Intrusion into Awareness of Words Unconsciously Registered in Visual Working Memory

Abstract

Evaluation and reaction of a scene means filtering through information to allow working memory (WM) processing for the perceived most important items. However, there is little known about (WM) processing in relation to unconscious states. In the past, unconsciously perceived shapes showed significant interference with visual working memory (VWM) systems (Underwood, 2018) but replication has not been seen. In this study, we seek to address possible impacts of language related unconscious loads on VWM. Language has previously been proven to be a fit model for measuring unconscious processing variables. It is suggested that mechanisms which are involved in working memory, such as reading comprehension, are highly active in unconscious states (Soto, Silvanto 2014). Thus, the unconscious to conscious spectrum of activation and higher-level cognitive processing seem to imply that language is a worthy indicator of unconscious states on the VWM threshold.

Our process includes creating binocular rivalry using a mirror stereoscope to produce conscious and unconscious visual letters to the participant. In each trial, the computer display will simultaneously show visible letters on one half of the screen and a distraction image, known as continuous flash suppression (CFS), overlaying invisible letters on the other half. In addition, some cases with the unconscious letters will spell a word to create higher cognitive interpretation. After the letters are presented, the participant will be asked to report change in target items to ensure working memory or accuracy, followed by an awareness report and feedback of recall performance.

We theorize that unconsciously perceived words will produce the most load and/ or will have the highest rate of awareness intrusion in VWM compared to non-significant letter patterns. These findings would not only supply further evidence for previous unconscious working memory projects, but it would also give rise to better understanding perceptual experience of social interaction.