Inspiration from user-evaluated experiments

toward HCI and web design

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Abstract

In this paper, I present a structured report referring to the two experiment I participated in the 2020 first semester in Australian National University, including detailed explanation of purpose and methodology of these experiments, my personal experience, and its relevance towards the research area of HCI (Human computer interaction). This report will focus on the connection between the experiments and HCI's sub-branch of web design, on its purpose, communication, and skills to improve its usability.

Introduction

Human–Computer Interaction (HCI) is a field of inquiry that studies the interaction between humans and computers in all forms and is particularly engaged with understanding the relationship between humans and emerging technology (Blackwell, 2015a; Kim, 1990; Reeves, 2015a). And as we approach breaching the well of the "Web 2.0", research on HCI and web design has become ever so popular, companies is willing to pay big fortune to attract users to stay on or come back to their site.

In this report I will provide knowledge and applicable advises towards HCI and web design, inspired from two of the experiment held by Computer Science and Psychology Institution of ANU. The experiments are:

- Experiment 1: Popular eReaders
- Experiment 2: Piloting of Food and Body Shape/Weight Images

Background

Experiment 1: Popular eReaders

This experiment of Popular eReaders targets to evaluate the usability of varies eReaders on the market, hence establish a conceptual model of an e-reader labelled Acola. (An Acola is a combination of touch and gesture pad on an eReader) The researchers used a scenario based approach to setup their experiment, where a participant has this eReader as an gift, and they are asked to navigate to a specific part of a document (xx chapter, xx section) as the tasks.

I was asked to act as an intelligence being and make my own judgement. My group got devices C and D, which namely are the 'Amazon Kindle 4G' and 'Sony PRS-600'. I've had previous experience with the Sony eReaders (DPT-RP1) so the overall experience towards its predecessor is OK; But surprisingly the Amazon Kindle gave me a very good impression, event it's very outdated, within about 5 minuet use, I can already established somewhat of a intuition on what button to press to trigger a certain function. After doing the specified task, I was then asked to fill a satisfaction rate (1-5) for each device, and some thinking I follow my understanding towards usability and gave 3 to 'Sony PRS-600' and 5 for ''Amazon Kindle 4G.

The researcher carefully setup eReader of difference specs and price ranges, this enlarged the domain of study in eReader. On the contrast, its weakness is also very obvious, the experiment only asked the participant to rate their overall experience, no sub-scores are collected, which makes it hard for reasoning why a eReader is good/bad.

Experiment 2: Piloting of Food and Body Shape/Weight Images

The experiment aims to reveal the correlation between food's attractive level and its energy level, as well as people's objective emotion towards one's body shape. The experiment consists of two parts, in both part the participants' task is to look at the pictures and rate each in terms of how it made them feel while viewing it. And first part's image is made of varies of food, second part's image of people of varies body shape.

I was asked to do mechanical and repetitive tasks, making choice that reflect my immediate personal experiment and no more. The choices include my emotion of 'Happy vs Sad' and 'Excited vs Calm' after seeing the image, and thoughts 'Level of Healthiness' of the image. And since I was told that the more question, I answer the better (that they prefer mass quantity rather than quality), so for each question I made immediate choice based on my intuition. The overall experience is plain, every question is exactly the same. I really hope that the experiment could have just a little more interesting variations in different questions.

As mentioned before, this experiment seeks for greater amount in number rather than quality of answers, this can be advantageous as the researcher have the room to selectively 'filter out' some of the outliers. But this can also bring issues, that is the participant can easily become numb, and lose focus making their choices. In some experiment, this is solved by asking the same question in a little different way or alternating their question set.

Comparison of Experiments

The first experiment about eReader is a 'type (b)' experiment, the final rating on the overall 'usability' of the eReader of a participant is carried out based on his own experience, and his understanding on what is the most important determine factor towards this experiment. Taking myself for example, I would treat the weight and user interface as the top concerns, while not caring too much about the price tag. The overall experience is fun, as I get to tryout with multiple eReader devices, and I have another participant talking with me.

The other experiment about Food and Body Shape is a 'type (a)' experiment where the participant simply carries out researcher's enquiry and 'make data'. In another word, participant passively provides, which is why is experiment seems plain and slightly boring in a participant's perspective. After doing the same question for about 10 minutes, I found myself rushing finishing the questions, rather than thinking carefully and provide useful data. As mentioned earlier, I think the designer could provide some variation alone the progress of the experiment.

Relevance to HCI and Web Design

Experiment 1:

The experiment on eReader implicitly showed that gathering and understanding users' requirement is as important as a good design. In the experiment, it is stated that a typical user of the eReader is expecting for a device that's low cost, low weight, durable, and serves a single purpose only. The result of the experiment matches with these specifications enquires, for example one of the higher ratted device 'Kobo Touch' fits almost all the requirements: it has relatively budget device, has un-noticeable weight of only 185 grams, IR based touch screen that's more scratch resistant, etc. Whereas the lowest score device surprisingly has the highest specification, modern full colour and capacitive touch screen, these specs made it expensive and bulky, eventually end up as a counter example towards this matter.

In the area of HCI (Human Computer Interaction) especially Web Design, gathering and understanding requirement is also one of the top priority tasks on the checklist. On one hand, to gather the information of what your customer needs, you need to approach your user, and listen to their advises. In Web Design's scenario, do they want a text based explanation site, or just an art gallery showing off their achievements; On the other hand, you need to spend time understanding your customers' true intention, sometimes the one conducting ideas to you may not be the one that truly uses the system, or it could be that they have some unrealistic expectations towards the final piece. An example of this matter in web design, could be that sometimes a customer would want to have a unique colour scheme, but the colours they pick is probably not web safe. Our job here is to understand their targets: readability, exotic feeling, etc and fine-tune their picks to fit the targets.

Experiment 2:

In the food and body shape experiment, each part issues different topics, but Part 1 about food is especially helpful to our HCI and Web Design. Part 1 is a typical research on 'Skinner's Box', that we are more willing to react (or give higher expectations), if a certain action will trigger a reward mechanism. A higher energy food is a reward and eating them is the action: in a long run we build up this mechanism that once we see the food, our body secrete dopamine such that we become excited about it. Thus, seeing the image of such food in the experiment 'should' makes us happy and excited.

This phenomenon in the experiment of 'Skinner's Box' can be addressed in many ways in the HCI and Web Design. Some interesting and fun interactive element can be setup as rewards, this can be a special welcome page or an animated button. The ultimate goal is to attach the user to repeat a certain action or re-visit the site. This is reflected as one of design principle in the HCI, that is 'Interactive feedback': An interactive piece should give user immediate and appropriate feedback.

Conclusion

The two experiments appeared in this paper is just typical examples of user evaluated experiments, both had given great inspiration towards the HCI and web design: the first experiment tells that prior requirement gathering and understanding them is the first step of making design, and the second proves one of the interactive design principles. When it comes to designing our own websites, we can apply not only those ideas inspired from the experiments, but also those rules in the HCI and web design, use them as framework for our design flow, hence eventually make our design more usable and elegant.

Reference

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