Comp 388/441 - Human-Computer Interface Design

Week 11 - 31st March 2016

Dr Nick Hayward

Principles for usability - 4

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
    - *eg: 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
- eg: 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*

Principles for usability - video

Material design - Source: YouTube

Principles for usability - 5

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...*

Principle for usability - 6

Feedback

- plays a crucial role in reinforcing users' perception, expectations, general experience...
- principle of feedback states that designers should offer users confirmation or acknowledgement for the result of an action
    - *good or bad, successful or unsuccessful*
- distinguish two types of feedback
    - ***activational feedback***
        - provides evidence that a given control was actioned successfully.
        - eg: a button pressed, menu item selected, slider control moved to a new position
        - feedback may be offered visually, in a tactile manner for physical controls, an audible alert
    - ***behavioural feedback***
        - provides evidence an action etc has had an effect of the application, system...
        - eg: app closes an open, active window, shows a dialog window and status message, audible sound...

Principles for usability - video

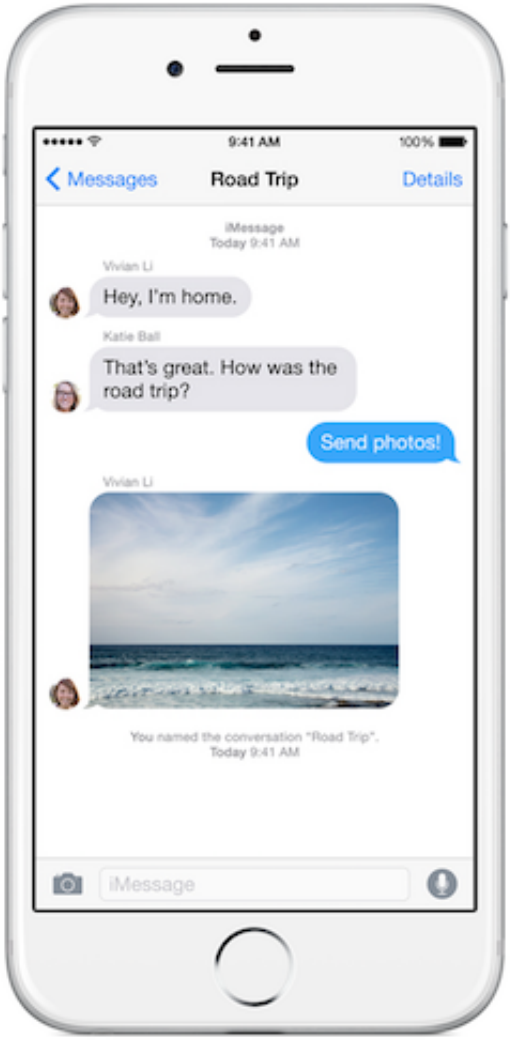
Material design - Source: YouTube

Principles for usability - 7

Constraints

- apps and interfaces need to be designed and tested to prevent invalid states
  - *incorrect, invalid user interaction, invalid actions...*
- constraints may take various forms
  - *check correct relationships between elements and actions*
  - *check elements active only as needed*
  - *actions only performed when default data etc available*
  - *menu items active relative to contextual requirements*
  - *physical products often display such constraints*

