

Digital memory cabinets: reviving the Art of Memory for augmented cognition

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Abstract

Observation tasks, such as terrain analysis in military missions, can be characterised by an overload of potentially important information, time pressure and uncertainty about the meaning and importance of information. The use of sensory and cognitive functions should be augmented to support such task performance and training. This paper proposes to combine ancient ideas with new technologies in order to realise this augmentation. The ancient ideas come from the Greek: the "Art of memory". This art enables someone to memorise loci (locations) and images imprinted on his or her memory. The Art of Memory provides a particular indexing mechanism that enables people to use loci and images. In the Renaissance, devices like cabinets were developed as an external memory aid for storing loci. New technology could create "digital memory cabinets", tools in which the memories of an observed situation can be stored and retrieved in a meaningful way in the form of verbal and non-verbal patterns.

Introduction

Scouting and exploring terrain and situations are important military tasks. Observers in peace missions, image analysts of unmanned vehicles, analysts of thermal images, and decision makers at command posts, gathering and analysing information from different sources, are examples of functions in which data gathering, analysing and decision-making are key elements. These tasks can be characterised by an overload of potentially important information, time pressure and uncertainty about the meaning and importance of information. Moreover, observers and their commanders have to decide which elements are to be reported and remembered and which ones are not important and can be forgotten. This last aspect is the most difficult one. All kinds of details may look unimportant at first sight, but together they may have a meaning.

Military personnel are usually trained to perform these tasks in a systematic, analytical and deductive manner. For example, NATO has long lists describing terrain elements in a standardised manner. However, human perception works differently. Humans perceive in a holistic way, perceiving patterns that give

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