# (14) When low spatial ability does not get you "there" in 3D virtual environments, but agents jump out "here" to change your attitudes.

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## Abstract

An experiment explored the relationship between interface interaction style and individual differences in spatial ability and involvement on levels of presence. The study also explored the relationship between levels of presence and changes in attitudes and learning. All interfaces delivered the same public health information about high blood pressure. The health information pages were presented via one of three different interface styles: (1) magazine-style traditional interface, which served as a control, (2) an interpersonal interface using a conversational agent, and (3) a 3D virtual environment.

The interpersonal agent interface produced more (engagement) presence than did a 3D spatial and magazine-style (control) interface. It was also seen as more realistic. This suggests that interaction with simple intelligent entities may more engaging than interaction with uninhabited 3D environments or textual environments.

A surprising result was that the 2D conversational agent interface produced significantly higher levels of spatial presence than did the interface with a 3D virtual environment. The results also suggest that users with low spatial ability may have found 3D spatial interfaces to be cognitively demanding.

Consistent with findings from the e-commerce and health communication studies, presence is related to attitudes towards the environment (site) and attitudes towards the sponsor-creator of the site. Consistent with a model that presence is influenced by shifts in attention and spatial updating; the relationship was stronger for the more attention related dimensions of presence (engagement), than for spatial presence, which was not correlated with attitudes.

There were no significant relationships between presence and learning of non-spatial information about blood pressure. Not surprisingly, a report of negative experiences with the interfaces was correlated with decreased learning.