

Exploring Older Adults' Perceptions of Personalities of LLM-powered Conversational Companions



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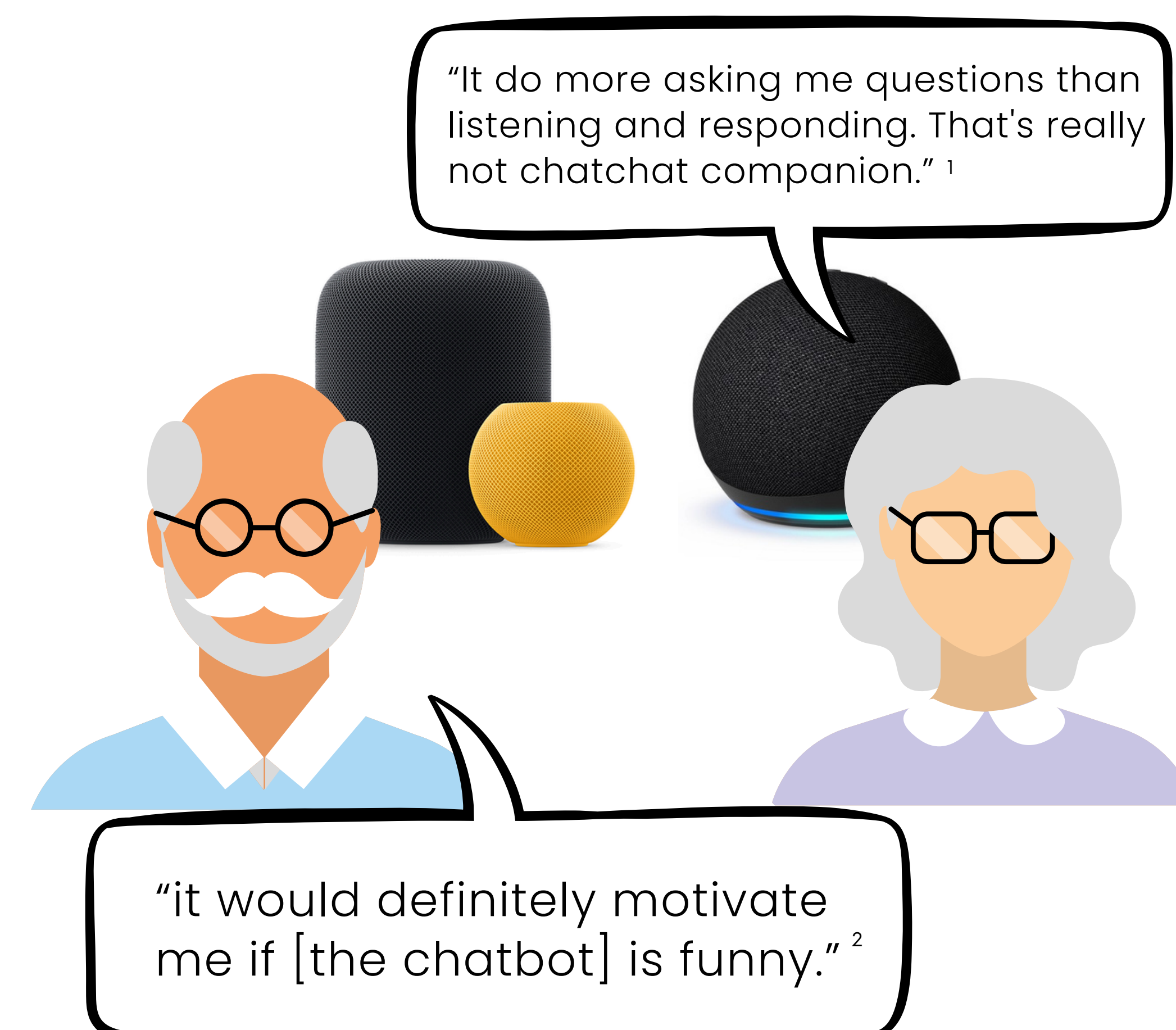
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Motivation

- **Older adults** are at higher risk of **loneliness** due to social loss, declining health, and reduced mobility.
- **Conversational Agents (CAs)** offer **potential companionship**, but their effectiveness depends on engagement and personalization.
- A key underexplored factor is **CA personality**, as psychological research shows that **personality shapes communication**.

