

DESIGN & PROTOTYPAGE

CIE/IHM (NI226/NI205)
21 février 2013

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Add/Update Shipping Information

We found an error while verifying your shipping address.
We've marked the problem in red for you.

Update the address book of

Required information is marked in GREEN CAPS.

[HELP](#) for questions about shipping.

NICKNAME:

Please assign a "nickname" for the person you're shipping to.
You may change or delete this information at any time.

FIRST NAME: MIDDLE INITIAL:

LAST NAME:

ADDRESS:

 (International use only)

CITY:

STATE/PROVINCE:

Includes APO and FPO. Use "Other" if country is not USA or Canada.

ZIP/POSTAL CODE:

COUNTRY:

SHIPPING METHOD: In the U.S.: [HELP](#) International: [HELP](#)
 Standard UPS (2 business days plus) Canada Canada Post (4-10 business days)

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USABILITY PRINCIPLES

- Many different kinds
- No cookbooks, checklists, magic recipes
- Shneiderman, *Designing the User Interface*
- Dix, Finlay, Abowd, Beale, *Human-Computer Interaction*

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USABILITY PRINCIPLES

- Learnability
 - Support for learning for users of all levels
- Flexibility
 - Multiple ways for performing tasks
- Robustness
 - Support recovery

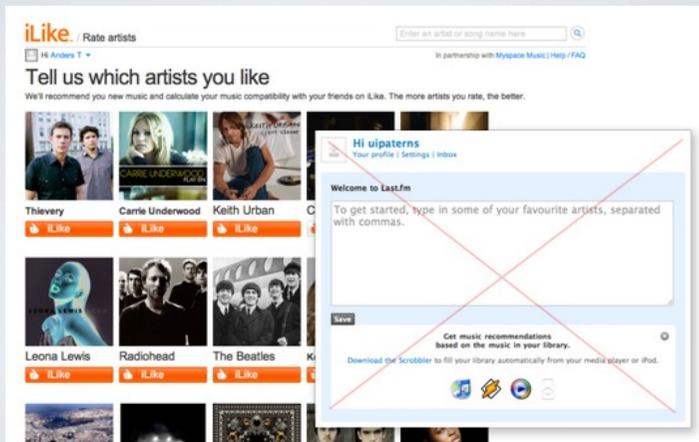
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LEARNABILITY

- Ease with which new users can begin effective interaction
- Performance improvement from session to session
- Principles
 - Predictability, Synthesizability, Familiarity, Generalizability, and Consistency

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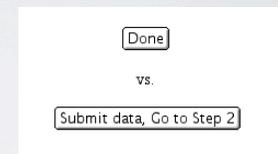
RECOGNITION OVER RECALL



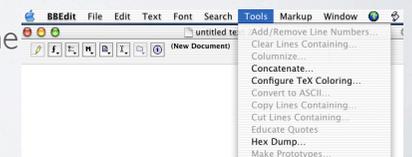
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PREDICTABILITY

- I think that this action will do...

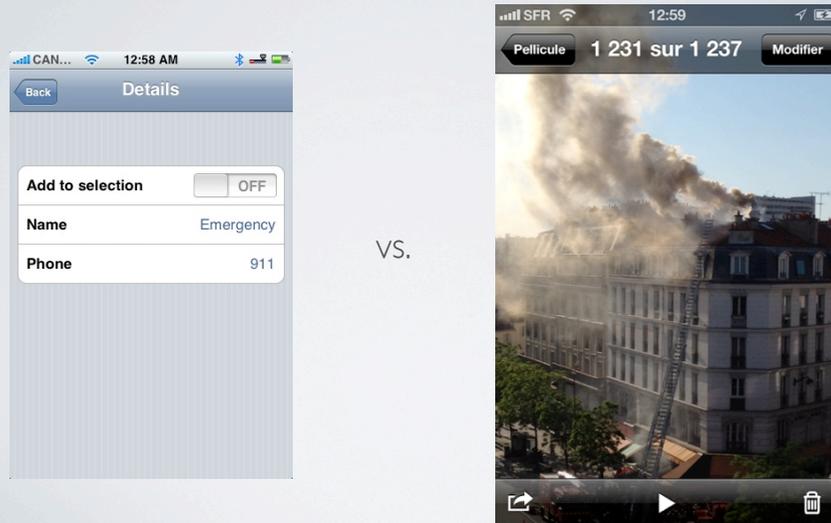


- Operation visibility – can see all available actions
- e.g. menus versus command-line
- Grayed menu items



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PREDICTABILITY



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CHUNKING



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FLEXIBILITY

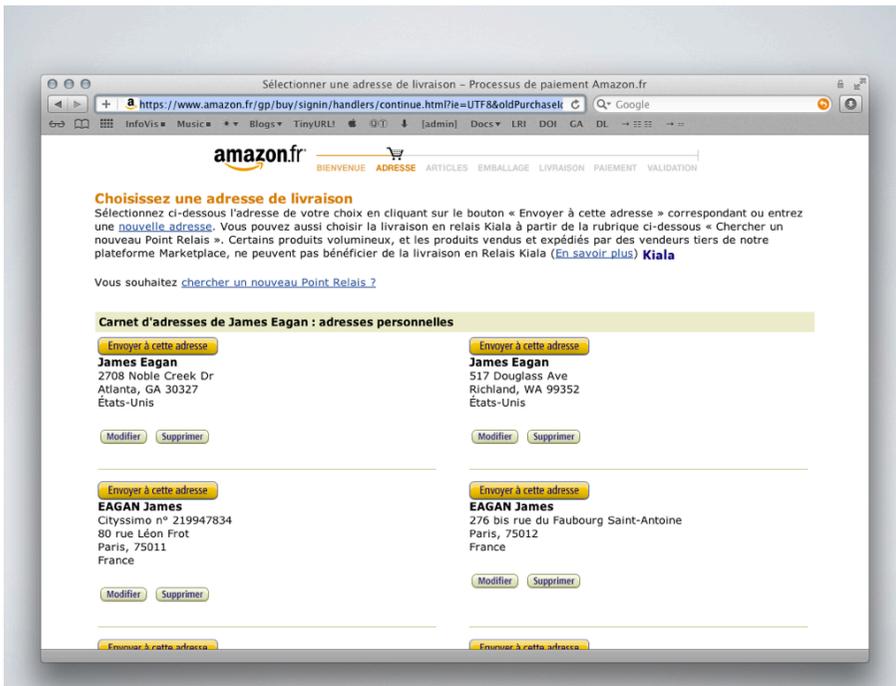
- Minimize modality, Multithreading, Task Migratability, Substitutivity, Customizability

