

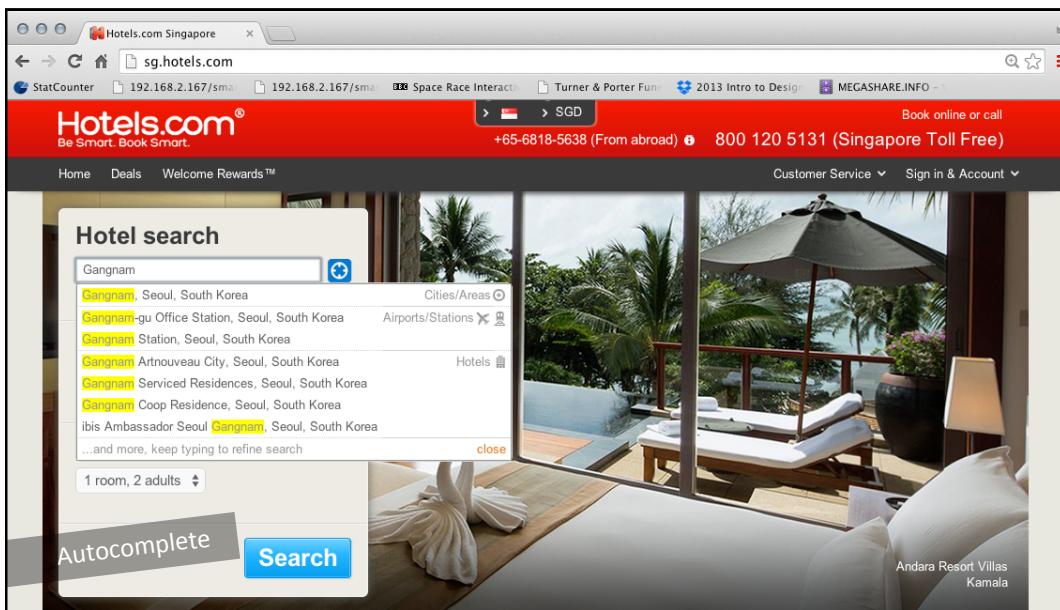
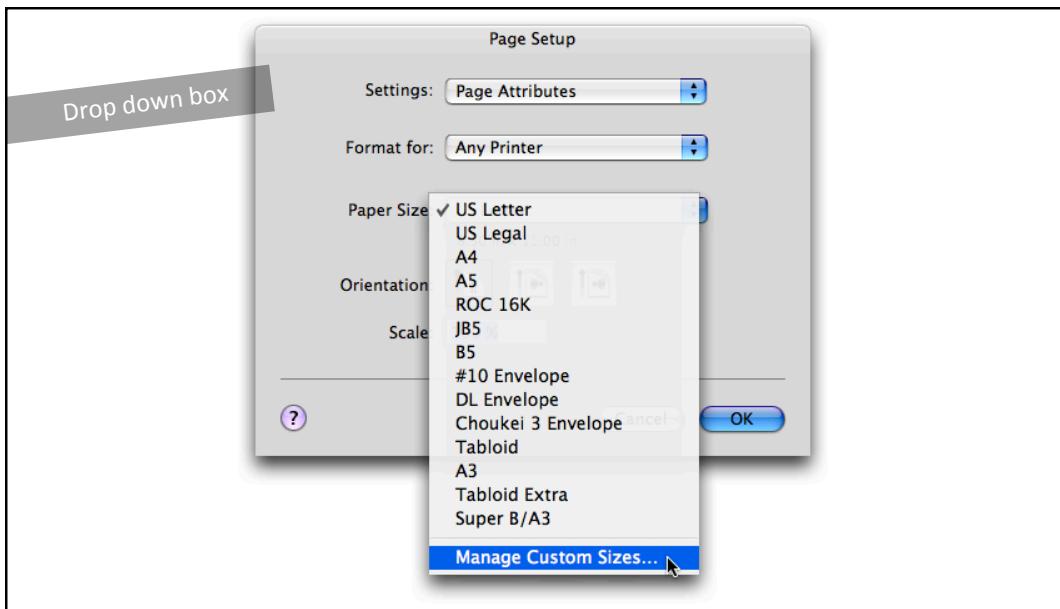
**USER INTERFACE DESIGN & IMPLEMENTATION**

**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) (20 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 5: Reduce user's memory load

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





**DISCUSSION**  
Forgot email attachment?

Sorry, forgot the attachment - here it is.  
Hyowon

 Guideline-flyer.pptx  
119 KB

On 9 Sep 2014, at 14:53, Hyowon Lee <[hlee@sutd.edu.sg](mailto:hlee@sutd.edu.sg)> wrote:  
Dear All,

Please have a look at the presentation (PPT slides) as you requested. Let me know what you think - especially the motivation aspects. Your feedback will be appreciated.

