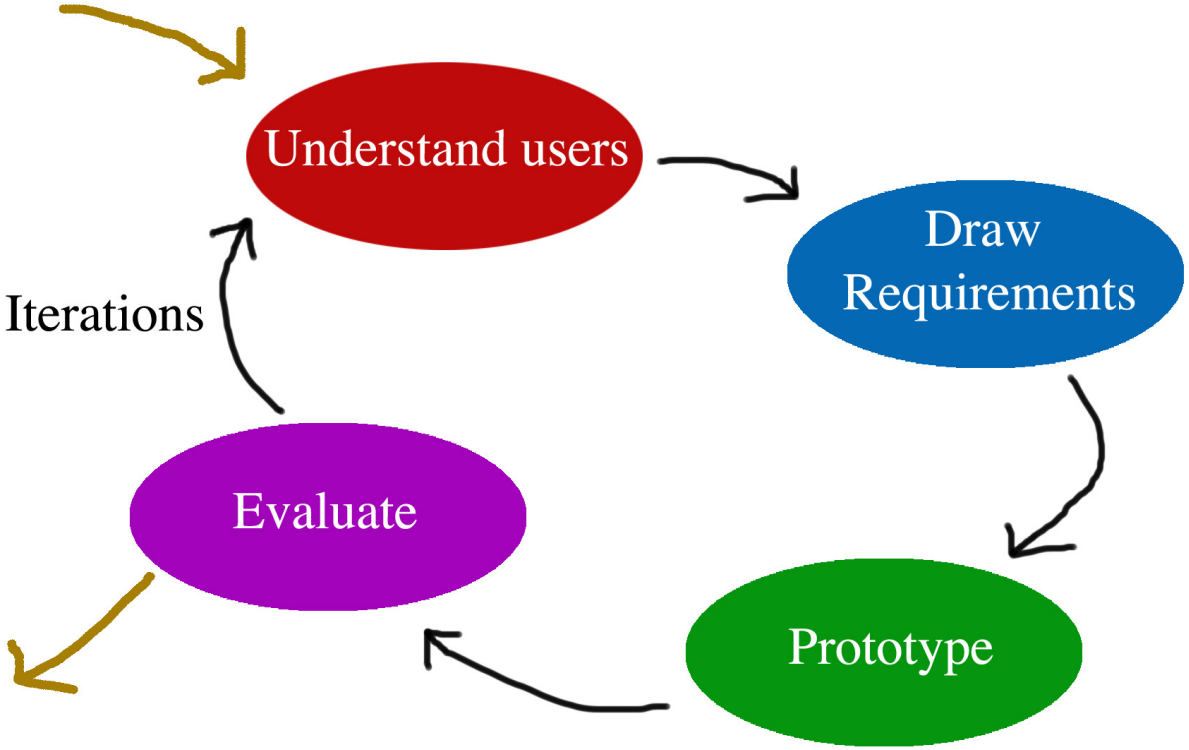
CS4826 HCI
Week 7

The User-Centred Design Process



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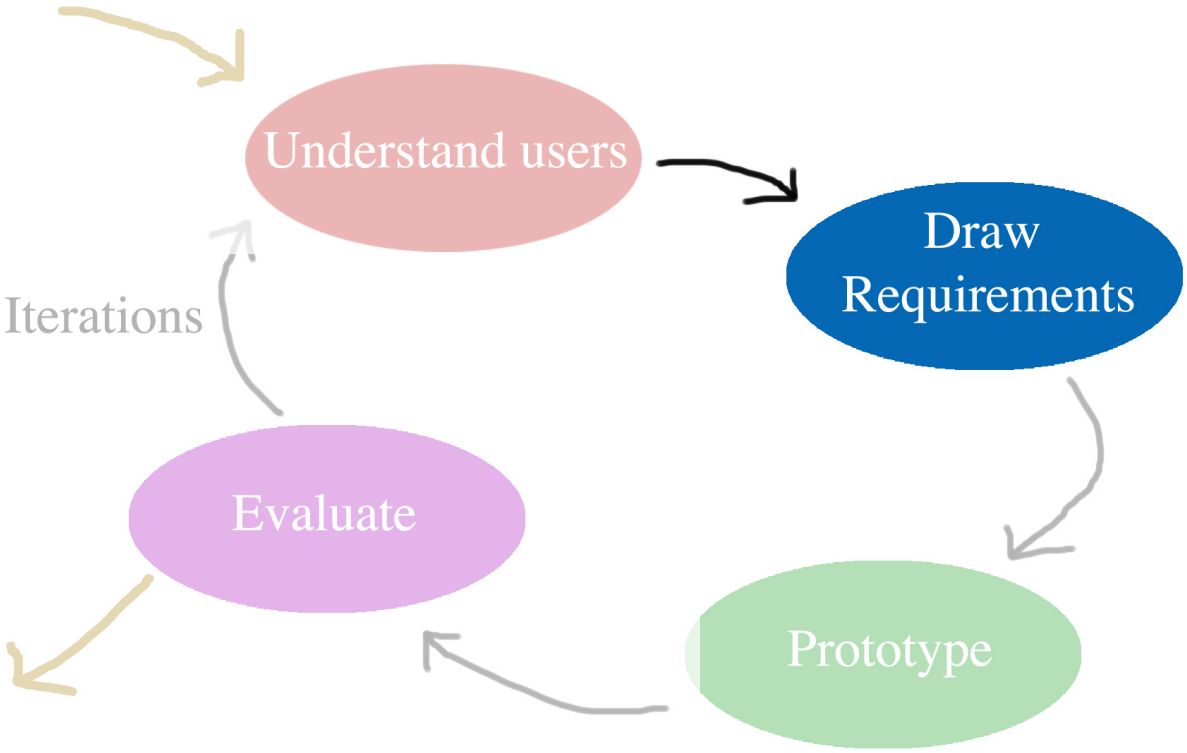
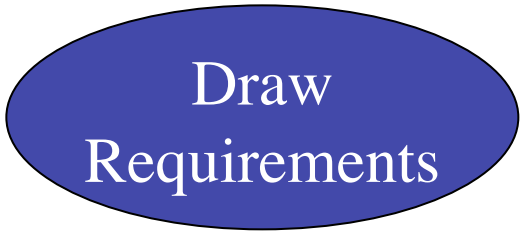




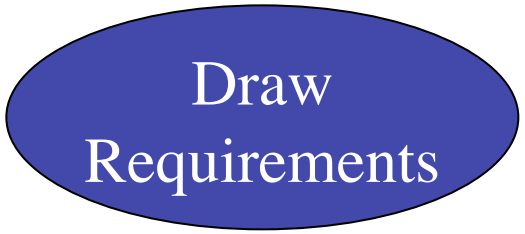
The Problem of drawing requirements for design, moving from analysis to decisions

Results from User Studies: what have we learned?