Principles for usability - Messages on iOS



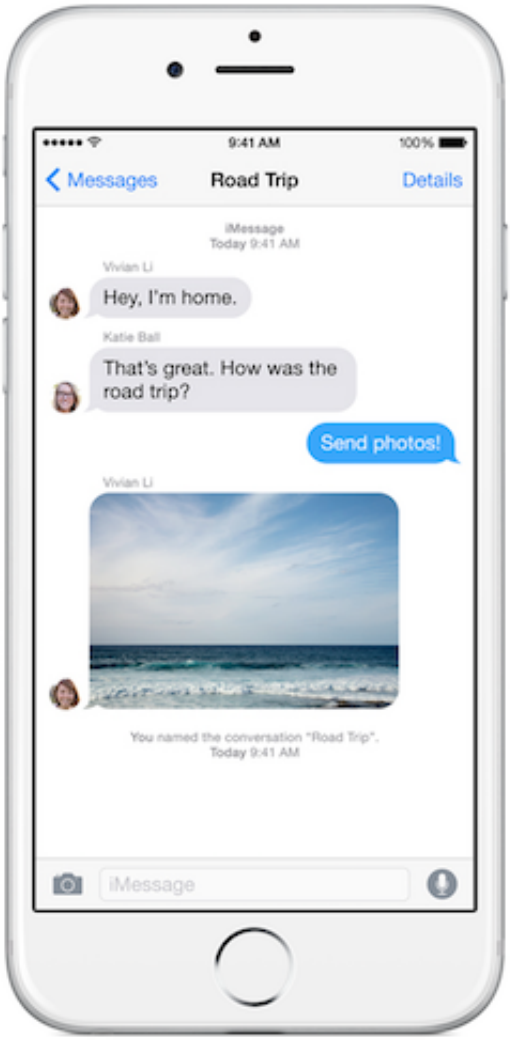
Source - Apple

Principles for usability - 8

Another consideration - naming

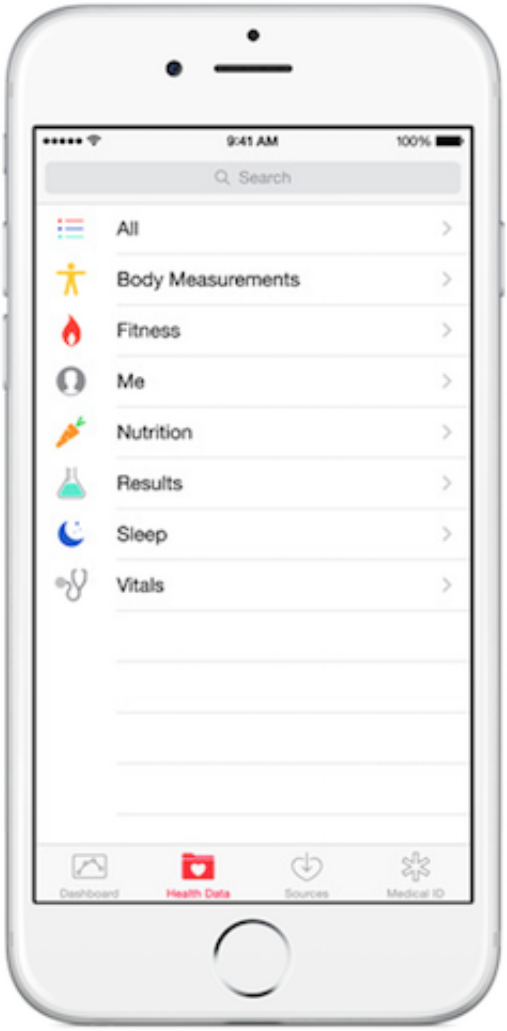
- names and labels key aspect of human communication, thought, understanding...
  - *also an important consideration in design*
- naming helps users understand the application
  - *their current location relative to navigation*
  - *the data and information they are viewing*
  - *action they can and cannot perform...*
- good naming helps a user form a correct mental model
- do not confuse naming with the use of technical jargon and terms
- precise, consistent naming helps us form unambiguous instructions, help, feedback...
- naming helps identify as well as differentiate between aspects of the design and functionality
- names should be unique relative to the context and the application
- namespaces are useful relative to application design and development

Principles for usability - Good(ish) naming (Messages for iOS)



Source - Apple

Principles for usability - Bad(ish) naming (Health for iOS)



Source - Apple

Principles for usability - 9

A few guidelines and thoughts on naming...

- does the name accurately reflect and describe its intended target?
    - *consider the action of the element relative to the name*
- is the name clear, concise, and free of ambiguity?
- use concise, easy to remember names
    - *better than longer, hard to remember descriptions*
- does the name inherently assume prior knowledge from the user?
    - *consider naming relative to perceived domain knowledge*
- acronyms are useful, but assume prior knowledge of the domain
    - *be careful when using acronyms, and consider cultural bias*
        - eg: VAT well known in Europe
- carefully consider capitalisation, and ensure consistency for chosen pattern
    - *eg: This Is Capitalised...This is Capitalised...This is not Capitalised (fully)...*
- users should be able to pronounce a name...not helpful if they have to check first

Principles for usability - Cultural naming concerns

Calpis Water and Pocari Sweat

	
Calpis Water	Pocari Sweat

Source - Calpis & Pocari Sweat

Principles for usability - Bad naming and icon

Foursquare icon

	
iOS 6 icon	iOS 8 icon

Source - Foursquare

Positive user experience

- we need to be able to identify traits of a positive user experience
    - *conversely, understanding a negative experience is also helpful*
- application allows a user to feel they are in control
- helps develop a sense of confidence and competence with the application
- helps encourage high productivity and efficiency
    - *enables and encourages our user to develop a sense of* ***flow***
- allows simple, routine tasks to be completed as quickly and easily as possible
- produces valid, useful output for the user
- user feels confident with the validity of produced results, calculations...
- considered aesthetically pleasing
- exhibits acceptable, sufficient performance to avoid unnecessary delays and waiting
- stable and reliable for the user...no *blue screen of death*
- makes it easy for a user to correct or modify any errors, mistakes...
- inspires trust and confidence in the user with logical, well-ordered design, navigation...

Negative user experience

- application leaves a user with a sense of feeling a lack of control
- overwhelming the user, creating a sense of incompetence and inadequate ability
- hinders the user from improving productivity and general efficiency
    - *prevents a sense of **flow***
- simple tasks and routine patterns prove overly complicated for the user
- output from the application is flawed, incorrect, poorly formatted...
- the app may produce unreliable results and calculations
- the UI design is aesthetically disorganised, cluttered, unappealing...
- slow in performing tasks, and exhibits unnecessary delays and lags in performance
- unstable, buggy, and prone to crashing...
    - *user loses data due to poor performance*
- **excessive complexity** and difficulty in general functionality
- **too much work** involved to use the application in general
- design that conflicts with a user's perception of previous applications, iterations of a design, and competing products

References

- Robinson, W.L. *Conscious competency - the mark of a competent instructor.* Personnel Journal, 53. PP. 538-9. 1974.