The Effect of Visual Angle on Slot Machine Gambling in Virtual Reality

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INTRODUCTION

- Slot machine gambling has proliferated into virtual reality (VR).
- Higher visual angles (VA) can increase affective arousal.[1]
- The somatic marker hypothesis (SMH) suggests that affective arousal is beneficial and necessary for decision-making.[2]
- Past work poorly tests VA and gambling using the Iowa Gambling Task.[3]
- A VR slot machine may clarify how VR gambling is influenced by VA.

RESEARCH QUESTION

- Do higher VAs, which increase affective arousal, lead to better slot machine gambling decisions in VR?

METHOD

- 46 undergraduate participants (33 females) completed 25 mandatory VR slot machine spins in high VA (HVA) and low VA (LVA) conditions. (see Figure 1.)
- After the 25th spin, wins depleted, and users chose when to stop gambling.
- We measured gambling persistence and post-reinforcement pauses (PRPs).
- *EmotiBit* assessed electrodermal activity, heart rate, and other measures.
- Participants rated affect and VR presence on the Positive and Negative Affect Schedule and the Presence Questionnaire.

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Figure 1. The experimental stimuli. Panel A shows the LVA (twenty-degree) slot machine and Panel B shows the HVA (sixty-degree) slot machine.

RESULTS

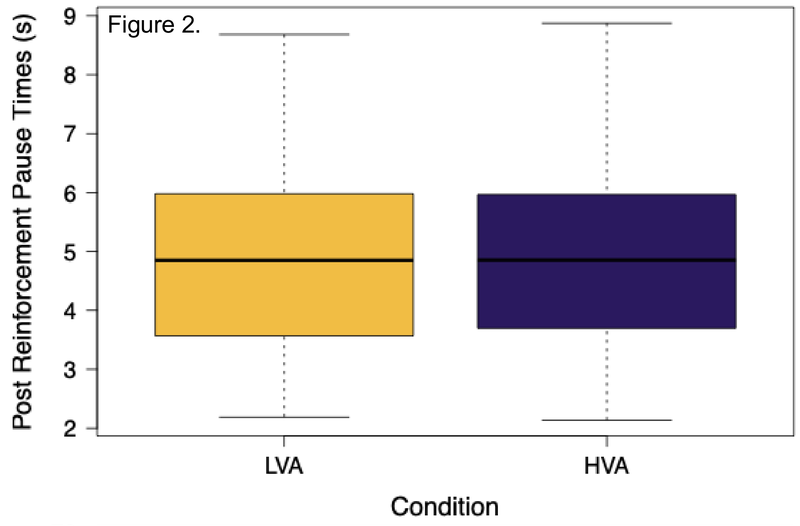

Figure 2. The effect of VA on post-reinforcement pauses. A paired-samples t-test revealed no statistically significant differences between LVA and HVA conditions on PRPs, $t(45) = .04$, $p = .97$. Effect size was negligible, $d = .007$, 95% CI [-.41, .42].

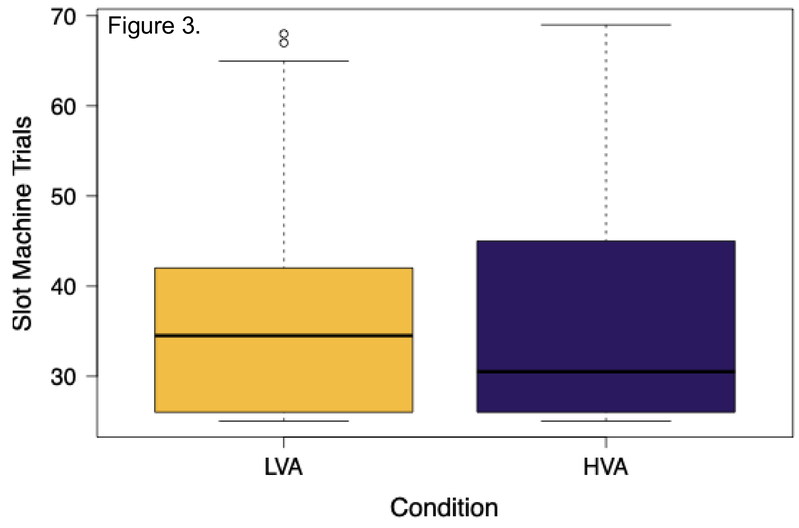

Figure 3. The effect of VA on gambling persistence. A Wilcoxon signed-rank test showed no statistically significant differences in gambling persistence between LVA and HVA conditions, $V = 307.5$, $p = .69$. Effect size was negligible, $\delta = .007$, 95% CI [-.22, .24].

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DISCUSSION

- VA did not alter gambling persistence or post-reinforcement pauses.
- Earlier work[3] also found no effect of VA on VR gambling.
- Researchers should study other components of VR casinos to protect vulnerable populations like problem gamblers and guide regulations.

REFERENCES

1. Gall & Latoschik, 2020; 2. Damasio, 1996; 3. Oberdörfer et al., 2023.