

**USER INTERFACE DESIGN & IMPLEMENTATION**

INSTRUCTORS  
Hyowon Lee  
Prof Larry Young

	Monday (11:30am – 1pm)	Tuesday (4:30 – 6pm)	Thursday (11am – 1pm)
Week 1 (23 Jan)	Introduction/ background	User classification	Project overview, team up
Week 2 (30 Jan)	CNY holiday	UI design concepts	Project - scoping
Week 3 (6 Feb)	UI design concepts	UI design concepts	Project - scoping
Week 4 (13 Feb)	UI design concepts	Understanding Users (Industry)	Project - scoping
Week 5 (20 Feb)	UI concepts / Impact	Evaluation	Project
Week 6 (27 Feb)	Evaluation	Evaluation	Mid-term report/presentation
Week 7 (6 Mar)	Recess Week		
Week 8 (13 Mar)	Project	Project	Project
Week 9 (20 Mar)	Project	Project	Project
Week 10 (27 Mar)	Prof Young Special Lec 1	Prof Young Special Lec 2	Project
Week 11 (3 Apr)	Prof Young Special Lec 3	Prof Young Special Lec 4	Project
Week 12 (10 Apr)	Project	Project	Project
Week 13 (17 Apr)	Project	Project	End-term report/presentation
Week 14	Final Exam		

## Guideline 2: Simple and natural dialogue

- Minimise the *artefacts*
- Grouping – Separating - Prioritising - Sharpening
- Readable fonts
- Good use of colour
- **Layout concerns**

## Layout

- Sequence of action
- Alignment
- Symmetry vs. Balance

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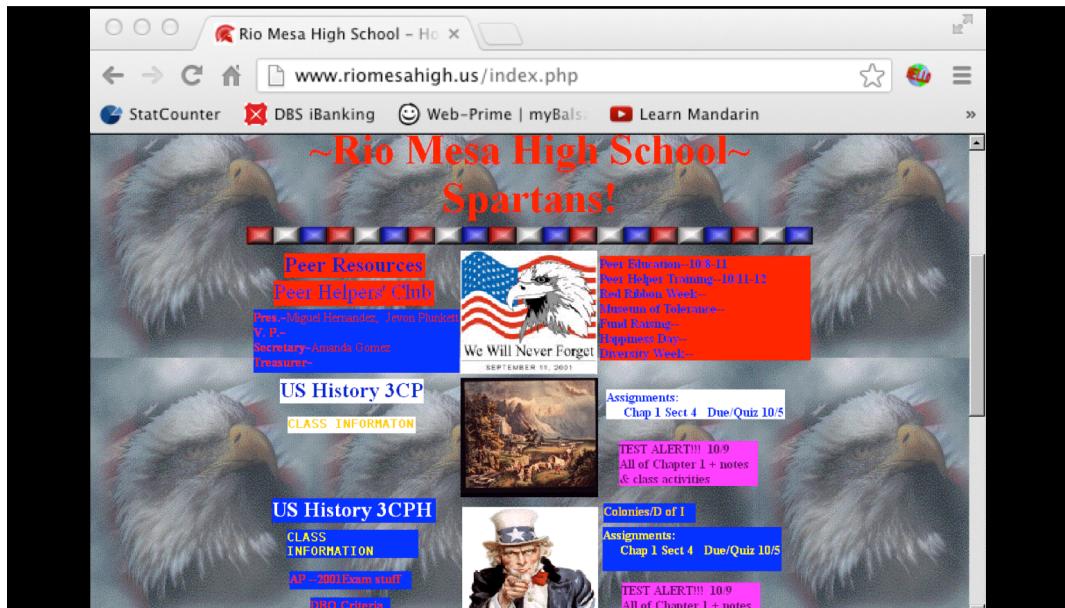
SUTRA



## Guideline 2: Simple and natural dialogue

- Minimise the *artefacts*
- Grouping – Separating - Prioritising - Sharpening
- Readable fonts
- Good use of colour
- Layout concerns
- **Emphasis**