Data analysis is the background to defining requirements

A requirement is “something the product must do, or a quality that the product must have”

Importance of iterative process

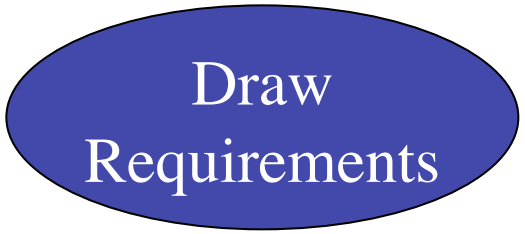


Two types of Requirements:

1- Functional: what the system should DO in terms of functionality

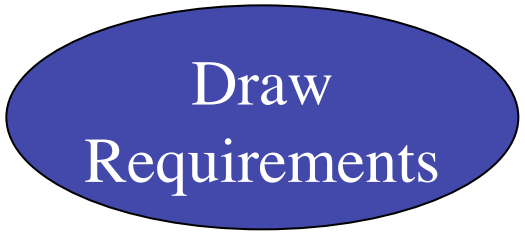
2- Non-functional: qualities that the system must HAVE in terms of usability, performance, security, acceptability, etc.

Prioritizing requirements is an important task: of all the requirements that emerge from data analysis, some will be given priority, since few designs have unlimited resources



The "**MoSCoW Rules**" classify requirements into:

-Must Have - fundamental requirements without which the system will be unworkable and useless, e.g. the minimum usable subset
-Should Have - would be essential if more time were available
-Could Have - of lesser importance, can be easily left out
-Want to have but Won't have time this time around - can wait till a later development

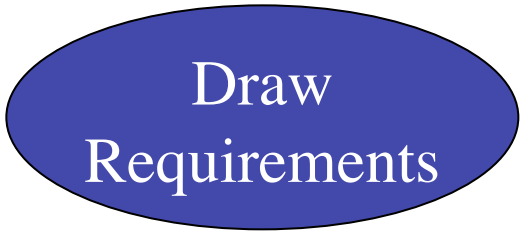


Important Non-Functional Requirements:

Data requirements: the data (information) the system should provide or contain or deliver

Usability requirements: the qualities that the system should have to ensure good usability. Usability Standards and Heuristics also need to be considered for this

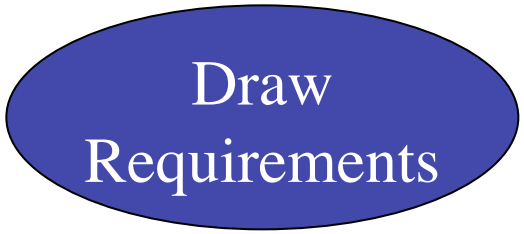
Other requirements could be linked to more open aspects such as good user experience (e.g. games, other leisure technologies)



There are several methods for drawing and defining requirements

Some are more formal (e.g. requirements engineering approach used in software engineering), usually based on quantitative user studies

Others are more creative: oriented towards the generation of novel design ideas



All these methods use outcomes from user studies as a starting point.

Affinity Diagrams: are a way of visually organising important issues or keywords so that the relationships with each other are highlighted (e.g. linking a known problem to a cause, connecting two aspects of the activity, etc.). A visual way to organise data analysis results.

