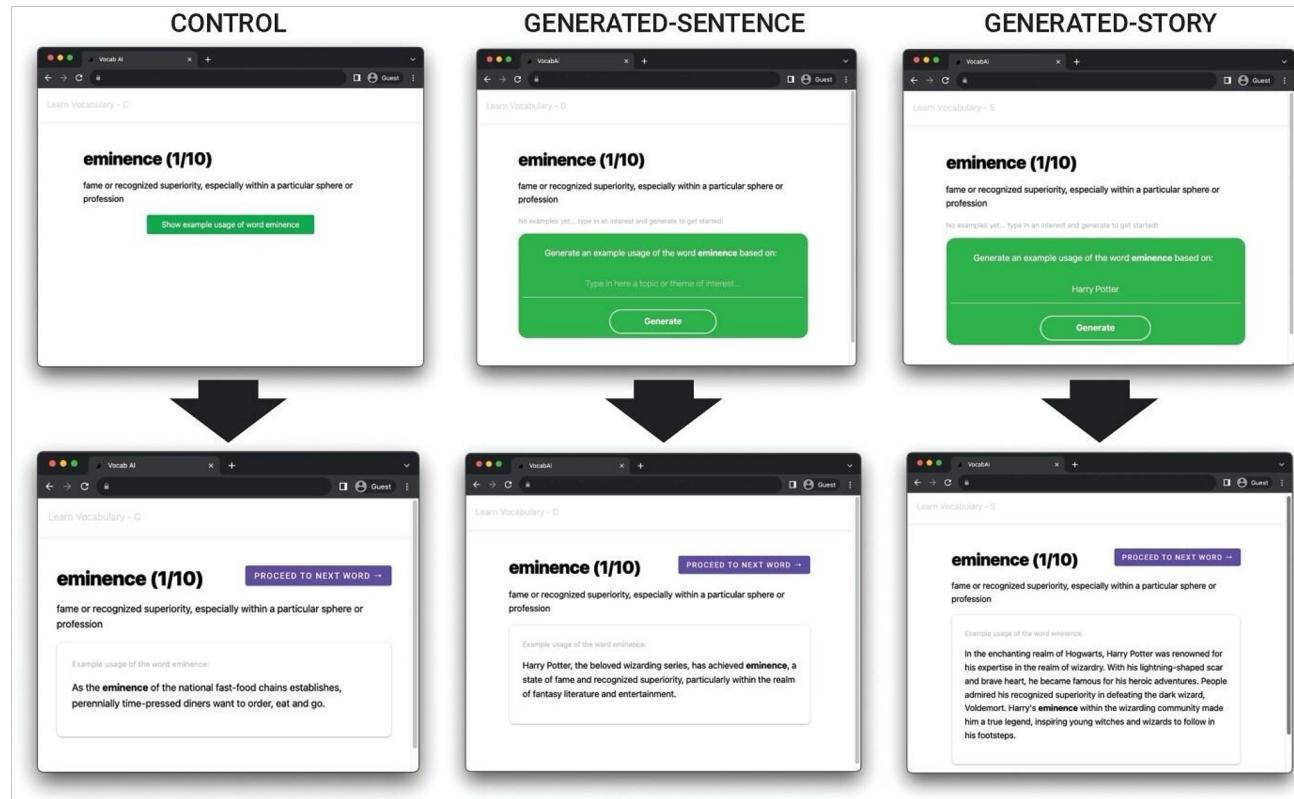
# Summary



# Appendix

# Research Design by Leong et al. (2024, CHI)

- Mainly quantitative study, some qualitative results
- Repeated vocabulary test after 1 week



## Pre-Questionnaire for Personalization

### Basic Information

1. What is your age?

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2. What is your highest level of education?

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3. What languages do you speak, and how would you rate your proficiency in each? (Beginner / Intermediate / Advanced / Fluent)

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4. How often do you learn new vocabulary in a foreign language? (Never / Rarely / Occasionally / Frequently / Very frequently)

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5. Please list up to 3 of your favorite movies:

Movie 1: \_\_\_\_\_

Movie 2: \_\_\_\_\_

Movie 3: \_\_\_\_\_

6. Please list up to 3 of your favorite books or authors:

Book/Author 1: \_\_\_\_\_

Book/Author 2: \_\_\_\_\_

Book/Author 3: \_\_\_\_\_

7. Please list up to 3 of your favorite TV series or streaming shows:

Series 1: \_\_\_\_\_

Series 2: \_\_\_\_\_

Series 3: \_\_\_\_\_

8. What kind of YouTube content do you usually watch? (Select all that apply)

- Technology & Gadgets
- Book Reviews / Literature
- Language Learning
- Influencer Vlogs / Lifestyle
- Science / Education
- Entertainment / Comedy
- Gaming
- Other: \_\_\_\_\_

9. Do you have any specific interests or hobbies?

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10. Why are you learning a new language (or improving your vocabulary)?

