Optimizing Ai Voice For Adolescent Health Education: Preferences And Trustworthiness Across Teens And Parent

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Abstract : Purpose: Effectively communicating adolescent health topics to teens and their parents is crucial. This study emphasizes critically evaluating the optimal use of artificial intelligence tools (AI), which are increasingly prevalent in disseminating health information. By fostering a deeper understanding of AI voice preference in the context of health, the research aspires to have a ripple effect, enhancing the collective health literacy and decision-making capabilities of both teenagers and their parents. This study explores AI voices' potential within health learning modules for annual well-child visits. We aim to identify preferred voice characteristics and understand factors influencing perceived trustworthiness, ultimately aiming to improve health literacy and decision-making in both demographics. Methods: A cross-sectional study assessed preferences and trust perceptions of AI voices in learning modules among teens (11-18) and their parents/guardians in Northern California. The study involved the development of four distinct learning modules covering various adolescent health-related topics, including general communication, sexual and reproductive health communication, parental monitoring, and well-child check-ups. Participants were asked to evaluate eight AI voices across the modules, considering a set of six factors such as intelligibility, naturalness, prosody, social impression, trustworthiness, and overall appeal, using Likert scales ranging from 1 to 10 (the higher, the better). They were also asked to select their preferred choice of voice for each module. Descriptive statistics summarized participant demographics. Chi-square/t-tests explored differences in voice preferences between groups. Regression models identified factors impacting the perceived trustworthiness of the top-selected voice per module. Results: Data from 104 participants (teen=63; adult guardian = 41) were included in the analysis. The mean age is 14.9 for teens (54% male) and 41.9 for the parent/guardian (12% male). At the same time, similar voice quality ratings were observed across groups, and preferences varied by topic. For instance, in general communication, teens leaned towards young female voices, while parents preferred mature female tones. Interestingly, this trend reversed for parental monitoring, with teens favoring mature male voices and parents opting for mature female ones. Both groups, however, converged on mature female voices for sexual and reproductive health topics. Beyond preferences, the study delved into factors influencing perceived trustworthiness. Interestingly, social impression and sound appeal emerged as the most significant contributors across all modules, jointly explaining 71-75% of the variance in trustworthiness ratings. Conclusion: The study emphasizes the importance of catering AI voices to specific audiences and topics. Social impression and sound appeal emerged as critical factors influencing perceived trustworthiness across all modules. These findings highlight the need to tailor AI voices by age and the specific health information being delivered. Ensuring AI voices resonate with both teens and their parents can foster their engagement and trust, ultimately leading to improved health literacy and decision-making for both groups.

Keywords : artificial intelligence, trustworthiness, voice, adolescent
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