

Title : Design and Evaluation of UI-Free Interaction Using Audio, Visual, and Haptic Feedback in VR Horror Games to Enhance Realism and Fear Experience

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ABSTRACT

In VR, traditional 2D menus or icons can sometimes break a player's sense of "being there." This project examines the balance between helping players with clear instructions and keeping them immersed in the story. The main goal is to see if removing on-screen UI elements makes a horror VR game feel more realistic and frightening. This study uses a within-subjects experiment, meaning each participant plays through two different versions of the same game to compare their experiences directly.

The experimental artifact was developed using the **Unity** engine and optimized for the **Oculus Quest 3**, utilizing a first-person perspective with six degrees of freedom (6DoF) to allow for natural bimanual interaction, object manipulation, and environmental puzzle-solving. To facilitate a clear comparison of player experience, the gameplay is bifurcated into two specific phases: **Phase I (UI-Assisted)**, where navigation and objective tracking are guided by traditional head-up displays (HUD) and explicit visual markers, and **Phase II (Non-UI/Diegetic)**, where all artificial overlays are removed. In this second phase, players must instead rely on **diegetic cues**—such as spatial audio, dynamic lighting changes, and narrative-driven environmental breadcrumbs—to make decisions and progress through the game world.

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Following the exposure to both conditions, quantitative and qualitative data are gathered via a standardized fear assessment instrument. This process evaluates emotional valence, cognitive load, and immersion metrics. The findings are expected to contribute to the field of VR human-computer interaction (HCI) by providing a framework for developers to create more visceral, realistic, and psychologically engaging VR experiences.

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