Relevant issues are organised in clusters, classified into meaningful categories

Can be a collaborative activity, the design team is involved

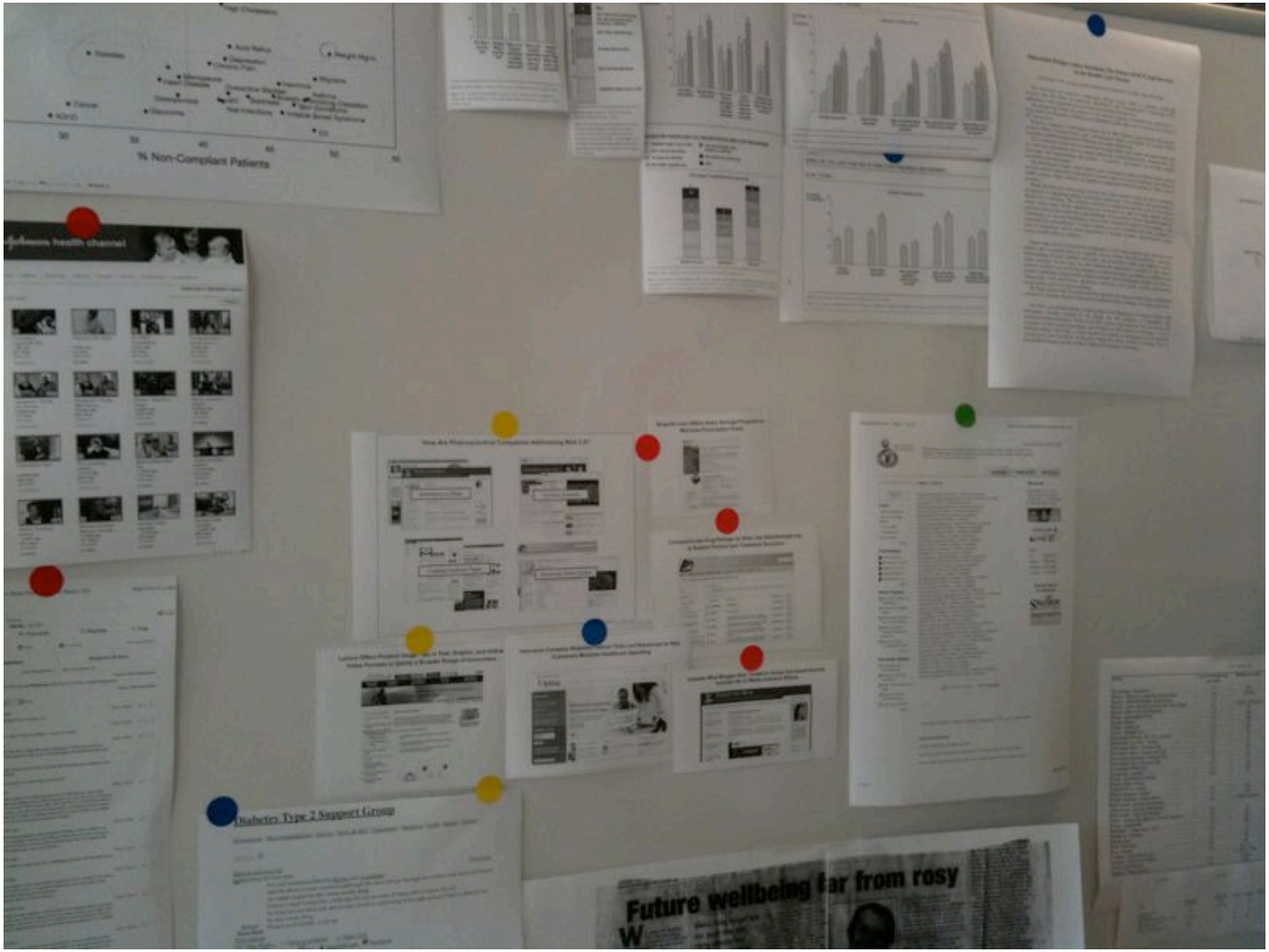

Affinity Telesales

Bunratty Folk Park Project: Design of new portable support for visitors

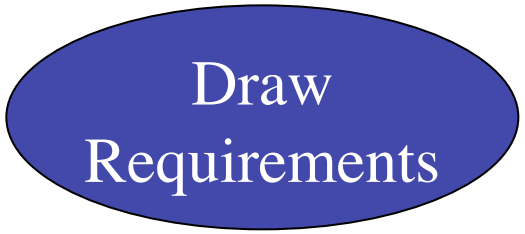

Artefacts
Animals
Visitors
Loop Head House
Animated Activities in Houses
Loop Head House
Park Navigation & Information points


Video
TIME MACHINE
layers
Multi-sensory
Multimedia
Multi Lingual?
Digital Information?
lack of info
Guidance (???)
Portable
GAME
Fishing
COLLEC ITEMS
Joy
User Experience
Improve Navigation
PROMOTE Group Interaction
Interactivity
Activity Flow
Follow a Path
Participation
User Involvement Visitor
Variety
Foreigns
INTERACT WITH ANIMATORS
recall memory
Timelines
Irish
Everyday Life
Seasons/time
Irish culture

FutureComm Project: Designing self-management tools for Patients with Diabetes



FutureComm Project: Designing self-management tools for Patients with Diabetes

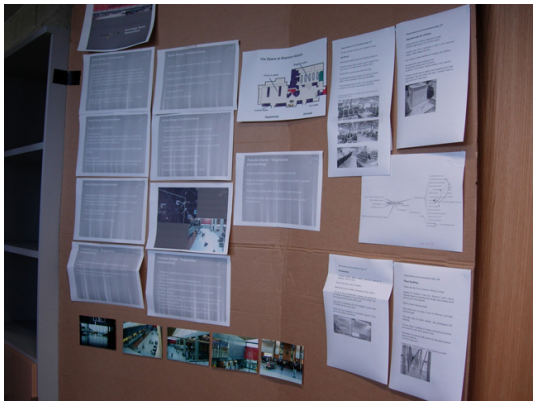


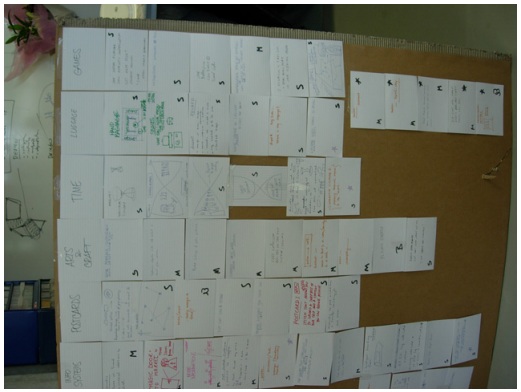
Brainstorming: playing with keywords and images

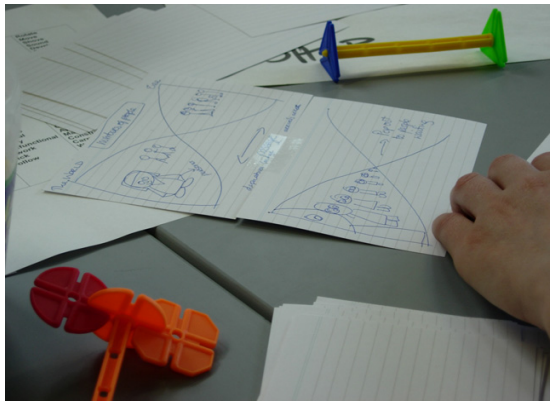
Important issues/concepts from user studies are used as "triggers" for brainstorming sessions

Participants can develop them, or can be asked to perform other tasks (e.g. create a narrative around them, develop a game around them, find hidden connections, etc.)

