

Collecting battlefield information using a multimodal personal digital assistant

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Abstract

In a Network Centric battlefield, the information available for analysis and distribution is limited by the information collected from the environment. We examined how soldiers collect information from the battlefield using a multimodal Personal Digital Assistant (PDA) containing five options (modalities) for data collection: photo, video, icon, text, and audio. Twenty male Polish soldiers completed a simulated reconnaissance mission in a virtual environment during which they were commanded to collect information using the PDA. Results indicated that soldiers were more likely to use a single modality than a combination of modalities and were more likely to use photos and videos than the other modalities. The audio-visual properties of the events had a small influence on modality choice, but only to the extent that transient were captured more quickly. In general, participants appeared to adopt a minimalistic interaction style, one possible explanation is that soldiers chose instead to invest greater effort in observation and threat detection than in data collection. Within a networked environment, the pattern of data collection has system-wide implications regarding situational awareness and decision making. The pattern of data collection observed in the current research applies to other similar domains such as search and rescue, and disaster management.

Introduction

The project ‘Smart Information for Mission Success’ (SIMS) aims to improve military Force Protection planning, execution, assessment and training by delivering a proof of concept system to support the dissemination of battlefield information (Duistermaat, et al., 2011). A necessary pre-cursor to information dissemination is information collection. Consistent with the Every Soldier is a Sensory (ES2) concept (U.S. Army, 2008) the process of information collection within SIMS is completed in-part by regular soldiers within a platoon or company. A defining feature of the ES2 concept is that *all* soldiers are expected to observe critical battlefield details and to report their experience, perception and judgements (U.S. Army, 2008).