COMP1710 Experiment Report

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Abstract

This report will discuss the 2 psychological experiments that I have participated in. It consists of my experience in the experiments, my reflections regarding the entire process of the experiments, and my thoughts on the way that the experiment was conducted. Next, the 2 experiments will be compared on their similarities and differences, as well as the similarities and differences in the experience of my participation of these experiments. Lastly, this report will then discuss the relevance of these experiments in web design, and the importance of bearing in mind the audience and human-computer interactions during web design.

Introduction

In this report, it will describe 2 psychological experiments that I have recently participated in. It will detail my experience in participating in the experiments, and my thought process while undergoing the experiments as well as any afterthoughts. The first experiment that I participated in is an online quiz that rates different objects. The second experiment that I participated in is a 2-hour lab study about the relationship between brain activity and consciousness. Both experiments were fairly different in the way it was conducted as well as its objectives. In participating in these experiments, I have learnt about the relationship between web design and human-computer interaction. When designing a webpage, it is important to take into account how others will perceive it, as well as their habits, preferences, and styles of interpreting information.

Experiment 1

This experiment was a questionnaire that required subjects to rate different objects. The aim of this study was to collect data on the way subjects held objects, the way they gripped objects, and the way they interacted with the object. The objects were fairly recognisable common items that we come across day to day such as clothes, doors, or food. The experiment was an online questionnaire, which could imply that the priority was placed on the collection of results and data instead of the process. The images were coloured, hence colour vision is required of participants. This could possibly have an impact on the answers

due to different interpretations of the object, which the experiment wanted to minimise. The entire questionnaire took approximately 30 minutes to complete.

The experiment required me to first evaluate and name the object. this was a fairly straightforward question that had little difficulty as all the objects were common items that we interact with on a day to day basis, such as clothes and household items. The questionnaire asked on the frequency and ways of interaction with the object. It asked for the way participants gripped objects, and how often we encountered the object. Overall, the experiment was rather simple and could be easily completed within 30 minutes. The instructions were straightforward and easily understood with no ambiguity. Little critical thinking was required but memory was required to recall information instead. It was an interesting experience.

The strengths of the experiment were that it was not time-consuming, only requiring 30 minutes or less to complete. Furthermore, since it was an online questionnaire, it could be completed anywhere on a portable device with internet access, which was convenient. The weaknesses of the experiment could be the slight ambiguity of the images. The images were cartoon drawings instead of pictures of actual objects. This could result in a few different interpretations on what the object is, compared to pictures, unless it was an intentional aspect of the experiment to collect data on the different possible interpretations of the images. Overall, I feel that the aim of the experiment was well-met and the experiment was well-conducted. There were little problems in completing the questionnaire. However, the problem of online questionnaires and surveys in general would mean that the data collected might contain bias. This could be due to the design of the question, the design of the questionnaire including arrangement of questions, and the way the questionnaire is conducted by its participants (Choi and Pak, 2004). Surveyors need to take great care in the entire process of questionnaire conduct to reduce as much bias as possible from respondents.

Experiment 2

This experiment was conducted in a lab. The aim of the experiment was to study how the brain produces a conscious experience. I was asked to meet the researcher at a lab to complete this experiment. Firstly, gel was applied onto my head and electrodes were attached onto the scalp on top of a cap. The electrodes measured electrical brain activity which could be monitored on the computer screen. While the electrodes were attached on the scalp, I was tasked to complete a visual attention activity and my brain activity was measured during the activity.

While not difficult, this experiment presented a few challenges. The visual attention activity was conducted on a computer program. I had to press the spacebar key when the colour of any of the red dots changed to be slightly different from the rest. The difficulty was that the colour change was very slight and thus required a significant amount of focus to be able to spot the change. There was a trial run to allow the participants to know what to expect

when the real test began. Additionally, we were also told to minimise blinking of the eyes as much as possible as the physical movement of blinking would also register as brain activity and skew the results. In my opinion, controlling the blinking reflex was the most difficult part of the experiment. There was also breaks between each 1-minute session of the activity to allow for rest which help provide relief to the strain on the eyes. After the first half, I was presented with a short 2-page questionnaire on the patterns that I recognised on the screen that were within the outer circle of dots. This caught me off guard because I paid no attention to the patterns at all. For the second half of the experiment, I made a conscious effort to pay attention to the inner patterns as well as the outer circle of dots. It was getting increasingly tiring on the mind and eyes to maintain continuous focus. At the end of the second half, I was again presented with a similar questionnaire on the patterns and managed to pick out some of the patterns that I had identified from the activity. In the end, I was able to see some statistics on my performance on the quiz, which showed that I performed slightly above average compared to other participants in terms of response time and accuracy. Overall, this experiment required a good amount of focus and was physically straining on the eyes while also being slightly tiring on the mind.

The strengths of the experiment were that it was able to achieve its purpose in measuring the brain activity while doing visual tasks. The experiment was fairly simple to understand, and the instructions were clear. The weaknesses were that it could be exhausting on the participants and there was physical strain on the eyes. Furthermore, due to limitation of the technology, the blinking had to be minimized to reduce the bias in results. Controlling the blinking reflex also proved to be a fairly difficult task. However, despite these challenges, the experiment was well-conducted. The data gathered would most likely be an overestimate of the brain activity to account for the instances whereby participants blinked during the session.

Comparison of the two experiments

In terms of similarities, both experiments were well-conducted, and the instructions were easy to follow. There was no confusion in what the participants were supposed to do. The experiments were well-constructed towards its purpose. I enjoyed the process of participating in both experiments. In terms of differences, experiment 2 was more difficult than experiment 1. Experiment 2 was more physically and mentally demanding compared to experiment 1, as it had more strain on the eyes and required a greater amount of focus to complete the task. However, this was expected as experiment 2 was a more detailed and extensive study.

Human-Computer Interaction

From these experiments, I have realised the importance of human-computer interaction in web design. Optimising the human-computer interaction in web design gives users a good

experience as they browse your website and thus drive more traffic towards your website. I feel that good web designs are like the stage setting of a theatre play; you don't notice it unless you are actively looking, or when it's really bad. According to Fleming (Fleming, 1998), the interface of a website is the intermediary between users and content. It helps interpret content and guide users through the complexities of a site. Web design is crucial for the designer to deliver content with its intended message to users. Today, computers are omnipresent in our daily lives, and there are masses of knowledge on the internet with billions of websites. However, HCI is vital in designing and structuring all those knowledge and content to make it more comprehensible for everyone (Mustafa, 2017).

Conclusion

In conclusion, the two experiments gave great insight in the importance of human-computer interaction with regards to web design. It is a highly applicable skill to remind ourselves to think of the audience when we are designing.

References

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