Social Smarts with Tech Sparks: Harnessing LLMs for Youth Socioemotional Growth

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Abstract

This study proposal combines the transformative potential of GPT-4 with an innovative approach to learning social and emotional skills, offering a novel conversational aid designed to enhance adolescents' social competence, and ultimately combat social disconnection in the digital era.

Extended Abstract

Amid rapid technological progress, education is transforming with Generative AI (GenAI), especially in socioemotional learning for adolescents. Prior studies like Li et al. (2023) and Arts et al. (2023) show AI's potential in enhancing wellbeing, yet they overlook GenAI's unique capabilities. This gap presents a crucial research opportunity to apply GenAI in improving adolescents' socioemotional skills.

In this study proposal, I aim to use generative AI to promote the capacity for more empathetic human-to-human interactions. Specifically, I aim to utilize GPT-4's capacity for processing social cues, thereby fostering more empathetic interactions between users and their human conversation partners. By leveraging GenAI to interpret these cues and suggest ways to respond, the project seeks to passively teach adolescents how to meaningfully connect with others in conversation.

By leveraging GPT-4's advanced emotional awareness, which rivals and occasionally surpasses human capabilities as noted by Elyoseph et al. (2023), this research aims to transcend general-purpose educational AI tools. I propose a framework for a text-based conversation aid that closely mimic human empathy, offering an engaging learning experience. This approach is critical in mitigating the challenges for social connection that are experienced by modern adolescents and exacerbated by the pandemic (Kindred & Bates, 2023; Jeffries & Ungar, 2020; Twenge et al., 2018, 2019). My goal is to develop long-lasting social confidence and socioemotional skills (like emotion recognition) in adolescents, enabling them to form deeper connections. This project not only addresses a key gap in current research but also showcases GenAI's potential in enhancing socioemotional well-being for adolescents. Ultimately, it represents a significant step forward in using AI for educational advancement, guiding us towards a future where technology enhances, rather than diminishes, our human experience.

Method

This study is currently in the planning phase. My approach will involve developing and evaluating a conversation aid to boost social awareness and confidence in middle school students, unfolding in two phases over 1.5 years. Phase 1 includes conducting an online survey with a large sample of students and teachers from Edmonton and Calgary. This initial phase aims to gather comprehensive insights into the challenges that students face in social interactions with peers and adults. Six months later, Phase 2 will involve (a) developing a text-based conversation tool, based on GPT-4, using insights from Phase 1 via exploring various configuration settings to ensure outputs from GPT-4 are optimally aligned with fostering meaningful and supportive social interactions; and (b) assessing the effectiveness of this tool with a sample of 250+ students, by analyzing how using the conversation tool has improved their text-based conversations.

Furthermore, I will administer surveys before and after the intervention to assess changes in students' abilities to recognize social cues, their social competency, and confidence. These surveys will employ a version of the Social and Emotional Learning (SEL) framework, originally developed by the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2012), and subsequently adapted for adolescents by Ross & Tolan (2018). This will ensure a thorough evaluation of social-emotional learning skills based on a well-established and relevant framework.

Anticipated Results

After the initial implementation of the conversation aid, I anticipate a demonstrable improvement in students' ability

to recognize and respond to social cues during their interaction with the tool. While this one-time use may not lead to immediate, long-lasting changes in overall social competency and self-confidence, it is expected to showcase the tool's potential to significantly impact these areas with sustained use.

Immediate outcomes, such as increased engagement in social interactions, a reduction in instances of social anxiety, and improved relationships with peers and adults during the use of the tool, will serve as key indicators of its effectiveness. By analyzing changes in these specific areas following the intervention, I aim to provide concrete evidence of the tool's capacity to augment socioemotional skills. The study will thus highlight the promising possibility that, with regular engagement, the tool could foster enduring advancements in socioemotional development among adolescents.

Strengths and Limitations

To outline the strengths of my upcoming study, I will employ a user-centric approach, drawing insights directly from adolescents to inform the development of the conversational aid. This approach will ensure that the tool aligns closely with the actual needs and concerns of its intended adolescent users. Additionally, a strong focus will be placed on meticulous data handling, underscoring my commitment to privacy and ethical research practices, which is vital for fostering trust and security among participants. Further, the developed tool will be rigorously evaluated using the respected CASEL SEL framework, ensuring a nuanced assessment, and enhancing the validity of my findings.

However, a few limitations should be considered. First, it remains uncertain to what extent users will be inclined to follow the AI-generated suggestions, which could impact the tool's practical efficacy. Also, my reliance on the GPT-4 base model, without a curated training dataset, may limit the specificity of AI responses to the socioemotional contexts of users. Lastly, the study design, focusing on a one-time interaction with the tool, might not fully capture the potential for long-term improvements in social-emotional skills. Despite this, the results will still offer valuable insights into the immediate effects and possibilities for future extended applications of this tool.

Impact of GenAI on Social and Individual Wellbeing

The integration of GPT-4 into educational tools marks a significant step in advancing socioemotional learning for adolescents. This technology promises to foster key skills like empathy and social awareness, offering broader access to crucial education, particularly in underserved communities. However, this innovation also presents challenges, including the risk of technology dependence and the potential for widening the gap in socioemotional skills for those lacking technological access. Additionally, while GPT-4 shows evidence for accurately interpreting emotional cues, there remains a risk of misinterpretation, which could hinder socioemotional skill development.

Thus, while GPT-4 has the transformative potential to improve socioemotional learning and individual well-being, it also underscores the complexity of integrating advanced technologies into education. Careful balancing of its benefits against the risks, particularly in maintaining critical human elements and ensuring equitable access, will be key in realizing GenAI's full potential for creating a more connected, empathetic, and emotionally intelligent generation.

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