

Evaluating Software Design: Interviews and Observations

Sep 17, 2024

Reminder: Types of Studies

Almost any study falls into one of the following categories:

1. **Observational Study**

- Observe participants as they do a task

2. Controlled Experiment

- Compare two (usually randomly assigned) groups of participants

3. **Survey/Interview**

- Let participants directly answer question(s)

4. Historical Data Collection/Analysis

- Find and analyze already existing data (e.g., from previous studies)

Observations: Quantitative vs Qualitative

Suppose you observe Geoffrey as he uses your element

- What can you measure?
- Is the measure qualitative or quantitative?
- Is one type of measurement more beneficial for you?

Quantitative Measurements

Numbers are almost always meaningless without context!

For example:

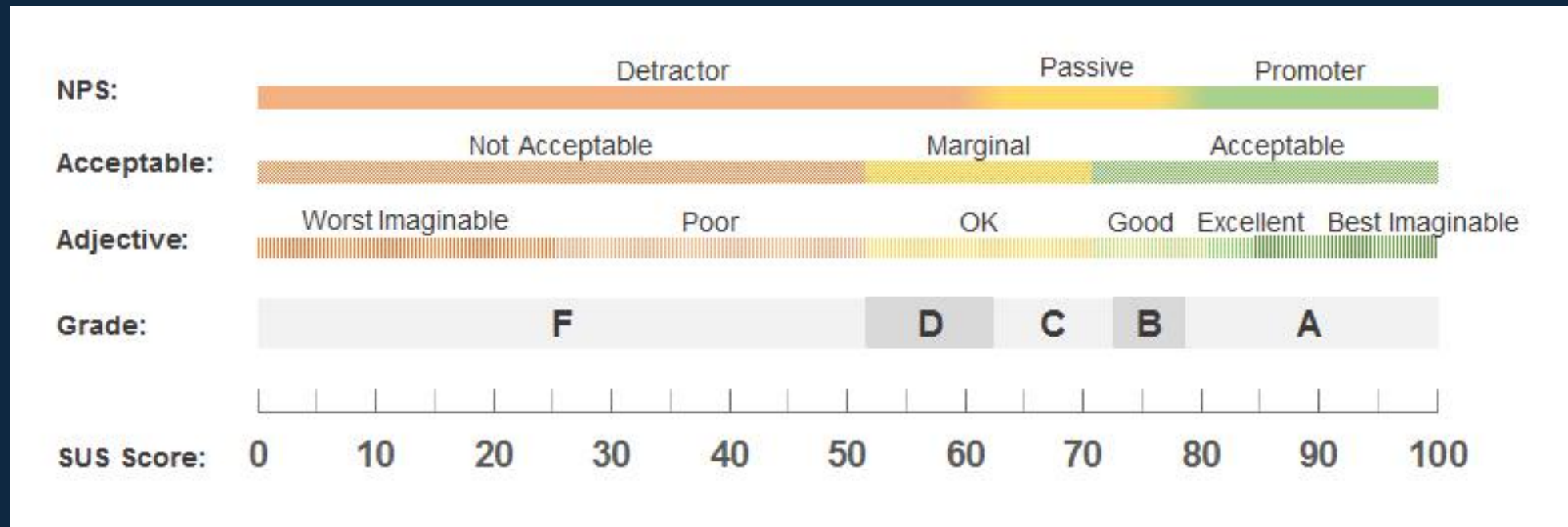
- Comparing to some baseline (e.g., from *Historical Data Collection*)
- Comparing between alternatives (e.g., in *Controlled Experiment*)
- Comparing to some estimate/prediction (e.g., after *Interview/Survey*)
- Comparing between axes/questions (e.g., within *Interview/Survey*)

