Report for COMP6780

Relations between Virtual rescue game Experiment and HCI

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1.Abstract

Experiment A: (Standard (lab) study)

Virtual rescue game in bushfire scenarios

Experiment B: (Online Study)

This study aims to investigate the relationship between environment, culture, identity, and well-being.

In this paper, I provide a detailed description of my experiences in both Experiment A and Experiment B. I also discuss my analysis and understanding of HCI (Human-Computer Interaction) related to these two experiments.

2.Introduction

In Experiment A, the experiment process is introduced by the instructor. Participants fill out survey questions, receive training, and engage in two rounds of individual and team practice. Then, participants play the game in teams for three scenarios (10 minutes per round) and answer a survey after each game round. The entire experiment lasts for 1.5 hours. The experiment examines how the distribution of social media information influences tactical team performance.

Objective: The experiment investigates how the dissemination of social media information affects the performance of tactical teams.

In Experiment B, participants are asked to watch a short video and then answer questions about their culture, emotions, and psychological well-being. The purpose of Experiment B is to investigate the relationship between environment, culture, identity, and well-being.

In the paper, I discuss the experimental design logic of A and B, their relevance to HCI, and the aspects where the design aligns or deviates from HCI principles.

3.First Experiment

The experiment took place in the Computer Science Department, where Dr. Xinyun Hu, a PhD student, introduced the procedure. Participants were randomly assigned to low and high information distribution teams. Each team had five roles: team leader, fire truck, water truck, rescue, and information. The fire truck fought fires, the water truck supplied water, the rescue truck evacuated people, and the information role collected and shared social media information. The team leader supervised the team without controlling any unit.

3.1 Participants' Experience:

The experiment was technology-based and interactive. It was interesting and realistic, allowing participants to immerse themselves in the intensity and frustration of firefighting. The difficulty of the experiment was high, as fires were widespread and challenging to extinguish. However, participants understood their tasks through introductions, questionnaires, training, and practice. As a fire truck, my role was to respond to fire locations, extinguish fires, and coordinate with the water

truck.

3.2 Reflection and Sharing:

3.2.1Advantages:

Assigning different roles and creating an urgent firefighting exercise achieved the goal of studying the impact of social media information distribution on team performance.

Some aspects of the experiment were relatable, such as limited visibility for the fire truck and full map view for the command center.

3.2.2 Disadvantages:

①The communication mechanism was limited to in-game chat, leading to low communication efficiency and outdated information.

②The game provided only negative feedback, lacking rewards or indicators of task success.

③The fire frequency was unrealistic, with too many fires occurring in a short time.

④The mouse control for the fire truck was not ideal, causing miskicks and not aligning with HCI recommendations.

⑤The representation of objects, including player roles and scenes, was non-intuitive and lacked visual appeal.

4.Second Experiment

Experiment B is an online questionnaire. I watched a seven-minute video, selected randomly from three options, which was a soothing watercolor dissolution video. Then, I answered questions about identity, which took about 20 minutes. However, due to the repetitive nature of the questions, I became bored after 10 minutes and wanted to complete the questionnaire quickly.

4.1Comments:

The experiment consisted of over 200 multiple-choice questions, making it moderately intense. However, the repetition of questions limited its depth, requiring minimal deep thinking.

The survey provided comprehensive options for each question, allowing participants to express their viewpoints effectively.

The experiment lacked logical coherence, as the seven-minute video at the beginning did not connect clearly with the subsequent survey content. The survey questions were parallel, lacking a logical progression and guidance.

5.Comparison

In terms of visual and operational appeal, Experiment A involves mouse control and chat box communication, while Experiment B is a questionnaire completed by selecting options with a mouse. Both experiments highlight the need for diverse interaction methods in web design to enhance user engagement. However, Experiment A's game interface is too simplistic, indicating the importance of visually appealing styles in web design.

Regarding usability and reliability, Experiment A's mouse control can lead to operational errors, suggesting the need for appropriate user interaction logic. In Experiment B, repetitive questions

reduce survey efficiency, emphasizing the importance of distinct roles and clear design in web usability and reliability.

6.Relevance to web design/HCI:

①Clarity: Experiment A's interface can be improved for better user understanding by using more concrete representations.

②Feedback: Experiment A can enhance feedback by displaying travel routes or adding background music.

③Consistency: Experiment A's representation of roles and scenes could be improved for better user understanding.

④Ease of use and learnability: Experiment A's pre-experiment guidance aligns with user-friendly design principles.

⑤Minimal memory load: Experiment A's chat box communication and textual coordinates increase the user's memory load.

7.Reference

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