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## Guideline 3: Speak the user's language

Instruction, message, icons, style... from  
the target user's point of view

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### Guideline 3:

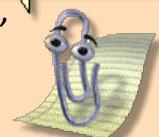
“We have sold you 2 items from the shelf”  
 → “You have bought 2 items from the shelf”  
 (user's point of view)

“Action preference #327 initiated”

→ “Background setting ready”  
 (no system-oriented information)

It looks like you're trying to reverse  
engineer an iOS app.  
 • Try ‘bundle exec  
reverse-engineer-app’  
 • Wave a toy gun at the cops

“I completed phase 1, you can continue now”  
 → “Phase 1 complete. Please continue”  
 (non-anthropomorphic dialogue)



**Guideline 2:**

"I will begin the lesson when you press RETURN."

"I will begin the lesson when you press RETURN."

**Non-anthropomorphic design guidelines**

- Be cautious in presenting computers as people, either with synthesised or cartoon characters.
- Design comprehensible, predictable, and user-controlled interfaces.
- Use appropriate humans for audio or video introductions or guides.
- Use cartoon characters in games or children's software, but avoid them elsewhere.
- Provide user-centred overviews for orientation and closure.
- Do not use "I" when the computer responds to human actions.
- Use "you" to guide users, or just state facts.

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iOS app.  
idle exec  
engineer-app'  
toy gun at the cops

Steinleiderman Look

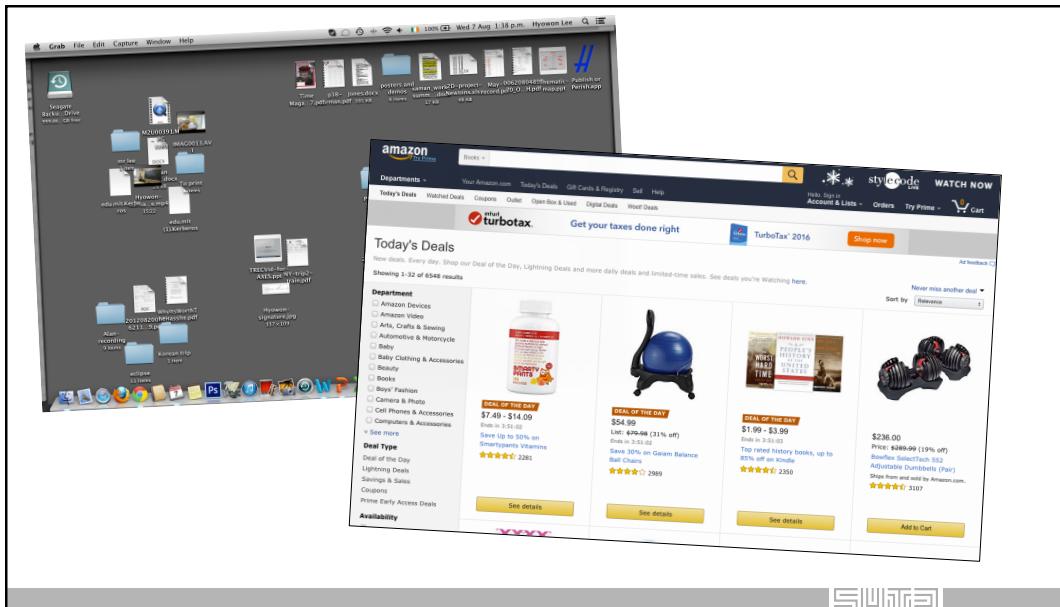
**Guideline 3:**

**Speak the user's language**

*Instruction, message, icons, style... from the target user's point of view*

**Metaphor**

SUTRA



**Guideline 3:**  
Speak the user's language

Instruction, message, icons, style... from the target user's point of view

**5 Usability Criteria**

- Efficiency
- Learnability
- Memorability
- Error rate
- Satisfaction

Metaphor

... leveraging user's knowledge on real world

... where metaphor breaks!