Quantitative Measurements: The SUS

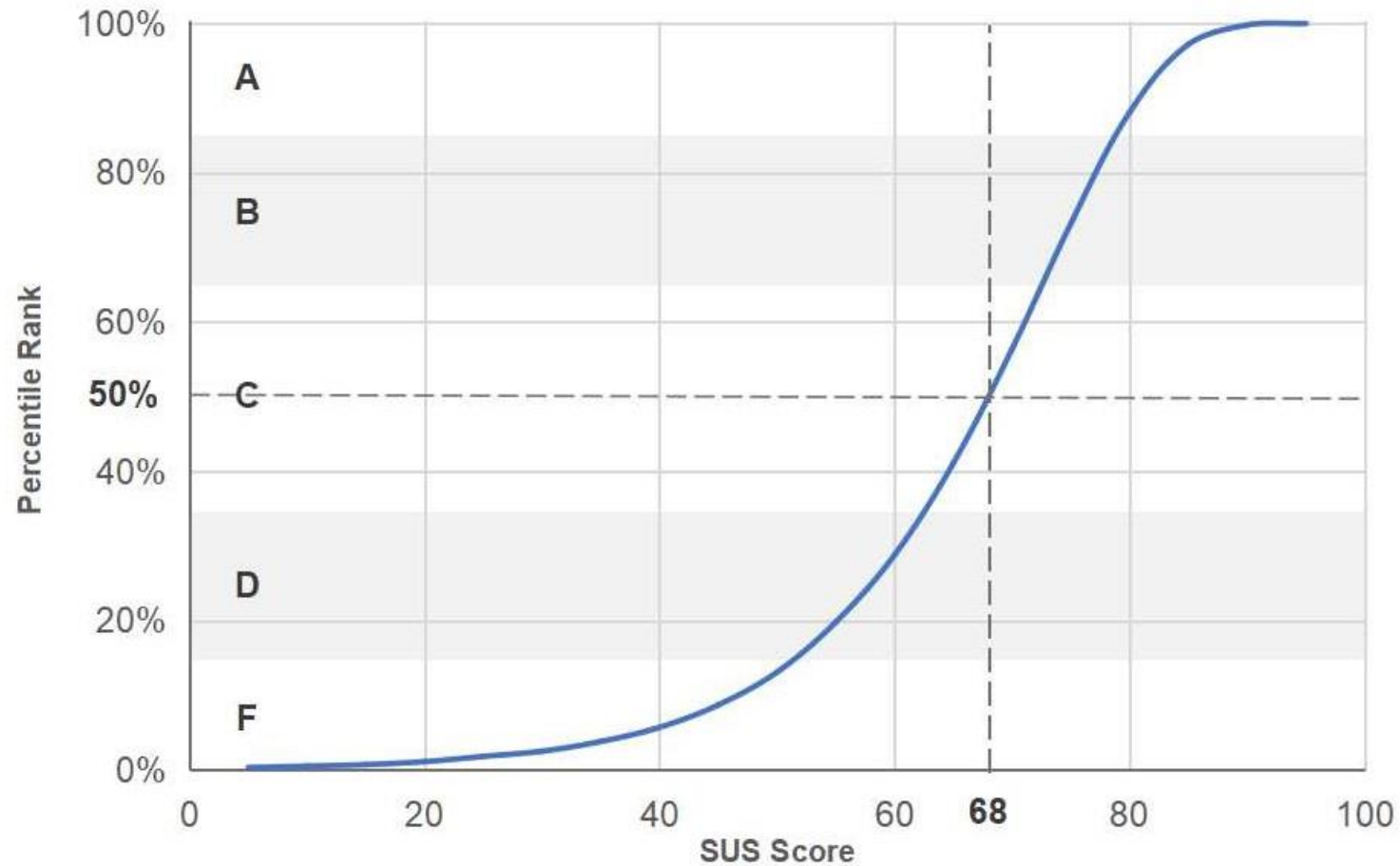
How does the System Usability Scale quantify usability?

- (How) does it address subjectivity?
- (How) does it give numbers context?
- Can/should we use the SUS in every study we run?

Quantitative Measurements: The SUS



Quantitative Measurements: The SUS



Quantitative Measurements: The SUS

- Has the SUS been used in the context of PrairieLearn before?
 - *“AutoER was evaluated to have a System Usability Scale score of 77, indicating overall good usability.”* (Foss et al., 2022)
- Has the usability of PL been evaluated in other ways?
- The SUS is from the 80s, is it still relevant/applicable today?
- Can you combine the SUS with other metrics (e.g., UMUX)?
- Can you use the SUS repeatedly, and if yes, how frequently?
 - Longitudinal or on a per-feature basis

Qualitative Measurements

Imagine you are having your “interview” with Geoffrey right now and you watch him do your task(s)...

- What should you be paying attention to (and take notes about)?
- How would you know what Geoffrey is trying to do?
- How can you react if he is struggling or something goes wrong?

Qualitative Interviews

Imagine Geoffrey has finished your task and you now have the chance to ask him questions...

- What questions would you ask?
- How do you make the most of the limited time?
- Is it better to follow a strict script or be spontaneous?
 - Can you think of a situation where your answer would be different?

Qualitative Interview Types

- **Unstructured:** Free-form, related to a general topic
- **Semi-structured:** Pre-defined list of questions/themes, but with some freedom to add questions or focus on specific areas
- **Structured:** Completely pre-scripted, little to no variation allowed
- Can you think of benefits that the different types have?
- Which one(s) could work in the context of your Truth Table interview?

Homework: Focus on Your Project!

- No required reading/reaction for Thursday!
 - I uploaded an optional paper for reference/background
- Please pick an interview slot with Geoffrey for next week
- Create a PR for your interview **by end of Sunday**
 - Should contain an interview-ready version of your question element
 - Should contain any other materials (e.g., documentation, tasks, example questions) you need
 - Assume that Geoffrey will run everything on his own computer!