The close relationship between Human-Computer Interaction and Web design

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Abstract

This report explains the strong connection between HCI and web design by participating in two HCI trials. This report contains the experiments' background, feelings, reflections, and a comparison between the two experiments. It also discusses why HCI is closely related to web design in the last section.

Introduction

A wide variety of technologies and computer systems enter people's lives and the quality of the user's experience when interacting with products or systems, including websites, software, devices, or applications. Application designers not only need to design products based on user-centred design but also to test them repeatedly in experiments, which ensures that the product or system is easy to use for most of the user community. The experiments in this report contain plausible scenarios for real users to explore the different states of human interaction with devices based on content and usability.

The first experiment recorded the user's reaction to the content displayed on the computer monitor screen and measured it with the corresponding instrument. The second experiment recorded users' responses and comments on the usability of several e-book readers. I will discuss my experience and opinions on the experiments.

First Experiment

The primary experiment involved first understanding the requirements of the experiment and filling out the consent form, and then entering the same small room and wearing an apparatus on our fingers to measure the GSR (galvanic skin response) values. After that, three paragraphs of text appeared on the screen, and each section was either stressful or non-stressful. Then, we were requested to read the context on the screen silently. After the reading was completed,

we were asked to do an assessment based on what we read. We were monitored on how we interacted with the text while we read, and the collected GSR pattern will be used to analyse whether gender is a bias in reading stress.
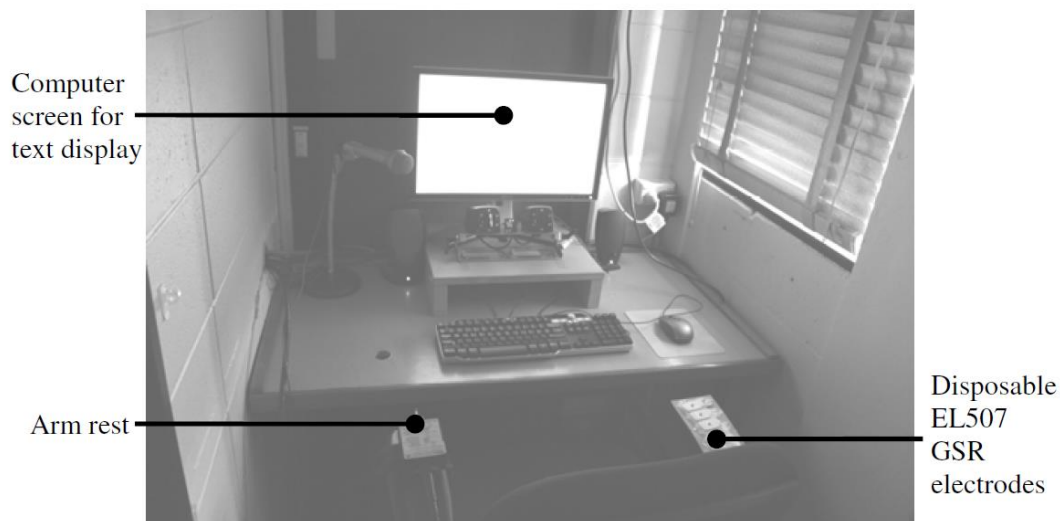

Fig. 2. The experiment was conducted in a room with a consistent environment for participants. A computer monitor displayed the reading text. The participants wore GSR equipment on their left hand, which they rested on the arm rest while reading.

I thought tasks were mechanical instead of intelligent. I enjoyed the experimentation because it was fun to read unknown content wearing high tech looking device. The task in the investigation was not challenging, and I could understand what I was asked to do for this experiment since the description was clear.

This test basically satisfies the purpose of the information sheet. However, I do not think the data obtained from the experiment is reliable because subjects with different educational backgrounds and ages react differently to stress. The data is collected only from undergraduate computer science students aged 18-24 at ANU, so there exists education bias and age bias.

Second Experiment

The second experiment involved two e-readers initially distributed to me without a manual. According to an attached paper, the devices had to be registered by a specific date. I followed the procedure and navigated to section 3, paragraph 2, of a document to find the model number and then find how much time I had left to register the device in a document called "Dates-2013". Since no manual exists, this experiment demonstrates the usability and efficiency of the e-reader. After completing this task, we scored the device on a Likert scale.

I thought finding a date by procedure was mechanical instead of intelligent. I might not enjoy the experimentation because the process of finding the target date is boring and tedious. The task in the trial was not challenging, and I could understand what I was asked to do for this experiment under the moderator's guidance.

This test partially fulfils the purpose of writing on the information sheet. Because this test did not evaluate the quality of each reader but only the usability, The experimentation was confusing to me. In addition, I believe that the data gathered in this experiment is unreliable because the investigation was designed with only one scenario, and the scenario does not fully reflect the usability and quality of an e-reader. For example, the conductor did not consider the ergonomics, the long duration of holding an e-reader, the weight of the e-reader, the usability of left-handed and right-handed individuals, etc.

Experiments Comparison

Both experiments were conducted through human-computer interaction, the first using physiological and physical signals of subjects and the second recording the subject's personal responses to a user experience. The difference is that I enjoyed participating in the first experiment, but the second experiment was more boring. Both experiments were run well.

HCI and web design

These two experiments can easily accentuate the close relationship between website design and HCI. Experiment one collected user evaluation data by implicit methods involving GSR and heart rate tracking, and the second experiment used usability testing and emotion evaluation to assess users' evaluation. User experience evaluation has become mandatory in web design, especially when some companies implement a user-centred strategy. Web design determines the main components of usability, functionality, ease of use and aesthetics and eventually persuades users to use the website. Therefore, in web design, we also need to make a prototype based on user-centred design and then repeatedly assess it to improve it. Just like the problem shown in the second experiment, the created ideal eReader "Acola" received the worst feedback in the experiment. Only a scenario-based evaluation can find the hidden problems in the heuristic evaluation approach.

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