

# **Experiment report**

- U6826541 Yixi Rao

## **Abstract**

This report focuses on the two experiments that I have participated in. The purpose of this report is to present my learning experience of these two Computer science or Psychology's experiments and the reflection of how I can conduct the user evaluations of web pages and web sites.

## **Introduction**

This report will introduce the two Computer science or Psychology's experiments that I have taken part in, and the experience of taking part in the experiments, and my evaluation of the two experiments, the difference of the two types of experiment. The experiments I participated in are the 'Visual Search and Cognitive Failures' and 'Attentional Breadth Flexibility Training' and 'Are You Good at Identifying Thieves'. The two experiments have the strong correlation with the user evaluation of the web development; therefore, this report will summarize the relevance of user-participation experiments to web design and development. In section 1 & 2, the two experiment will be introduced, which includes the content and the purpose of experiment, my experience of participation, and my evaluation. Section 3 will discuss the difference and similarity of two experiments. And at last the section 4 will be the reflection.

## **1 first experiment**

### **1.1 content and purpose**

The first experiment is the 'Are you good at identifying thieves?', the purpose of the experiment is to collect the recorded facial expressions using a webcam when the participants are watching a selection of videos which record some other participants being greeted and interviewed by others, and some of them may or may not have stolen a phone. The propose of this research is studying how do people control their emotions in some extreme situations.

The participants are asked to first watch two video that two people who may or may not steal the phone are greeted and interviewed, then the participants decide who is the most suspicious, and select the degree of suspicion for each people. After watching serval coupled videos, the participant is required to fill the form which related to about the participant's emotional life, and it contains two sections, the first one is the emotional experience, the second one is the emotional expression.

### **1.2 Experience of the experiment**

For this experiment, I was asked to be an intelligent participant because my job is to distinguish who is the thief by observe their facial expression and emotion. This experiment is very interesting and I am enjoy taking port of it, I am quite curious about how people are trying to prove they are innocent or pretending they are not the thief, and I found it is fun to observe how their eyeballs are moving, how their change the speed of speaking when there are interviewed. This experiment I think it is very easy, you just need to face the camera and relax, then watching the video and fill the forms. During the experiment, I understood my job is to identify the thief and judge their degree of suspension however, I do not know the purpose of this research until I was asked to fill the forms which tells me this experiment is to study the people's emotional life.

### **1.3 strengths and weaknesses**

The strength of this experiment is the whole process is well conducted, because it has the pre-instruction of setting the camera and the specification of this experiment, during the experiment, the participants were informed of what is the flow of this experiment, on the other hand, the participants have the rest time to adjust themselves, which is very nice for some participants have some emergency cases.

The weaknesses are that this experiment partially meets the aim that is stated in the information sheet since it is a people's emotional life study and only recording the face expression is not enough, and it does not collect the functional imaging of brain activities, Heart Rate Variability (HRV), Blood Volume Pulse (BVP) and Galvanic Skin Response (GSR) as mentioned on the in-person version. Besides, I think the data might not be reliable because the Webcam setup instruction does not mention that we should also record the screen of the experiment's video displayed, which might cause some inconsistent problem, that is, we do not know which part of the our recorded video corresponds to the experiment's videos, and it might match a wrong facial expression to a wrong experiment's video, which makes the data no longer reliable.

## **2 second experiment**

### **2.1 content and purpose**

The second experiment it the 'Attentional Breadth Flexibility Training', and the purpose of this experiment is to investigate the mechanisms of dynamic re-scaling of visual attentional focus. The purpose of this research to this project is to generate new theoretical knowledge about attentional rescaling and insights into how to improve it.

During the experiment, I was asked to find whether the letter 'T' or 'H' is present in the stimulus than I can see, and I would respond it by pressing 'T' or 'K' key' as quickly and accurately as possible, however, in this experiment, there are some interfering letters 'E' and 'F'.