- For travel
- For work/study
- For daily communication
- For fun
- Other: \_\_\_\_\_

11. What types of conversations do you wish you were better at in that language? (E.g., ordering food, small talk, professional meetings, etc.)

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12. How do you usually learn new words? (Select all that apply)

- Flashcards
- Watching shows/movies
- Reading books/articles
- Using language apps (e.g., Duolingo, Babbel)
- Talking with native speakers
- Writing texts or journal entries
- Other: \_\_\_\_\_

13. Which of the following types of example sentences do you find most helpful?

- Simple and clear (everyday use)
- Humorous or creative
- Related to my interests or hobbies
- Formal/professional style
- I'm not sure

14. Do you prefer sentences that are...

- Related to your everyday life
- Related to pop culture or current events
- More abstract or conceptual

15. Are there any topics you would prefer to avoid in learning materials? (e.g., politics, religion, violence, etc.)

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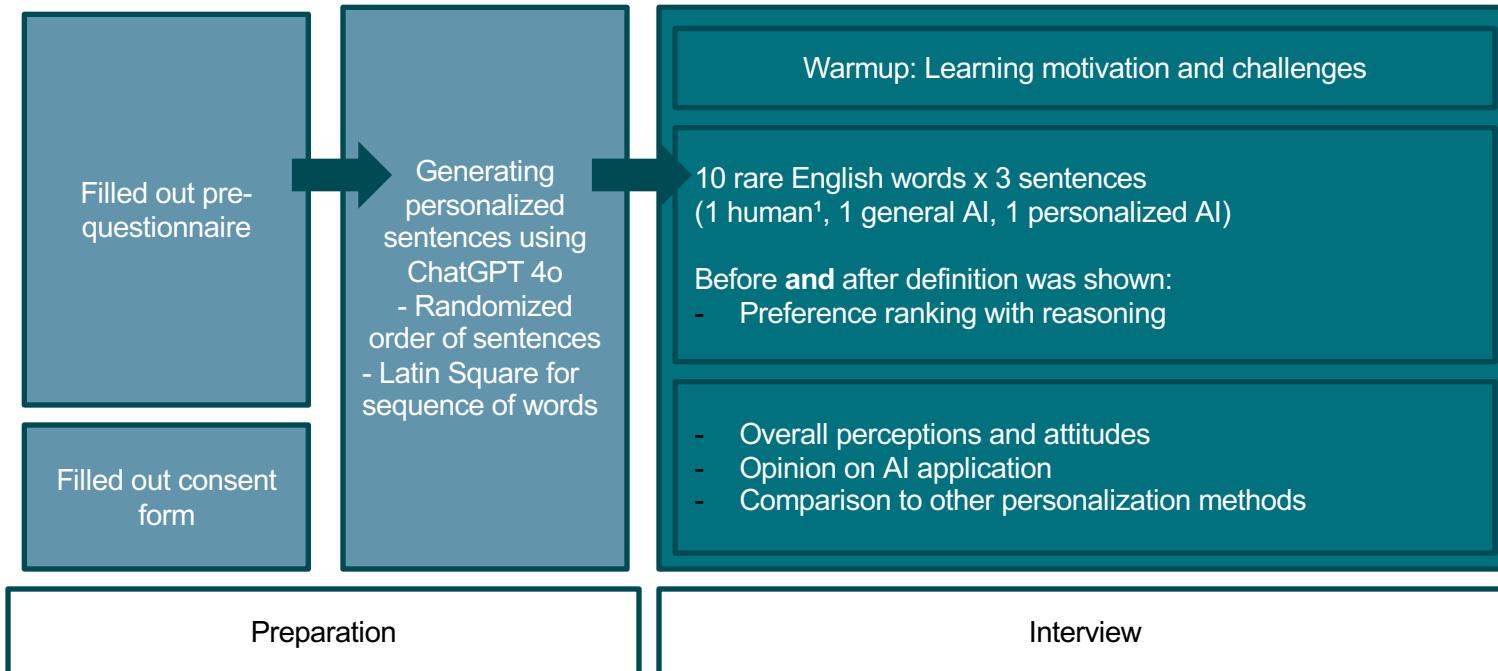
16. Which podcasts or types of podcasts do you listen to (if any)?

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17. Who are your favorite public figures, influencers, or fictional characters (if any)? (From books, series, YouTube, etc.)

