

Testing the Effects of Font Color on Memory Recall

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BACKGROUND

Color Benefits Overall Recognition

- In previous studies, the impact of color on remembering items has been researched heavily and most findings are consistent; color benefits overall recognition, especially in situations where objects have high color contrast (Moreno-Martínez & Rodríguez-Rojo, 2015).

Color Wavelengths

- Colors with long-wavelengths such as red induce high arousal whereas short-wavelength colors such as blue induce low arousal (Walters, Apter, & Svebak, 1982).

Exposure to Visual Stimulus

- A more recent article from 2014 found that students exposed to visually affective stimuli, which would induce feelings of arousal, achieved significantly lower results on vocabulary testing. In comparison, better recall performance was seen for those who were exposed to a neutral media stimulus (Çetin, Griffiths, Özel, & Kinay, 2014).

Positive and Negative Valence

- Earlier research found that words with positive valence are better recalled in a green font, and words with a negative valence are better remembered in a red font (Mammarella, Di Domenico, Palumbo, & Fairfield, 2016).

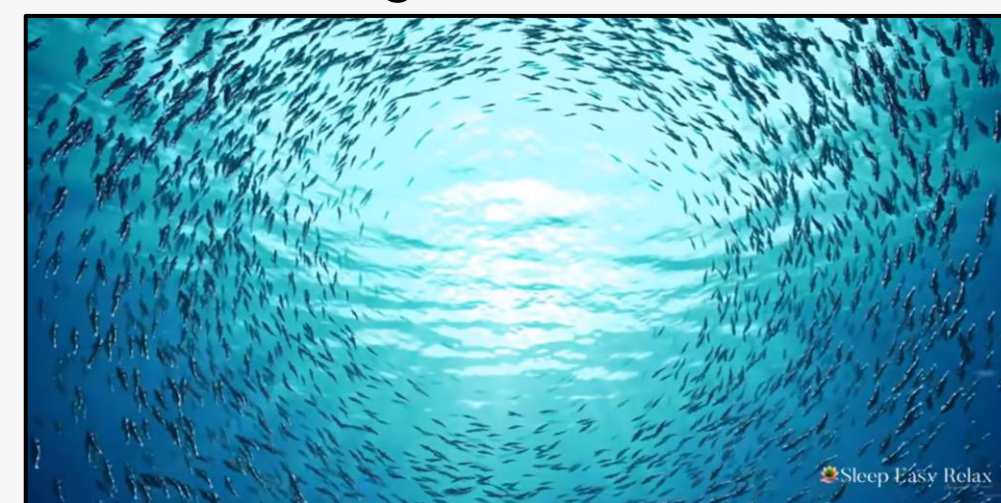
PROCEDURE

- Thirty people, age 18 and older (one-third males; two-thirds females), voluntarily participated in the study via an online platform.
- They were recruited from a population of friends and family who were readily available to be part of the study due to COVID-19.
- Researchers set up meeting times with participants over zoom which enabled the researchers to share their computer screen with the participant as well as monitor the participants actions.
- All participants viewed the same list of 36 words.

POSITIVE	NEUTRAL	NEGATIVE
Sunny	Fence	Abuse
Brave	Coach	Cancer
Happy	Toaster	Hate
Clean	Ocean	Alone
Fun	Recipe	Fail
Friend	Penny	Worry
Giving	House	Lost
Joy	Basket	Scared
Kind	Cord	Jealous
Lovely	Locker	Blood
Smile	Sphere	Broken
Nice	Taxi	Panic

- Instructed by the facilitator, participants then engaged in a task counting out loud, backwards from 100 by twos.
- Upon completion of the task, participants were given a visual stimulus for 15 seconds before having three minutes to recall the words and their color.
- The participants were randomly assigned to a visual stimulus: (1) placebo (white screen), (2) intense video (monster truck rally), and (3) calming video (underwater school of fish).

Calming Video Stimulus



Intense Video Stimulus



- After the three minutes were completed the facilitator instructed the participant to submit the response sheet attached and return to the initial email to fill out the Demographic Questionnaire.
- Finally, prior to the completion of the web-based video chat, the researcher read the debrief statement to the participant and concluded the meeting.

