

Interactants' Most Intimate Self-Disclosure in Interactions with Virtual Humans

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1. Research Problem and Question

Recent studies have shown that virtual humans can facilitate social interactions among people who have difficulty in forming social bonds or help develop their social skills by interaction with virtual practice. Virtual human research tends to focus exclusively on appearance or behavior in assessing agent effectiveness, whereas other studies of human social interaction emphasize aspects of the social context, such as anticipated future interaction (AFI) which has been implicated as a key moderator of people's behavior in virtual interactions. It has been reported that anonymity [2] or interactants' AFI with their interaction partners [4,5] have a critical role in entailing greater self-disclosure. However, no studies of virtual humans have investigated the impact of the combination of interactants' visual appearance and AFI on their social responses, specifically revealing their intimate information. In this study, we examined the impact of different visual realism of virtual humans and interactants' AFI on interactants' self-disclosure, when their anonymity is secured and future interaction may be anticipated.

2. Experimental Design

The basic experimental design is a 2 (visual realism) x 2 (AFI versus No AFI) factorial between-subjects experiment involving two factors: i) two levels of visual realism of virtual humans – a human video avatar and an animated drawing (Rapport Agent); ii) two conditions of future interaction – anticipation of future interaction and no anticipation of future interaction. One hundred and eight subjects (50% male, 50% female) from the general Los Angeles area participated in this study. The paired participants were randomly assigned to one of four experimental conditions in the 2 x 2 design. The interaction took place in two separate rooms where the paired participants (a subject with a confederate or the Rapport Agent in each interaction) were placed at different times, to avoid any initial face-to-face contact. Subjects were asked to complete a pre- and a post-questionnaire. In the interaction sessions, the subjects were given a hypothetical conversational scenario that could stimulate subjects' intimate self-disclosure. The confederate or the Rapport Agent was an interviewer who asked ten questions requiring self-disclosure of the subject [3]. The typical conversation was allowed to last about thirty minutes, but subjects were not informed of any specific time limitation.

To generate the avatar movement of the human video avatars, a web-cam (Logitech QuickCam Orbit MP) captured subjects' facial expressions. To allow video chat conversation, video conference software (Skype) was used. For the animated drawing avatars, we utilized the Rapport Agent, an embodied virtual agent, created by Gratch and his colleagues [1]. The subjects were informed that the Rapport Agent was an avatar controlled by another subject.

For the measurements, we videotaped subjects' verbal responses to answer their most common sexual fantasy[♦] [3]. Two coders rated intimacy of interactants' verbal responses. Scales ranged from 1 (not intimate at all) to 5 (very intimate).

3. Preliminary Results and Conclusion

The results of Chi-Square Tests showed the proportion of interactants with AFI (No intimate information: 12.4%, Intimate information: 38.0%) was significantly different from the proportion of interactants with no AFI (No intimate information: 21.5%, Intimate information: 28.1%) in revealing their intimate "Common Sexual Fantasy" (Continuity Correction = 4.01, $p < .05$), whereas the results revealed no significant difference between the proportion of a human video avatar and the one of the Rapport Agent for interactants' intimate self-disclosure.

The results of Two-way between groups ANOVA showed no significant main effect of visual appearance of interaction partners [$F(1,104) = .37$, $p > .05$] or interactants' AFI [$F(1,104) = 2.86$, $p > .05$] on intimacy of interactants' responses which was rated by two coders, although the coders assigned slightly higher scores overall to the Rapport Agent condition compared to the other condition.

In conclusion, some of the outcomes support the conclusions of previous studies [4,5] and could provide a way of designing social interactions in which people need to reveal their personal information, such as psychotherapy or social skills training. However, data analysis of behavioral measures is in progress. Thus, we would like to hold our conclusion until we complete our data analysis of other behavioral measures that were designed to investigate people's verbal self-disclosure and nonverbal behaviors of rapport in this study.

References

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[♦] This question was one of ten intimate questions that were designed to stimulate people to reveal personal information and were asked to subjects in this study. The analysis of the other answers is in progress and not included in this paper.

Acknowledgments. This work was sponsored by the U.S. Army Research, Development, and Engineering Command and the National Science Foundation under grant # HS-0713603. The content does not necessarily reflect the position or the policy of the Government, and no official endorsement should be inferred.