A building with a tree and text

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# Chapter 1: Social Impact

## 1.1 Introduction

As Human-Computer Interaction is the study of how users interact with the devices, interfaces and computers around them, societal behaviours and trends are also often used to conduct further research into the study. It could be said that the teachings of HCI do reflect how our society is adapting and currently adopting current technologies, especially current interactive and digital technologies, so therefore any new understanding of the subject can have a massive societal impact.

## 1.2 Relevancy To Project

The aims of this project are to scrutinise if current teachings and understandings of Human-Computer Interaction are keeping up the current development of mobile technology, specifically to how people use web applications on mobile devices. One way in which this is conducted is through testing accessibility. Accessibility has become a huge part of current society as we aim to be more inclusive, including in the technology sector. Mobile devices often pose problems for usability, and Human-Computer Interaction has done a lot of research into accommodating design, while it wasn’t the first it has been concluded to have has some societal implications. In *HCI and Societal Issues* (Hochheiser and Lazar, 2007), the authors address in which ways accessible design using HCI has societal impact, some which could apply to this project. First of all, the authors explain how accommodations in design, in technology can provide a bigger outreach. More and more people get to use this technology, and more people are included in thoughts when designing an interface. Through other people research and one’s own, and thus the creation of various different designs which include heavy disabilities accommodations, testing happens, and conclusions can be drawn if these designs are effective. If proven yes and the conclusion of my project comes out positive, the impact these designs are great. More and more designs will follow these trends, and soon technology will be more inclusive. If there is a negative conclusion, that means there is a fault somewhere, either in research or teachings, thus change will need to occur. These changes can have an impact on academia, but ultimately where the impacts will be important is in society, specifically the behaviours and treatment that social public towards accessibility. This ideology is further supported in the article *The Impact of Disability Transitions on Social Inclusion* (Gannon and Nolan, 2007), in which the authors details there is an association between increasing inclusivity and positive outlooks within society.

## 1.3 Conclusion

Both one’s project and research from others into the study of Human-Computer Interaction, specifically in terms of accessibility. The aims are to positively change societal views of accessibility and accommodating design, wanting to make society more accepting and willing to change. This can happen in teachings of Human-Computer Interaction, if conclusions from the project show teachings and current student understandings aren’t enough to produce great disability friendly designs, it will show there is needs for change and hopefully this change occurs.

# Chapter 2: Ethical Issues

## 2.1 Introduction

Ethics isn’t something that is wholly considered in the study of Human-Computer Interaction, usually it is discussed in a completely case by case basis. However, there are a few elements of Human-Computer Interaction, and specifically this project where ethics must be considered.

## 2.2 Relevancy To Project

In *Ethical Encounters in Human-Computer Interaction* (Waycott *et al*, 2016), the authors explains that ethical considerations have become increasingly common within HCI research, as areas of research are venturing into “sensitive and emerging areas”, or when the research involves a “diverse setting”. A focus of the project is that into accessible and accommodating design, this requires research and discussion about disabilities and what can be done to address them. This area of research does require some care and consideration, and could be considered a sensitive area, after all the disabled community is protected as a vulnerable community under Public Health England. One thing to consider over the course of the project, when discussing disabilities or other areas of accessibility, is to be considerate and correct. Terminology is very important when talking about disabilities, and the wrong word could cause offence, and when describing and reporting research into a disability and how the project aims to approach that through its accessible and usable design, it is imperative that all research and facts presented is accurate and not malicious. Testing of the project could also have some ethical impact. As one will be using human participants to conduct testing, there will be some concerns into how they are used and what data they may provide, and how this may have an impact. As described by *Research Ethics in Human-Computer Interaction* (Punchoojit and Hongwarittorrn, 2015), ethical approaches to using human participants must involve being honest in information provided and stating results, be responsible for actions taken, be respectful, proving the be professional and competent, and protecting all confidentiality and protecting privacy. One must ensure that testing material is professional and will not put the participant in a compromising position. One must then ensure that all feedback reported is accurate and honestly reflecting the thoughts of the participants. If one includes incorrect information on the report, not only would it void the purpose of the project, but it would be a breach of ethics and an academic infringement.

## 2.3 Conclusion

All research and information included on the project must be correct, valid, and accurate to ensure no breach of ethics occur, especially as one point of interest of the project is a community that is deemed vulnerable, any advantage taken, or content of ill-intent included in one’s project would be considered unethical. Considerations must also be taken with human participants involved in testing, ensuring use of these participants is fair and all reported use of them is accurate.

# Chapter 3: Legal Implications

## 3.1 Introduction

The project being undertaken has various moments in which law and other legal standings have to be considered. Human participants will be used to conduct forms of testing on an artefact in the form of interviews and questionnaires, meaning some personal data may end up being collected. The artefact itself may also be scrutinised, some of the assets used like images, software and the general look of it could end up violating copyright law if no care is taken.

