

# Homework 2

Measurement and Evaluation of HCC Systems

## How to hand in this homework

- Please email the homework to me as a PDF.
- Late assignments get a penalty of 20% when submitted after the deadline, plus an additional 10% per hour late.
- **Warning:** You may collaborate **not** on this homework!

## Research problem

For this homework, you are going to develop a set of measurement scales for a research project that I am working on. In this study, I will show people a series of **privacy-enhancing/preserving technologies**. An example could be a laptop camera with a physical slide that can cover the lens. (see [https://youtu.be/sUpJ\\_OotwP4](https://youtu.be/sUpJ_OotwP4)). The study will manipulate whether the technology is framed as *privacy-enhancing* or *privacy-preserving*. It will also manipulate whether this is something that is *on by default* (and you can turn it off) or *off by default* (and you can turn it on).

I want to find out whether the framing and default setting have any effect on users' **expectedness** of the technology: do they believe this is something that should be available to everyone, or is it something only a few "privacy freaks" will use? I'm also interested in their judgment of the **perceived privacy protection** provided by the technology (to what extent do they believe it protects their privacy?) and its **perceived ease of use** (do they think this is easy to use or a hassle?). Finally, I'm interested in their **willingness to adopt** the technology (would they buy it? Would they use it regularly? Would they recommend it to their friends?) and their **attitude towards the company** providing the technology (if Samsung built this into their phones or laptops, what would they think of that?).

## Question 1. Concept definition

*Please write a clear and concise concept definition (1-2 paragraphs) about each of the following concepts:*

- a. Perceived ease of use of the technology
- b. Expectedness of the technology
- c. Perceived privacy protection
- d. Willingness to adopt the technology
- e. Attitude towards the company providing the technology

## Question 2. Develop items

*Develop 10-15 items for each of the concepts. Take the best practices for item development into account. Make sure to test the reading level of your questions. Select an appropriate response format (7-point Likert scales are most common, but feel free to suggest a better solution for your specific scales). You may take and or adapt items from existing scales if you want, but in that case please indicate where the items are taken/adapted from.*

- a. Perceived ease of use of the technology
- b. Expectedness of the technology
- c. Perceived privacy protection
- d. Willingness to adopt the technology
- e. Attitude towards the company providing the technology

## Question 3. Pre-test the items

*Use the card sorting technique to evaluate the items with three potential users:*

- *Print your scales, cut out the questions, shuffle them.*
- *Find someone who wants to play the user (**not** someone who is taking this class!)*
- *Show users the video of the webcam cover.*
- *Ask users to read the following scenario (print separately):*  
**“Imagine Samsung would build such a slider into their phones and laptops. I will show you some questionnaire items that I have developed to evaluate your perceptions about this technology. Please read the questions, and sort them into groups that make sense to you. I want to know how you do this sorting, so please think aloud during this process. Once you are done sorting, please tell me for each category what you think it is trying to measure.”**
- *Ask the user to sort the questions into groups.*
- *Ask them to explain what they think each of the resulting groups is supposed to measure (concept definition).*

- Repeat for two more users.

*For each scale, report on items that users have trouble understanding, items that are in the wrong group, and scales that got an incorrect definition. Summarize these results across the three users (example: "2/3 users put item 3 of perceived taste coverage in the wrong category"):*

- Perceived ease of use of the technology
- Expectedness of the technology
- Perceived privacy protection
- Willingness to adopt the technology
- Attitude towards the company providing the technology

#### Question 4. Revise the scales

*Revise the scales based on the results of question 3. Focus on resolving problems that occurred for more than one user. List the revised scales for each concept:*

- Perceived ease of use of the technology
- Expectedness of the technology
- Perceived privacy protection
- Willingness to adopt the technology
- Attitude towards the company providing the technology