

Children's Perception on LLM-driven Voice User Interfaces

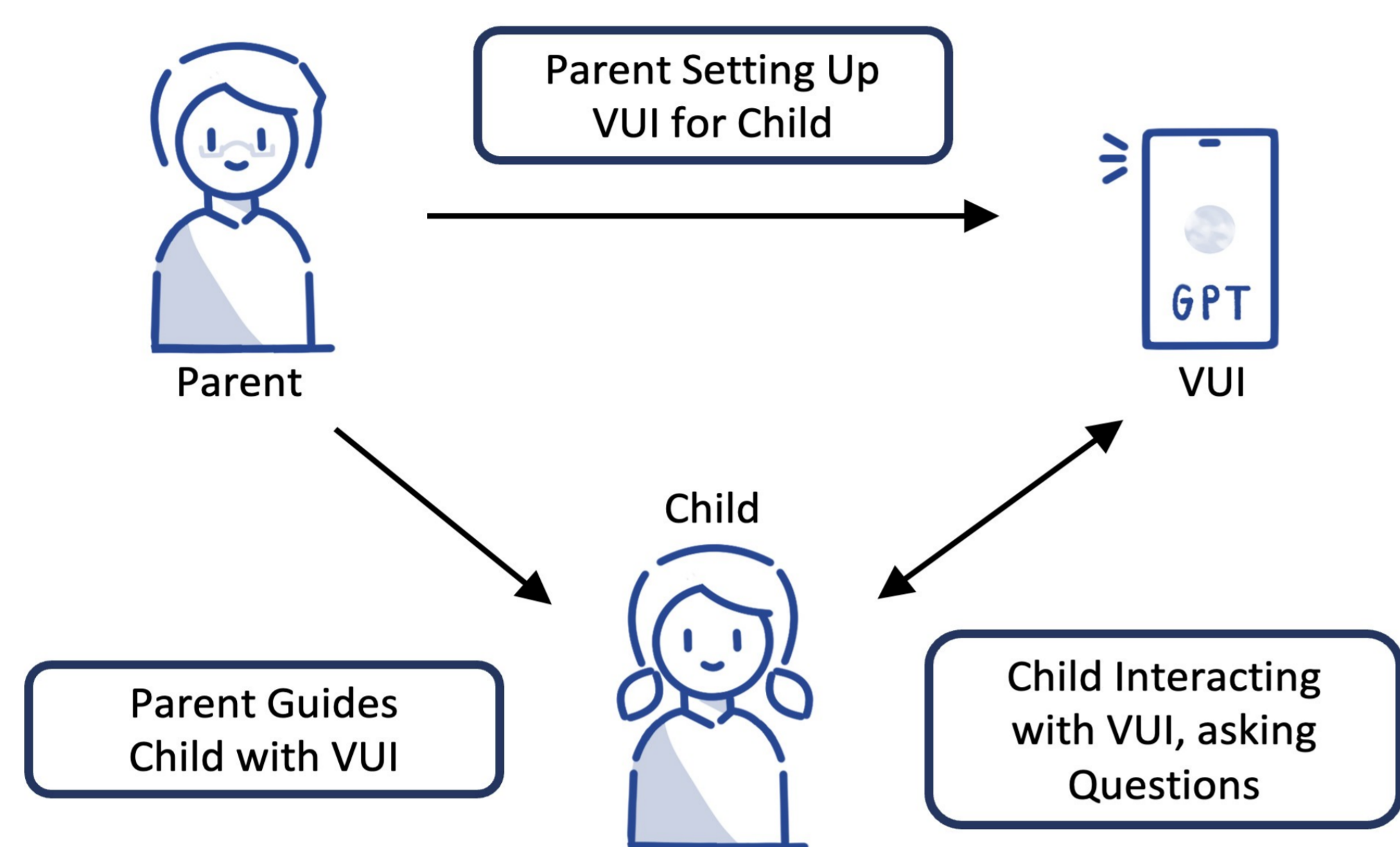
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Objective Large Language Models (LLMs) are implemented in many smart devices, accessible for any kind of user. Children use LLMs such as ChatGPT for knowledge building while those systems are not designed specifically for them [1]. To overcome this, Voice user interfaces (VUIs) with integrated LLM's can be more suitable for young users with limited reading and writing skills. However, its benefits in educating children depends on the acceptance and trust of the users and its ability to hold a convincing conversation. Parents play here a guiding role, making sure their children have safe and secure access to the system. In the following we want to express some questions and ideas on the topic of Children-VUI-Interaction for educational purposes and how LLMs shape this kind of interaction.

