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The Role of Design Characteristics in Enhancing Social Presence

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ABSTRACT

This paper reports on a study that examined the effects of two design characteristics on enhancing perceptions of an online virtual advisor's social presence. Anchored in the media richness theory (Daft and Lengel, 1984), we hypothesized, and the results confirmed that the use of expressive speech acts by the virtual advisor significantly enhances perceptions of the advisor's social presence. On the other hand, the effects of endowing the advisor with a humanoid representation and a human voice failed to reach statistical significance. The results of this study suggest that internal characteristics manifested by the advisor are more influential in affecting perceptions of its social presence.

METHOD AND RESULTS

The study employed a 2*2 factorial design that corresponded with the following two factors: 1) expressive speech acts: whether used or not, and 2) embodiment and communication modality: whether the advisor had no physical representation and communicated via text or an animated avatar that communicated via human voice.

Subjects were randomly assigned to interact with one of four online virtual advisor designed to help customers in choosing skin care products. Although the main objective of this experimental task was for subjects to familiarize themselves with the virtual advisor, additional incentives were provided to ensure that the task is taken seriously.

During the task, the virtual advisor asked the subjects a series of multiple-choice questions that are used to determine a customer's skin care needs. After the shopping task, participants were asked to evaluate the virtual advisor.

The four treatment advisors differed in whether they used expressive speech acts (first factor), and in their use of voice and 3-dimensional humanoid avatar representation (second factor). The first treatment advisor communicated through text and had no physical representation. The second advisor used a human voice and was represented by a 3-dimensional avatar. The third advisor communicated through text and used expressive speech acts. The fourth advisor communicated via voice and was represented by an avatar, and used expressive speech acts.

The mean scores and standard deviations for social presence in each treatment group showed high variation. An Analysis of Variance (ANOVA) was conducted to check whether the two treatment factors (the use of expressive speech acts, and the use of voice and humanoid representation) exerted any effects on perceived social presence. The results revealed that only the use of expressive speech acts had a positive and statistically significant effect on perceived social presence ($F = 10.89$, $p < 0.01$). The use of voice and humanoid representation did not have a significant effect on increasing social presence, albeit the means were in the hypothesized direction.

CONCLUSION

This study examined the effects of the virtual advisor representation and use of expressive speech acts on perceptions of its social presence. Surprisingly, the results failed to confirm a significant effect of the advisor's representation on its social presence. This could be attributed to the small sample size. The observed effect was in the predicted direction, and past research has previously confirmed this effect (Qiu and Benbasat, 2005). Yet, and more interestingly, the effect of the use of expressive acts were significant and much larger. This indicates that internal characteristics are more instrumental in affecting perceptions of social presence; a notion that has been proposed in literature (Cowell and Stanney, 2005).

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