The impact of avatars in educational videos: an experience

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Avatars and AI voices offer:

Flexibility

Time saving

Costs saving

Key question:

Are these new modalities perceived as equally effective compared to traditional educational videos with real teachers and human voices?

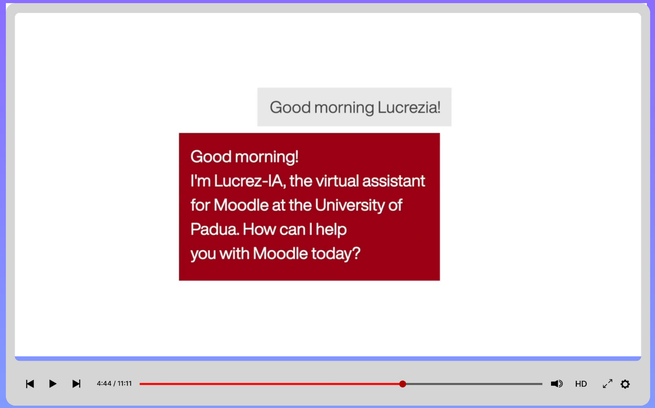
Experiment 1

Informative video introducing a new AI tool (2 minutes)

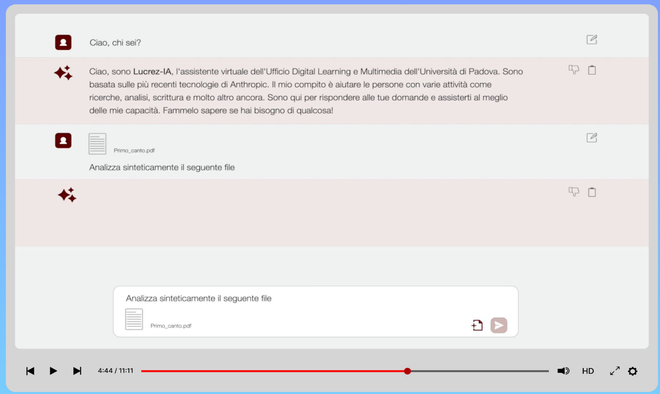
Target : Teachers and university staff

Submission: Randomly

Avatars, AI voice and graphics



AI voice and graphics



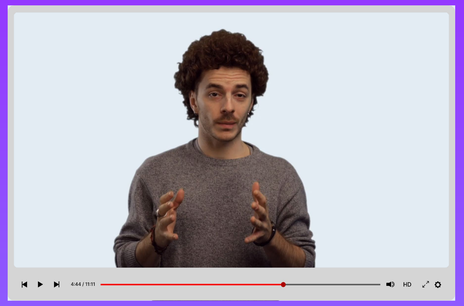
Human voice and graphics

Experiment 2

Learning video explaining two concepts (3 minutes)

