

Joint and Self-Focused Attention in Computer-Supported Collaboration - the Role of Gaze Visualisation

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Following another person's gaze to a new focus of visual attention creates a situation of joint attention (Carpenter et al., 1998). Joint attention is possible to achieve if the conversation partners have the ability to inhibit their self-perspective (Samson et al., 2005). To fully engage in the process of collaboration, gaze communication enables a transition from a self-focused perspective to focusing on another person's gaze direction. Gaze visualisations provide solutions to attach directing attention to crucial information during computer-supported collaboration (Zhang et al., 2017). However, it remains unclear if gaze visualisation could reduce difficulties in reaching joint attention among self-focused people. In our study, participants pre-screened by Self-Consciousness Scale (SCS-R) solve two tasks requiring mutual problem solving and joint visual search in two conditions and in two experimental settings. We use a within-subjects experimental design $2 \times 2 = \text{Setting} \times \text{GazeVis}$. The setting is divided into a co-located and a remote computer collaboration, while the collaboration is enhanced with or without the partner's gaze visualization. While the data collection is on-going, we hypothesise that (1) more self-focused attention is correlated with the level of achieved joint attention, (2) gaze visualisation enhances joint attention, as well as efficiency and (3) gaze visualisation, is more effective in remote setting compared to the co-located setting. Regardless of the outcome, our results will contribute to a greater understanding of the role of gaze communication in computer-supported collaboration within different settings and kinds of tasks.

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