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# Persuasive Embodied Agents Tailored to Users' Self-Esteem and Tendency to Self-Monitor

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## ABSTRACT

Gradually, individuals' first lives are becoming more *Second Life*-like. Embodied agents (EAs, i.e. avatars) are increasingly being employed in contexts such as e-commerce and recommender systems where persuasiveness, the ability to change an individual's attitude or behavior, is frequently a major goal. EAs have specific advantages over humans as persuasive sources. Because they are computer controlled, EAs allow for precise reproducibility of persuasion tactics. They also do not fatigue, get frustrated, or get discouraged when their efforts are not received by the other party. Given the potential for EAs, more research is needed to understand how the behavior of different individuals is influenced by EAs possessing varying characteristics.

One relatively unexplored application of EAs is in the interface of expert systems. The recommendations of many expert systems, though more accurate and objective than human judgment, go unheeded, especially when the system's recommendation contradicts the user's judgment. In this study, using the Elaboration Likelihood Model (ELM) as a guide (Cacioppo, Petty, & Stoltenberg, 1985), we investigate the persuasive power of EAs representing an expert system to change users' credibility assessments regarding the guilt of suspects accused of a mock crime. We investigate how an EA's similarity to users, authority, and common ground with the users influence the success of persuasion attempts by a system which always contradicts the user's initial assessment. The similarity treatment is implemented by morphing the participants' facial features (from a picture) into a base EA model. The base model serves as the low similarity treatment and the 50% morphed model serves as the high similarity treatment.

We also examine how users' self-esteem and tendency to self-monitor moderate the effects of these EA characteristics in persuading users to change their initial assessments. Self-esteem is defined as the general affective appraisal of one's own worth, value, and ability. Thus, when confronted with contradicting recommendations from an authority figure, high (low) self-esteem users of expert

systems are less (more) likely to incorporate the system's recommendation (*H1a*). However, based on the psychological principle of priming, when high (low) self-esteem individuals have their image reflected back to them, this creates more positive (negative) thoughts of self-worth and ability, which are attributed to the authority figure, and result in greater (less) confidence in the source's abilities and recommendations. Thus, high (low) self-esteem users should be more (less) persuaded by an expert system represented by an authority figure more similar to them than an authority figure less similar to them (*H1b*). The results of this study provide supporting evidence for both *H1a* and *H1b*.

The construct of self-monitoring was designed to "capture individual differences in the control of expressive behavior and self-presentation" (Leone, 2006, p. 634). High self-monitors rely heavily on their social environment to inform their actions and, therefore, should be more responsive to authority. In contrast, low self-monitors are less influenced by authority because they rely more on their own attitudes and beliefs. Thus, high self-monitors are more likely to be influenced by authority than low self-monitors (*H2a*). It has also been suggested that high self-monitors are more concerned about their own self-affect than they are with the positive affect of others toward them (Ickes, Holloway, Stinson, & Hoodenpyle, 2006). Thus, high self-monitors are more influenced by authoritative EAs more similar to them than by authoritative EAs less similar to them (*H2b*). This study provides supporting evidence for both *H2a* and *H2b*.

The results of this study suggest that aversion to authority in high self-esteem and self-monitoring individuals may be remedied by morphing those individuals' facial features into the EA with which they are interacting. This has interesting implications in virtual world and online settings where we can control the EA's looks. In training settings where aversion to authority may be present, this knowledge may also be useful. For example, in information security contexts, where there exists a growing need to understand how to change employees' insecure behavior, this study provides guidance on how to communicate requests for increased secure behavior to different individuals.