

Human Factors Engineering II Discussion Questions for Working Minds

Crandall, B., Klein, G., & Hoffman, R.S. (2006). *Working Minds: A Practitioner's Guide to Cognitive Task Analysis*. Cambridge: The MIT Press.

I. Tools For Exploring Cognition In Context

Chapter 3. Preparation and Framing

Choose a problem-solving domain for your HFE II CTA project (not necessarily the one you chose for Chapter 2) and answer the Framing Questions from Crandall et al (2006) pp. 30 – 40:

1. What issue or need do you plan to address?
2. What will you deliver at the end of the project?
3. What sorts of people can tell you about this issue?
4. What aspects of expertise or types of cognition do you need to know about?
5. What type(s) of situation(s) will tell you the most about the issue you are exploring?

Chapter 4. Using Concept Maps for Knowledge Elicitation and Representation

1. What is a concept map?
2. What is the purpose of a concept map?
3. What are the elements (syntax) of a concept map and what do they mean (semantics)?
4. What is a knowledge model?
5. Using your own knowledge for now, create a simple, preliminary concept map of the domain of your HFE II CTA project. You may use CmapTools (<http://cmap.ihmc.us/>) or draw it by hand, but bring a legible diagram to class for the instructor to copy and distribute for discussion.

Chapter 5. Incident-Based CTA: Helping Practitioners “Tell Stories”

1. What kind of knowledge can one get by interviewing an expert about a specific incident?
2. Summarize the stages of the Critical Decision Method (CDM) using a hypothetical example from your CTA project domain.
3. What are some limitations of CDM? What challenges to CDM or open questions do you have about CDM?

Chapter 6. CTA Methods and Experiment-Like Tasks

1. Describe an experiment-like task you might have your expert perform to probe his/her knowledge for your CTA project.
2. How would you elicit your expert's knowledge in your investigation?

3. How might you analyze the data you obtained?
4. How might your findings be used?

Chapter 7. Analysis and Representation

The purpose of the following questions is to examine your CTA project in light of the phases of CTA analysis described in this chapter

1. Preparation.
 - a. What is the purpose of your CTA project?
 - b. Is your data complete for this purpose? What gaps are there?
 - c. In light of the time remaining for the completion of your project, should you consider narrowing its purpose and scope such that a complete and useful result can be obtained?
 - d. Given the (possibly narrowed) purpose and scope of your project, what data do you still need?
2. Data structuring.
 - a. Besides a Concept Map, how have you recorded and organized your data?
 - b. Stepping away from the Concept Map, what categories can you see in your data? See p. 115 in the book for examples.
 - c. What general (high-level) relationships exist in your data?
3. Discovering meaning.
 - a. What is the story emerging from your data?
4. Representing findings.
 - a. How are you representing – or how do you plan to represent – your findings?
 - b. Is your current or planned representation (e.g., a Concept Map) able to tell the story that you are discovering in the data? If not, how is it deficient?
 - c. What other representations might you use to make up for any deficiencies? See the tables and figures on pp. 120 – 124, but note that they are just examples and other methods are possible.