## 3.2 Relevancy To Project

The project itself, and the study of Human-Computer Interaction which is a key research and reference point for the project, requires very much the use of the general public. The testing phase of the project will require use of human participants to complete various questionnaire and surveys, this means that members of the public, or other participants such as my academic colleagues may be contact and approached to complete such forms. When conducting surveys, personal information such as names or even a contact details may be taken so that any follows up to feedback presented may occur. As well as that, the thoughts of these participants will be documented, typically in a digitally written format. Any personal data being handled subjects this project to the General Data Protection Regulation, and the laws of that must be followed. This means that during the testing phase of the project, I will need to be transparent about what the data is being taken for, ensure the data taken is accurate, but is also kept securely and only for the purposes of the testing of the artefact. Furthermore, these details will only be seen by oneself, and not any others who may have interest in the project. For example, the project reader, supervisor, or the module leader.

The artefact itself will be a web application, specifically one such as an e-commerce website. In which usability, accessibility, and designs of accommodation will be included and tested. The artefact will be programmed by oneself, using various software’s and applications. Issues could end up arising in the creation of the artefact, such as breaches in copyright and trademark law, or misuse of software. The artefact itself will include assets such as colourways, logos, icons, and also will have mock products present to effectively present itself as an e-commerce website. The issue arises in copyright, where one must be careful to not include any copyrighted material in product photos, names, or any iconography. Similarly with colourways and even typeface used in the design, one must ensure that the usage of these maintains its own uniqueness, and not infringe on any other brands’ aesthetics which will be trademarked. One must also ensure that all code and assets used are completely created by oneself, and no plagiarised material is used. This also pertains to software, which will not be a problem as all software used to complete the project is free and open source, which means they are free to be used by the general public and the usage of the projects itself is not for personal or financial gain, meaning no ill-intent is present.

## 3.3 Conclusion

Various laws such as GDPR, copyright and trademark laws need to considered when undertaking the project, especially as there as minor elements of personal data potentially being collected for use of contacting any participants in the testing stage of the project. One will especially be careful to use only self-made assets for the artefact, and presenting a fictional brand that does not infringe on any trademarks or similarities of currently existing brands.

# Chapter 4: Security Aspects

## 4.1 Introduction

Security and Human-Computer Interaction don’t often go hand in hand, there isn’t many aspects of the study that have any privacy concerns. However, as one explores and builds the artefact relating to the project, some security issues may arise. Certain features may be implemented or could be implemented into the project at the later date, that while test usability and interaction, maybe be something security related.

## 4.2 Relevancy To Project

The artefact for this project is meant to resemble an e-commerce website, the reasoning for this is these types of websites contain a lot of interaction, as well as a lot of information that users need to sift through. So, it made sense to model the artefact after one. One feature that one has been debating adding to the artefact is adding the ability to have an account creation, the exact benefits of this or what interaction and usability designs it will include are part of a different discussion. However, if this would be implemented, security concerns would be involved. For the process of account creation, a user would need to supply log-in details and these details would need to be stored in a database. There are many security issues with this, first is ensuring that the database is secure, and who will have access to this information. One would also need to ensure that the connection to the database and the artefact is secure, so no interception of the data can occur. Lastly, even one who has access to the database, one needs to ensure the data is unreadable to all but the actual user. In *Humans In The Loop: Human-Computer Interaction and Security* (Smith, 2003), the authors talk about encryption being the best way to secure any personal data. In the database itself, the information would appear as non-sensical to anyone who tries to read it at the source. But to the application itself, its readable, adding in protection against unwanted eyes. Beneficially to the core aims of the project, as stated in *Users Are Not The Enemy* (Adams and Sasse, 1999), security is “one of the last areas in IT in which user-centred design is not regarded as essential”, meaning these security implementations are not affecting the design and the accessibility of the artefact.

Another security issues will again be in the testing when one introduces human participants into the project. One has talked about data protection and ensuring any data collected is kept securely and used fairly in the legal section of this report, but there are some security and privacy concerns that go along with that. In *Privacy Issues and Human-Computer Interaction* (Ackerman and Mainwaring, Unknown), the author describes privacy as contextual, and control over data as nuanced. The biggest concerns in this specific case is the usage of the data provided. As mentioned, the intent of the data provided and used for both testing and in the artefact itself it fully to provide as great of an experience as possible. Trying to produce an artefact that is usable, accessible and interactable needs certain features that can draw that out of the artefact and present situations in which those three points are tested, as well as receive feedback to draw conclusions. The context over in which the data is being used is one of academic purpose and is being used completely fairly and within reason. Wellbeing of the users and testers also need to be considered. In the same text, it states that one needs to be fully conscious of the response of the user, prompting them only for what is relevant in cases of one-to-one conversations, but in open-ended questions which are prone to an idea called a “talk-aloud protocol”, one must be careful in which the responses are being used and nothing is taken out of context.

## 4.3 Conclusion

One must be careful of security issues when handling and storing data, ensuring it is secure and has a level of security attached to ensure this security. One must also take into consideration the user involved in the project, how they are used and how their responses and data is being used. Context matters in all cases, ensuring that one is not taking advantage of this opportunity to speak to them, and their responses are used fairly and within reason, along with accurate analysis of their words.

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