Three Ways to Get Comprehensive User Feedback

u7544620
Bo Dai

1 Executive Summary

This essay explores three methods to obtain comprehensive user feedback in web design and development, illustrated through two distinct experiments. The first experiment [1] investigates the classification of depression levels in video content, utilizing both subjective and physiological data to enhance prediction accuracy. The second experiment [2] assesses the usability of eReaders in non-reading tasks, emphasizing user experience and engagement without relying on instruction manuals. Both experiments underscore the importance of user-centered design and demonstrate how comprehensive user feedback can be leveraged to improve web design and development. By comparing these experiments, the essay highlights the relevance of innovative evaluation methods, including questionnaires, physiological data collection, and scenario-based testing, in creating intuitive, responsive, and user-friendly web systems.

2 Introduction

In web design and development, integrating user participation, usability, iteration, and real interaction is essential for creating effective and engaging digital experiences. These principles help designers and developers understand user needs, behaviors, and preferences, leading to more intuitive and responsive systems. This essay discusses the practical application of these principles through two experimental evaluations in Human-Computer Interaction (HCI). The first experiment focuses on assessing depression levels in video content by collecting subjective and physiological data from participants. The second experiment evaluates the usability of eReaders in non-reading tasks through a scenario-based approach. By analyzing these experiments, the essay aims to highlight the significance of user-centered methodologies and their impact on web design and development.

3 First Experiment: Classification of Depression Levels

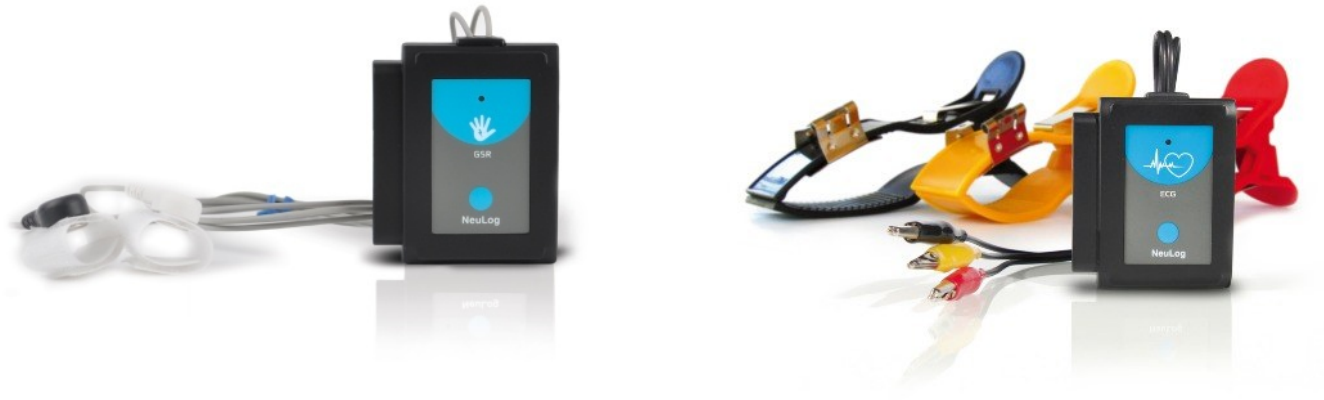
3.1 Experiment Summary

The experiment collects subjective data and physiological data from participants when they are watching a set of different depression level videos in German. At first, the subjects are asked to fill a form which includes some information like major, age, gender,ability to speak German and some questions about experience dealing with depressed people. Then they watch 29 short videos while sitting in a cozy place, the videos are well distributed in terms of the depression level. After each video, they are asked to classify the depression level in 5 seconds. In general, it takes approximately one hour for each participant.

3.2 Participant Experience

The experience of this experiment is positive. Participants are well greeted, they can ask for help if they have any specific requirements. As shown in Figure 1, Neulog GSR Logger [3] Sensor and Neulog ECG Logger Sensor [4] are worn by them during the whole process. Although one might get used to similar devices when doing health check in hospitals, it's different when doing scientific experiments which makes one feel exciting and exploring. Overall, it is not hard for participants to follow the experiment, but it might be impossible to keep the same metric to classify the depression levels through all the videos, since one should always add empathy into the context and provide

comparison among different subjects in the videos. This probably will lead to inconsistent results for questionnaire, which will be explained in the next paragraph.



