The TAAP Framework: Trust Through Accuracy, Accessibility, and Privacy in Generative AI for Blind and Low-Vision Users

Protik Dey, Mohd Saifuzzaman, Taslima Akter
The University of Texas at San Antonio, San Antonio TX, 78249
protik.dey@my.utsa.edu
(210) 723-9668

Introduction

- Generative AI (GenAI) systems are increasingly integrated into everyday tasks such as information seeking and decision-making.
- For blind and low-vision (BLV) users, this growing adoption means GenAI often becomes a primary interface for accessing information.
- As a result, **trust** in these tools depends not only on **accuracy** and **privacy**, but also on whether the system is **accessible** enough for users to get the best out of them.

Research Gaps and Questions

Research Gaps

- Existing trust research in GenAI focuses on sighted users and assumes visual verification.
- Little work examines how accuracy, accessibility, and privacy jointly shape trust among BLV users.

Research Questions

- RQ1: What factors influence trust in GenAI tools among BLV users?
- RQ2: How can we design future trustworthy GenAI tools for BLV users?

Methods

- Semi-structured interviews with **19** BLV participants
- Participants used ChatGPT, Google Gemini, Meta AI, Be My AI, Seeing AI, Aira, etc.
- Data analyzed using reflexive thematic analysis.
- Interview focused on lived experience of users' trust, privacy, accessibility of GenAI tools and design recommendations.

The TAAP Framework

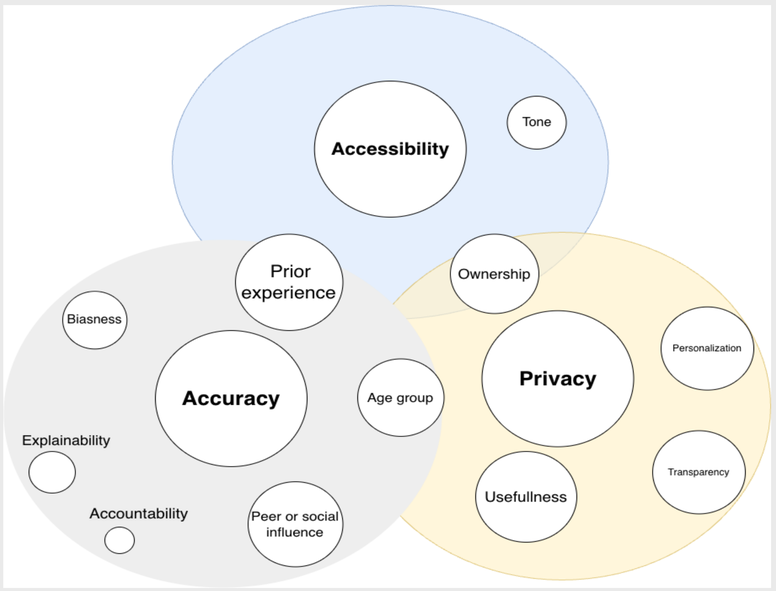

Fig. 1. The TAAP framework: Illustrating how trust in Generative AI among blind and low-vision users is shaped by three core pillars: accuracy, privacy, and accessibility

- Trust is shaped by three interdependent pillars:
  - **Accuracy**: reliability and verification of output
  - **Privacy**: control over personal and sensitive data
  - **Accessibility**: ability to perceive, interact with, and evaluate GenAI systems.

Key Findings

- Blind and low-vision users exhibit **calibrated trust**, actively verifying GenAI outputs rather than relying on them blindly.
- **Accuracy is not always about correctness.** Accuracy is judged through experience and task context.
- Privacy concerns are negotiated against independence and convenience.
- Accessibility acts as a **gatekeeping factor**, when systems are inaccessible, users abandon them before trust can form.

Design Implications

- Treat accessibility **as trust prerequisite**, not a usability add-on.
- Accessibility mode for BLV users.
- Explicitly communicate uncertainty, failure, and system limits through non-visual cues.
- Provide transparent and understandable privacy practices.
- Adapt GenAI behavior based on task risk and context.

Future Work

- Apply TAAP framework to multimodal and agentic AI systems.
- Design and evaluate GenAI prototypes informed by TAAP to validate the framework.

Conclusion

- Trust in GenAI among BLV users emerges from the intersection of accuracy, accessibility, and privacy.
- TAAP shows these factors must be evaluated together, not in isolation.
- Designing and evaluating GenAI systems through TAAP can improve real-world, inclusive AI use.

References

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