**Guideline 4:**  
*Provide informative feedback*

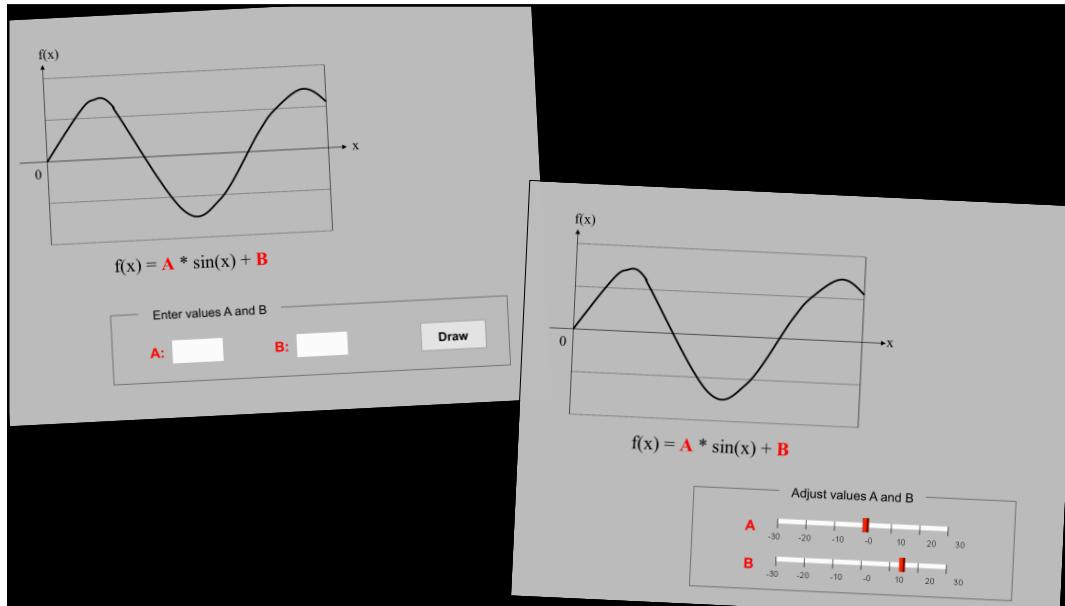
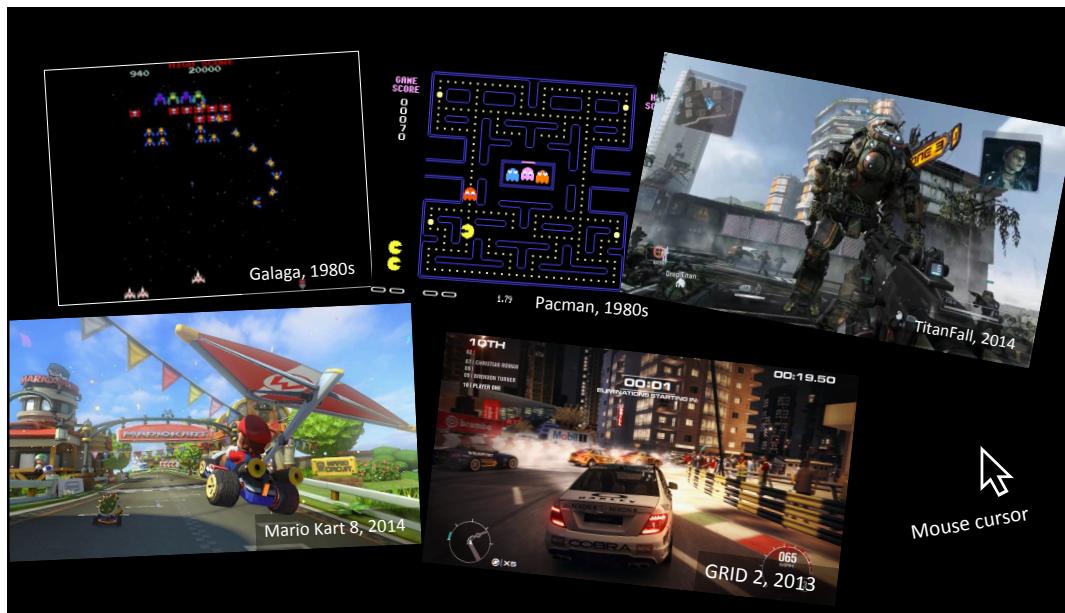
- UI should provide clues on user's action
- While waiting?  
Computation power, graphics processing, network bandwidth...  
User's expectation ↑

