The Effect of Color on Time Perception and Task Performance

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The Effect of Color on Time Perception

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Introduction

Time perception: a central neuropsychological function. Subjective time is affected by many different variables.

Prior Research

● Presence of red during cognitive task results in overestimations of time intervals, possibly due to the arousing properties of red (Shi & Huang, 2017)
● Red undermines cognitive and psychological performance and results in higher negative emotion (Elliot & Maier, 2007)
● Negative emotion results in overestimations (Matthews & Meck, 2016)

Purpose

● To examine the effect of color on time perception and task performance
● Measures of physiological and psychological arousal will be taken in order to test whether arousal mediates these relationships.
● To our knowledge, this is the first study to combine these variables in one experiment and to test for a mediating role of arousal.

Hypotheses

● Red will create overestimations in time intervals
● Red will impair task performance.
● Objective and subjective arousal will mediate these relationships.

Methods

Participants

● 21 participants recruited through SONA and approved social media posts
  ○ Mean Age: 21.4; SD: 3.5
  ○ 52.4% Male; 46.7% Female
  ○ 85.7% White
  ○ 52.4% Rowan Seniors

Procedure

● Participants Were Randomized to Red or Blue Category.
● Heart Rate Was Measured Continuously.
● Participants Completed the Above Maze Task and Responded to Manikin Scale and Demographic Questionnaires.

Baseline HR Measurement: 5 Minutes

Maze Completion

Manikin Responses

Demographic Information Responses

Recovery HR Measurement: 3 Minutes

Measurements

● Self-Assessment Manikin
  ○ Psychological Valence, Arousal, and Dominance
● Labscribe, IWorx Unit
  ○ Heart Rate Reactivity

Results

Mediation model was insignificant due to low sample size and assumption violations.

Several interesting relationships were found:

Discussion

Prior Research

● Red and overestimation of time perception not supported
● Negative emotion and overestimations of time perception not supported
● Negative emotion and worse task performance were supported.

Strengths and Weaknesses

● Three variables
● Sample size/Convenience
● HOV, Normality
● Faulty Equipment

Implications

● Color and time variance
● Age and arousal
● Negative Affect and Task Performance
● Negative correlation between time difference and dominance

Future Directions

● More complete research, better sample size, less convenient sample, better equipment
● Valence significance
● Better Task consistency
● Separate time measurement

References

