

Foundations of Health Informatics: Evaluation and Study Design Homework

A carefully designed study can lead to significant results; a poorly designed study will have little or no scientific value. The goal of this homework assignment is to design an informatics study that will be able to demonstrate the effects you are interested in observing. Pick a topic of interest to you and design a study that will address a research question/hypothesis that has not been fully explored in the current literature.

The study design consists of 3 sections. Each section is listed below, along with the information that we expect to be present in each section

1. Problem statement and research question

- Summarize the experiment, including what you hope it will tell you about your topic
- For motivation, provide real-world applications where the results of your experiment may be useful
- Present a carefully crafted and valid research question. Be sure to make clear what type of question you are asking (difference vs. relationship)

2. Literature Review

- Provide a citation to, and discuss, one or two studies from the current literature that are relevant to the problem your experiment is addressing. In particular, discuss the methods used in that study. This should be a study from which you will take inspiration in terms of study design or strategy.

3. Method

- Describe the type of study you will conduct and why you chose that particular method.
- Describe the conditions in your study (the independent and dependent variables)
- Describe, in detail, the procedure to be used.
- Describe the subjects you expect to obtain, including the numbers of subjects needed, the pool from which they will be selected, and the method that will be used to select them from that pool.
- Describe the measurements/observations you will make during the study, including both qualitative and quantitative ones. Discuss how you will collect the data (e.g., what instruments you will use make the measurements, how you will make observations, how you will code any qualitative observations you make). Remember that sometimes a well- designed paper form is perfectly suitable for quick entry of data during real-time observation. Think through the simplest, most accurate way you can ensure that you get the right data saved.
- If you intend to provide a questionnaire, list the various questions to be asked (e.g., semantic differential questions, Likert-scale questions, open-ended questions).