Revision

Reading List

- Sharp, H., Rogers, Y., & Preece, J. (2010/2007/2015). Interaction Design: beyond human-computer interaction. New York: John Wiley & Sons, Inc.
  - NOTE THE HANDOUTS AND LECTURE NOTES DO NOT REPLACE THE CORE READING
- Gamberini, L. Chittaro, L. and Paternò, F. Human-Computer Interaction, Pearson, 2012.
- .

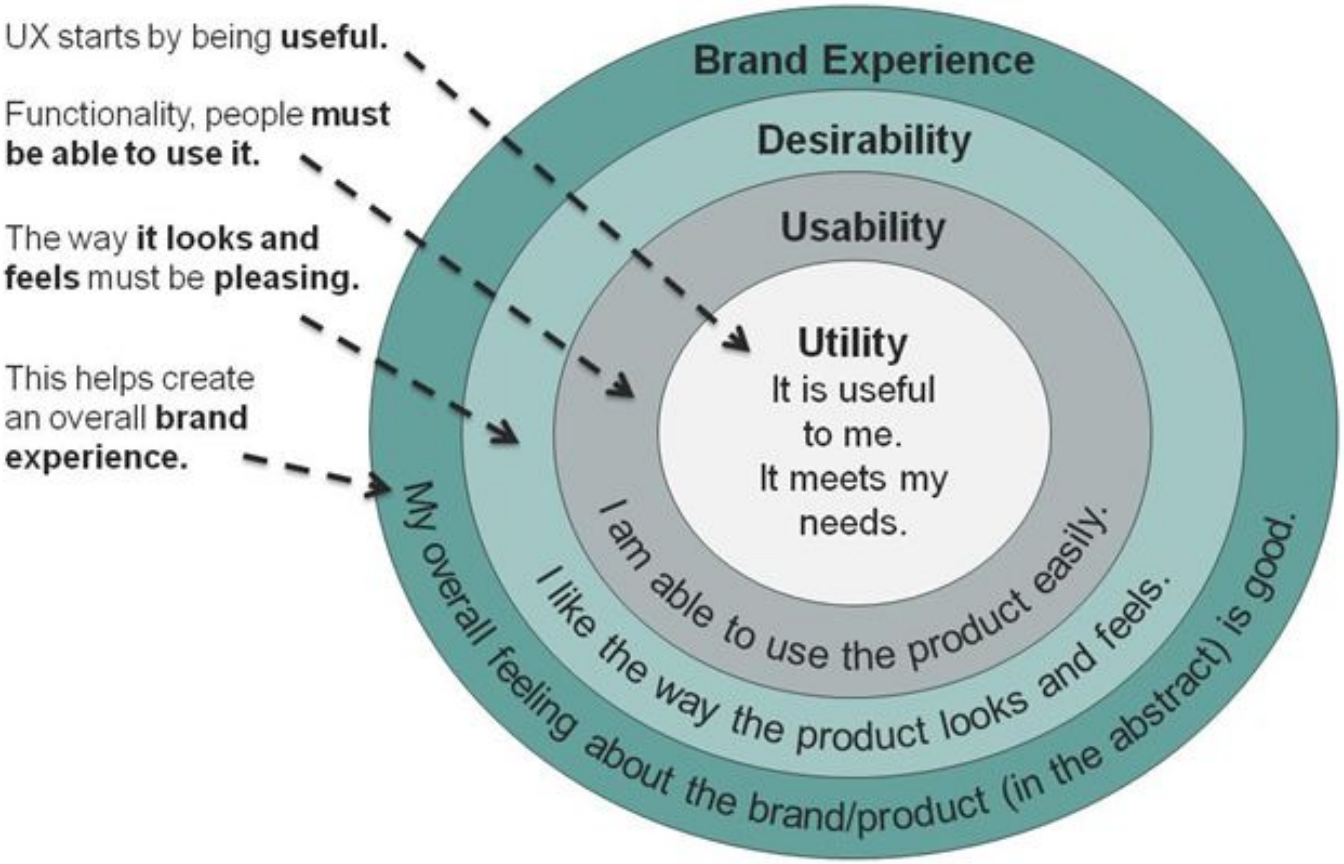
On-line resources

- http://www.id-book.com/
  - companion website for Preece et al.'s book
- http://hcc.cc.gatech.edu/
  - web portal maintained by Georgia Tech.
- http://www.baddesigns.com/
  - illustrated examples of things that are hard to use because they do not follow human factors principles