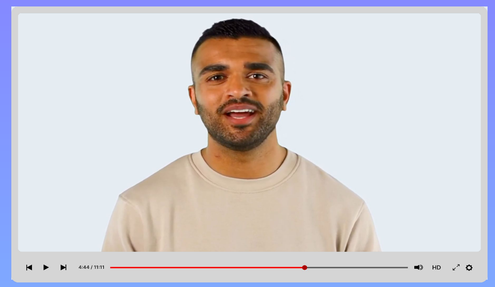
Target : Communication students

Submission: Randomly



Real actor (not teacher)and voice and graphics

Human voice and graphics



AI Avatar, voice and graphics

AI voice and graphics

Study design

Participants

57

Experiment 1

University staff

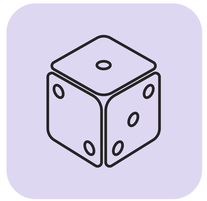
93

Experiment 2

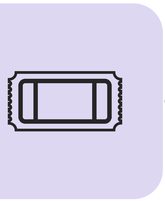
Communication students

Study design

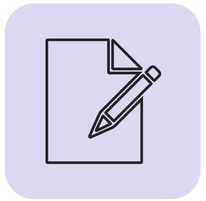
Procedure



Random assignment



Video viewing



Survey completion

Study design

3

Questions

1-5 point Likert scale

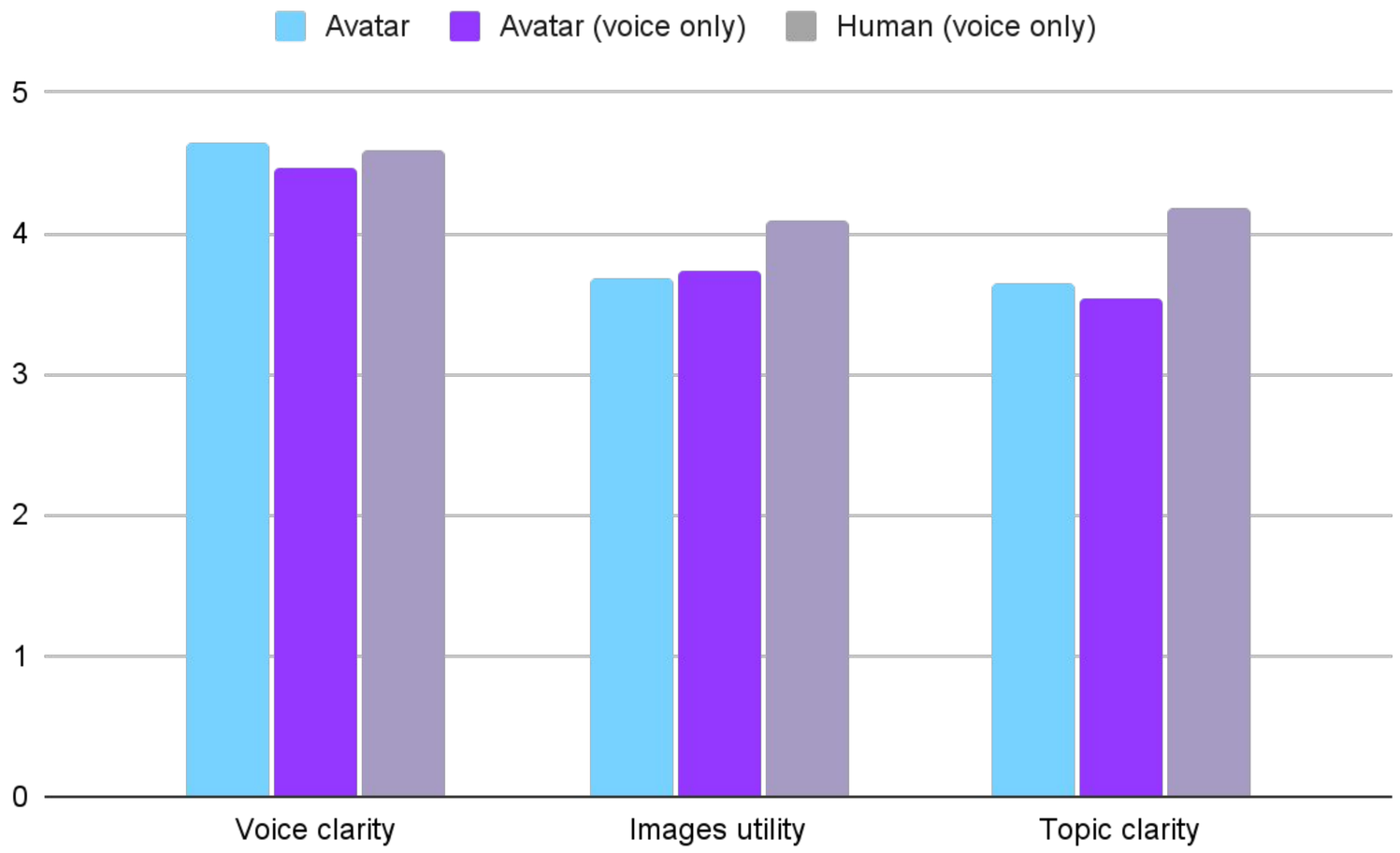
(Not at all - Very much)

- **La voce narrante è stata chiara e facile da seguire?**
  Was the main voice clear and easy to follow?
  (1 = Not at all, 5 = Very much so)

