

Collaboration: Collaboration in tele-immersive environments

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Abstract

This paper describes a study of remote collaboration between people in a shared virtual environment. Seventeen subjects were recruited at University College London, who worked with a confederate at University of North Carolina Chapel Hill. Each pair was required to negotiate the task of handling an object together, and moving a few metres into a building. The DIVE system was used throughout, and the network support was Internet-2. This was an observational study to examine the extent to which such collaboration was possible, to explore the limitations of DIVE within this context, and to examine the relationship between several variables such as co-presence and task performance. The results suggest that although the task is possible under this framework, it could only be achieved by various software tricks within the DIVE framework. A new Virtual Environment system is required that has better knowledge of network performance, and that supports shared object manipulation across a network. The participant-study suggests that co-presence, the sense of being together with another person, was significantly and positively correlated with task performance.