Comp 341/441 - HCI - Slides

Spring Semester 2018 - week 13

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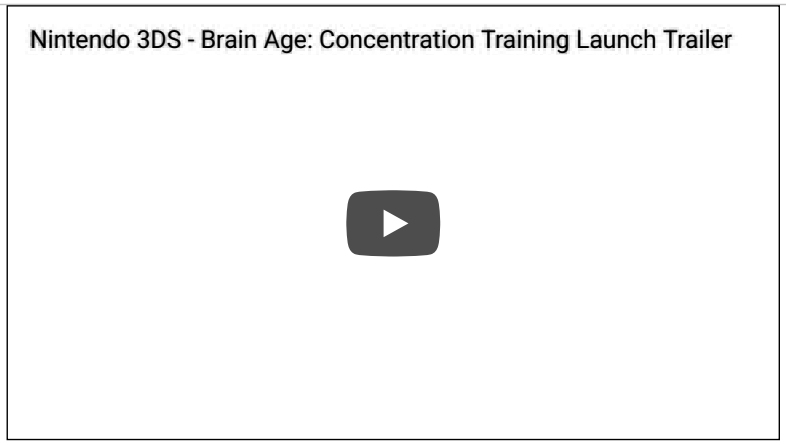
Users and Skills

gaining competence

- practice allows us to determine improvement relative to a given activity
- **four stages of competence** model suggested by Robinson in 1974
- this model suggests the following stages a user may follow to mastering a skill
  - ***unconscious incompetence***
    - user is unaware of how bad he or she may be relative to a particular skill
    - may even by unaware that the skill exists
  - ***conscious incompetence***
    - as user attempts a given skill, they become increasingly aware of a deficiency of skills
    - realise need to improve that skill through further training, learning, practice...
    - may be a daunting and overwhelming realisation for many users
  - ***conscious competence***
    - practice allows a user to engage in training sessions, exercises...
    - effectiveness of such training can vary greatly
    - often dependent upon task itself, suitability of chosen practice and training
  - ***unconscious competence***
    - complete a task without really thinking
    - act of working, completing an exercise has become natural to the user
    - do not really need to think about the given act...
- games are a good example of hands-on training and practice

Video - Users and Skills

Nintendo's Brain Age



Nintendo Brain Age: Concentration Training
Source: YouTube

Principles for Usability

intro

- consider some of the underlying design principles that help guide our designs
- e.g. Don Norman's design principles for usability
  - *Norman, D. The Design of Everyday Things. 1988.*
- Norman introduced a set of basic design principles and concepts
  - *consistency*
  - *visibility*
  - *affordance*
  - *mapping*
  - *feedback*
  - *constraints*

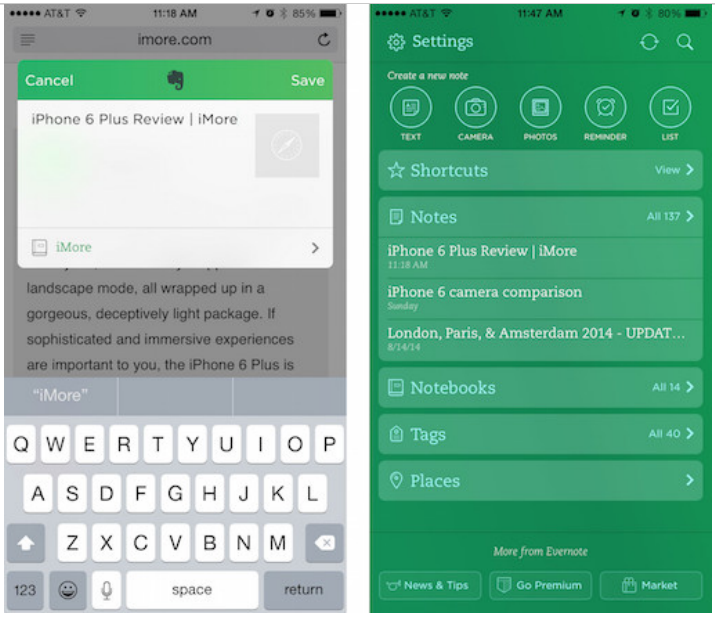
Principles for Usability

consistency

- one of the primary ways our users learn is by discovering *patterns*
  - *new situations easier to learn by reference to existing patterns of knowledge*
- *Consistency* is key in helping our users recognise and apply such patterns
- overall, things that look the same should perform the same general way
  - *same button, same colour normally infers same pattern of interaction and usage*
- behaviour and actions should also follow a similar pattern
  - *sound, animation, vibration etc should follow a similar pattern for users*
- design inconsistency can cause confusion and overload for our users
- memorisation of exceptions may also increase user resentment towards the app
- internal design and interaction consistency crucial for our users
- external consistency equally important and useful
  - *consistency between OS and app design guidelines*

Image - Principles for Usability

Evernote



Evernote for iOS 8

Source - Evernote

Principles for Usability - Consistency

Fun exercise - part 1

Consider a company's online services, which are available as both a responsive web application and mobile app. e.g. a mix of music and video streaming and editing...