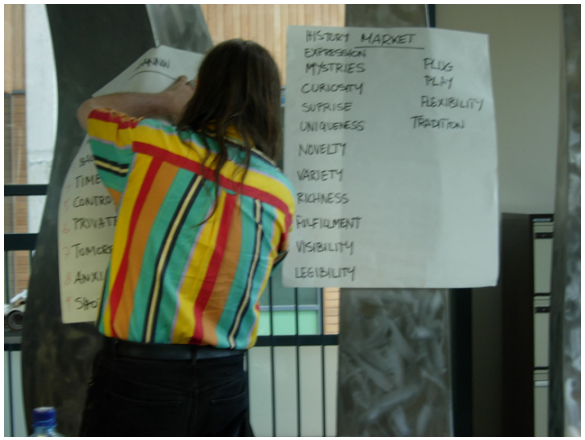
Shared Worlds Project

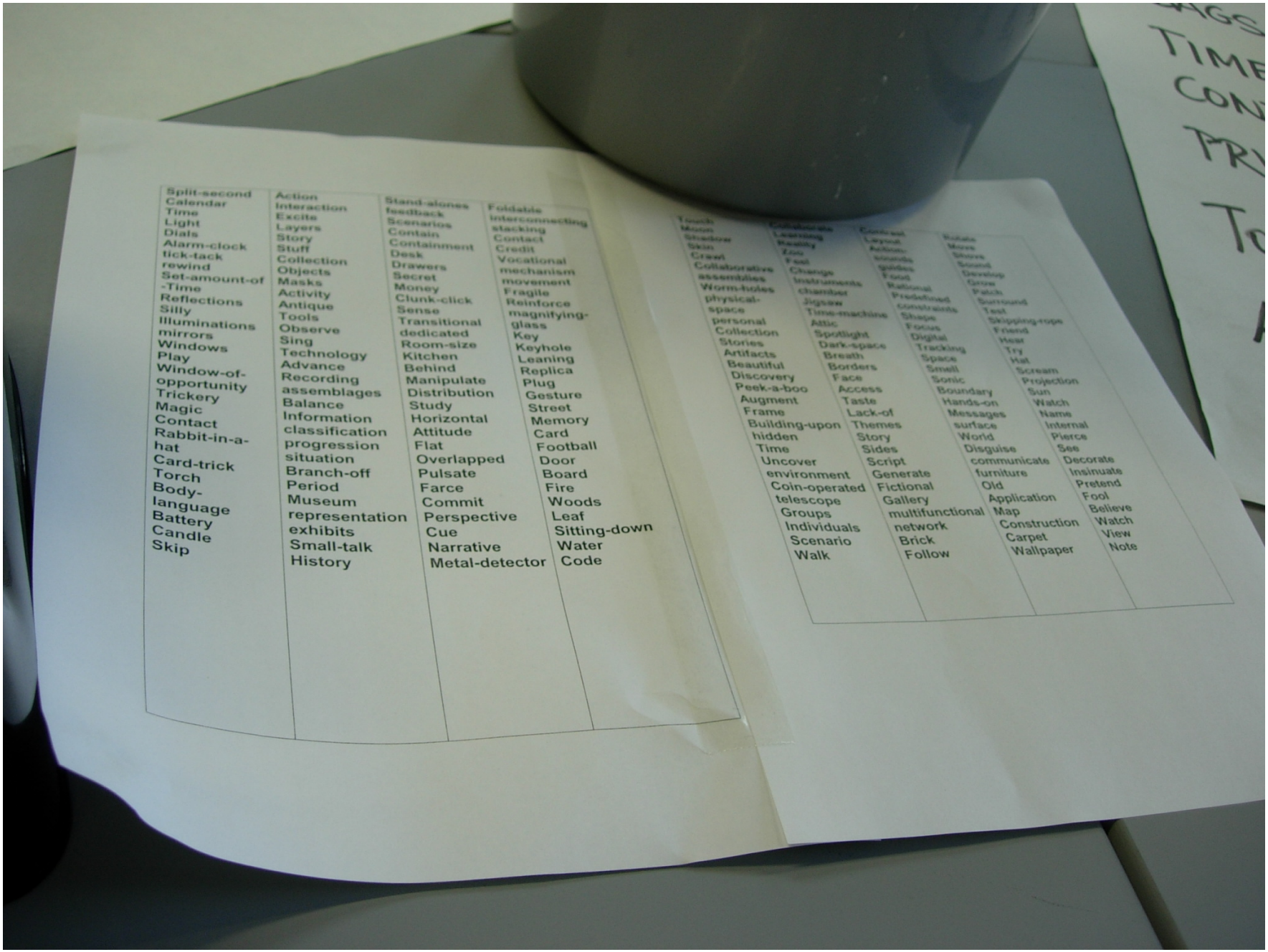






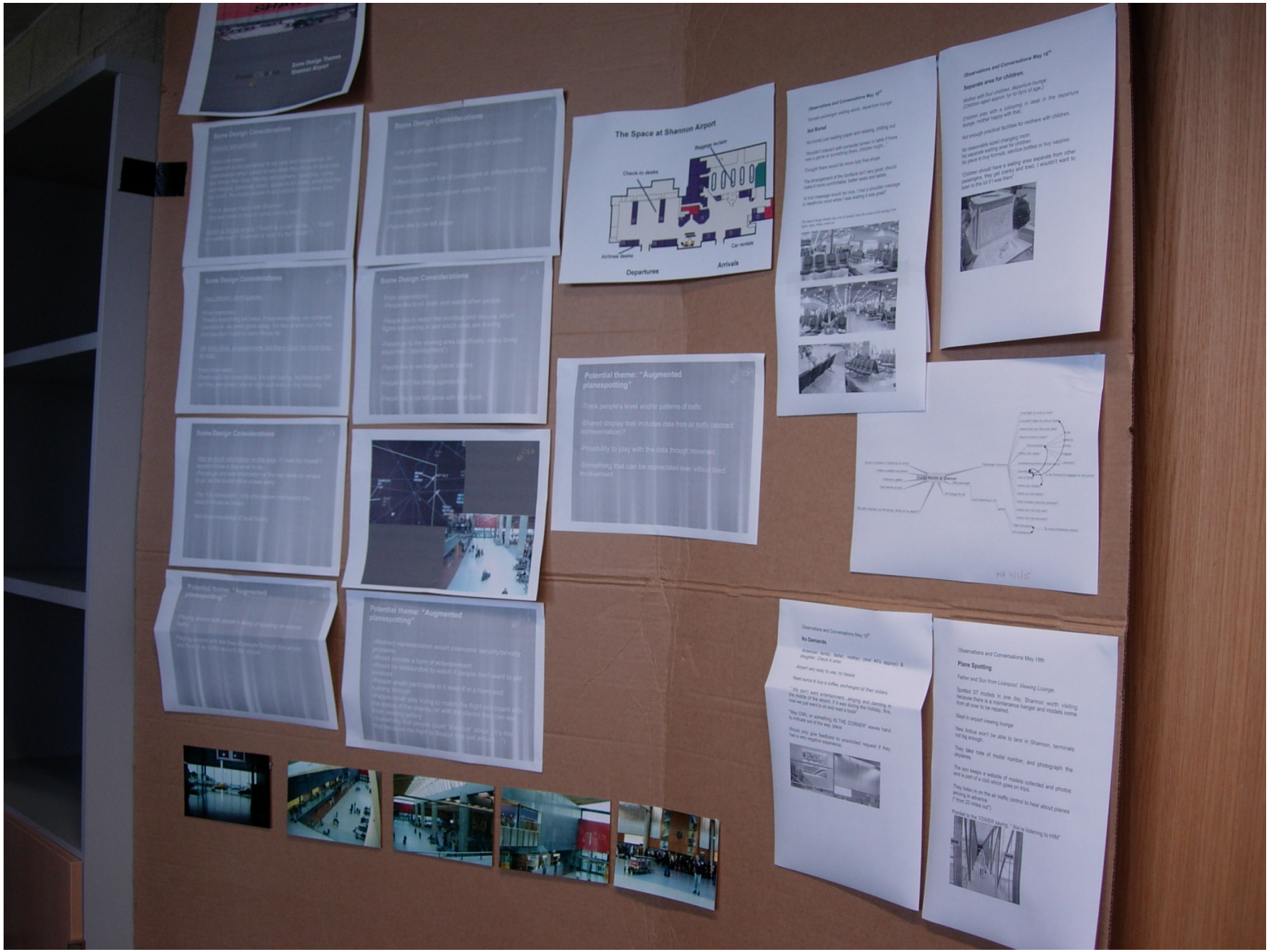
-Presentation of highlights from studies to airport management
-Brainstorming session at IDC