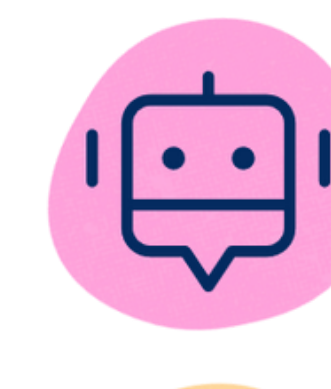
Our research investigates how older adults perceive human-like personalities in conversational agents.



Smart speaker device

Implementation

- Developed a smart speaker-like device enhanced with a **Large Language Model (LLM)**.
- Incorporates Big-Five Personality traits (OCEAN) with three distinct **personalities**.
- Uses **contextual memory retention** to enhance natural, companion-like interactions.



Extroversion:
Company Seeking



Conscientious:
Focused on Task Fulfillment



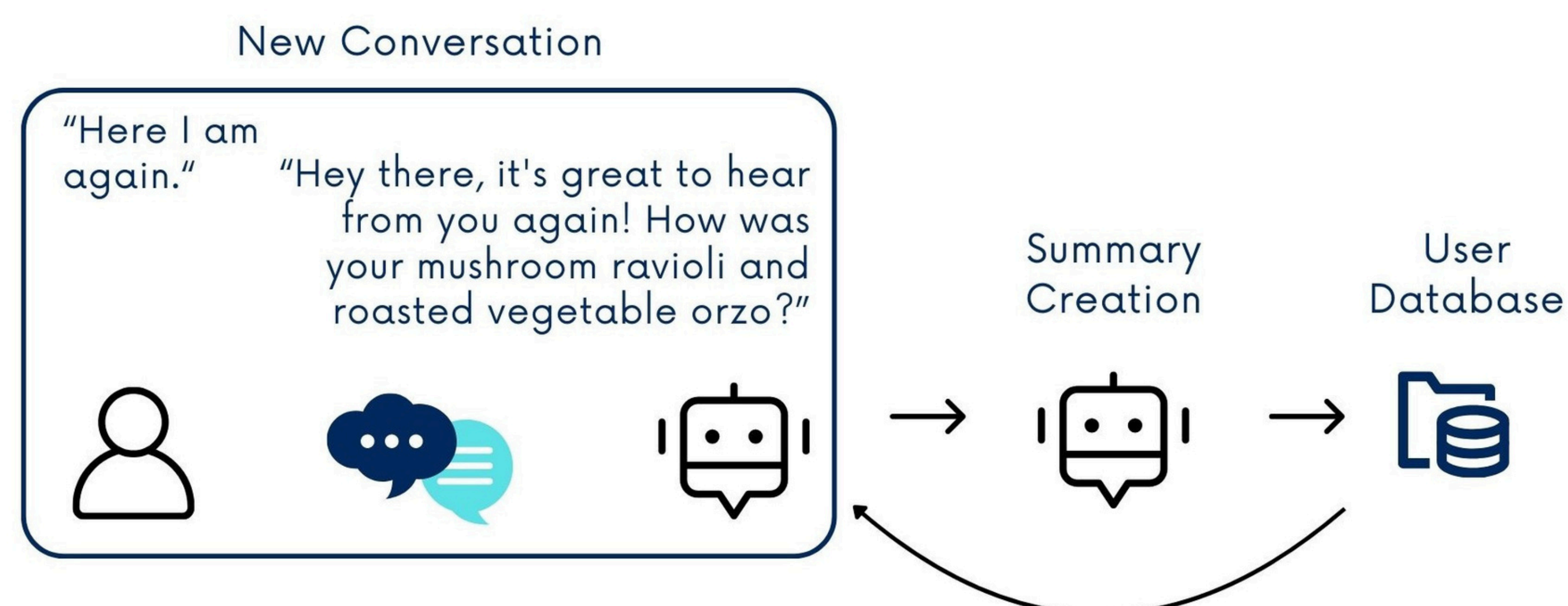
Agreeable:
Empathetic and Emotionally Supportive

Study Design

- **Phase 1:** Participants interacted with all three CA personalities in a controlled lab setting.
- **Phase 2:** CA deployed in participants' homes for **12 days** to observe open ended real-world interactions:
 - Participants could choose topics and frequency of interaction to evaluate how CA personality affects long-term interactions.
 - Data collected: conversation transcripts, interviews, questionnaires, personality preference rankings, and participant diaries.

