CHAPTER 4

Working on User Experience Research Participants with Impairments

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4.1 INTRODUCTION

The methods and problems that could be encountered while working with study participants who have impairments in a research context are covered in this chapter. Examining the specific ideas, problems, and difficulties of doing Human Computer Interaction (HCI) research with research participants who have various sorts of impairments is crucial as the need and number of research projects including research participants with impairments grow (Altmann & White, 2019). It involves research subjects with motor, cognitive, and perceptual impairments, such as Down syndrome and autism. Motor impairments include limited or absent use of hands, arms, legs, and other body parts (Erazo & Zimmermann, 2015).

These research subjects with impairments are categorized in a highly arbitrary manner. For instance, there is almost nothing in common between research participants who are blind and those who have Down syndrome. They are frequently grouped together by certain academics, however, that isn't always the case. Therefore, it's crucial that we do not just group people with various impairments under one broad category.

Understanding the phenomena surrounding computer interfaces and usage patterns is the exact same objective of HCI research including people with impairments as it is for research involving other normal participants (Alghamdi et al., 2018; Lazar et al., 2017). Research on interface design for participants with impairments and surrogate users who represent participants with impairments cannot simply be used as suggestions. Researchers must take care to ensure that participants are the correct participants for a study, i.e., that they fit all inclusion requirements, due to the diversity of impairments (Crabb et al., 2015). It will probably be difficult to find participants, thus this chapter discusses both recruitment techniques and communication tactics. The general research techniques (experimental design, questionnaires, time logs, case studies, etc.) are frequently the same ones applied in user-based research. Experimental design is a commonly research method to test the effectiveness of new technologies or design interventions. On the other hand, questionnaire method is used to gather information from participants about their experiences and attitudes towards a particular technology or design. Another common method would be time log method where we can use to gather data on how users spend their time when interacting with technology (Gilhooly et al., 2017).

This chapter is organized by first presenting the requirement of participants followed by documentation and implementation. Finally, the last section will conclude the study.

4.2 REQUIREMENT OF PARTICIPANTS

Researchers must be clear about the requirements for study inclusion if they are recruiting users with impairments. The population of persons with impairments is not homogeneous,

and even among those who share the same precise disability, there is a great deal of variability, thus simply stating that someone has a disability is insufficient.

The types of inclusion requirements that must be taken into account in HCI research including individuals with impairments are shown in Table 4.1. Which of these inclusion criteria are pertinent to the study will depend on its objective, research methodologies, and other factors. Some of the requirements merely concern the participants' representativeness. A study project frequently cannot make good use of Assistive Technology (AT) when it is used by new users who lack years of experience or who do not use it frequently. AT is any form of technology that enables people with impairments to carry out everyday chores and take part in activities that they might not be able to do on their own. For example, the hearing aids assistive technology will enable people with hearing loss to hear more clearly by amplifying noises with hearing aids tools. These tools are available in varying designs and sizes to accommodate various degrees of hearing loss. Another example would be the voice recognition software which allows people with physical impairments or those who have trouble typing to use voice recognition software to operate their computer or mobile device.

Table 4.1 Types of inclusion criteria involving people with impairments

Inclusion Criteria
Technology
Education
Employment
Disability
Communication