Split-second	Action	Stand-alones	Foldable
Calendar	Interaction	feedback	Interconnecting
Time	Excite	Scenarios	stacking
Light	Layers	Contain	Contact
Dials	Story	Containment	Credit
Alarm-clock	Stuff	Desk	Vocational
tick-tack	Collection	Drawers	mechanism
rewind	Objects	Secret	movement
Set-amount-of	Masks	Money	Fragile
-Time	Activity	Clunk-click	Reinforce
Reflections	Antique	Sense	magnifying-
Silly	Tools	Transitional	glass
Illuminations	Observe	dedicated	Key
mirrors	Sing	Room-size	Keyhole
Windows	Technology	Kitchen	Leaning
Play	Advance	Behind	Replica
Window-of-	Recording	Manipulate	Plug
opportunity	assemblages	Distribution	Gesture
Trickery	Balance	Study	Street
Magic	Information	Horizontal	Memory
Contact	classification	Attitude	Card
Rabbit-in-a-	progression	Flat	Football
hat	situation	Overlapped	Door
Card-trick	Branch-off	Pulsate	Board
Torch	Period	Farce	Fire
Body-	Museum	Commit	Woods
language	representation	Perspective	Leaf
Battery	exhibits	Cue	Sitting-down
Candle	Small-talk	Narrative	Water
Skip	History	Metal-detector	Code

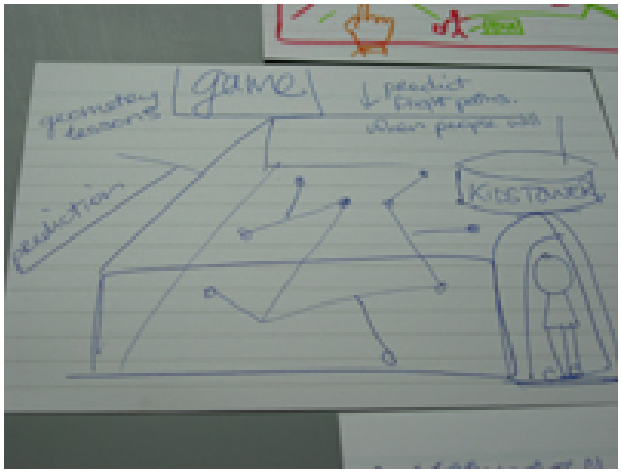
Touch	Collaborate	Contrast	Rotate
Moon	Learning	Layout	Move
Shadow	Reality	Action-	Share
Skin	Zoo	shields	Sound
Crawl	Feel	spades	Develop
Collaborative	Change	Front	Grow
assemblies	Instruments	Rational	Patch
Worm-holes	chamber	Predefined	Surround
physical-	Jigsaw	constraints	Test
space	Time-machine	Shape	Skipping-rope
personal	Attic	Focus	Friend
Collection	Spotlight	Digital	Hear
Stories	Dark-space	Tracking	Try
Artifacts	Breath	Space	Hat
Beautiful	Borders	Smell	Scream
Discovery	Face	Sonic	Projection
Peek-a-boo	Access	Boundary	Sun
Augment	Taste	Hands-on	Watch
Frame	Lack-of	Messages	Name
Building-upon	Themes	surface	Internal
hidden	Story	World	Pierce
Time	Sides	Disguise	See
Uncover	Script	communicate	Decorate
environment	Generate	furniture	Insinuate
Coin-operated	Fictional	Old	Pretend
telescope	Gallery	Application	Fool
Groups	multifunctional	Map	Believe
Individuals	network	Construction	Watch
Scenario	Brick	Carpet	View
Walk	Follow	Wallpaper	Note