## **2.2 Experience of the experiment**

I was asked to do the mechanical tasks during this experiment because I just need to identify whether 'T' or 'H' appears in the stimulus. This experiment is very easy because you just to press two keys according to the stimulus, and I understand what I was asked to do, that is, I need to press the key as quick as possible. I am quite enjoy this experiment because I can feel that my brain confuses the letters in some cases such as a lot of 'F' letters compose an 'H' shape big letters, my immediate thought of this is that I need to press the 'F' key but it is forbidden, so my brain takes nearly 500ms to react that there is a big 'H' letter, therefore, it very fun to notice that. On the other hand, it is exciting to speed up the experiment which means I respond it as soon as possible, and to test what is my limitation of reaction.

## **2.3 strengths and weaknesses**

the strengths of this experiment are that it is well conducted because instruction is detailed and we have a testing phase that could eliminate some unintended data; besides, the break time is very helpful and it can increase the accuracy of the collected data since this is a experiment which requires highly-concentrated attention and the rest time can help us relax and prepare well for next group of stimulus. Another strength is the order of the stimulus is well organized and designed, for example, I saw a lot of cases where lots of small letters 'T' (or 'H') compose of a big letter 'E' (or 'F'), then the next stimulus is a lot of small letters 'E' (or 'F') compose of a big letter 'T' (or 'H'), that is, the size of the letter is rescaling, thus all of this well-designed orders meet the aim of this experiment: 'dynamic re-scaling of visual attentional focus'.

The weakness is that the data may be not reliable because this experiment do not require the participants to respond the stimulus within a limited of time, so some participants may spend 10 or more seconds to identify each litter, and all of the responds are correct, this may not satisfy the experiment's requirement. I think this experiment should set up a timer or also record the timestamp of the respond.

## **3 Comparison of the two Experiments**

The similarities of two experiments are they all provide resting time for the participants, which will ensure the participants have a great experience of the experiment, besides, these two experiments are both easy and comfortable to participate in.

The differences are that the I was asked to act like an experimenter in the first experiment as I was asked to compare two different videos and give some feedbacks of this video, while the second experiment is finishing a task like finding the special letter in stimulus and the data will be collected and compared with other participants. My feeling of the first experiment is very relaxing and cozy since we just need to sit there

and watch the video, while my feeling of second experiment is very exciting and highly focused and a little be nerve-racking due to the requirement of quick respond. The structure of the first experiment contains a form for each video and you need to fill a big form after watching all the videos, while the second one, you just need to respond to the stimulus and do not have anything others.

#### **4 Relevance of user-participation experiments to web design and development**

After I finished the experiment, I found that all the organizers are very familiar with the purpose of the experiment, so when we develop the web design, we need to understand the design, the users, evaluation of the user-evaluation experiment [2].

I found that the psychological experiments that I have participated in are familiar with usability testing. Usability refers to the quality of a user's experience when interacting with products or systems, including websites, software, devices, or applications [1]. Usability is about effectiveness, efficiency and the overall satisfaction of the user [1], and it is testing the task completion time, number of errors, user satisfaction and so on.

My experience of taking part in these experiments show that the design of the usability testing can have a similar structure, for example we can conduct the experiment in a type A experiment format, we ask the participants to complete a particular task within the website and record the completion time [2], or we can ask the participants to find a specific function buried somewhere in the menus of the websites, and we can collect the number of tries of it [2].

On the other hand, we can conduct the experiment in a type B form, like the first experiment 'are you good at identifying thief', for example, we can design two different styles of the user interface, and asked the experiment participants which one they prefer and rate each of them, and at the end of the experiment, we could have a questionnaire about the UI style for the participants.

I also notice that the way of testing the user of the two experiment are worth to learn, both of them brief the user first and be aware of stress, and the participants can have a rest during the experiment [2], this process can also be applied to the usability testing because we want the user to perform the task as they not supervised by us, and in a relaxing emotion, which can ensure the data's accuracy.

#### **5 References**

[1] <https://www.usability.gov/what-and-why/usability-evaluation.html>

[2] [https://wattlecourses.anu.edu.au/pluginfile.php/2362883/mod\\_resource/content/4/Lecture%209%202019%20-%20The%20User%20Interface%20and%20Usability.pdf](https://wattlecourses.anu.edu.au/pluginfile.php/2362883/mod_resource/content/4/Lecture%209%202019%20-%20The%20User%20Interface%20and%20Usability.pdf)