Usability

- Usability is a **quality attribute** that assesses how easy user interfaces are to use.
- Five quality dimensions:
  - **Learnability**: How easy is it for users to accomplish basic tasks the first time they encounter the design?
  - **Efficiency**: Once users have learned the design, how quickly can they perform tasks?
  - **Memorability**: When users return to the design after a period of not using it, how easily can they reestablish proficiency?
  - **Errors**: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
  - **Satisfaction**: How pleasant is it to use the design?
  - http://www.useit.com/

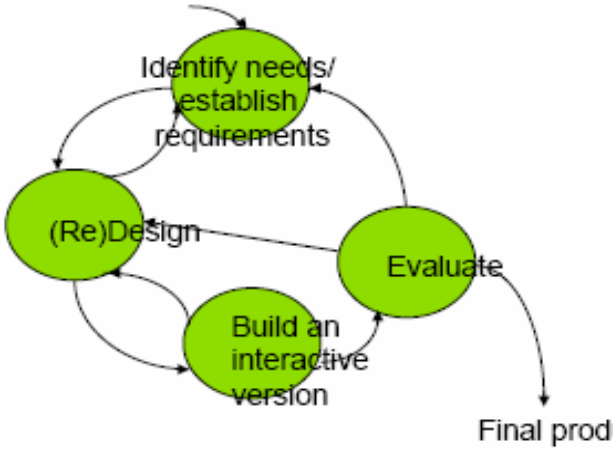
User Experience



Source: User Experience 2008, nnGroup Conference Amsterdam

Interaction design

- Interaction design
  - a goal-directed problem solving process informed by People, Activities, Context and Technology
- PACT analysis
- User-centred design
  - Identify needs and establish requirements
  - Design potential solutions (re-design)
  - Choose between alternatives (evaluate)
  - Build the artefact



- Quality Metrics: Usability and User experience goals

Design principles

- Simplicity
- Visibility
- Feedback
- Constraints (cultural – logical – physical)
- Mapping
- Consistency
- Usability principles – Nielsen Guidelines