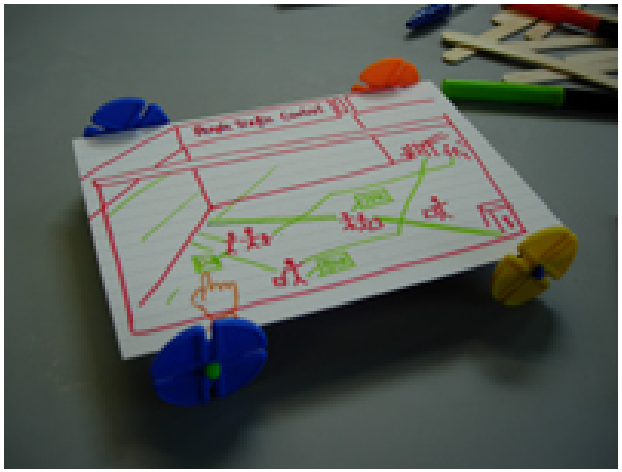

Some Design Considerations
The Space at Shannon Airport
Check-in desks
Baggage reclaim
Airlines desks
Car rentals
Departures
Arrivals
Observations and Conversations May 18th
Separate area for children.
Potential theme: "Augmented planespotting"
Observations and Conversations May 18th
No Demands
Observations and Conversations May 18th
Plane Spotting

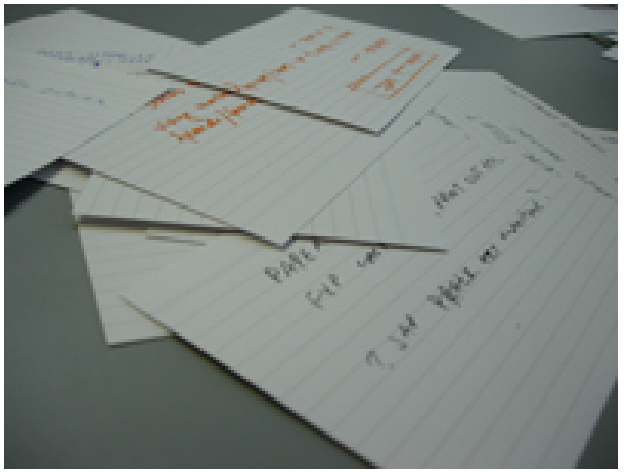

AFFECTIVE
SCALES
WHAT CAN I MOVE FROM THE SAMSONITE TO MY HAND BAG
REWARD
15KG
20KG
SHOP
"DUTY FREE BAG"
SHOP
HAND BAGGAGE
LUGGAGE


TIME
MAPPING
People Traffic Control
game
KIDS TOWER
2 FLIGHT SIM + 1 ATC SIM
+ REAL AUDIO FEED
IN JNN VIEWING AREA
SNN
Betting game
COW BINGO

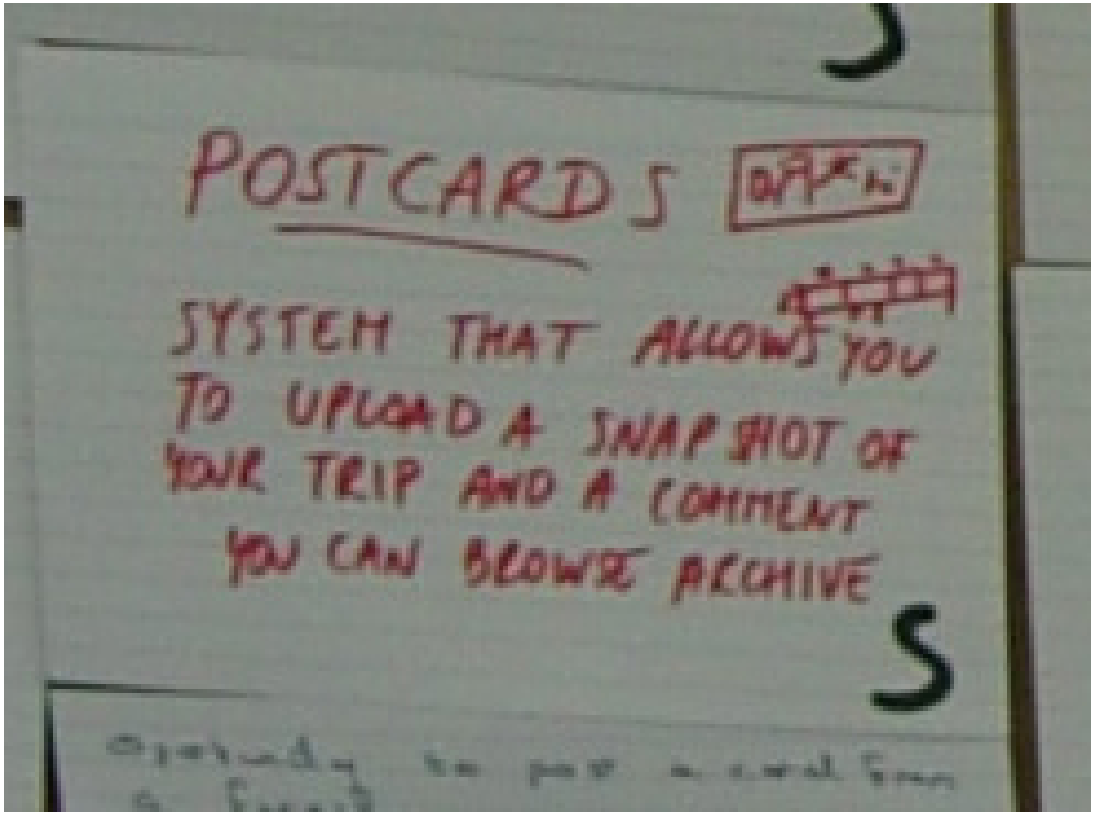
Brainstorming cards from the “Shared Worlds” Project



