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**Assignment 1**

**Introduction to cultural data science**

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# **Assignment 1**

*Brainstorm and pitch ideas for an empirical study to make sense of a cultural domain in context.*

As an undergraduate student of digital design, the ideas presented in this paper will primarily be concerned with and grounded in various aspects of science and technology studies (STS), human-computer interaction (HCI), and interaction design (IxD) studies. As an academic field, digital design often relies on empirical analyses in order to corroborate assumptions regarding e.g., the psychology and physiology of users as a way of determining the best design practices within a specific context. Further, whether designing a novel digital product or creating improvements for an existing one, a major part of the design process is that of user experience (UX) research. In simple and general terms, UX focuses on the perception and attitude of a user base towards a certain aspect of a particular design. Such research is usually conducted as qualitative data analyses based on interviews, focus group sessions, or different means of observation either inside or outside of a controlled environment. As such, the amount of possible empirical studies related to the field of digital design that are yet to be conducted is extensive. An important remark in this regard is one on the aspect of culture. Due to digital design being fundamentally a discipline of human creativity, most, if not all, of its produce can be said to be constitutive of human culture. While this notion is admittedly rather superficial, partly due to the scope of this paper, it nonetheless serves nicely as the basis for the following proposals for an empirical study to make sense of a cultural domain in context.

## Psychological stress and digital navigation system usage

In a world of ubiquitous computing, digital navigation systems such as Google Maps, Apple Maps or Waze are readily available to assist anyone with a computer and internet access in finding their way to a specific destination. These services, however, all have several ways of communicating information to the user such as through audio, a graphical user interface or a combination of these. Any of these means of communicating information may be more or less appropriate in a given context; for example, using an audio-based interface may be more practical when riding a bike than having to change your focus to a screen held in your hand. Another example would be using a navigation system while driving a car. This task is already a quite complex one by itself – changing gears, keeping the correct speed, having an eye on the other cars on the road, chatting with a co-passenger – how do you decide what the best interface is in such a situation, where maintaining focus and staying calm is a major safety concern? Here, studying the correlation between psychological stress levels of users of these services and the means of communication of the service may be able to provide some valuable insights that can prove valuable in designing more pleasant and safer digital navigation systems. Some relevant measurable variables that come to mind are phenomena like frustration, cognitive load, multitasking ability, heart rate, blood pressure, and reaction times.

**Relationship between the design of AI chatbots and the attitude towards the technology**

With large language model (LLM)-based artificial intelligence (AI) chatbots (such as ChatGPT, Google Bard, Microsoft Copilot) becoming rapidly more advanced and at the same time becoming both increasingly user friendly and accessible to a still growing number of ordinary, non-expert users, I would argue that the need for addressing the ways these technologies are represented to users is not negligible. Within design theory, a fundamental notion is that the form of a product has a considerable effect on the way said product and its affordances are perceived and understood. In computational products, arguably the most important aspect of a design in this regard is the user interface (UI). The UI is what allows the user to interact with the computer program, and in the case of LLM-based AI chatbots the UI is most often text-based, i.e., the user interacts with the AI using a keyboard and a screen, inputting and receiving an output via a graphical input field. In this regard, a study on the correlation between various aspects of the UI design of LLM-based AI chatbots and the attitude of users towards the technology may be able to shed light on whether certain design decisions have a significant impact on people’s perception of the technology. Not all such AIs are text-based; some are purely audio-based, meaning that no visible UI is presented to the user who interacts with the system using voice commands. How does this interaction paradigm affect ones understanding of the technology? Does such a shift in the input modality change the user’s conception of the workings of the AI (i.e., mental models), their emotional states, or the context in which users might engage with the system?