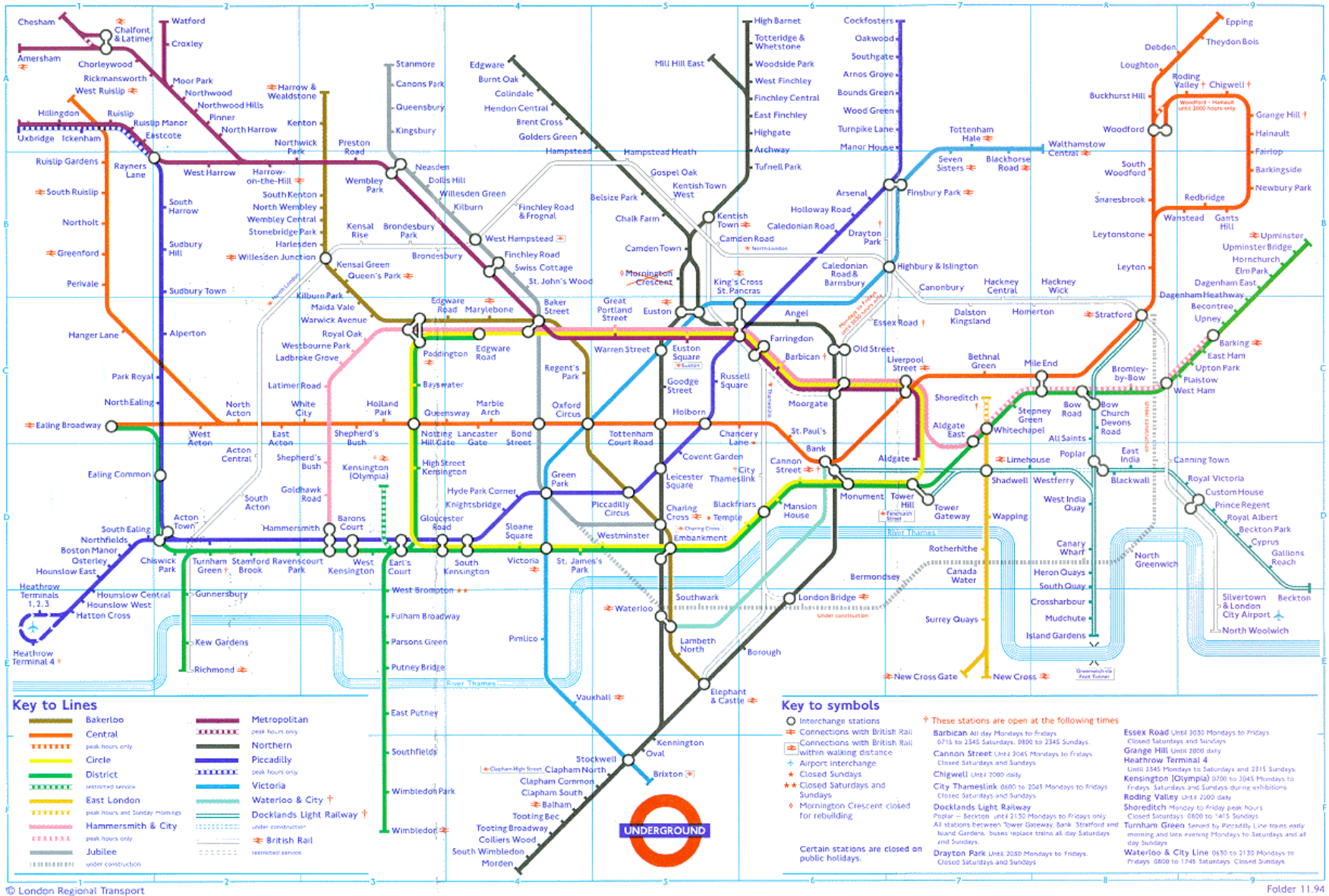
Usability heuristics (Nielsen 2001)

- Visibility of system status
- Match between system and the real world
- User control and freedom
- Consistency and standards
- Help users recognize, diagnose and recover from errors
- Error prevention
- Recognition rather than recall
- Flexibility and efficiency of use
- Aesthetic and minimalist design
- Help and documentation

