

# Attention switching and mental workload in a modern traffic control centre

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## Abstract

The purpose of this investigation was to compare operator workload with “video wall” and console displays in a traffic control centre. A secondary-task methodology was used in combination with subjective ratings of workload. Also investigated were the efficacy of a uni-dimensional (effort) scale in comparison to the multidimensional NASA-TLX rating instrument, and the effects of the distribution of workload within a session on perceived workload. Although many operators committed more errors and reported higher workload with the video wall compared to the console-based displays, these differences were not significant. Ratings on the uni-dimensional workload scale were moderately correlated with NASA-TLX ratings. Effects of the distribution of workload on subjective measures of load were influenced by the order of the conditions in a second experiment.

## Experiment 1

In a traffic control centre huge amounts of information are collected and relayed to a team of observers for decision making and control operations. In an effort to support integration of that information, traffic control centres in the Netherlands use “video walls” to present overviews of traffic information. The traffic control centre in Oudenrijn, The Netherlands, recently remodelled their facility, installing a combination of one video wall and banks of console-based displays, and changing the distribution of tasks between the video wall and consoles. The purpose of this investigation was to explore the basis of complaints of higher mental workload and potential distraction with the combination of video wall and console displays.

## Method

### Subjects

Ten operators (average age = 31, sd = 8.1) at the Oudenrijn Traffic Control Centre volunteered to participate in Experiment 1.