Regards,  
Hyowon

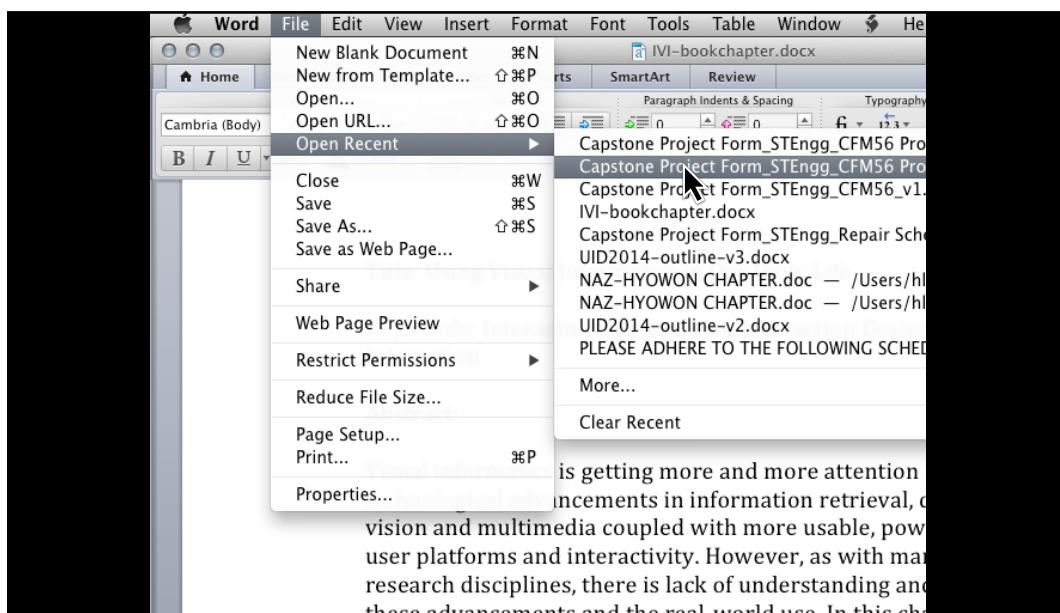
**Guideline 6:** Provide short-cuts for frequent use

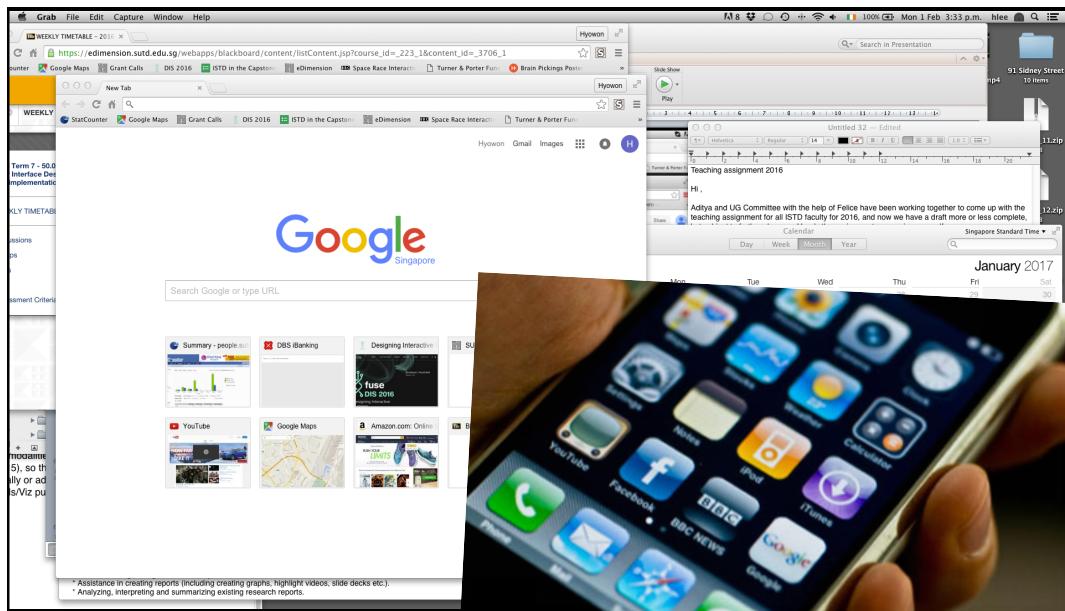
- Accelerators (ctrl-c/ctrl-v,...)
- Default values / template
- Action history
- Recently-opened

