Midterm Review

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Intro HCI
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(CH 3) Perception: Gestalt laws

• Core principle:
• Pragnanz
  ◦ Regular, simple, orderly
**(CH 2) Memory**

- Includes creating and retrieving memories
- Don’t remember everything
- During creation, affected by:

  - Attention
  - Context (when, where)

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**(CH 1) The user experience**

- How a product behaves
- How it is used by people in the real world
  - The way people feel about it
  - Their pleasure and satisfaction when doing anything with it
  - “Every product that is used by someone has a user experience: newspapers, ketchup bottles, reclining armchairs, cardigan sweaters.” (Garrett, 2003)
- Aspects
  - From functionality to cultural identity
- Cannot design a user experience
  - Only design *for* a user experience

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(CH 2) Memory: The classic ’7±2’
- George Miller’s (1956)
- How much info people can remember
- Short-term memory capacity is limited

Models of emotion

(CH 5) Models of Emotion: Emotional Design Model
Visceral


Behavioral

http://www.trespassmag.com/review-drive/
Reflective

(Ch 8) Grounded Theory
Coding: Open coding

Coding: Axial coding

https://www.emeraldinsight.com/journals.htm?articleid=1838289&show=html
Coding: Selective coding

Grounded theory

(CH 2) Conceptual model

- High-level description
  - Organization
  - Operations
  - Concepts required for interaction

- In general, obvious models are best
- Designers “straighten out their thinking”
(CH 2) Components

- Metaphors
  - Understand what product for
  - Understand how to use
- Concepts people exposed to through product
  - Task-domain objects
  - Their attributes
  - Their operations
- Relationships between concepts
- Mappings between concepts and user experience

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(CH 1) Constraints

- Restricting possible actions
- Prevents selection of incorrect options
- Ex:
  - Insert a key into a lock
- Non-Ex:
(CH 2) The Bad

- Constrain conceptualization of problem space
- Break conventional and cultural rules
  - Ex: Recycle bin on desktop
- Limits designers’ imagination
- Inadvertently reuse bad existing designs
  - Conflict with design principles
- Users only understand in terms of metaphor

(Ch 2) Paradigm

- General approach adopted by a community for carrying out research
  - Assumptions
  - Concepts
  - Values
  - Practices
- Ex:
  - Desktop
  - Ubiquitous computing

(CH 2) Theory
• Explanation of a phenomenon  
  ▫ Ex: Information processing
• Can analyse and predict user performance
• Can help identify factors  
  ▫ Cognitive  
  ▫ Social  
  ▫ Emotional

(CH 2) Models
• Simplification of an aspect of HCI  
• Easier to predict and evaluate alt. designs  
• Abstracted from a contributing discipline  
• Ex: Psychology - keystroke model
(CH 2) Framework

- Set of interrelated concepts
- Advice in the form of
  - Steps
  - Challenges
  - Principles
  - Etc.
- Help constrain and scope

(Ch 2) Interaction types

- Way user interacts with product
- Instructing
  - Issuing commands
  - Selecting options
- Conversing
  - Interacting with system via “conversation”
- Manipulating
  - Interacting with objects via manipulation
- Exploring
  - Moving through environment
1. Instructing

- Users tell system what to do
  - Ex:
    - Tell the time (date +"%T")
    - Print a file (press button)
    - Save a file (ctrl+s)
  - Used in lots of devices and systems
    - Ex:
      - Word processors
      - VCRs
      - Vending machines
- The Good
  - Supports quick and efficient interaction

2. Conversing

- User and computer have conversation
- Large range
  - Voice recognition menu-driven systems
  - ‘Natural language’ dialogs
- Ex:
  - Search engines
  - Advice-giving systems
  - Pet robots
Pros and Cons

• The Good
  ▫ Allows users to interact in familiar way
• The Bad
  ▫ System does not always understand user

3. Manipulating

• Interact with virtual objects
  ▫ Drag
  ▫ Select
  ▫ Open/Close
  ▫ Zoom
• Exploit knowledge of physical world
• Virtual or both physical and virtual
• Interaction with physical objects results in physical/digital events
Pros

- Novices learn basic functionality quickly
- Experienced users have efficiency and breath
- Average users retain operational concepts
- Error messages rarely needed
- Immediate feedback
- Less anxiety
- Gain confidence and mastery
- Feel in control

Cons

- People take metaphor too literally
- Not all tasks can be described by objects
- Not all actions can be done directly
- Some tasks better done via delegating
  - Ex: spell checking
- Some tasks faster via other methods
  - Ex: mouse vs function key
- Screen space ‘gobblers’
4. Exploring

- Move through virtual/physical environments
- Physical environments + embedded sensors
  - Context aware
- Exploit how navigate in real world
- Ex:

![Image of people exploring virtual environments]

Best interaction type

- Instruction
  - Repetitive actions on multiple objects
  - Ex: spell-checking, file management
- Manipulation
  - ‘doing’ types of tasks
  - Ex: drawing, flying, driving, sizing windows
- Conversation
  - Children
  - Computer-phobic
  - Disabled users
  - Specialised applications
    - Phone services

![Image of a child using a computer]

(CH 7) Questionnaires: Q and A Format

Check boxes and ranges

https://37signals.com/holiday/01_finders/by_age.html
Rating Scales: Likert

Answer these questions on a scale from 1 to 5. 5 is strongly agree. 1 is strongly disagree.

1. I felt like a strong math student at the start of the year.
2. I feel like a strong math student now.

Please circle the number that represents how you feel about the computer software you have been using:

I am satisfied with it
Strongly Disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly Agree
It is simple to use
Strongly Disagree --- 1 --- 2 --- 3 --- 4 --- 5 --- 6 --- 7 --- Strongly Agree


Rating Scales: Semantic differential

6. Please rate the Package Image

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Inaccessible | Accessible
1 | 2 | 3 | 4 | 5 | 6 | 7

Rude | Courteous
1 | 2 | 3 | 4 | 5 | 6 | 7

Caring | Unsympathetic
1 | 2 | 3 | 4 | 5 | 6 | 7

**Low-fidelity Prototypes**

(CH 11) Storyboarding: Sketching

1. Drive car to gas pump
2. Take nozzle from pump...
3. ...and put it into the car's gas tank
4. Squeeze trigger on the nozzle until tank is full
5. Replace nozzle when tank is full
6. Say cashier

http://www.bigshinyrobot.com/reviews/archives/25540

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**Conceptual Model**

(CH 11) Minus scenario

(CH 11) Evolution vs. throwaway