http://www.useit.com/papers/heuristic/heuristic_list.html

http://designingwebinterfaces.com/6-tips-for-a-great-flex-ux-part-5

Designing Visual Interfaces - Simplicity

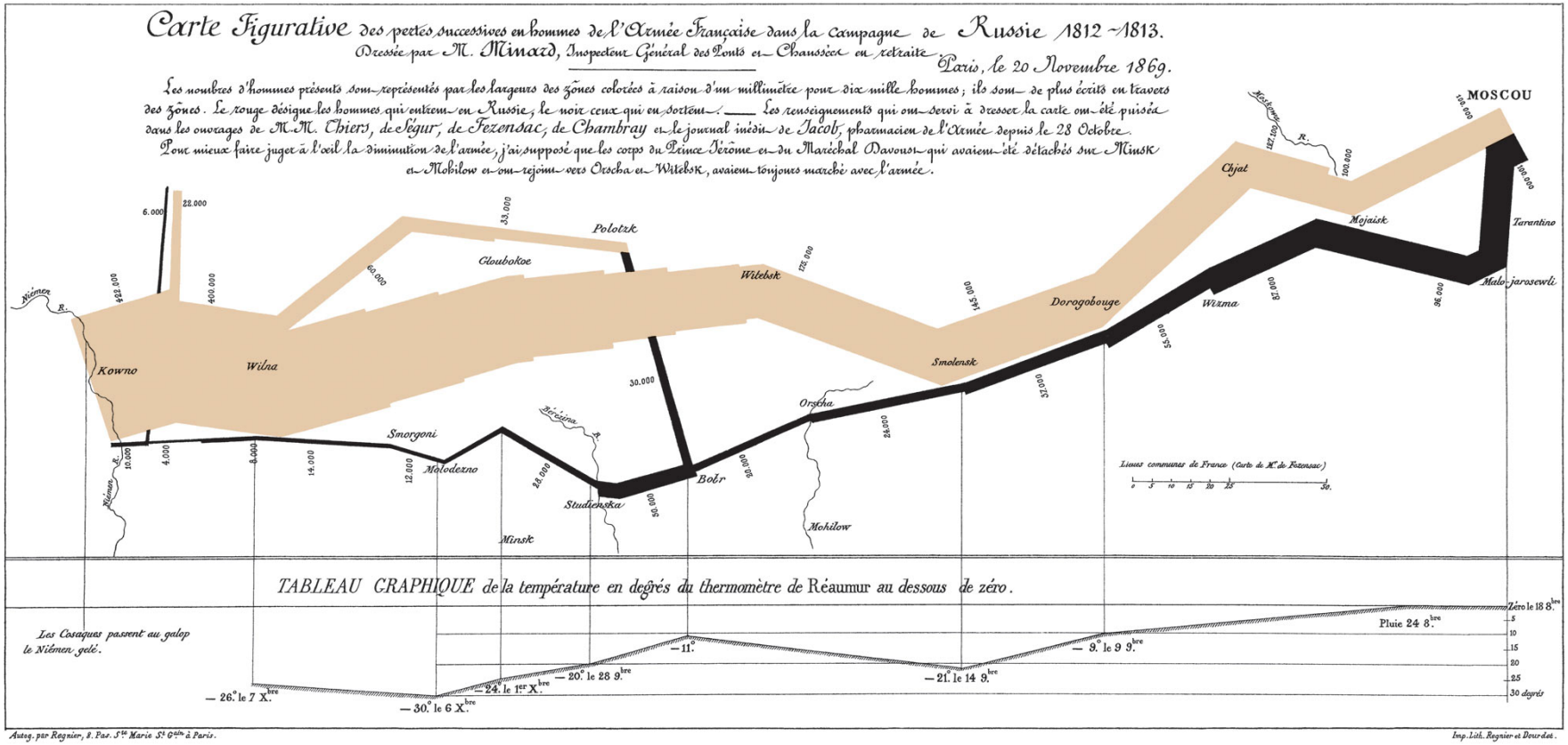


Techniques for design

- Reducing a design to its essence
- Regularising the elements of the design
- Combining elements for maximum leverage

Information Visualization

Graphics are a mean to display facts about the data in a way that others can see and understand the underlying structure and the hypothesis about the data (Rober, 2000).



User requirements

- Requirements type
  - Elicitation techniques
  - Problems with data gathering

Users

- Attention
- Perception and recognition
- Memory

Attention

- Set of mechanisms which regulate cognitive processes and feelings
- 3 different cognitive networks supporting 3 types of task
  - Alerting: achievement and maintenance of a state of arousal, or sensitivity to incoming stimuli
  - Orienting: selection of information from a source of incoming stimuli
  - Executive attention: maintain or suppress information, focussing to relevant parts of the perceptual field, while ignoring tasks irrelevant stimuli.