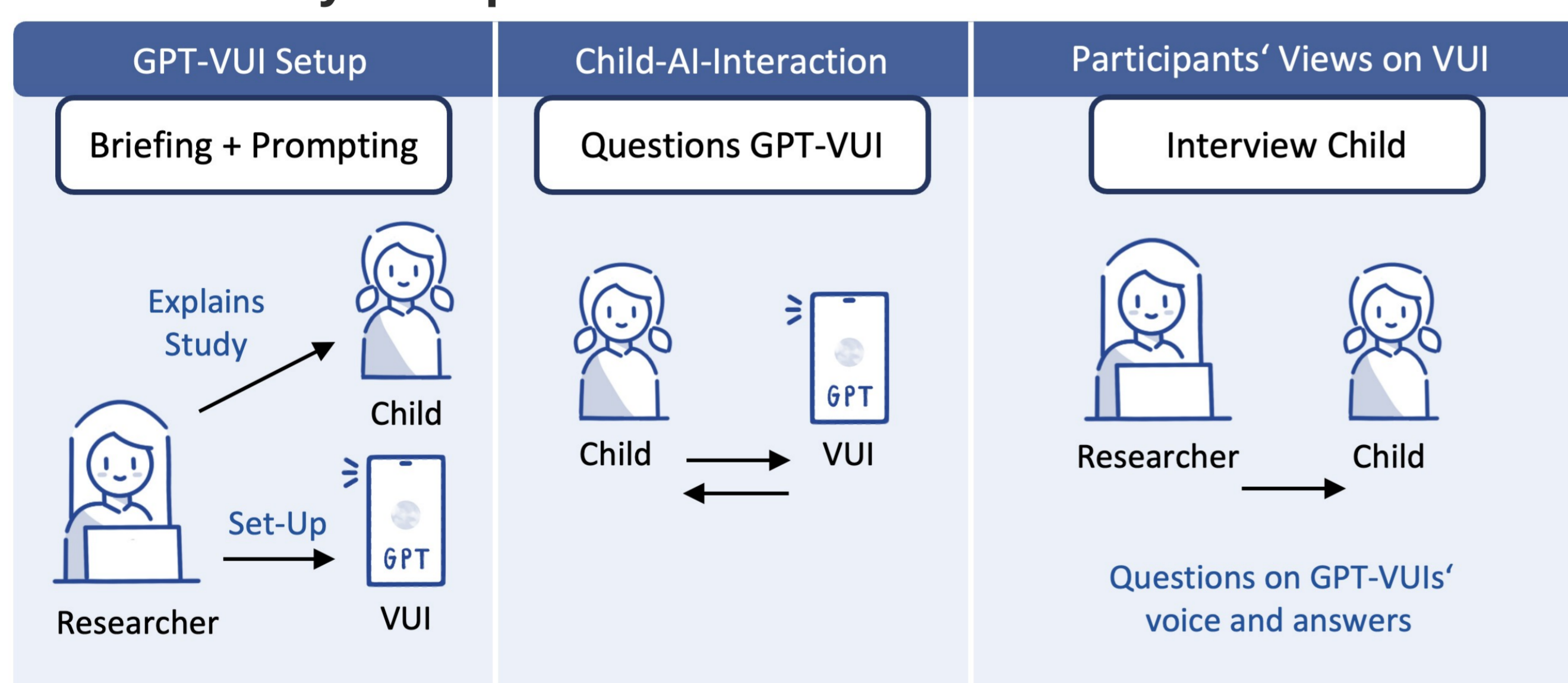
Child-Parent-VUI-Interaction, the ideal scenario and actors' relations:



Possible Approach

- Observe how children (age group elementary school) interact with VUI on different educational topics and how parents guide their children during that interaction
- Test different conditions: Voice Profile, how children ask questions (prompting)
- LLM-VUI such as ChatGPT's advanced voice mode (GPT-VUI, known amongst many people) has different voice profiles, children can be asked which they prefer especially in terms of co-agency

Possible Study Set-Up



How do children perceive GPT-VUIs' voice?

Has the voice profile chosen any impact on the children's likelihood of using a VUI again for educational purposes?

How does GPT-VUIs' answers shape the children's decision making process?

Children's perception of the LLM's might help us to point out possible key factor and designing **child-friendly, educational VUI's**.

Is it helpful for the children's knowledge acquisition and decision making process for the voice to be...

What are key factors which enable higher trust in a LLM-driven VUI?

- human-like
 - robotic
 - no impact at all? → do they care for its voice profile?
- What are the children's preferences?



Does it improve the interaction and learning process of children with the LLM, if its voice sounds more human or more robotic?

Implications of children humanizing the VUI It might impact decision making of children whether to believe answers.

How do children decide whether the LLM's output is truthful?

Children may risk of engaging in a "pseudo-conversation" without actually realizing it [2].

The **parents' role** in this interaction beyond providing and managing the LLM-VUI for the children should be also considered:

How do parents guide their children with their GPT-VUI usage?

Further thoughts:

- Children might not have the needed expertise to evaluate the LLM's output, especially when spoken to them.
- Future design of LLM-driven VUI's could be tailored to children's needs, with insights from future research on childrens perceptions of LLM's, VUI's and their learning behavior with these new technologies
- Parents should be included in the design process of such AI's, as well as briefed in how to provide them to children in a secure way.

References (Excerpt)

- 1 Emiliania Murgia, Zahra Abbasiantaeb, Mohammad Aliannejadi, Theo Huibers, Monica Landoni and Maria Soledad Pera. „ChatGPT in the Classroom: A Preliminary Exploration on the Feasibility of Adapting ChatGPT to Support Children's Information Discovery." *Adjunct Proceedings of the 31st ACM Conference on User Modeling, Adaptation and Personalization* (2023).
- 2 Ying Xu, Stacy Branham, Xinwei Deng, Penelope Collins and Mark Warschauer. "Are Current Voice Interfaces Designed to Support Children's Language Development?" *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (2021).

Ethical Considerations

Children are accompanied by their parents throughout study runs; parents are encouraged to ask questions and guide their child if needed. Sessions are audio-recorded with informed consent. Participation is voluntary and can be withdrawn at any time without consequences.