

# Interaction Design Basics



- design:
  - what it is, interventions, goals, constraints
- the design process
  - what happens when
- users
  - who they are, what they are like ...
- scenarios
  - rich stories of design
- navigation
  - finding your way around a system
- iteration and prototypes
  - never get it right first time!

# interactions and interventions



## design interactions not just interfaces

not just the immediate interaction

e.g. stapler in office – technology changes interaction style

- manual: write, print, staple, write, print, staple, ...
- electric: write, print, write, print, ..., staple

## designing interventions not just artefacts

not just the system, but also ...

- documentation, manuals, tutorials
- what we say and do as well as what we make

# what is design?



achieving goals within constraints

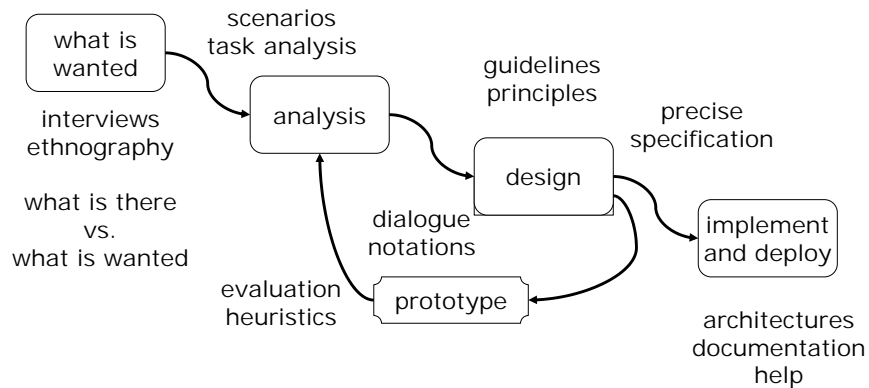
- goals - purpose
  - who is it for, why do they want it
- constraints
  - materials, platforms, cost
- trade-offs

# To err is human



- accident reports ..
  - air crash, industrial accident, hospital mistake
  - enquiry ... blames ... 'human error'
- but ...
  - concrete lintel breaks because too much weight
  - blame 'intel error' ?
    - ... no – design error
    - we know how concrete behaves under stress
- human 'error' is normal
  - we know how users behave under stress
  - so design for it!
- treat the user at least as well as physical materials!

# The process of design



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# Steps ... but how can I do it all !!

- requirements
  - what is there and what is wanted
  - ...
- analysis
  - ordering and understanding
- design
  - what to do and how to decide
- iteration and prototyping
  - getting it right ... and finding what is really needed!
- implementation and deployment
  - making it and getting it out there
- limited time  $\Rightarrow$  design trade-off
- usability?
  - finding problems and fixing them? **X**
  - deciding what to fix? **✓**
- a perfect system is badly designed
  - too good  $\Rightarrow$  too much effort in design

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# User Centred Design

## know your user

- who are they?
- probably **not** like you!
- talk to them
- watch them
- use your imagination

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## persona

- description of an 'example' user
  - not necessarily a real person
- use as surrogate user
  - what would Betty think
- details matter
  - makes her 'real'

## scenarios (story-board)

- stories for design
  - communicate with others
  - validate other models
  - understand dynamics
- linearity
  - time is linear - our lives are linear
  - but don't show alternatives

## scenarios ...

- what will users want to do?
- step-by-step walkthrough
  - what can they see (sketches, screen shots)
  - what do they do (keyboard, mouse etc.)
  - what are they thinking?
- use and reuse throughout design

## also play act ...

- mock up device
- pretend you are doing it
- internet-connected swiss army knife ...



use toothpick as stylus 😊



but where is that thumb? 😞

## ... explore the depths

- explore interaction
  - what happens when
- explore cognition
  - what are the users thinking
- explore architecture
  - what is happening inside

## use scenarios to ..

- communicate with others
  - designers, clients, users
- validate other models
  - 'play' it against other models
- express dynamics
  - screenshots – appearance
  - scenario – behaviour

## linearity

Scenarios – one linear path through system

### Pros:

- life and time are linear
- easy to understand (stories and narrative are natural)
- concrete (errors less likely)

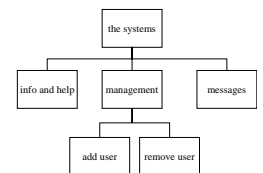
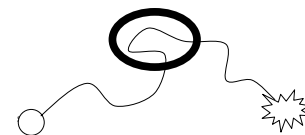
### Cons:

- no choice, no branches, no special conditions
- miss the unintended

### So:

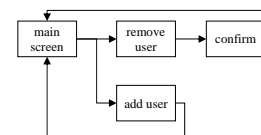
- use several scenarios
- use several methods

## navigation design



local structure – single screen

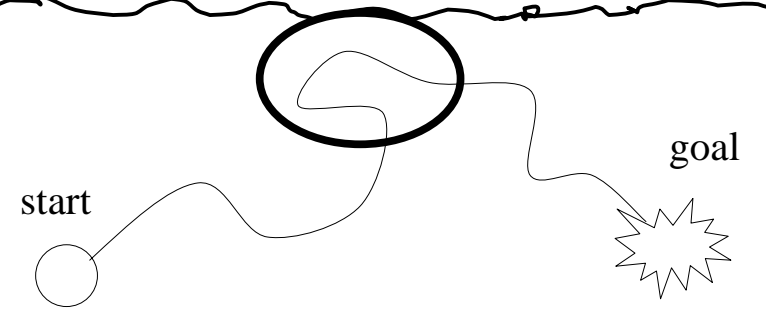
global structure – whole site



## think about structure

- within a screen
  - later ...
- local
  - looking from this screen out
- global
  - structure of site, movement between screens
- wider still
  - relationship with other applications

## goal seeking



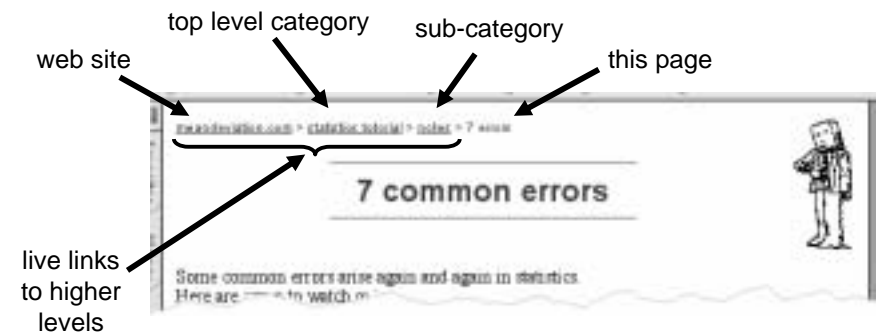
... try to avoid these bits!

## four golden rules

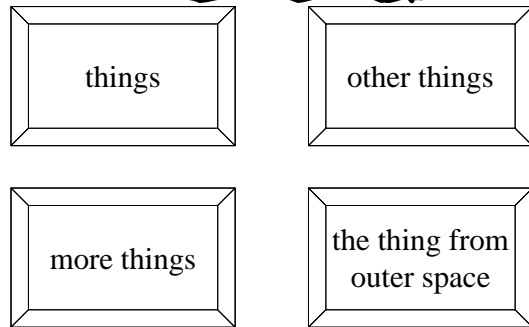
- knowing where you are
- knowing what you can do
- knowing where you are going
  - or what will happen
- knowing where you've been
  - or what you've done

## where you are – breadcrumbs

shows path through web site hierarchy

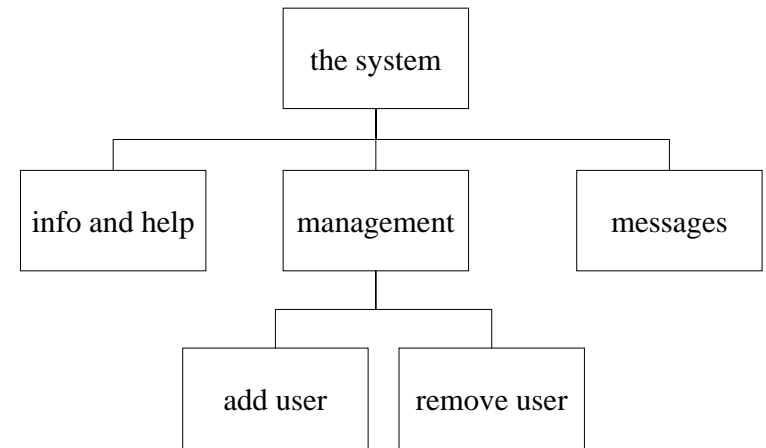


## beware the big button trap



- where do they go?
  - lots of room for extra text!

## hierarchical diagrams



## navigating hierarchies

- deep is difficult!
- misuse of Miller's  $7 \pm 2$ 
  - short term memory, not menu size
- optimal?
  - many items on each screen
  - but structured within screen

## network diagrams ctd.

- show different paths through the system
- what leads to what
- what happens when
- including branches
- more task oriented than hierarchy
- Do 'average' people understand branches?

