The Impact of Adding Stressors to a Video Game on Ability to Focus

Dustin Sullivan and Sarah Scibelli

December 5, 2024

Abstract

This study aims to view the ways adding a timer changes the behavior of the human eye's focus and gaze, the way the human brains' reward system interacts with it, with the addition of stressors in an environment where they could obtain a reward. Participants are told they will be given a reward if they last longer than a timer while playing the game "Snake". This is done as a method to engage the participants' reward-system to enhance focus prior to starting the game.

1 INTRODUCTION

Engaging in activities influenced by human-driven behavior is fundamentally reward-seeking, a principle extensively supported by psychological and neuroscientific research. The human brain is wired to prioritize behaviors that lead to rewards, whether tangible or emotional, shaping our attention and decision-making processes. However, the interplay between this reward-seeking mechanism and external stressors is complex and has far-reaching implications for understanding human focus and gaze patterns. Stress, for instance, has been shown to alter cognitive and physiological responses, including the mechanics of eye movement, such as gaze direction, fixation duration, and attentional shifts. These responses are crucial in deciphering how the brain prioritizes information under varying conditions.

Past studies on eye tracking have shed light on the intricate connections between visual attention, decision-making, and the reward system. Research has demonstrated that eye movements can serve as reliable indicators of cognitive processes, reflecting how individuals allocate attention based on perceived rewards. For instance, studies involving reward-driven saccades have shown that the anticipation of rewards can enhance the speed and accuracy of eye movements, emphasizing the role of motivation in shaping visual behavior. Additionally, research has examined how stress impacts these processes, revealing that heightened stress levels can disrupt normal gaze patterns and impair reward sensitivity.

This study aims to build on these findings by exploring how the dual influence of incentives and stress affects human focus and gaze behavior. In an era marked by increasing challenges to sustained attention, particularly with the prevalence of conditions like ADHD, understanding this dynamic is critical. The insights gained could contribute to developing strategies for enhancing focus and mitigating the adverse effects of stress on cognitive performance. By bridging the gap between the reward system and the mechanics of human gaze, this research has the potential to deepen our understanding of the brain's response to complex stimuli and inform interventions for improving attention in both clinical and everyday contexts.

2 METHODS

2.1 Participants

[blank] participants were recruited for this study.

2.2 Experimental Setup

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Figure 1: This frog was uploaded via the file-tree menu.

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Table 1: An example table.

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2.3 Task

Each participant was required to play a game called java script snake. Participants were told to play for as long as possible until their character died in the game. If the participant was part of the experimental group, they were also tasked to try and keep their character alive for 5 minutes to win a prize.

2.4 Experimental Design

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2.5 Procedure

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2.6 Data Analysis

LaTeX is great at typesetting mathematics. Let $X_1, X_2, \ldots, X_n$ be a sequence of independent and identically distributed random variables with $\mathrm{E}[X_i] = \mu$ and $\mathrm{Var}[X_i] = \sigma^2 < \infty$, and let

$$S_n = \frac{X_1 + X_2 + \cdots + X_n}{n} = \frac{1}{n}\sum_{i}^{n} X_i$$

denote their mean. Then as n approaches infinity, the random variables $\sqrt{n}(S_n - \mu)$ converge in distribution to a normal $\mathcal{N}(0, \sigma^2)$.

3 RESULTS

3.1 Performance measures

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3.2 Eye tracking metrics

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4 DISCUSSION

4.1 How to add Citations and a References List

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4.2 Good luck!

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References

[Gre93] George D. Greenwade. The Comprehensive Tex Archive Network (CTAN). *TUGBoat*, 14(3):342–351, 1993.