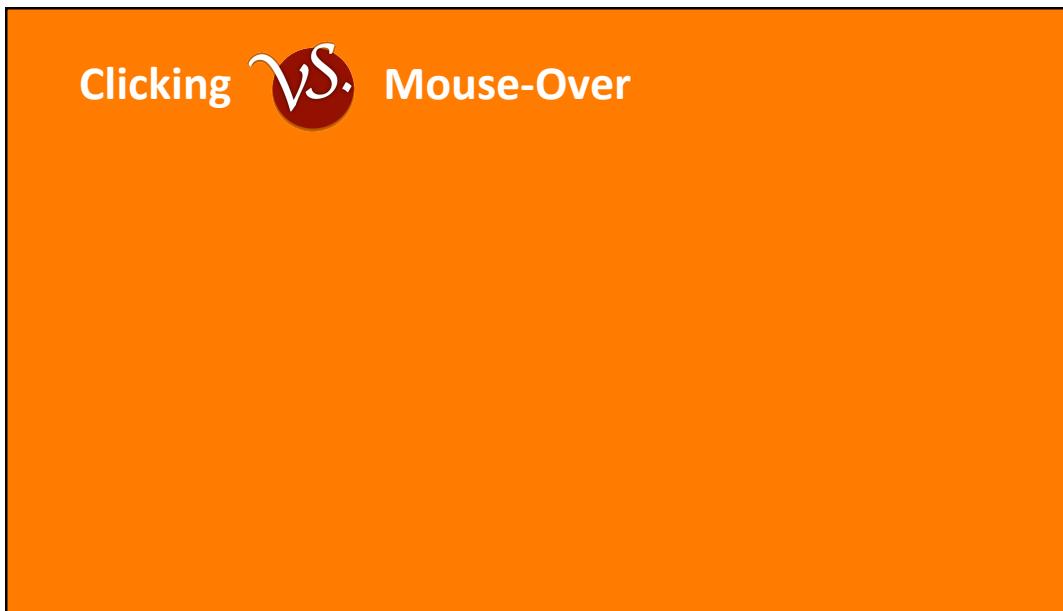


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**Direct Manipulation**

- Immediate and continuous feedback
- Incremental and reversible user action
- No user-driven error





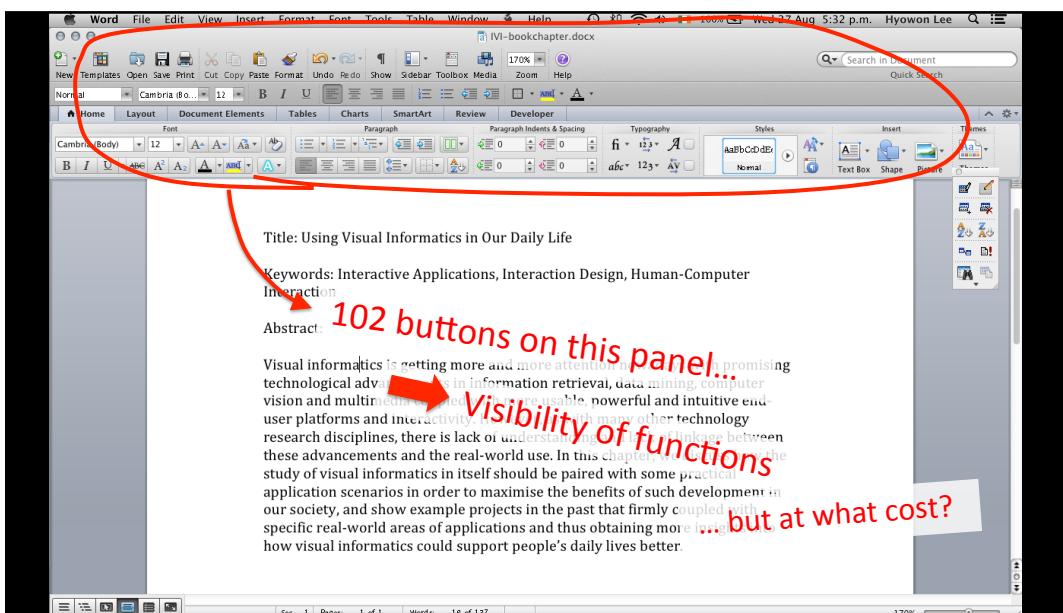
A screenshot of Microsoft Word showing the ribbon interface. A red oval highlights the 'Home' tab and its associated ribbon icons. A red arrow points from the text 'Mouse-over activated?' to the word 'Interaction' in the document's abstract section.