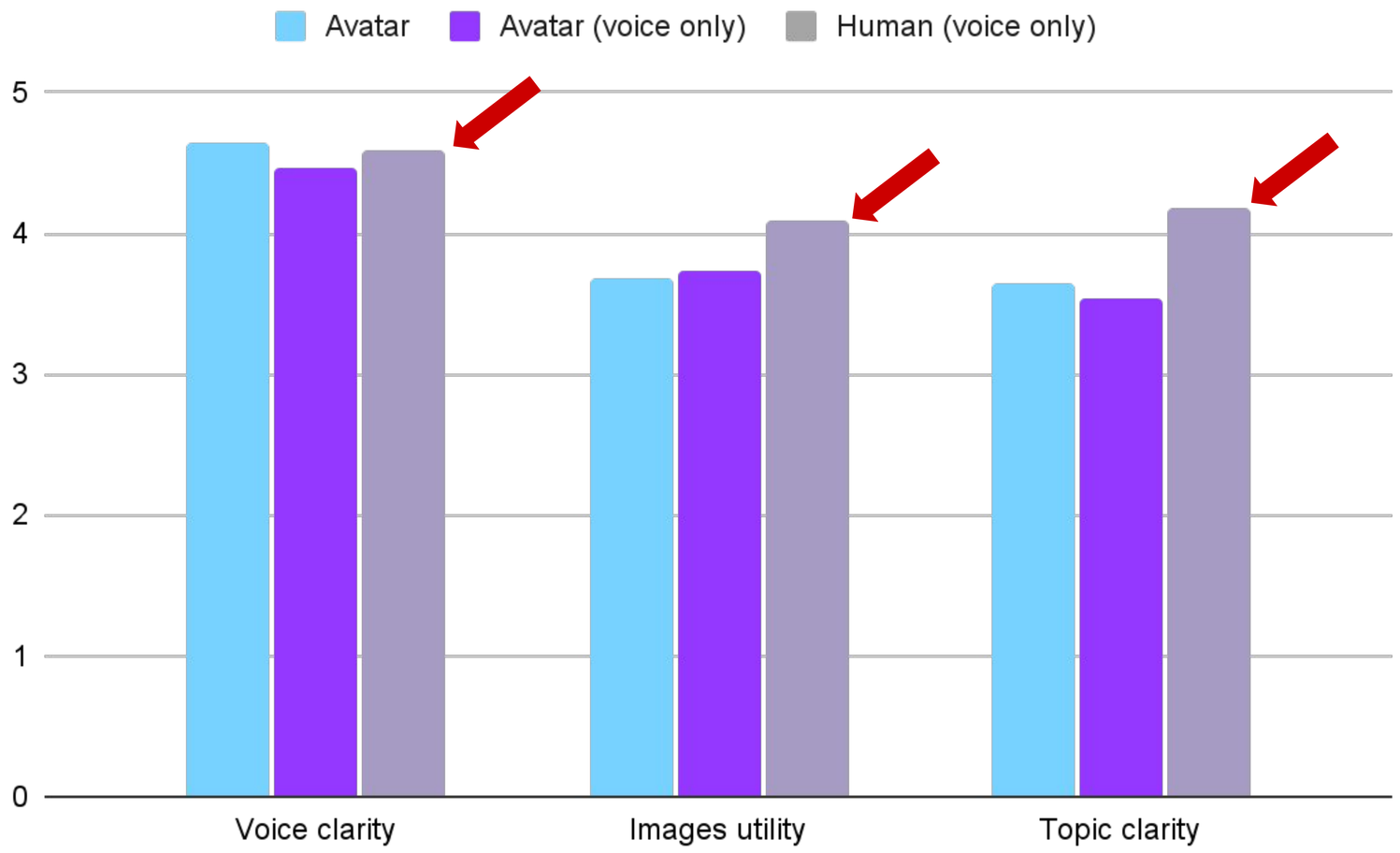
- **Le immagini del video hanno facilitato la comprensione?**
  Did the video images helped to understand the content?
  (1 = Not at all, 5 = Very much so)

- **Il video ha presentato l'argomento in modo chiaro?**
  Did the video present the topic clearly?
  (1 = Not at all, 5 = Very much so)