Reduces click distance  
≈ saves my time

**5 Usability Criteria**

- Efficiency
- Learnability
- Memorability
- Error rate
- Satisfaction

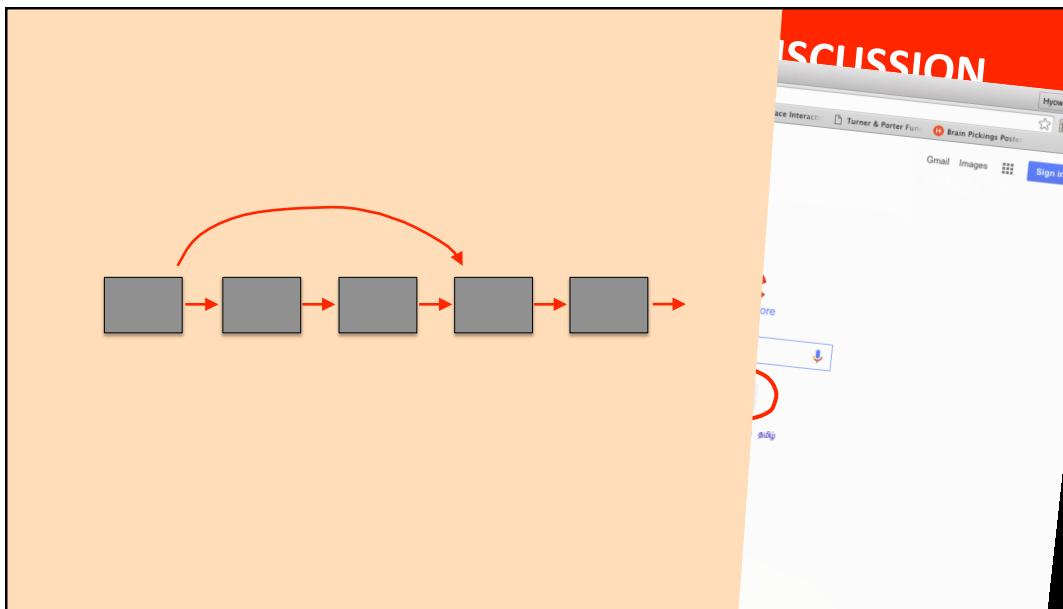





**DISCUSSION**

**What channel should it be?... Predicting user needs**

- Who is the user? (TV vs. smartphone)
- What channel does she want to watch?
- Desire for novelty vs. desire for high-quality
- Cost of false prediction (e.g. online purchasing without selecting an item?)

