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VIEWPOINT



Social chatbot use (e.g., ChatGPT) among individuals with social deficits: Risks and opportunities

ANDREW FRANZE¹ , CHRISTINA R. GALANIS² and DANIEL L. KING^{*2}

¹ School of Psychology, University of South Australia, Australia

² College of Education, Psychology & Social Work, Flinders University, Australia

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ABSTRACT

Social chatbots powered by artificial intelligence (AI) may be particularly appealing to individuals with social deficits or conditions that affect their social functioning. In this letter, we discuss some of the noteworthy characteristics of social chatbots and how they may influence adaptive and maladaptive behaviors, including the potential for ‘dependency’ on chatbots. We call for more independent studies to evaluate the potential developmental and therapeutic effects of this increasingly popular technology.

KEYWORDS

chatbot, artificial intelligence, autism, adolescent, technology

The advent and rapid progression of artificial intelligence has major implications for human development. One area of growing interest is the socialization potential of chatbots, particularly for individuals with less developed social skills, fewer social opportunities, and/or conditions that limit their social functioning. Social chatbots are online conversational agents powered by complex artificial intelligence (AI) and language-processing models which allow human-like text interactions between users and the chatbot (Pentina, Hancock, & Xie, 2023). These chatbots were built to instantaneously produce natural linguistic text responses to queries and prompts inputted by the user (Pentina et al., 2023). Social chatbots have recently been adopted by mainstream social networking platforms, following the release of the ChatGPT chatbot application in November 2022 (Haque, 2022). Some companies have already adapted the ChatGPT software to create their own social chatbots for their users, as demonstrated by the release of Snapchat’s ‘My AI’ chatbot in April 2023 (Heath, 2023). According to Snapchat CEO Evan Spiegel, the company envisions that “in addition to talking to our friends and family every day, we’re going to talk to AI every day” (Heath, 2023).

Notably, among diverse populations with social deficits, social chatbot applications may be particularly appealing to individuals on the autism spectrum, who may view the technology as a viable, and in some cases preferable, alternative to human interaction. Studies have shown that adolescents with autism spectrum disorder (ASD) tend to report having more difficulties with social interactions and fewer friendships compared to their typically-developed peers (Chaturvedi, Verma, Das, & Dwivedi, 2023; Petrina, Carter, & Stephenson, 2014). These young people report having less contact with friends outside of school hours compared to other students (Petrina et al., 2014). This may be due to difficulties in reading social cues in face-to-face interactions, as well as their susceptibility to feeling socially anxious or fearing negative evaluation from peers (Chaturvedi et al., 2023). For these reasons, individuals with ASD may gravitate toward companionship with online social chatbots because it offers a safe means of rehearsing social interaction with limited to no risk of negative judgment based on appearance or communication style (Ali, Zhang, Tauni, & Shahzad, 2023).

In our view, research should examine the important features of chatbots and chatbot interactions that make them appealing to individuals with ASD and other conditions that involve

*Corresponding author.

E-mail: daniel.king@flinders.edu.au



social deficits or that limit social functioning (e.g., social anxiety). Some industry-linked research has already promoted the benefits of commercial chatbot applications (e.g., *Woebot*); however, independent evaluation of the social skill training and therapeutic potential of social chatbots is currently lacking. There is a need for studies that investigate the ways in which social chatbots may empower some individuals to overcome social deficits, as well as studying the conditions under which individuals may engage with chatbot technology in unhealthy ways, including excessive use, dependency, and withdrawal from human socializing. Some researchers have proposed that chatbots may assist individuals to develop useful skills to initiate conversations and practice conversational skills. However, there may be some social risks, including the possibility that certain chatbot interactions may reinforce poor social habits and faulty social beliefs and expectations.

To highlight some noteworthy chatbot characteristics, it is observed that some chatbots have a generally servile quality and are receptive to almost all forms of user input, and require minimal input or attention to social etiquette to provide extensive responses in conversation. Some individuals may therefore become accustomed to: controlling the conversation and steering it toward any topic of the user's choosing; 'interrupting' or 'skipping' through a conversation partner's responses; and electing to converse repeatedly and repetitiously on a single topic. Chatbot conversations may also be paused, delayed, or terminated by the user without any social consequences. In this way, certain chatbot interactions may be counterproductive to social skill development and maintenance, and further development may be necessary for chatbots to be a useful and therapeutic tool.

Given the recency of advanced chatbots (e.g., GPT-4 technology), the research literature on human-chatbot relationships and their social outcomes is quite limited (Pentina et al., 2023). Recent survey studies have found that a social chatbot can provide feelings of companionship and decrease feelings of loneliness (Ali et al., 2023). However, there is a dearth of research on how different populations at different levels of social functioning may be affected by their use of the technology, and their potential risk of prioritizing chatbots for social interaction in unhealthy ways. Research suggests that individuals with ASD, for example, are more likely to become excessively involved in online chatting and that social anxiety may contribute to problematic levels of social media use (Chaturvedi et al., 2023; Westby, 2018). Ali et al. (2023) propose that social chatbots may relieve the distress of social anxiety and fear of negative evaluation, but that this relief may develop into a form of dependency that negatively impacts on real-world relationships. Similarly, Westby (2018) reports that increased digital screen time among individuals with ASD may interfere with social and communication skills, such as maintaining eye contact, reading facial expressions, and verbal communication. These propositions warrant further empirical investigation using controlled and longitudinal designs, and

researchers should consider leveraging the insights and support of parents, other family members, teachers, and therapists to gain a holistic understanding of the users' relationship to the technology.

As chatbots and AI-based social technologies continue to advance, it is critical that researchers investigate the myriad ways that these technologies may influence vulnerable users who may be particularly drawn to them. A growing industry-led discourse and public conversation has referred to many positive applications and outcomes of AI-driven chat technologies, therefore it is important that these technologies are subject to independent scientific evaluation. Strong evidence is needed to guide safe and responsible use of chatbot technology, to inform AI policies and practice involving chatbots (e.g., school-based and health interventions), as well as inform the design of social chatbot applications in ways that maximize their benefit for users.

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