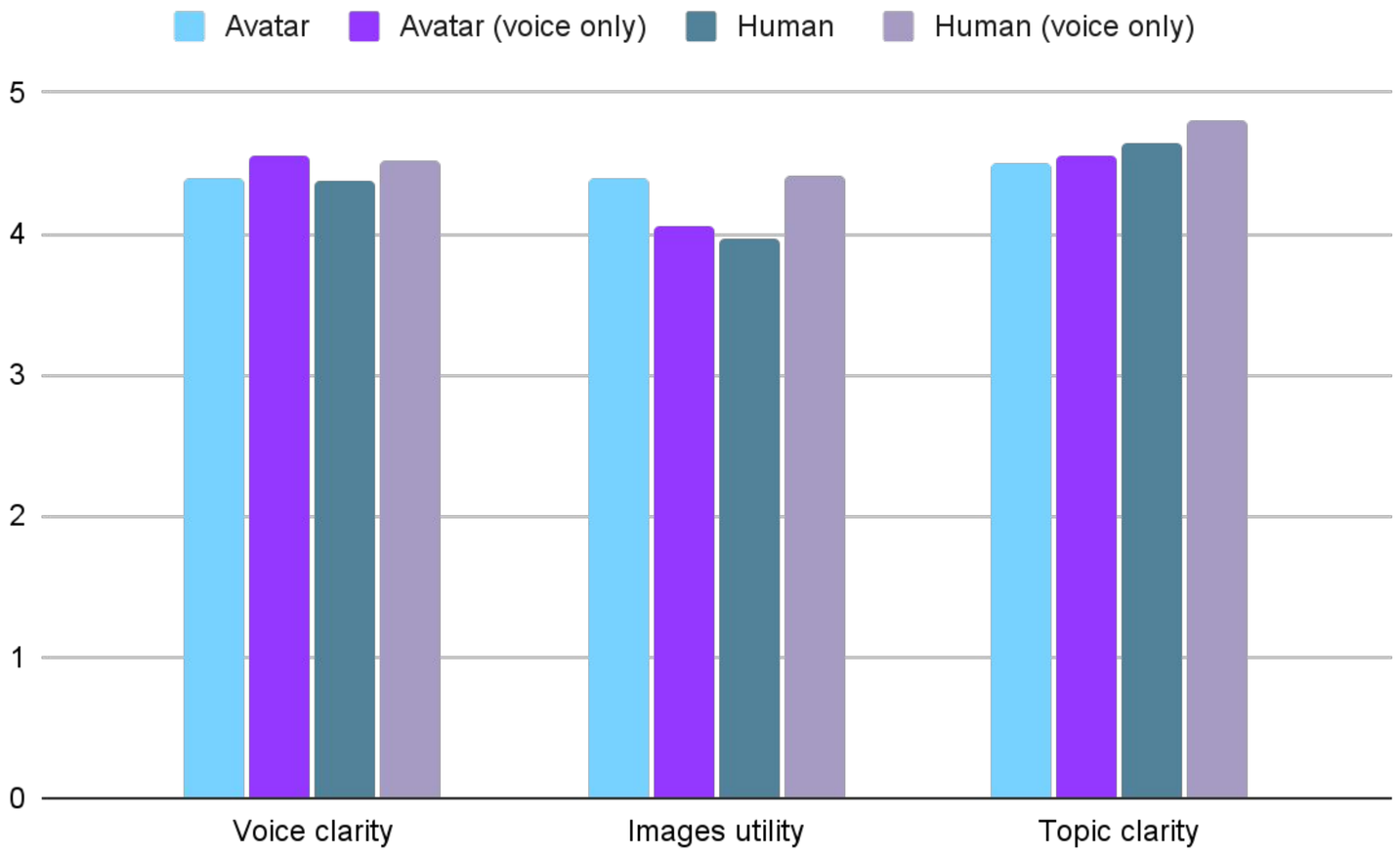
Results - Experiment 1



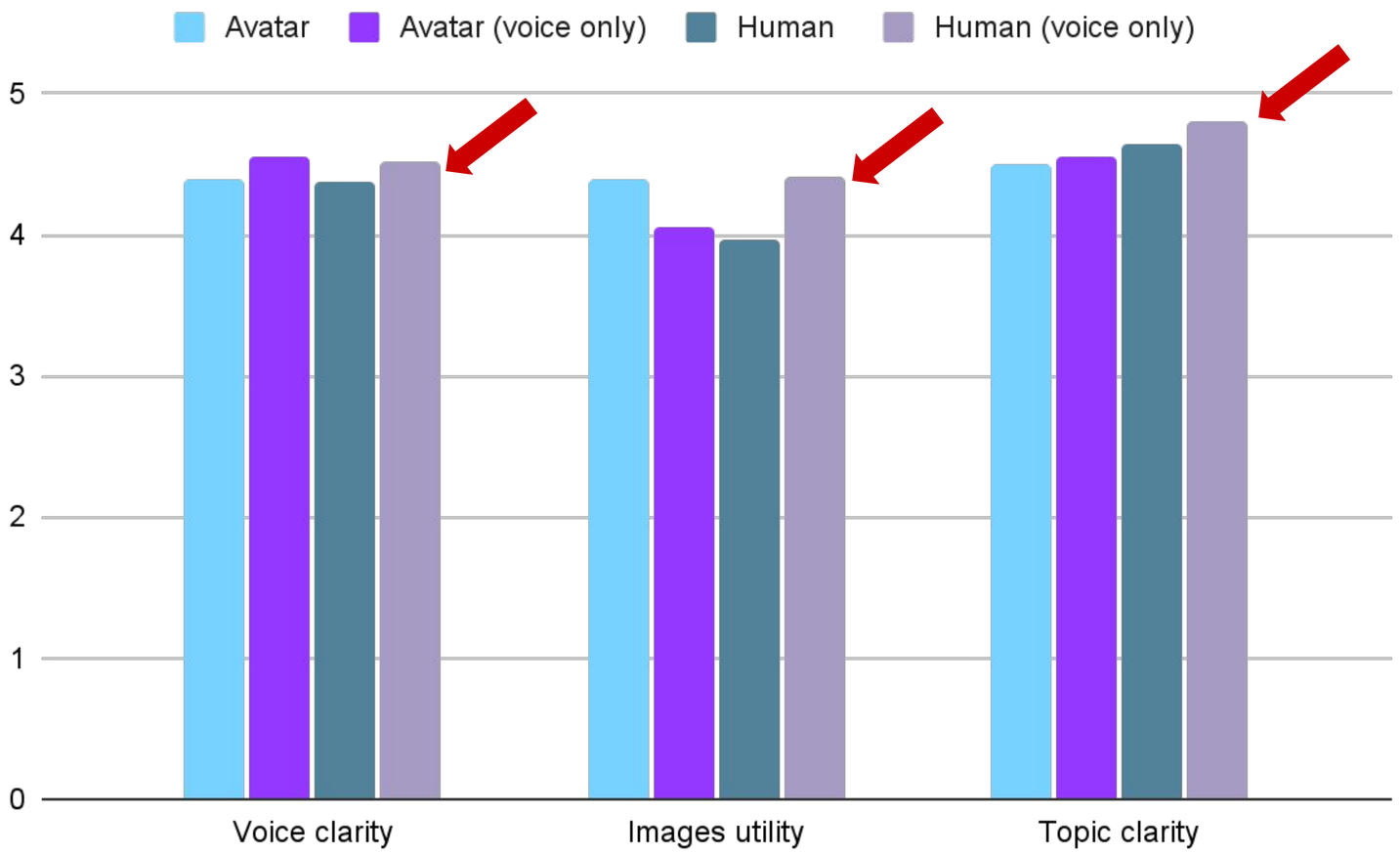
Results - Experiment 1



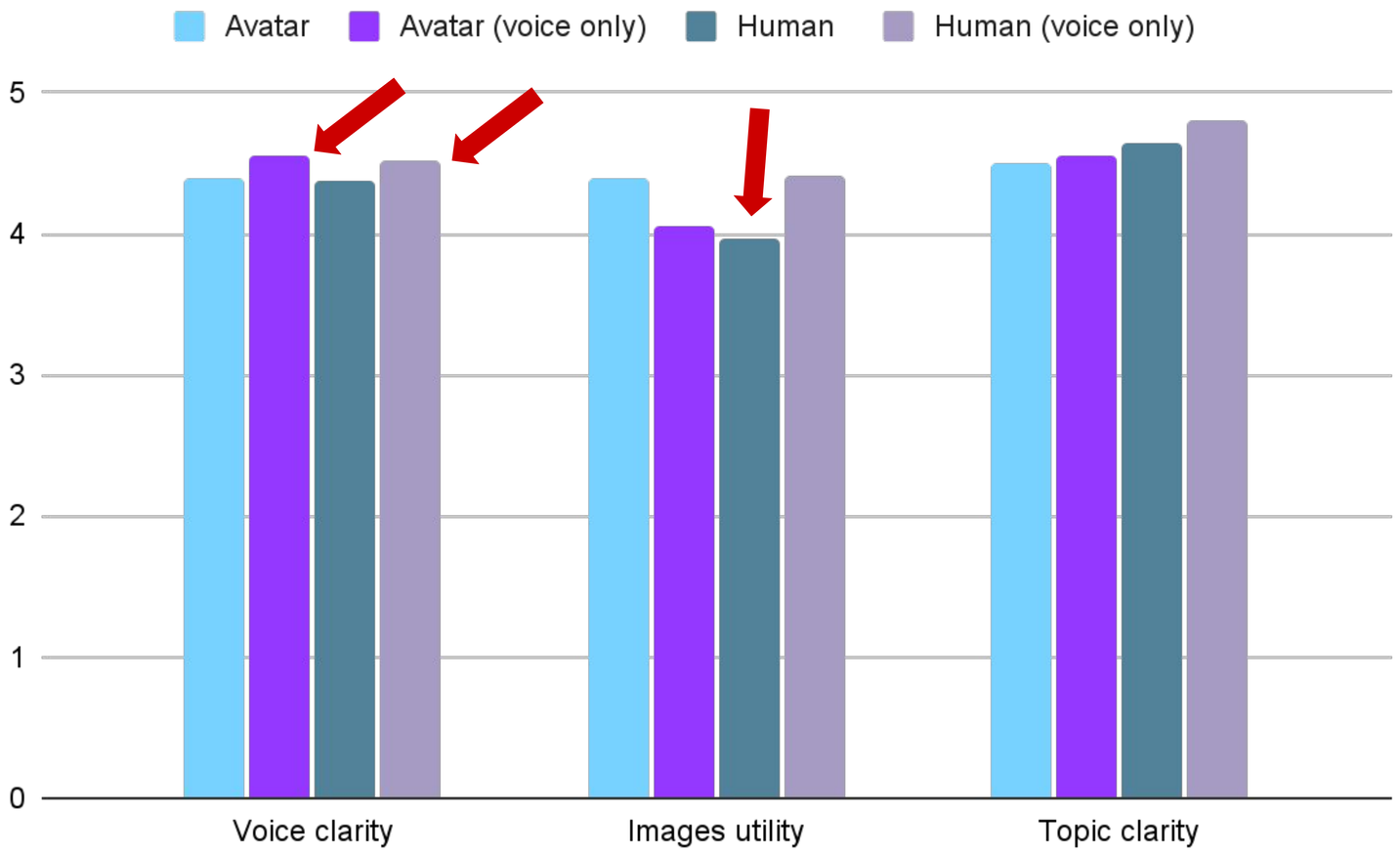
Results - Experiment 2



Results - Experiment 2



Results - Experiment 2



Results

- Clear prediction preference for human is not observed
- Clear Narration for all videos

- Slight Edge for Human Voice with Graphics though (more evident in experiment 1)

Explaining the Results

Video Quality

High production quality across all formats may have minimized differences

Audience Characteristics

University populations may respond differently than other demographics

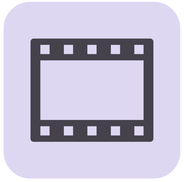
Content Complexity

Accessible content reduced cognitive overload

Digital Familiarity

Participants' comfort with technology increased acceptance of artificial formats

Theoretical background



Voice principle of Mayer that
suggests a preference for natural human voice is confirmed though AI voice and avatar is advancing

Avatar Research

- Zhang, R., & Wu, Q. (2024). Impact of using virtual avatars in educational videos on user experience. Scientific Reports, 14(1), 6592. nature.com

Netland (2024): equivalent learning outcomes

Zhang and Wu's 2024 study on virtual avatars in educational videos published on Nature scientific reports (2024)

More recent studies, such as by Zhang and Wu in 2024, specifically investigating virtual avatars in educational videos, have found that factors like the avatar's expressiveness and the technical quality of the video positively influence learning, emotional experience and user engagement.

Factors affecting learning and engagement:

- Avatar expressiveness (AI doesn’t understand what he’s saying)
- Video quality
- Content difficulty

Future Research Directions

Replicate with larger, more diverse samples.

Incorporate objective learning outcome measures (pre/post tests).

Investigate impact of varying content complexity and types.

Thank you

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