Then, outline the following

- default *consistency* considerations for UI design - explicit
- subtle *consistency* considerations for UX - implicit
- difference between internal and external *consistency* for these apps
  - *consider both web and mobile apps...*

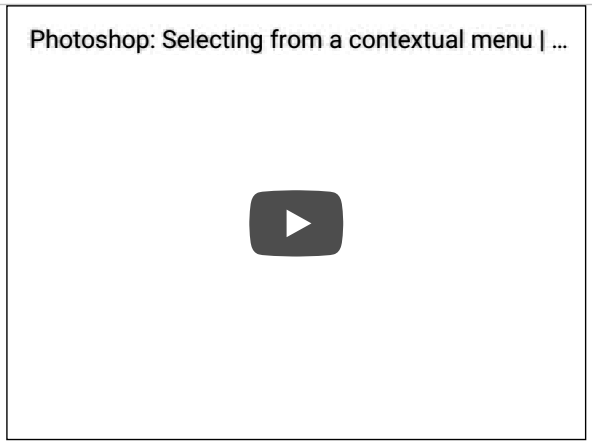
Principles for Usability

visibility

- users normally learn app functionality by visually inspecting the UI
  - *e.g. available menus, menu items, icons, buttons, links, tools etc...*
- sequential tasks should be well labelled and navigation obvious
  - ***next*** *button obvious, and highlighted*
- usability and learnability naturally improved when options and commands clear and visible
  - *controls should be easily visible, contextually appropriate, logically placed*
- functionality within an application that is not visually represented often hard to discover
  - *keyboard shortcuts often a bad choice for sole command option*
  - *shortcut combinations often noted in visual menus*
- visibility does not, necessarily, infer that all options and functions be graphically represented
- impractical for many complex applications
  - *need for careful, considered design choices and contextual awareness*

Video - Photoshop

contextual menus



Photoshop: Selecting from a contextual menu
Source: YouTube

Principles for Usability - Visibility

Fun exercise - part 2

Continue the design of a company's online services, which are available as both a responsive web application and mobile app...

Then, outline the following

- general consideration of *visibility* from the web app to the mobile app
- contextual use of *visibility* in each app's UI
- example of visual *perspective* in each app UI and UX

Principles for Usability

affordance

- a visual attribute or physical property of a given object or control
- gives the user clues to the operation or functionality of an object or control
- system parts manipulated to allow a user to interact with the given system
  - *e.g. a door handle*
  - *shape of door handles, the nature of the door itself present clues to functionality*
- visual clues can be used to show UI element functionality
- e.g. make controls, buttons etc appear clickable and ready for interaction
- add some highlight to show a user that a submit button is ready for a completed form
- design conventions developed for a reason
  - *offer a useful reminder of how patterns can easily be developed relative to a UI*
  - *blue underline for links on a web page*

Video - Principles for Usability

material design

Google's Material Design
Source: YouTube

Principles for Usability - Affordance

Fun exercise - part 3

Continue the design of a company's online services, which are available as both a responsive web application and mobile app...

Then, outline the following

- consideration and promotion of *affordance* in the UI
- consideration and promotion of *affordance* in the UX
- any necessary differences between the web app and mobile app

Principles for Usability

mapping

- expected relationship between a performed action and the expected result
  - *mapping between a given control and its behavioural effect*
- such mappings should be logical, explicit, and straightforward
  - *descriptive labels, icons etc on buttons, menus...*
- controls should be positioned in a logical manner
  - *adhering to conventions where possible*
  - *many UI guidelines, real-world examples to help guide our design choices*
- modifications of expected conventions will cause unnecessary issues for users
  - *where necessary, reinforce with training and help...*

Principles for Usability - Mapping

Fun exercise - part 4

Continue the design of a company's online services, which are available as both a responsive web application and mobile app...

Then, outline the following

- UI conventions and *mapping*, which migrate effectively from web app to mobile app
- UI conventions and *mapping*, which *do not* migrate effectively from web app to mobile app

References

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- Tyldesley, D.A. *Employing usability engineering in the development of office products.* Computer Journal, Vol. 31. No. 5, PP. 431-436. 1988.