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# Detailed Study Design

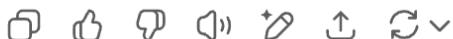


<sup>1</sup> from <https://www.standard.co.uk/lifestyle/london-life/13-wonderful-old-english-words-we-should-still-be-using-today-a3501271.html>

# Prompts

I have this personalized questionnaire. Can you create a short summary of the person's personalization? The next prompt I send you is the questionnaire.

Absolutely! Please go ahead and send me the questionnaire. Once I have it, I'll create a concise summary of the person's personalization based on their responses.



Here's a short summary of the person's personalization based on the questionnaire:

# Prompts

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## Personalization Summary

The individual is a 30-year-old fluent in German and Punjabi, with advanced proficiency in Hindi. They have completed Abitur and an apprenticeship. They occasionally learn new vocabulary, primarily through watching shows or reading. Their interests include dancing, swimming, educational YouTube content, and cooking videos.

They are motivated to improve language skills for **work or study**, with a focus on **professional conversations like meetings**. They prefer **simple, clear, and formal/professional example sentences** that are **related to their everyday life**, avoiding topics such as politics and violence.

Favorite media includes *The Pursuit of Happyness*, *3 Idiots*, *Rocky*, *Atomic Habits*, *Think Like a Monk*, and shows like *Big Bang Theory* and *Friends*. Their learning style and preferences suggest a practical, motivational, and structured approach with a professional context.

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Let me know if you'd like this tailored further or formatted differently!



# Prompts

Can you now write a sentence that reflects the person's interests for this word:

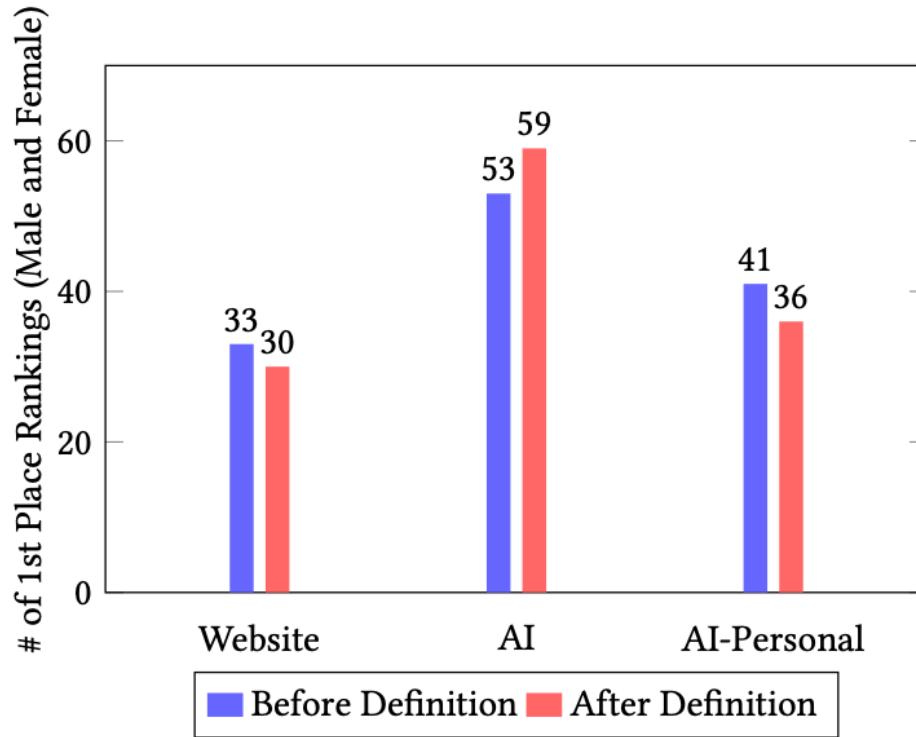
Zwodder (n): Definition: "A drowsy and stupid state of body or mind."

Certainly! Here's a personalized sentence using "**zwodder**", tailored to the individual's interests and preferences:

**"After binge-watching a few too many episodes of *Friends*, I woke up in a complete zwodder and almost missed my morning swim."**

Let me know if you'd like alternative versions related to books, work, or learning!





**Figure 1: Participant preferences: first-place rankings for each sentence type before and after seeing the definition (Male and Female combined)**

# Depth of Personalization: Referenced Sentences

**AI-Pers (F25):** Even Asta from Black Clover would call that snollygoster of a councilman out, no magic needed to spot someone that shady.

**AI-Pers (F29):** As the vacation ended and my inbox hit triple digits, the ergophobia kicked in harder than a Monday morning after a **Modern Family** marathon.

# Themes

Themes from Reflexive Thematic Analysis
Sentence Preferences
Personalization Appreciation
Rejection of Personalization
Contextual Fit
AI Trust/Distrust
Memory Support
Further ideas for AI/personalization
Personalization Types

# References

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