

## The Psychological Processes of Mixed Valence Images: Emotional Response, Visual Attention and Memory

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### PURPOSE OF STUDY

The aim of this study is to investigate the interplay between visual attention, emotional response, and recall toward pairs of images of the same and mixed valence.

The current study conceptualizes emotional response as a multidimensional construct. Several researchers have organized a wide array of emotions by grouping them along the three-dimension theory of emotions as Pleasure, Arousal, and Dominance (PAD). To better understand the dimensions and applicability in marketing communications and advertising, and other related fields, the dimensions were redefined again as *Appeal*, *Engagement*, and *Empowerment* (AEE). Appeal is a feeling state of positive or negative reaction such that it constitutes extreme happiness to extreme unhappiness. Engagement determines the level of stimulation and involvement, which ranges on a physiological continuum indicating some level of physical activity at the arousal end of the continuum, with inactivity at the other end. Empowerment is a sense of control after being exposed to a stimulus, for example, an advertisement, and it refers to the feeling of control or influence one experienced versus the feeling of a lack of control or being unable to influence a situation.

The current study might be among the first effort to investigate the interaction between emotional response, visual attention, and recall in the setting of mixed emotional images. Particularly, the eye tracking data suggest that individuals tend to allocate more visual attention on the positive images that induce both high Appeal and high Empowerment when opposite valence images are present simultaneously. The physiological measure of eye movement transfers and represents in the emotional response. More importantly, both the visual attention and empowerment together predicts the recall. Therefore, Empowerment seems to have its unique role in physiological response and recall.

### METHOD

The researchers conducted a within subject experimental design, where participants viewed a total of seven pairs of emotional images. There were five pairs of mixed valence, while one pair of positive images and one pair of negative images served as control groups. Participants were randomly exposed to all of the seven pairs of images. Thirty-five undergraduate students were recruited to take part in a lab experiment. After calibration of the eye tracking device was successfully completed, a set of double images was randomly shown for 10 seconds. The images were then automatically replaced by AdSAM<sup>®</sup>, a measurement of emotional response. Participants were instructed to audibly report their overall emotional response to the pair of images they just saw. This procedure was repeated for each pair of dual images until all seven pairs were viewed.



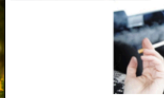



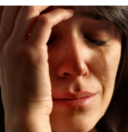

















Pair 1			Pair 2			Pair 3			Pair 4		
											
Appeal 8.06 (.80)	Engagement 5.49 (2.50)	Empowerment 6.11 (1.49)	Appeal 2.00 (1.46)	Engagement 6.06 (2.53)	Empowerment 3.00 (2.22)	Appeal 5.66 (1.63)	Engagement 4.91 (1.98)	Empowerment 4.89 (1.32)	Appeal 5.63 (1.35)	Engagement 4.54 (1.98)	Empowerment 4.86 (1.54)
Pair 5			Pair 6			Pair 7					
											
Appeal 4.97 (1.62)	Engagement 5.17 (1.86)	Empowerment 4.51 (1.85)	Appeal 3.54 (1.20)	Engagement 5.37 (1.63)	Empowerment 3.63 (1.70)	Appeal 6.26 (1.27)	Engagement 4.43 (1.99)	Empowerment 4.91 (1.36)			

Table 1. AdSAM scores for all pairs of images.

### HIGHLIGHTED RESULTS

- Mixed images received lower scores in Appeal and Empowerment than the positive-only images, but higher than the negative-only images.
- The results on visual attention showed that individuals were more likely to gaze toward the positive than the negative images when exposed to the mixed pairs.
- Longer gaze duration on positive images significantly predicted the increase in Appeal and Empowerment scores.
- The Empowerment dimension of emotional response coupled with Gaze Duration was a significant predictor of recall.