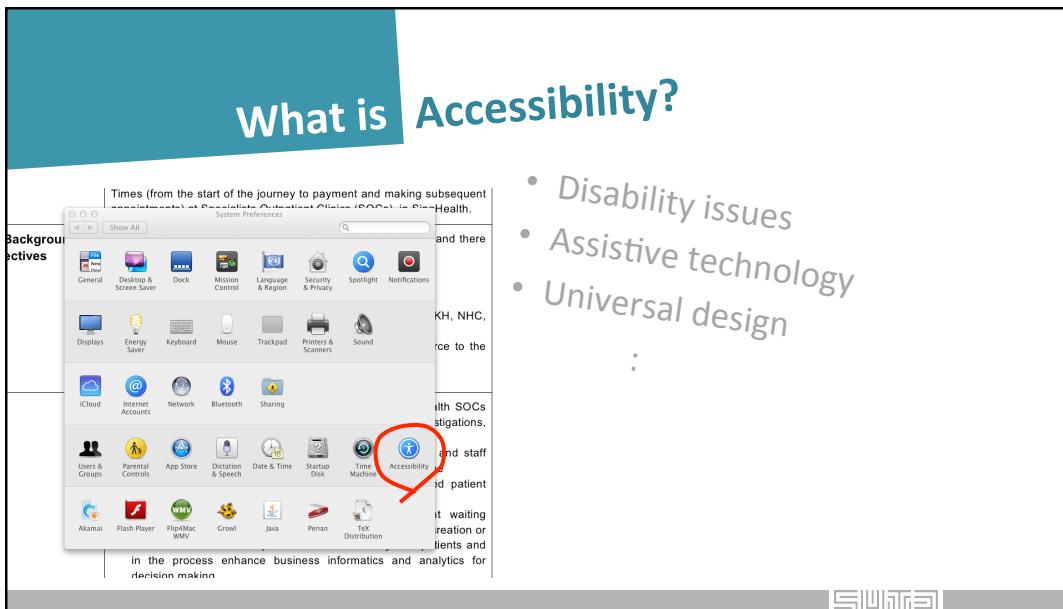


**ACTIVITY**

Re-design currency converter UI with “Provide short-cuts for frequent use” in mind

- Accelerators (ctrl-c/ctrl-v,...)
- Default values / template
- Action history
- Recently-opened

## What is Accessibility?



The screenshot shows the Mac OS X System Preferences window. The title bar says "System Preferences". The main pane is titled "Background & Screen Saver". On the right, there's a sidebar with sections like "KH, NHC, and there", "with SOCs", and "in the process enhance business informatics and analytics for decision making". At the bottom, there's a note about "Times (from the start of the journey to payment and making subsequent payments at Specialist Outpatient Clinics (SOCs) in SimHealth)." The "Accessibility" icon (a blue circle with a white 'i') is circled in red.

- Disability issues
- Assistive technology
- Universal design

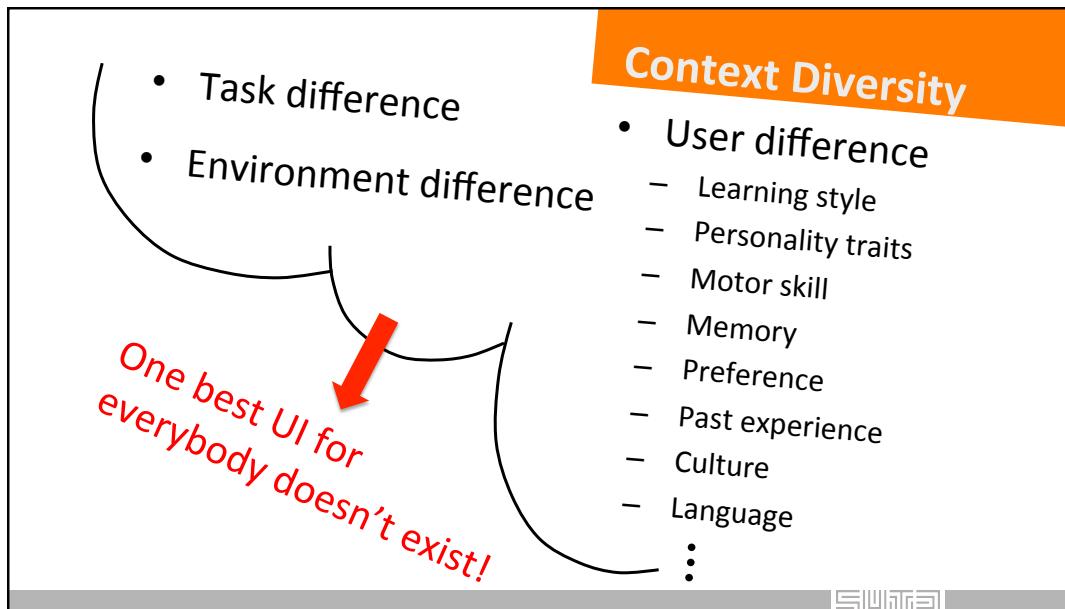
## Accessibility

Making the UI so that users with impairments can use

Impairments affect everybody

- Aging
- Over-exposure (e.g. RSI)
- Situational disability

- Visual impairments
- Hearing impairments
- Motor impairments
- Cognitive impairments



## Universal Design

Making one UI for everybody...

- “Design for All”
- Not sacrificing efficiency
- Often it works, because...