Gestalt psychology

- Perception = recognition of objects from basic visual elements
- When elements are placed in groups that define an object we tend to see the group and not the object
- The whole (gestalt) is greater than the sum of its parts
- Discover the principles used by the *visual* system to group elements

Design Tools

- Personas
- Scenarios

Understanding user needs

- Ask the user
  - Questionnaire – several type of scale
  - Interviews
  - Watch the user
    - observation

Field studies

- Observer immerse in the field – must have a very good knowledge of the context
  - Data is collected primarily by
    - observing natural behaviour
    - interviewing people
    - participants may also be required to fill out electronic or paper diary – distance evaluation

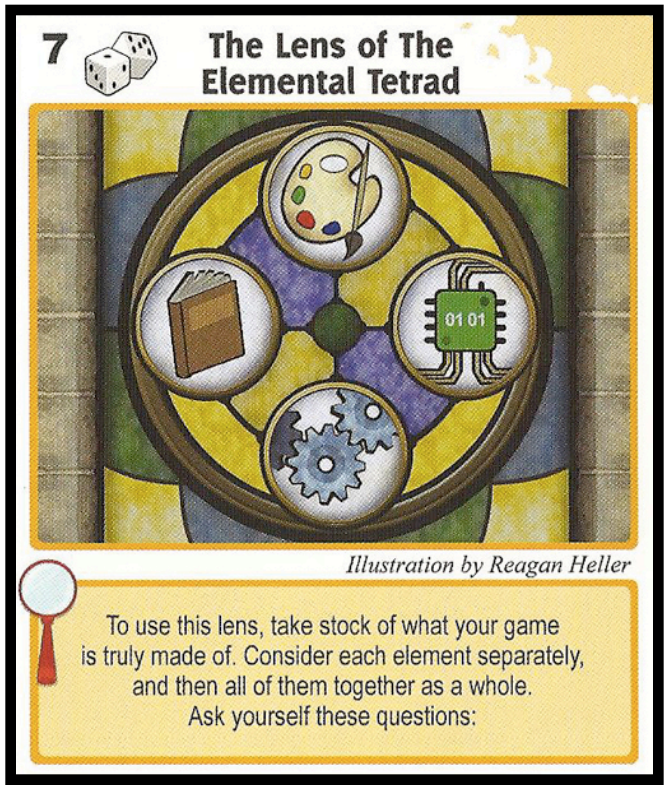
Prototyping

- Low Fidelity
  - Story board
  - Sketching
  - Experience prototyping
  - Role play
  - Videos
- Medium fidelity
  - Pictive
  - WOZ
  - Photoshop
- High Fidelity
- Vertical/horizontal

MDA Framework (Hunicke et al.)

- consumption of the game:

LENS #7: THE LENS OF THE ELEMENTAL TETRAD



- Mechanics -> the basic rules
- Story -> sequence of events
- Aesthetics -> visual and acoustic content
- Technology -> technological environment (e.g., controller)

Your Project

- Idea
- Evaluation
- First Design
- Evaluation
- Re-design

The Exam – Q&A

- Short exam + fail = next time full exam? **YES**
- Short exam in January + fail = full exam in June
- all the group members at the same exam? **NOT mandatory**
- Should the short exam be taken during Winter session? **NOT necessarily**
- When are we going to do the presentation? **Which presentation?**
- **NO material in class**

NOTE: self-assessment questionnaire

Short exam

Consider the course-work you submitted as an example of UCD of a game application. You do not have to advocate in favour of your proposal, but rather to identify strengths and limitations related to the methodology used. In the following questions you are required to reflect on how you could improve the UCD process if you had to start the project right now.

a) Describe the user-centred design process you have used in the course-work and criticise it. Clarify the initial design objectives and priorities, stating all the UCD phases you engaged in to maximise the user experience of the game proposed. Discuss the problems you have encountered in each UCD phase highlighting how you would solve them if you had to do it again. Elaborate on what you would do differently if you could start the project right now.

b) Discuss how the design took into consideration the cognitive caracteristics of the users you were designing for. Define attention, perception and memory and explain how the proposed interface took into consideration all of these aspects. Discuss the limitations of your design.

c) Compare and contrast the different evaluation approaches you have used during the course-work identifying strenghts and limitations.

Full exam

- 20 closed questions (with minimum threshold)

The PACT analysis is used to

A) conduct summative evaluations of systems

B) formalise plans for hierarchical task analyses

C) quantify usability errors

D) reason about a design problem

- 2 rounds of open questions (like previous slide) on two different context