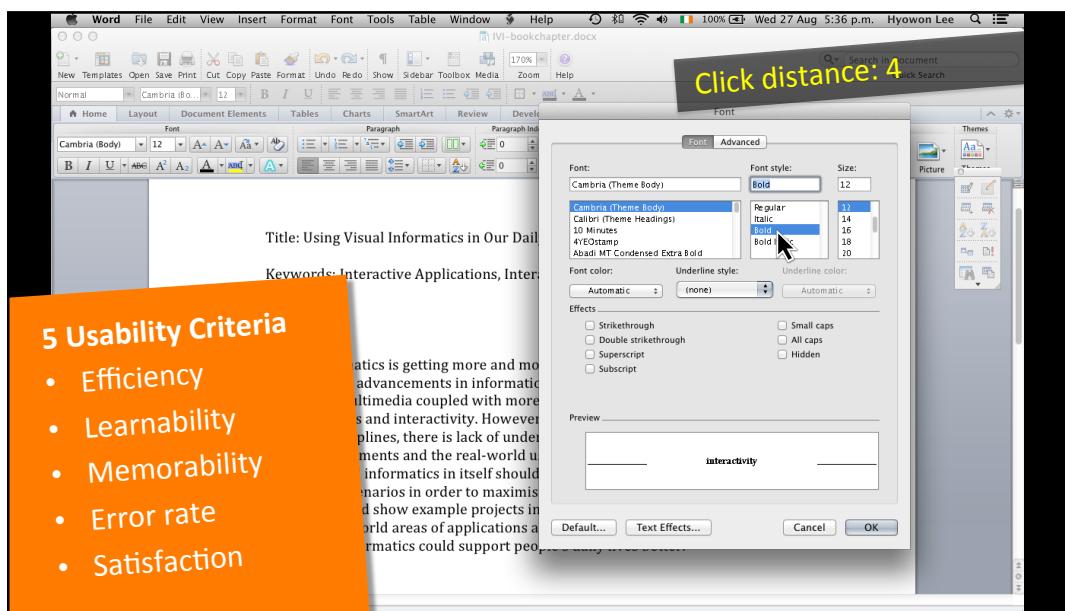
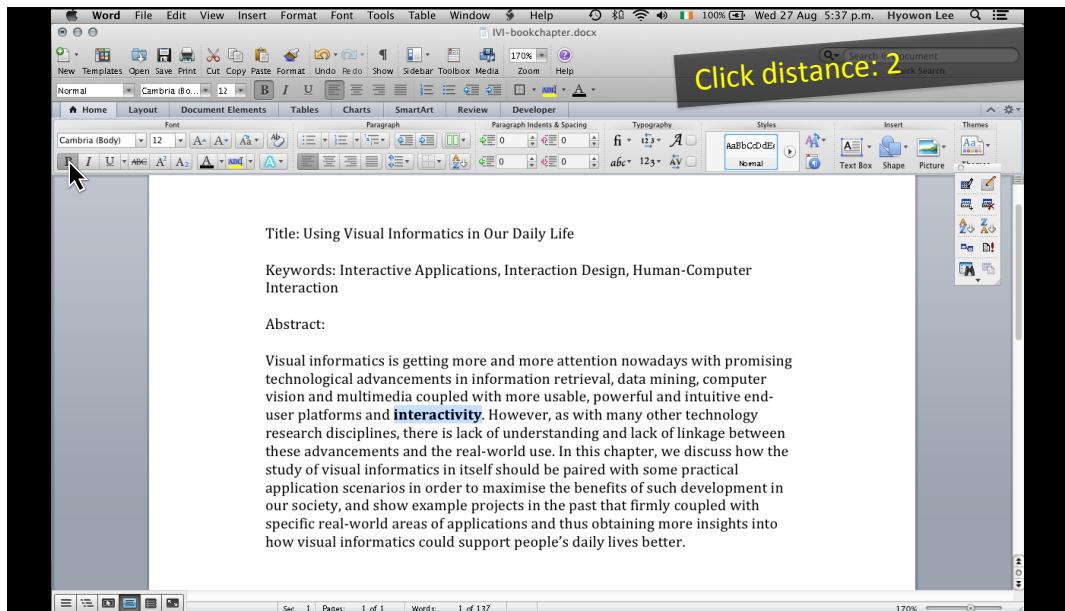
**Title:** Using Visual Informatics in Our Daily Life  
**Keywords:** Interactive Applications, Interaction Design, Human-Computer Interaction  
**Abstract:** *Mouse-over activated?*  
 Visual informatics is getting more and more attention *vs.* with promising technological advancements in information retrieval, data mining, computer vision and multimedia coupled with more usable, powerful and intuitive end-user platforms and interactivity. However, as with many other technology research disciplines, there is lack of understanding and lack of linkage between these advancements and the real-world use. In this chapter, we discuss how the study of visual informatics in itself should be paired with some practical application scenarios in order to maximise the benefits of such development in our society, and show example projects in the past that firmly coupled with specific real-world areas of applications and thus obtaining more insights into how visual informatics could support people's daily lives better.