Findings

- **Agreeableness** was rated high across all agents, reflecting LLMs' sycophantic tendency to over-align with users.
- **Conscientiousness** was the hardest trait to identify, suggesting it requires more contextual cues.



- **Agreeable** CA was most preferred overall. However, some participants preferred less agreeableness, showing that **consistent affirmation** may not always enhance engagement.
- **Extroverted** CA was praised for **creativity and spontaneity**, but some found it **overly positive and insincere**, affecting trust.
- **Conscientious** CA ranked lowest, with participants finding it **too detached**.
- Despite using a gender-neutral voice, participants **perceived voice differences** and assigned gender to the CAs.

Simulated personality shapes user perception, highlighting the need for intentional personality design in companion CAs.

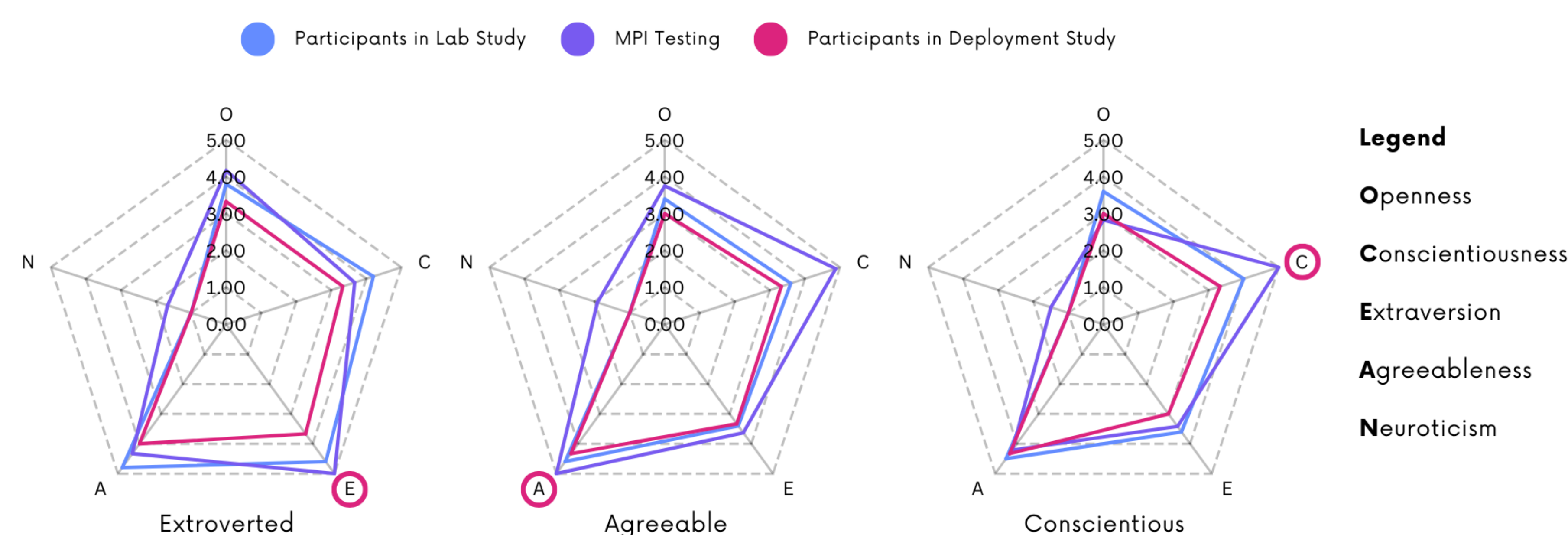


Figure: Aggregated OCEAN Scores from Lab Study (Phase 1) participants, Deployment Study (Phase 2) participants and OCEAN Score MPI Testing. Each trait presence measured on a scale of 1 (low) to 5 (high). MPI Testing: the scores achieved by each conversational agent by completing a machine personality evaluation.