**Guiding Principles for UD**

- Equitable use
- Flexibility in use
- Simple & intuitive
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and space for approach and use

<http://www.ncsu.edu/project/design-projects/sites/cud/content/principles/principles.html>



+...

- Customisable font size, background colour, contrast
- Not relying on colour alone
- Flashing as well as beeping
- Closed caption for videos
- Pointing (mouse) interaction having keyboard alternatives

SUTRA



**Guideline 7:**  
Good error messages

- “Error 404” → “Page not found”  
(be self-explanatory)
- “Syntax error” → “Unmatched left parenthesis”  
(be specific)
- “Undefined labels” → “Define statement labels before use”  
(be constructive)
- “Don’t use special characters!!!” → “Avoid special characters, instead...”  
(be polite)

**Guideline 7:** Shred this guideline?  
**Good error messages**

- Four things to remember
  - Be self-explanatory
  - Be specific
  - Be constructive
  - Be polite

→ If you're designing an error message, think **how error could be avoided** in the first place...

We expect there will be no need to design any error messages in the future (at least for consumer applications)



**Guideline 8:** Prevent user-driven errors...

- ... before designing error messages
- Block any possibility of user-driven error

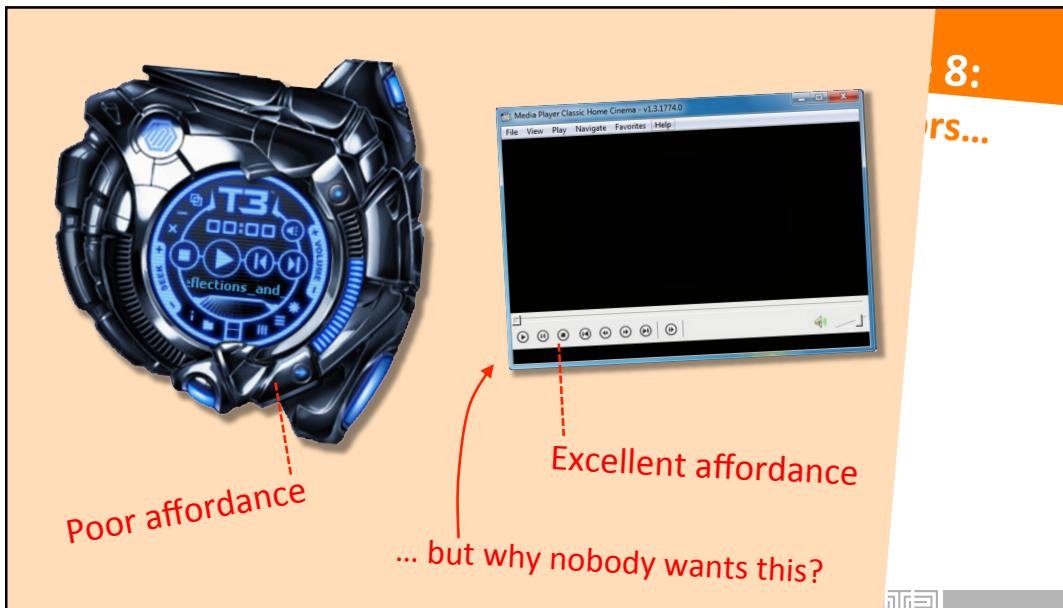
# Affordance

Cue or clue that suggests an interaction possibility  
 e.g. "a button affords clicking"  
 "a ball affords grabbing"

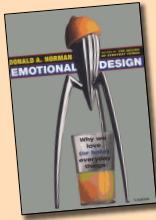
**DISCUSSION**

## Flat vs. Skeuomorphism

Figure from <http://sachagreif.com/flat-pixels/>  
Read the article: Sacha Greif, Battle between Flat Design and Skeuomorphism



Don Norman, Emotional Design: why we love  
(or hate) everyday things, Basic Books, 2004.  
<http://proquestcombo.safaribooksonline.com/>  
9780465004171



## 3 Levels of Design

- **Visceral** – visual/physical appeal
  - pretty, good-looking, aesthetic, feel good
- **Behavioral** – functional
  - What we normally say ‘usability’ nowadays
  - Usability engineering
  - “Design by committee”
- **Reflective** – value by the user, image, culture
  - Products can be more than sum of the functions they perform
  - Reflective value can outweigh behavioural difficulty

8:

rs...

To be  
continued