

The influence of virtual coaching on social presence and motivation in home fitnessing

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Objective

Many people try to improve their health by exercising at home with fitness devices, yet often find it difficult to remain motivated. We explored whether the application of a virtual coach would aid motivation. We focused on effects of the coach's appearance and communication style on the motivation and social presence experienced by the users.

Method

The experiment followed a 2x2 within-subjects design. Twenty-four participants cycled through an interactive virtual landscape, projected in front of them, using a stationary exercise bike with tracked handlebars. Participants received feedback on measured heart rate through a text message or a graphic animation of a female virtual coach in a corner of the screen, with a voice-over of the message. Also, the communication style of the message varied between 'directive' (e.g. 'your heart rate is too low, cycle faster'), and 'non-directive' (e.g. 'this is your heart rate' with a graphic heart-rate indication).

After each of these four conditions participants completed the Intrinsic Motivation Inventory, measuring factors as 'interest/enjoyment' and 'perceived control'. After conditions with a virtual coach, participants also completed a custom-made questionnaire on social presence.

Results

We found a marginally significant interaction effect of appearance x communication style on interest/enjoyment, favoring the non-directive virtual coach (REMANOVA, $F(1,23)=3.39$, $p=0.08$). Further, we found significant effects on perceived control: a main effect of appearance, favoring the virtual coach ($p=0.02$) and a marginally significant interaction effect with communication style, favoring the non-directive virtual coach ($p=0.09$). In addition, we found that the coach's social presence increases with a directive communication style (Paired T-test, $p<0.009$).

Conclusion

We found indications that a virtual coach helps to enhance motivation in home fitnessing, but its perceived control and social presence depends on its appearance and communication style.