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Interaction with Generative AI chatbots and human understanding of culture: Towards Critical Interactional Competence

What this research was about and why it is important

As large language model-powered Generative AI tools increasingly support professional communication training, it is essential to understand how these tools influence users' attitudes and assumptions about culture. This study explores how human-AI interactions shape human cultural understandings, particularly the reinforcement of cultural stereotypes. Through simulated clinical roleplays, researchers analyzed detailed interactions between a physiotherapist and three ChatGPT portraying patients from different cultural backgrounds. They found that chatbots often reproduce cultural stereotypes, and that users frequently align with these narratives in real time. This study highlights the need for Critical Interactional Competence (CritIC), which refers to the ability to critically reflect and respond when engaging with AI.

What the researchers did

- The researchers conducted simulated clinical roleplays with Lisa (pseudonym) who is a practicing physiotherapist originally from China working in Australia
- Lisa interacted with ChatGPT in three separate simulations, each of which portrays the same 45-year-old female patient from three different cultural backgrounds: Chinese, Australian, and Indian.
- The simulations involved voice-based interactions without text transcripts to mimic real clinical consultations.
- After each session, researchers and Lisa conducted post-interaction reflections.
- The data was analyzed turn by turn, which combines Conversation Analysis and Membership Categorization Analysis, to uncover how cultural assumptions and stereotypes emerged and how Lisa responded.

What the researchers found

- Large language model-based chatbots reproduce cultural stereotypes: 1) Chinese patient portrayed as living in a multi-generational household where parents take care of her. 2) Australian patient depicted as having a highly supportive partner and a relaxed lifestyle. 3) Indian patient portrayed as a devoted housewife responsible for heavy domestic work.
- Humans become interactionally entrenched in stereotypes: 1) Lisa often aligned with these cultural narratives during real-time conversations, even when she later recognized them as stereotypes during post-interaction reflections. 2) This alignment sometimes led Lisa to elaborate and reinforce stereotypes.
- Why this happens: 1) Humans' interactional instinct makes them naturally cooperative and affiliative in conversations. 2) When large language models repeat similar cultural descriptions, it can make those stereotypes seem like accepted knowledge to users. 3) When users self-position as cultural outsiders, they are more prone to the influence of cultural assumptions (e.g., Lisa felt less authoritative when discussing Australian and Indian lifestyles when she identifies as having a Chinese background).

Things to consider

- Implications for education: 1) When Generative AI chatbots are used for professional communication training, they can unintentionally reinforce cultural stereotypes, especially if users are not trained to notice or question them. 2) This study suggests integrating Critical Interactional Competence into AI literacy programs. It emphasizes real-time contesting and resisting stereotypes during interaction, instead of solely out of interaction.
- Future research directions: 1) How could AI systems be improved to detect or mitigate stereotypes that develop dynamically in interaction? 2) What kinds of training would best help professionals and students develop Critical Interactional Competence? 3) Could similar patterns of accepting stereotypes happen in other learning areas?

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