## CS464 Review for Test 1

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<thead>
<tr>
<th>50</th>
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<tbody>
<tr>
<td>Pig Test</td>
<td>Contextual Inquiry</td>
<td>Contextual Inquiry</td>
<td>Contextual Inquiry</td>
<td>Ethics-1</td>
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<tr>
<td>Contextual Design</td>
<td>Contextual Design</td>
<td>Easy to Use</td>
<td>Easy to Use</td>
<td>Ethics-2</td>
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<tr>
<td>Contextual Inquiry</td>
<td>Interaction Paradigms</td>
<td>Visionaries</td>
<td>Data</td>
<td>Refined Goals</td>
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What is “the pig test”?
Ans: Pig Test

When some one talks about “improving the interface”, does the change measurably improve the user’s accomplishment of their goals?
Ques: Problems with ‘Easy to Use’

What are some problems with the phrase “easy to use”?
Ans: Problems with ‘Easy to Use’

• How can we measure “easy to use”?  
• What does it mean?  
• The term means many things to many different people  
• But it is not something we can *measure*  
• Saying a system is “easy to use” or “not easy to use” does not tell us *why* users perceive it to be that way  
  – This makes it difficult to replicate successes and avoid similar mistakes
Ques: Mindset for ‘Easy to Use’?

How can you get into the right mindset to think about creating the impression of “easy to use”? 
Ans: Mindset for ‘Easy to Use’?

Think about what *measurable qualities* of the interface or of *users’ tasks* can be improved to create the impression of a system being “easy to use” and “usable”
Ques: Metrics for Usability

What are some metrics that indicate a system is “easy to use” or “usable”? 
Ans: Metrics for Usability

- **Learnability**
  - Time required to learn the interface
- **Memorable**
  - Can users remember how to use the interface?
- **Desirability**
  - Satisfaction in using interface
- **Cognitive Load**
  - How much cognitive effort is required
- **Physical Exertion**
  - Number of physical actions required
  - Strength of action required
Ques: Refined Goals

What are the refined goals of designing interactive systems?
Ans: Refined Goals

- *Discover* and *understand* user’s underlying goals and needs
- Develop *models* of users, including their goals, behaviors, and context of use
- *Design* to the data and the models created
- *Precisely measure* what ways the new system improves the user experience
Ques: Interaction Paradigms

What are the 4 major paradigms of interaction, when were they predominant, and what are their characteristics?
Ans: Interaction Paradigms

• Batch ~mid 1940’s – mid 1960’s
  – instructions prepared separately
  – multiple jobs submitted at once,
  – all jobs run to completion before users see any results
• Conversational ~mid 60’s – mid 90’s
  – command line typing on a terminal for input
  – results written to terminal for output
• Graphical ~mid 80’s to present
  – Graphics to interact with computer
  – Ex: WIMP
• Ubiquitous ~late 90’s to present
  – Actions same with computing devices as with non-computing devices
Ques: Visionaries

Who are the visionaries we studied, and what were their visions?
Ans: Visionaries

• Vannevar Bush
  – Memex
  – Linked multiple sources, media
• Ivan Sutherland
  – graphical interface
  – direct manipulation of objects
• Douglas Engelbart
  – NLS, hyperlinks
  – collaboration
• Alan Kay
  – computer as new communication medium
  – GUI
• Mark Weiser
  – ubiquitous computing
Ques: CD Goals

What are the overarching goals of Contextual Design?
Ans: CD Goals

• See breadth of data without being overwhelmed
• Use representations that support seeing work practice and system structure as a whole
• Support vision of complete solution
• Make work, system concrete, explicit, sharable
What are the major “steps” of Contextual Design?
Ans: “Parts” of CD

• Contextual Inquiry
• Design
• Prototype and Evaluate
• Implement
What are the 4 principles of Contextual Inquiry?
Ans: 4 Principles of CI

• Focus
• Context
• Partnership
• Interpretation
Ques: Relationship Models

What are possible relationship models used in Contextual Inquiry?
Ans: Relationship Models

- Guest/Host
- Interviewer/Interviewee
- Master/Apprentice
- Expert
Ques: Recognize Relationship Models

How do you recognize when you’re getting into an Interviewer/Interviewee relationship?
How do you get out?
Ans: Recognize Relationship Models

• Recognizing: You are asking a stock set of questions and getting only short answers back
• Getting back to Master Apprentice: “Can you show me?”
Ques: “Best” Relationship Models

What is the best relationship model for most of a contextual inquiry interview?
Ans: “Best” Relationship Models

Master Apprentice
Ques: Using Different Relationship Models

When do you use different relationship models?
Ans: Using Different Relationship Models