(a) Galvanic Skin Response sensor NUL-217 (b) Electrocardiogram logger sensor NUL-218

Figure 1: Physiological sensors used in the experiment

3.3 Reflections on the Experiment

Although there might be some detail might be improved, it is clear that the experiment is well designed, conducted professionally. It creates a comfortable and reliable atmosphere for participants to engage with. In addition, the user interface is designed concisely and the process goes smoothly with professional guidance. The only thing might be revised is the coincidence between the videos and the questionnaire as mentioned earlier. It might be helpful that the videos have a story line instead of being isolated, because humans are not machines, they need context to understand or they will add their own interpretation into the results. That is probably why algorithms always do normalisation firstly. Since the data from the relevant report gives the similar result, the experiment gathers reliable data.

4 Second Experiment: Evaluating eReaders' Usability

4.1 Experiment Summary

The experiment applies an innovative method to evaluate eReaders from different brands on non-reading tasks. Demographic information of the participants is collected before the experiment. It then creates a scenario that participants suddenly notice they have had a eReader shown in Figure 2 as a gift for a while and it will be soon expired if they don't register it soon. The participants are grouped in pairs, in which one operating the device and the other recording. Without using a manual, they are told to do non-reading tasks like device setup, navigating menus,navigating among sections,annotation, note taking and so on. Each participant does 1 operating and 1 recording. The recording data is a number of Likert scale evaluations on a set of the tasks, it reflects a group's joint decision. This approach is total different from tradition evaluations which focus on the ratio between features and price [5].

Properties:
Buttons: for navigation
Touch screen: yes
Weight: 284g
Released: 08/2009
Display: eInk
Screen: 6 inch, 600x800
Stylus: Integrated

(a) Amazon Kindle 4G

Properties:
Buttons: yes
Touch screen: no
Weight: 170g
Released: 09/2011
Display: eInk Pearl
Screen: 6 inch, 600x800

(b) Kobo touch

Figure 2: eReaders used in the experiment

4.2 Participant Experience

The experience of participating this experiment is positive. It is always exciting to open a gift, not having a manual coincides the truth that one always tends to ignore any instruction when exploring something with urgency. Grouping subjects in pairs made the tasks easier and engaging. Even though participants may find challenge when using new features, it can be understood as a part of the game since the cooperation between the team members makes participants feel well. In general, the experiment is both valuable and enjoyable.

4.3 Reflections on the Experiment

Combining user evaluation with real scenario, the experiment provides good experience, meanwhile, it probably will collect reliable data. Unlike other evaluations focus on specific features or prices, constructing a scenario gamifies the experiment, at the same time, grouping participants in pairs makes the tasks easier and could potentially improve the reliability of the collected data. The experiment is innovative and effective.

5 Comparison of the two Experiments

With respect to user Human-Computer Interaction, the comparison of the two experiments is valuable. The similarities includes:

- Both experiments have similar process, which starts with filling a demographic form, then doing activities one by one while finishing a questionnaire. Quantitative data is collected.
- Both questionnaires are classification tasks and they are relatively easy technically.
- Both experiments provide a positive experience, and operate professionally.

The differences are listed below:

- Although they both collect data from participants, the aims are different. The first is trying to figure out a better way to predict depression level either by data from humans' data or by image data, while the second aims to evaluate products.

- The physiological data by medical devices in the second experiment.
- The second combines the tasks with a scenario.
- The second groups participants in pairs, the answers are joint decision.

6 Conclusion reflecting the relevance of user-participation experiments to web design and development

User participation, usability, iteration and real interaction are mentioned as four key principles in web design and development[6], and we can definitely see the application in both experiments.

Questionnaires are a versatile and valuable tool in user participation for HCI evaluations, offering a structured approach to gathering diverse and comprehensive user feedback, hence they can be used in research, requirement gathering, usability testing, satisfaction surveys and so on.

Physiological data collecting offers a valuable way to understand deeper aspects of user experience, leading to more intuitive, responsive, and user-friendly systems design. In comparison with tools like Google Analytics, it is even more powerful in web design and development, it uses wearable devices or integrated sensors to collect physiological data from users as they interact with the live website. Monitor metrics like ECG, EDA, and eye tracking to understand user engagement and stress, it could cover all the processes from first impression to Recommendation.

Constructing scenarios in experimental evaluation is a valuable method in Human-Computer Interaction because it allows for the creation of realistic, context-rich situations that users may encounter when interacting with a system[7]. This approach provides a deeper understanding of user behaviors, needs, and challenges in specific contexts. As websites, the objectives can be decomposed into several use cases, This technique ensures that every aspect of user interaction with the website is considered and evaluated within a realistic context.

References

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