Self-Experiment

**Introduction**

Disaster preparedness is an increasingly essential area of study within human factors psychology, as understanding the psychological mechanisms that promote effective decision-making and focus under stress is crucial. Simulation games, like *Stop Disasters*, provide valuable platforms for investigating these mechanisms by creating realistic but controlled environments where players can practice responses to various disaster scenarios. This study aims to explore the relationship between motivation and concentration in the context of a wildfire disaster simulation within the *Stop Disasters* game.

Previous research has demonstrated that intrinsic motivation—interest or enjoyment in the task itself—can positively influence concentration and performance across various domains, including education, sports, and high-stress environments (Deci & Ryan, 2000; Csikszentmihalyi, 1990). The core hypothesis of this study is that higher levels of motivation will correlate with higher levels of concentration during gameplay. By examining this relationship, this study seeks to contribute to our understanding of how psychological factors influence task engagement and performance in simulated disaster scenarios, with potential applications for real-world disaster preparedness training.

The specific research question is: Does motivation, as measured by players' self-reported scores, correlate with concentration within the context of a wildfire simulation game? The expectation is that players who report higher motivation will also demonstrate greater concentration, suggesting a link between intrinsic motivation and sustained cognitive focus.

**Method**

This study utilizes data from a controlled simulation environment: the *Stop Disasters* game, developed by Playerthree© for the United Nations International Strategy for Disaster Reduction (UN/ISDR). This game simulates a range of natural disasters, challenging players to develop resilient communities in various high-risk areas around the world. For this study, the wildfire scenario was selected, wherein players build and protect a town in Australia while meeting specific development and preparedness objectives. The game’s design allows for strategic planning and decision-making, providing an ideal setting to assess how psychological factors influence in-game behavior.

**Procedure**

Each session represented a single gameplay instance, after which the participant completed a subjective questionnaire consisting of 17 items, each measured on a scale from 0 to 100. Among these items, q11\_mot captured the participant’s motivation level, while q14\_concen measured concentration. Additional variables included mental and physical demand, fatigue, and emotional responses, although these were not directly analyzed in the present study.

The primary analysis involved calculating the Pearson correlation coefficient between q11\_mot (motivation) and q14\_concen (concentration) across the twenty sessions. The hypothesis was that these two variables would show a positive correlation, indicating that increased motivation is associated with increased concentration during the task.

**Results**

The analysis revealed a strong positive correlation of r=0.88r = 0.88r=0.88 between motivation (q11\_mot) and concentration (q14\_concen). Figure 1 illustrates this relationship through a scatter plot, where data points cluster along a linear trend, indicating that higher motivation levels tend to align with higher concentration scores.

This correlation suggests that the participant’s self-reported motivation was consistently aligned with their concentration level during each gameplay session. The strength of this relationship (near 1.0) implies that intrinsic motivation could be a significant predictor of concentration, at least within the context of this simulation. While causality cannot be inferred from correlation alone, the robust association between these variables supports the hypothesis that motivation contributes to cognitive focus during complex tasks, even in the face of simulated stressors like wildfires.

Figure 1

**Discussion**

The findings provide empirical support for the hypothesis that motivation correlates positively with concentration in a simulated disaster preparedness environment. This result aligns with established theories in human factors and motivational psychology, which suggest that intrinsic motivation enhances task engagement and focus (Deci & Ryan, 1985; Csikszentmihalyi, 1997). In disaster preparedness training, where high levels of concentration are critical, fostering intrinsic motivation may improve both engagement and performance.

There are several possible explanations for the strong correlation observed. Firstly, high motivation may amplify the participant's interest and enjoyment in the simulation, thereby increasing their willingness to focus on the task. Motivation might also encourage a deeper cognitive investment in strategic planning and decision-making, essential components of the game that require sustained concentration. Secondly, motivation can mitigate the effects of fatigue or perceived task difficulty, enabling the participant to maintain focus despite challenges (Ryan & Deci, 2000).

**Conclusion**

This study contributes to the understanding of how intrinsic motivation affects concentration in a disaster simulation setting. The observed strong correlation suggests that fostering motivation may be an effective strategy for enhancing concentration and performance in disaster preparedness training. Given the critical nature of such training, particularly as climate change increases the frequency and severity of natural disasters, further research on motivational factors is both timely and necessary. By integrating insights from human factors psychology and disaster preparedness, researchers and practitioners can work towards developing training programs that not only educate but also engage individuals in a way that promotes sustained focus and resilience.