On the relationship between physical distance, communication style, and team situation awareness. Preliminary results and implications for collaborative environments

Marco Camilli, Sara Coletta, Alessandra Talamo, & Francesco Di Nocera
University of Rome "La Sapienza"
Italy

Abstract

The concept of Situation Awareness (SA) has captured the interest of many Human Factors professionals and researchers who were interested in the dynamic interaction between human operators and technological systems. However, others have responded to this construct with a great deal of scepticism. Indeed, SA definitions often neglected a careful standardisation of "external" elements, events, interactions, goals and behaviours that may be closely related to different degrees of situation awareness. Recently, researchers have been challenged to shift their focus from individual SA to team situation awareness (TSA) or shared SA (SSA) within teams of operators. Indeed, the increase in bandwidth and the availability of collaborative technological tools led towards a large use of teams in working environments. The study here introduced represents a first step towards a methodological approach to define SA and TSA by taking into account the functionality (or salience) of system's elements and their geometrical features in a Command and Control (C2) scenario. The electronic version of the strategy board game "Risk!" has been used as task in the experimentation. This chapter describes the development of a unique measure of TSA obtained by contrasting individual SA assessment, and a study aimed at investigating the relation between strategies, communication, collaborative system features and TSA.

Introduction

Knowledge and understanding of dynamic environments is supported by what has been defined "situation awareness" (SA). About four decades ago, military research started addressing this topic in order to better understand the pilot's behaviour in the critical context of air battles. The construct of Situation Awareness has been much investigated in several highly specialised fields such as Air Traffic Control (ATC), military Command and Control (C2), Human-Machine Interaction (HMI), military and commercial aircraft piloting, infantry combat, and air battle, therefore confirming the usefulness of SA research in designing complex systems (e.g. aircraft cockpits) and in testing humans behaviour in critical context (e.g. air battle).

In D. de Waard, J. Godthelp, F.L. Kooi, and K.A. Brookhuis (Eds.) (2009). *Human Factors, Security and Safety* (pp. 41 - 62). Maastricht, the Netherlands: Shaker Publishing.