Attention Modulation By Learned Stimuli

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Introduction

Evidence indicates that in most cases, learning influences whether stimuli distract people from the task that they are trying to do. Knowing that a stimulus indicates the presence of a higher value reward in contrast to a lower value reward is able to increase attention. Knowing that a stimulus will lead to a high-value reward becomes more outstanding and gets our attention. A study on this can be done using an associative learning undertaking that employs learning about the connection between colors and bonuses as well as ways in which this affects the degree to which the different colors distract people from the task they are performing.

There have been efforts to illustrate and understand value-driven attention, and many studies that replicate and extend the value-driven captivation of attention have been accounted for in the past. There is a sequence of five studies. Anderson et al. (2013) demonstrated that reward-related attention addictions are not swayed by drug awards only but also by stimuli related to another type of reward. In another review, Anderson (2016) found that reward history affects attention. That is, attention can be driven by value, together with reward history directly influencing selection. Le Pelley et al. (2015) found that reward learning influences involuntary attention and visual oculomotor capture. Chelazzi et al. (2013) found that when a stimulus is highly rewarded, it may lead to a quicker and more accurate performance in the visual search task. In another research, Hickey & Van (2013) found that reward experience can prepare the demonstration of task-irrelevant features.).

In the design, a distracter stimulus was used to signal the presence of high rewards though it is not applicable to perform the task. The outcome that leads to people finding bigger interruption or destruction through stimuli that signal the presence of rewards is called value-modulated-attentional capture (VMAC). Using it is an exciting outcome as counterproductive – individuals earn fewer points as compared to if they ignore the reward-related color and are distracted by it.

The purpose of the study first is to examine whether having knowledge about stimuli that indicate good value rewards can alternate attention and divert the attention of those participating from the target undertaking. The second is to study if the VMAC effect score is correlated to the Audit measure score.

The attention of the participants was more on the distracter signal with a bonus trial as compared to the distracter signal with non-bonus trials. The score on the audit measure correlates to the VMAC effect score. The VMAC effect shows how having knowledge of the connection between rewards and stimuli makes the stimuli get our attention even if we are encouraged to ignore them.

Methodology

The study was a randomized experimental design involving 321 females

Stimuli

A black background represented the stimuli. Every trial had a fixation display containing a white cross placed at the center of the screen. It also served as a search display. A number of six shapes were positioned equidistantly around an imaginary circle. All shapes were grey in color apart from the distracter circle that was green, blue, pink or orange. The position of both the target together with the distracter in every trial was determined in a random manner. The feedback displayed the total points earned at the trial.

Participants

Students were 427, and 321 were females. The mean age was 19.3years and SD of 1.4years. The demographic survey was based on Gender, age and Handedness. AUDIT test was performed on all the participants to identify any individual who is likely to develop any alcohol disorder related to any

Hazardous use of alcohol.

Materials

A standard PC with a 23-in. monitor was used, and MATLAB

Psychophysics Toolbox extension

Procedure

Two colors that are either green, blue, orange or pink were assigned in a random manner as bonus colors together with non-bonus colors.

The study involved six blocks that contained a total of 48 trials. The number of trials was 268. The trials were presented in a random manner

Every block had 20 trials and contained a high-value colored circle that represented bonus trials. Low-value colored circles represented a non-bonus trial. The baseline trial was represented by all the circles that were colored with grey. The target shape determined how the participants responded, as their response was according to the direction of its line segment. Pressing C key meant horizontal while pressing M key meant vertical. Even if the response was correct but the RT is slower than 1000ms, no points were gained. Correct responses were equivalent to a single point for each m that is for RT that is below 1000ms. Bonus trials with ten times errors led to losing an equal amount of points. Performance medal was earned by receiving 10000 points. Bronze and elite were among the medals that could possibly be unlocked.

Bonus trials with ten times Errors led to losing the corresponding number of points.

Ten thousand points received was equal to a performance medal. Six possible medals ranging from Bronze to Elite.

Main Task

students were Instructed and could receive points for both fast and correct replies, which led to increased points and thus unlocked more models. Just 10% of participants reached the elite medal position. The connection between colors and rewards was communicated to the participants. Before starting the task, the participants answered some questions to confirm whether the instructions had been well understood and their ability to report the reward contingency color. Participants were informed of the number of points they had earned after every block to inform them of the number of points they had gained and the medals that were unlocked at every stage of the task. Before the students began the task, they had to answer questions to confirm the instructions were well understood and that participants were able to report the color of the reward contingencies.

After every block, they were told the number of points they had earned so far in the task and the number of medals they had unlocked. AUDIT questionnaires were also administered.

Data Analysis

The data that was analyzed was only from the major experiment. The first six blocks were used after the practice phase. The trials that had incorrect responses were disposed of. The mean of RT on correct trials of every student was computed to establish if the display had a distracter with a high value or low value. Proof of VMAC was inspected by comparing the means of participants through a paired sample of t-test. The VMAC count or score of every student was calculated by subtracting the RTs of distracter trials with low values from RTs on distracter trials with high values in big VMZC scores value tries responded slowly compared to trials on low-value. It was determined whether there was a correlation between VMAC and the sum of all items.

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