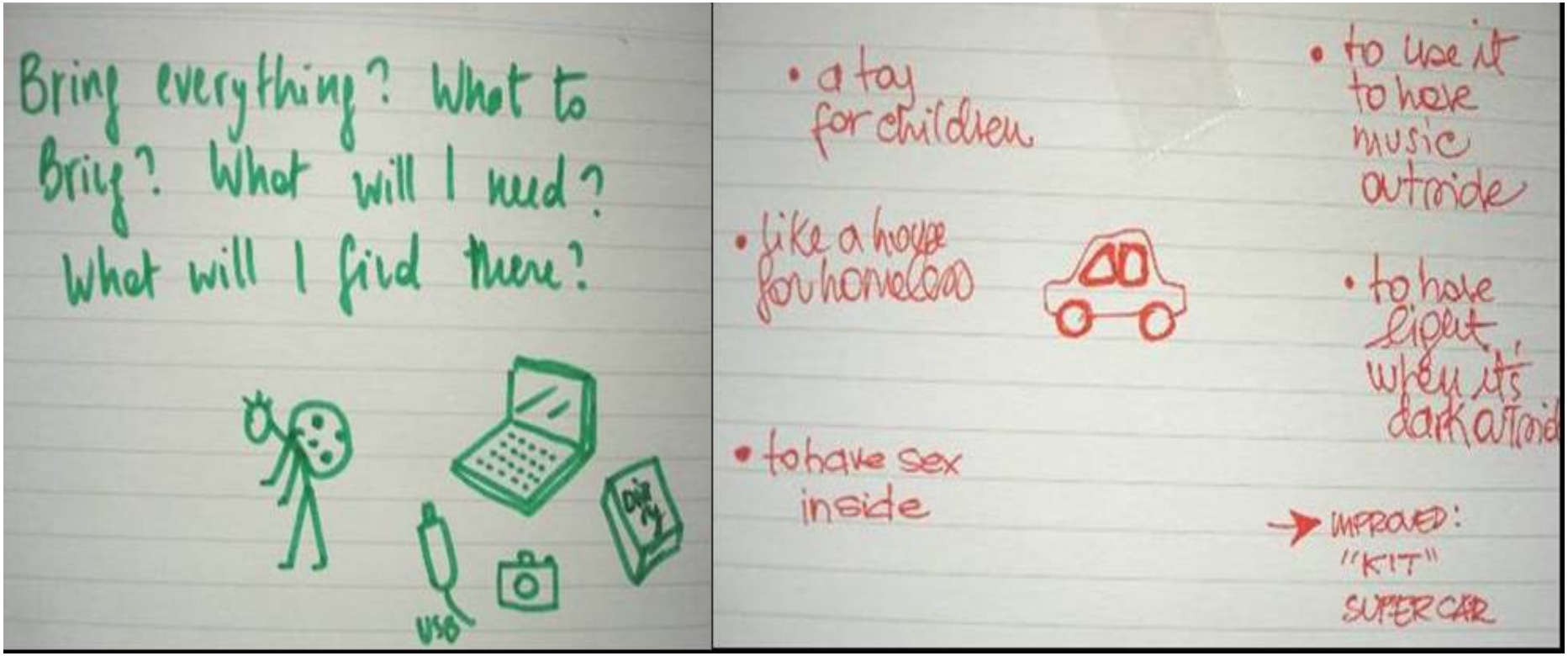




Each evaluated against a set of requirements


POSTCARDS
SYSTEM THAT ALLOWS YOU
TO UPLOAD A SNAP SHOT OF
YOUR TRIP AND A COMMENT
YOU CAN BROWSE ARCHIVE

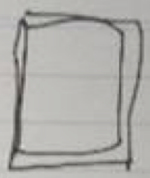
Brainstorming Cards from the “NomadS” Project



Brainstorming can also lead to **high-level concepts** whereby an external notion/concept/image is used to illustrate a problem or issue

Mary Poppins	
Mary Poppins' bag is m agical; even if is quite small, it contains an enormous amount of objects, whatever she needs or she would like to have	
Key-word s	Store information
Design notes	Opportunity to have the all clients' information in one small object and find just what reps need.

Measuring

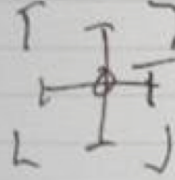


Inflatable model.

Laser reflective tech

Weight for security tape.

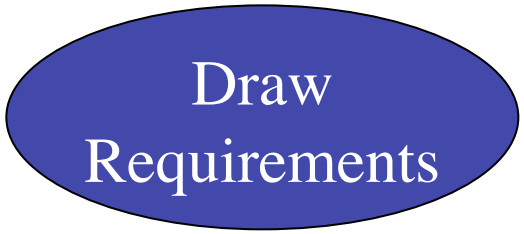
Voice Note taking



Cats Power extension.

Pressured Air

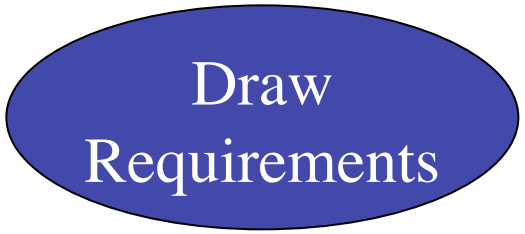
Bunratty Folk Park Project



“Personas”

We frequently talk about “the user” when we design new software or hardware, but that’s too general. It’s better to discuss real users and how they would react to your product. For example, "How do we help Fred the Head Chef update a week's worth of menus more quickly?" By doing this, we’re more likely to make valid and consistent decisions.

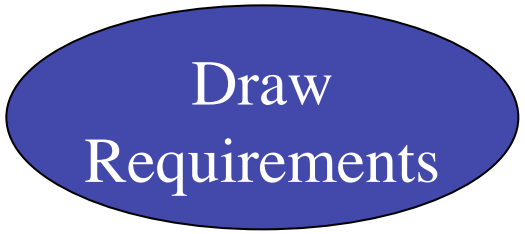
To do this, we develop personas – descriptions of typical users along with stories about how they would use the product to meet their goals. The personas are written in prose form to bring them to life
(http://www.user.com/personas.htm)



Scenarios

Scenario-based design (Carroll, 1995): the articulation of design ideas into narratives that describe the main features and possible interactions around a system. Including: the potential users, the physical context, the social environment, and more.

More than one scenario for each design idea.



Scenarios

Are powerful ways of representing a concept narratively

Must e developed according to rules, that is including
Who: is the user/participant
What: is the system like
How: does it work/support people
Where: the physical setting where it all takes place
When: the temporal setting

Create a realistic portrait of what interaction could be like.