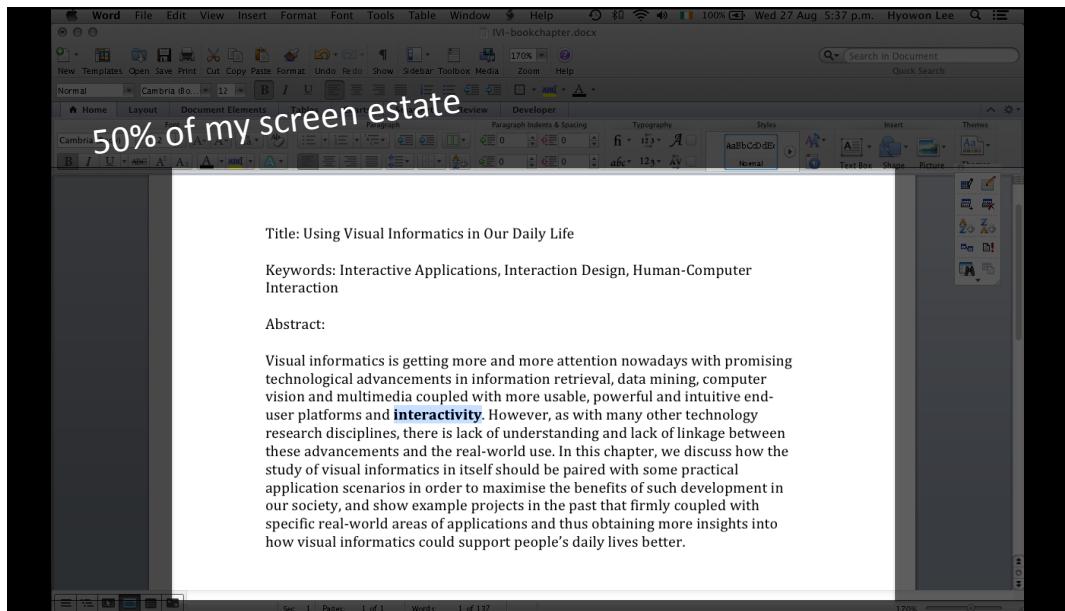
## Guideline 5: Reduce user's memory load

