

Videoconferencing in a collaborative environment: Do partial gaze awareness and shared workspace make a difference?

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Abstract

The goal of this study was to better understand the effects of partial gaze awareness and shared virtual workspace on dyads' performance and feeling of social presence. 80 participants took part in a 2 x 2 factorial experiment. The following factors were considered: (1) partial gaze awareness - tested with one or two computer screens to display the videoconferencing application and the cooperative application, and (2) shared virtual workspaces. Participants had 35 minutes to solve an optimisation problem. They were located in different rooms and communicated by means of videoconferencing systems and distributed – CSCW application. No significant main or interaction effect of partial gaze awareness was observed on social presence or performance. Similarly, there was no significant main or interaction effect of shared workspace on social presence or performance. However, average social presence was higher for group with two screens and partially shared workspaces than for group with two screens and fully shared workspaces.

Introduction

Systems for videoconferencing can be considered as cooperative technology supporting distributed and synchronous interactions among people (Baecker et al. 1995). As argued by O'Conaill et al. (1993), the idea behind the development of systems for audiovisual communication is to allow geographically remote users to gaze, use gesture, and improve the ability to monitor people's reactions. Videoconferencing technologies have the potential to facilitate frequent high-quality interaction between distant sites, and thus improve the quality of collaboration. For Isaacs and Tang (1994), visual contact is important in cooperative activities. It is used to express understanding, forecast responses, enhance verbal descriptions with gestures, convey purely non-verbal information, express attitudes in posture and facial expression, and manage pauses in speech. In this sense, it has the potential to enhance the degree of salience of another person in an interaction and the resulting salience of interpersonal relationship. This corresponds to the definition of social presence adopted by most researchers (Tu, 2002).

In D. de Waard, G.R.J. Hockey, P. Nickel, and K.A. Brookhuis (Eds.) (2007), *Human Factors Issues in Complex System Performance* (pp. 423 - 432). Maastricht, the Netherlands: Shaker Publishing.