Excerpt of Scenario from the Bunratty Folk Park Project

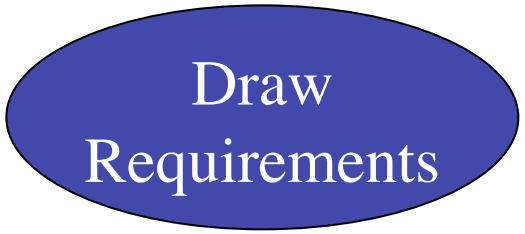
Bunratty – Reminisce scenario

Scenario

- Jean is an Irish American Tourist who is visiting Bunratty as part of a guided tour on her holiday to Ireland. She is accompanied by her husband and some friends, the tour brings them to Bunratty Castle and folk park. At the entrance they all receive maps of the park, they are made aware of the "Reminisce" installation where they can listen to characters from reminisce about life in the 19th century and can listen to memories from other visitors.
- Jean thinks that this is something that she would be interested in doing so the receptionist directs her to the start of the installation where she can choose what characters she would like to know more about. She chooses to learn more about the Bean an ti's (Women of the houses) and she receives a clue about where first to find memories from a Bean an ti:

  "Beside the harsh Atlantic sea life on the Loop Head Peninsula was hard for this Bean an ti"

  She then is given a mobile device that she can use to collect the characters memories and to leave her own comments or memories about the specific activities. She is shown an example QR code so she can recognise the codes around the sites where she can collect and leave memories.
- Based on the clue and from studying the map Jean and her companions think that Loop Head House is the first site where she will find of a Bean an ti. So they start their journey around the park keeping a look out for Loop Head house. When they reach the site, they notice a QR code on the door the house. Jean scans the QR code and receives audio recording of the Bean an ti talking about life on the Loop Head peninsula. She then sees that other people have left comments on this memory so they listen to what other people have

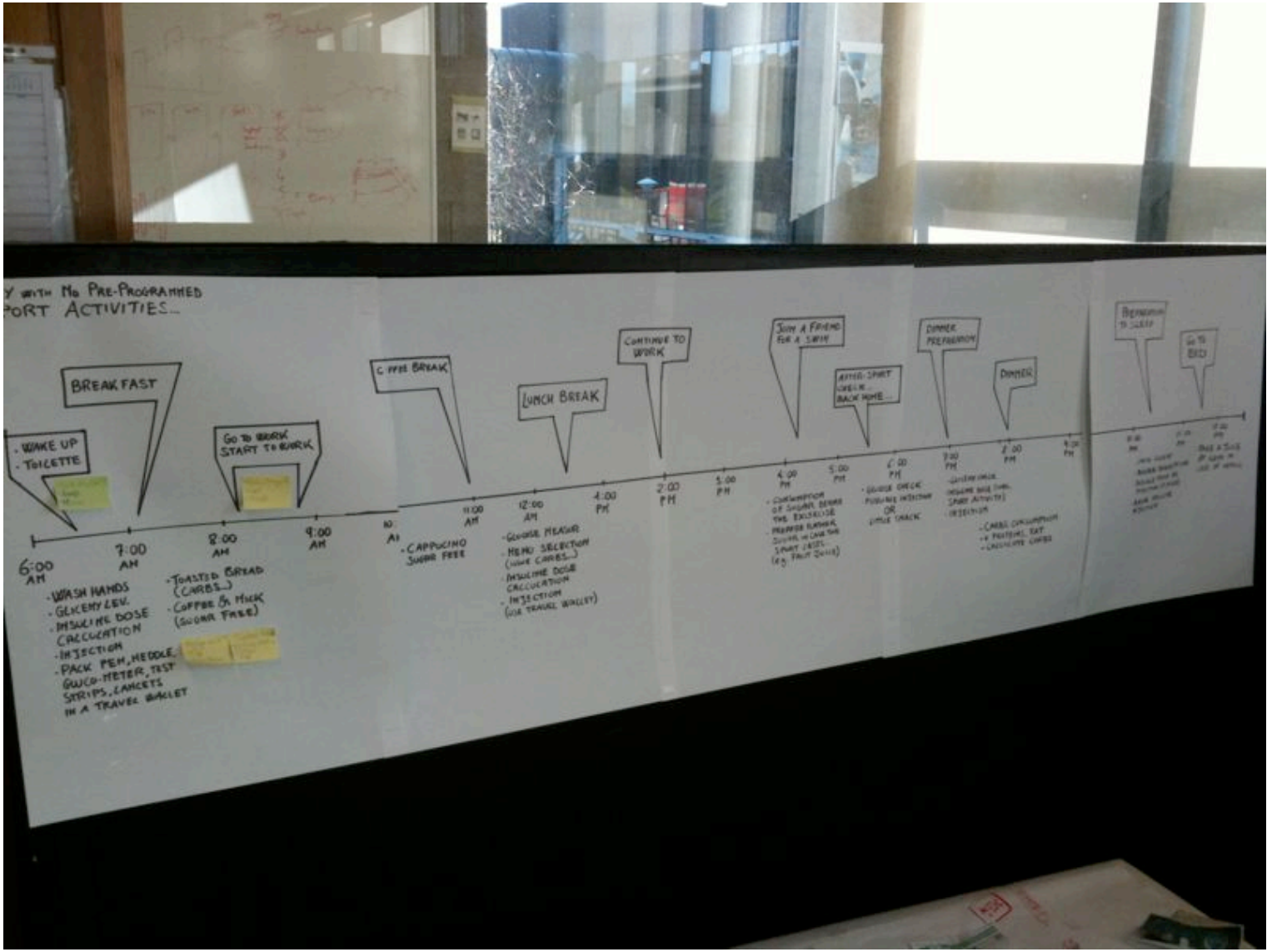


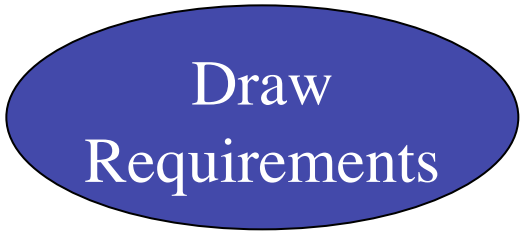
Concept design has the aim of outlining the main features of the proposed design

Matching design decisions to results from field studies

Conveying a sense of what the interaction will be like

Example of Activity Chart (basis for scenarios) in FutureComm





Creative dimension…

Challenge: to balance creative design decisions with user-centred requirements

Participatory Design: end-users become involved into the design process

http://www.designinginteractions.com/interviews/RobHaitani

http://www.designinginteractions.com/interviews/BrendanBoyle