- Make the possible actions and/or status **visible**

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**Course Description**

This course examines the principles of Human-Computer Interaction (HCI), introduces theories, guidelines and heuristics for creating usable interaction strategies. Various interaction paradigms and the design principles behind usable graphical user-interfaces are covered. Interaction prototyping techniques, design processes, usability engineering, usage scenario design, user experience and evaluation methodologies will be learned in the context of specific real-world projects. Students will be equipped with the knowledge and skills in designing effective, usable and attractive user-interfaces and an eye to quickly assess the quality of a designed interface. Pushing students further to the *designerly way of thinking* and acting rather than staying in the conventional school of usability engineering tradition of obtaining firm and detailed user requirements, this course expands the 3.007 Introduction to Design course from the Freshmore year to prepare the students move into *software application design* where the initial set of information or requirements are lacking.

**Learning Objectives**

1. Understand the concept of usability, design principles, guidelines, heuristics and other fundamentals of Human-Computer Interaction
2. Analyse a set of requirements in terms of its user-interface implications
3. Develop a usage scenario for a given set of user requirements and available technologies
4. Construct a user-interaction strategy for a given problem
5. Sketch a series of user-interfaces for a given use scenario
6. Implement a designed user-interface to demonstrate its functionality and usability
7. Employ a set of usability engineering methods to refine a designed user-interface
8. Evaluate a user-interface using suitable evaluation methodology

**Measurable Outcomes**

**WORDS 1,253**

Pages	21
Characters	25,201
Lines	314
Paragraphs	96

**Hyowon's new Word UI...  
its visibility is not on the  
functionalities, but on the  
current status (progress of  
the user's writing)**

## Guideline 5: Reduce user's memory load

- Make the possible actions and/or status **visible**



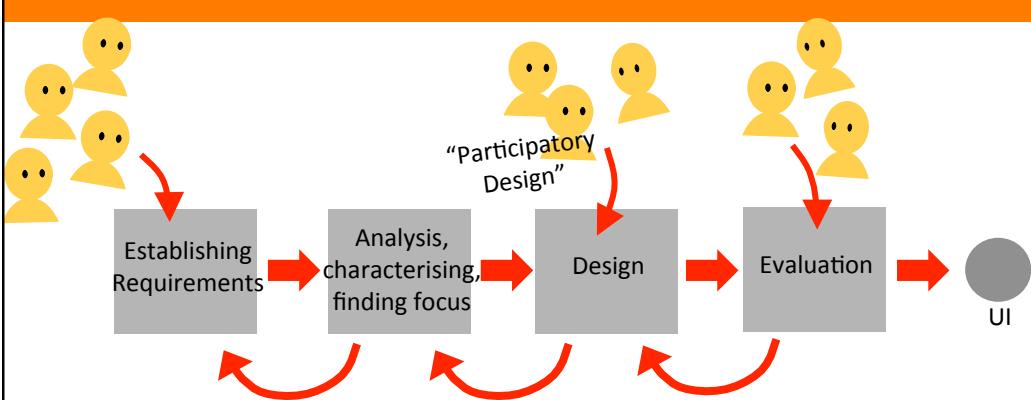
## ACTIVITY

Re-design web browser UI with “Make the possible actions and/or status visible” in mind

- Structure of the page
- Hyperlinks
- User comments
- Page length
- :

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## User-Centred Design



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## Guideline 5: Reduce user's memory load

- Make the possible actions and/or status **visible**
- **Recognition** rather than **recall**

To be  
continued