Interview Step
1. Explain project, gain consent
2. Start the “getting acquainted” interview (warm-up)
3. Move to “grand tour” interview
4. Move to contextual interview (work demos)
5. Wrap-up by summarizing and confirming what you heard

Relationship Progression
Interviewer-interviewee
Master-apprentice (M/A)
Partner: M/A but more equal power
Ques: Data Types

What are the different types of data we can collect?
Ans: Data Types

- Qualitative
- Quantitative
Ques: Data Levels

What are the different levels of data we can collect?
Ans: Data Levels

- Nominal
- Ordinal
- Interval
- Ratio
Ques: Data Examples

- the steps taken by a user to perform a task: Qualitative
- types of errors seen by several different users: Qualitative
- whether a user had success or failure when trying to perform a task: Nominal
- how long it takes to perform a task (min:sec): Interval
- high and low temperatures for days in January in Kelvin: Ratio
- high and low temps in Feb in Celsius: Interval
- Likert scale (Single Ease Question): 1 = Very Difficult, 7 = Very Easy

Overall, this task was? 0 0 0 0 0 0 0

Colorado State University
Ans: Data Examples

the steps taken by a user to perform a task

Qualitative

types of errors seen by several different users

whether a user had success or failure when trying to perform a task

nominal

Quantitative

Likert scale
(Single Ease Question)

Overall, this task was?

<table>
<thead>
<tr>
<th>Very Difficult</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very Easy</th>
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very difficult

Very Easy

high and low temps in Feb in Celsius

ordinal

how long it takes to perform a task (min:sec)

interval

high and low temperatures for days in January in Kelvin

ratio
### Ques: Discrete/Continuous Data

Which of these examples are discrete and which are continuous?

<table>
<thead>
<tr>
<th>Likert scale</th>
<th>(Single Ease Question)</th>
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<tr>
<td><strong>Overall, this task was?</strong></td>
<td></td>
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<td>1 2 3 4 5 6 7</td>
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<tr>
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<td></td>
<td>How long it takes</td>
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<td>(min:sec)</td>
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<td>in Feb in Celsius</td>
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<td>Interval</td>
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Ans: Discrete/Continuous Data

### DISCRETE

- **Likert scale**
  - (Single Ease Question)
  - **Overall, this task was?**

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### CONTINUOUS

- **Underlying scale is continuous, but we’re using discrete values**

- how long it takes to perform a task (min:sec)
- high and low temperatures for days in January in Kelvin
- high and low temps in Feb in Celsius

- **ordinal**
- **interval**
- **ratio**
We calculate a 95% confidence interval around the mean of the proportion of sample users who successfully complete a task as $0.7 \pm 0.28$. The sample reflects the actual population.

Which of the following statements is valid?

• There is a 95% **probability** that the population parameter mean value is between 42% and 98%.

• We can say that we are 95% **confident** that the **actual** population task success parameter **mean value** is between 42% and 98%.
We calculate a 95% confidence interval around the mean of the proportion of sample users who successfully complete a task as $0.7 \pm 0.28$. The sample reflects the actual population.

• We can say that we are 95% **confident** that the **actual** population task success parameter **mean value** is between 42% and 98%.
We have 2 different widget designs for a controller, and we test them with users who respond on a Likert scale (higher numbers are better). A $t$-test indicates the difference between responses for the 2 designs across this group of users is statistically significant.

Which are valid claims?

- There is a consistent difference between the responses, and based on the averages that design A is more well-liked than design B.
- Design A is twice as good as design B.
- The difference between the 4 and 2 is equal to what a difference between 3 and 5 would be.
Valid:
• There is a consistent difference between the responses, and based on the averages that design A is more well-liked than design B.

Invalid:
• Design A is twice as good as design B.
  – this is a ratio data claim
• The difference between the 4 and 2 is equal to what a difference between 3 and 5 would be.
  – this is an interval claim
A. Ethical without IRB approval.
B. Ethical with IRB approval.
C. Unethical.
Ans: IRB-1

A. Ethical without IRB approval.

From CITI/SBE, Students in Research:
“Observational studies of public behavior (including television and public Internet chat rooms) do not involve human subjects as defined when there is no intervention or interaction with the subjects and the behavior is not private.”
Ques: IRB-2

We are interested to see if people’s behavior about parking in handicapped parking spots changes if they know they are being observed. We set up an obvious camera that takes a picture whenever a car parks in a handicapped spot. It takes a picture when the car door opens and a person steps. It also takes a picture of the front license plate so that we can check to see if the owner actually has a handicap permit.

This practice is:

A. Ethical without IRB approval.
B. Ethical with IRB approval.
C. Unethical.
Ans: IRB-2

C. Unethical.

While there is no interaction and a parking lot may be considered a public place, information is gathered (license plate) that can lead to individual identification, and people cannot give consent or opt out. In addition there may be financial or psychological risk to them.