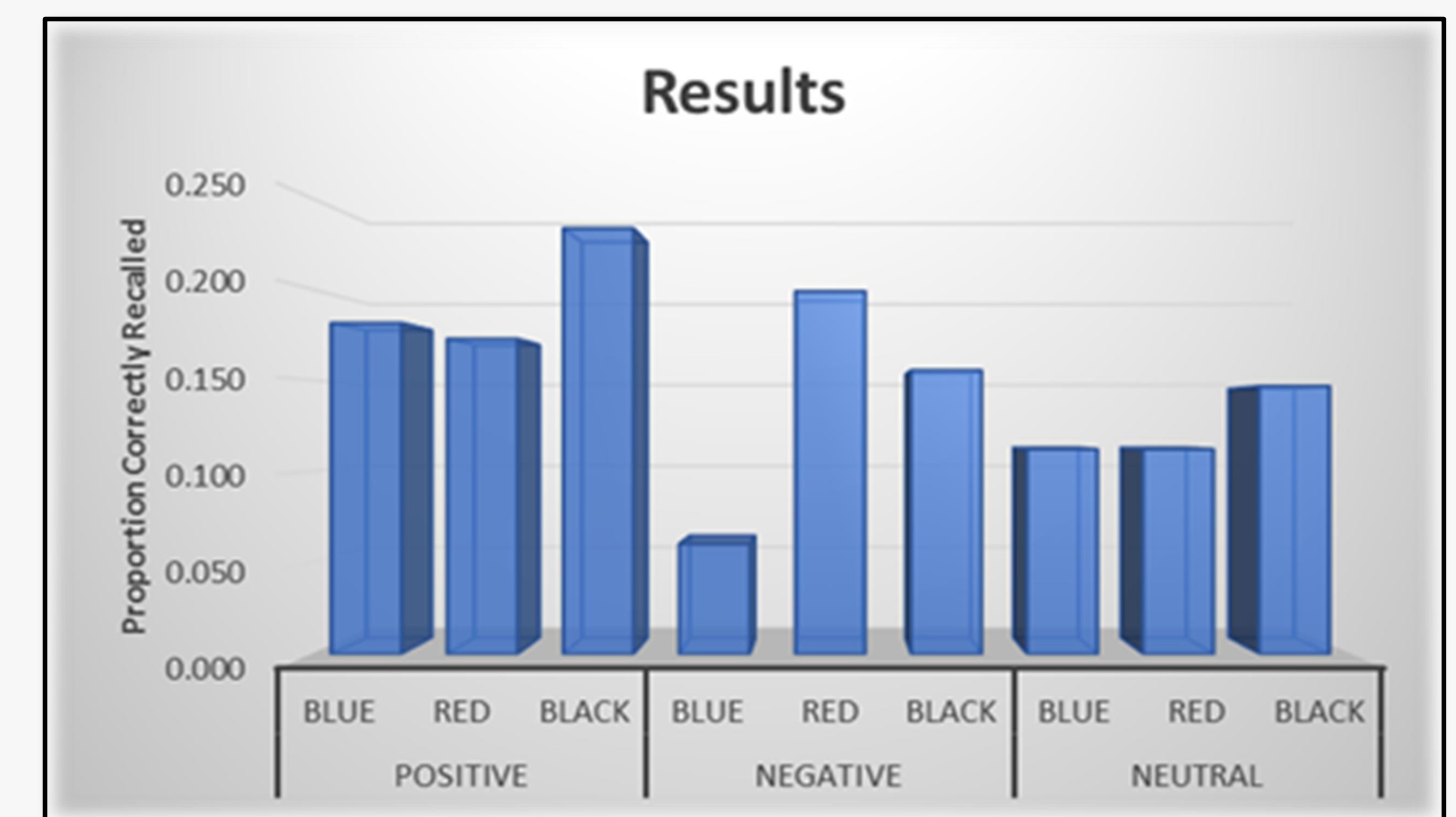
HYPOTHESES

- We hypothesize that positive words in red font will have the worst rate of recall due to the valence and the long-wavelength of the font color induces feelings of high arousal, which, when paired with an arousing video will have the worst recall.
- We also expected better rates of recall with neutral words in black font than negative words written in red.
- We also hypothesized that neutral words in black font paired with no video stimulus will have better rates of recall than red font words paired with an arousing video stimulus however worse recall rates than red font words paired with a neutral video stimulus.
- Lastly, we hypothesized that positive words in blue font will have the best level of recall because of the high level of valence in combination with the short-wavelengths of the color blue that will induce feelings of low arousal, which, when complimented with a calming video, will result in the highest level of successful recalls.

RESULTS

At the conclusion of our research, the results did not show a distinct cause and effect relationship between the combination of the various stimuli. However, several partial findings were discovered.

- There was a main effect of Valence ($p=.019$)
 - Overall, positive words (20%) were remembered significantly better than negative (14%) or Neutral (12%) words
 - However, the low Negative score was entirely due to an extremely low Blue Negative recall rate (5%)
- There was a marginal main effect of Color ($p=.054$)
 - Overall, Black (18%) and Red (16%) words were remembered significantly better than Blue (12%) words.
 - However, the low Blue score was entirely due to an extremely low Blue Negative recall rate (5%)
- There was a trend towards an interaction of Valence and Color, but this was not significant ($p=.147$)
 - Positive and Neutral valence words were remembered best when Black (23% and 15%, respectively), whereas Negative valence words were remembered best when Red (20%)



PURPOSE

The purpose of the proposed study was to determine the impact that various stimuli: font color, positive and negative valence, and exposure to a visual stimulus have on a memory recognition task.

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CONCLUSIONS

- While there was no effect of the video condition, there was an effect of valence (positive words were remembered best) and color (blue words were remembered worst—especially when in negative valence).
- Because of overlapping variables and small sample sizes, it was hard to determine the exact factors that contribute to memory recall.
- If the independent variables are studied separately in the future, then the variables that cause the greatest significance can be examined together.