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ROBUSTNESS

- Observability
- Recoverability
- Responsiveness
- Task Conformance

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MODÈLES MENTAUX

- La représentation mentale de l'utilisateur du système
- Sa perception de comment marche le système

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DON NORMAN

- Design of Everyday Things

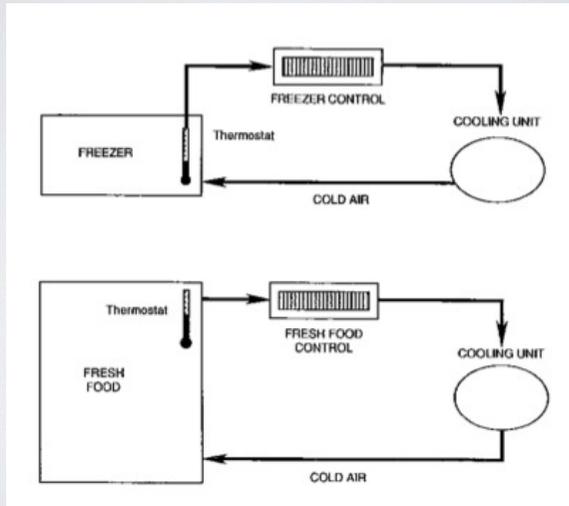
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INTERFACE D'UN FRIGO

NORMAL SETTINGS	C	AND	5	
COLDER FRESH FOOD	C	AND	6-7	1 SET BOTH CONTROLS
COLDEST FRESH FOOD	B	AND	8-9	2 ALLOW 24 HOURS
COLDER FREEZER	D	AND	7-8	TO STABILIZE
WARMER FRESH FOOD	C	AND	4-1	
OFF (FRESH FD & FRZ)			0	

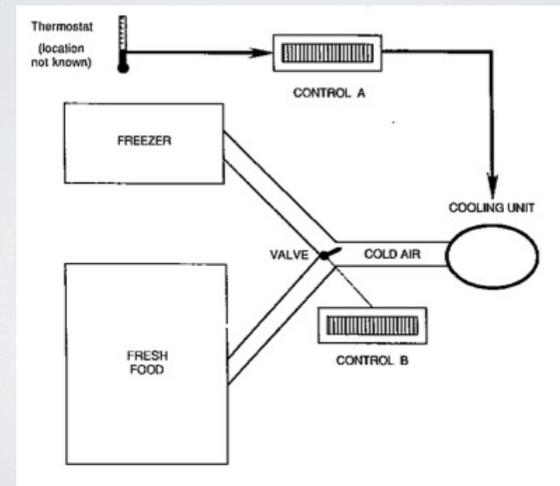
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MODÈLE D'UN FRIGO



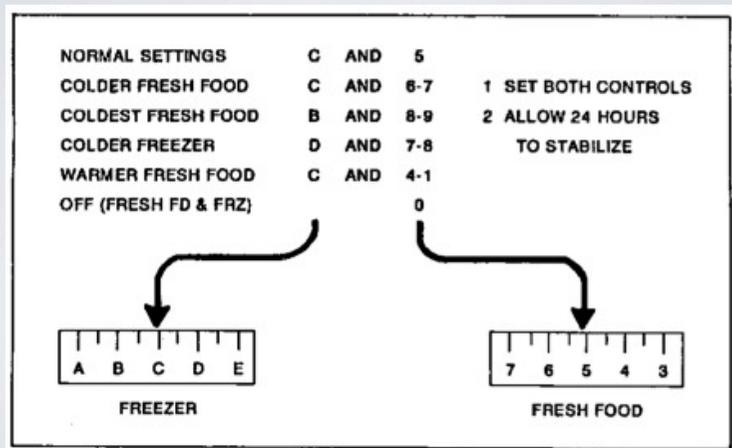
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MODÈLE D'UN FRIGO



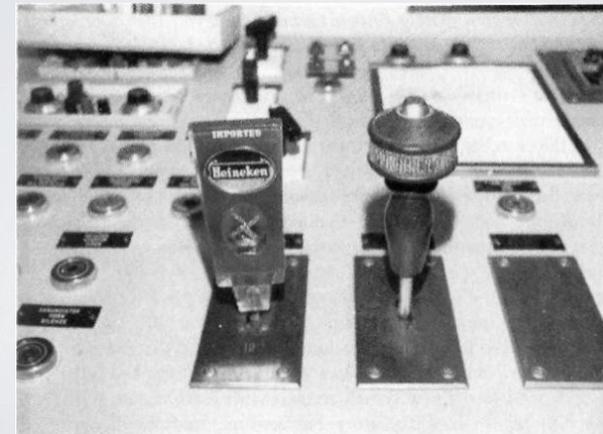
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INTERFACE D'UN FRIGO



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MAKE CONTROLS LOOK & FEEL DIFFERENT

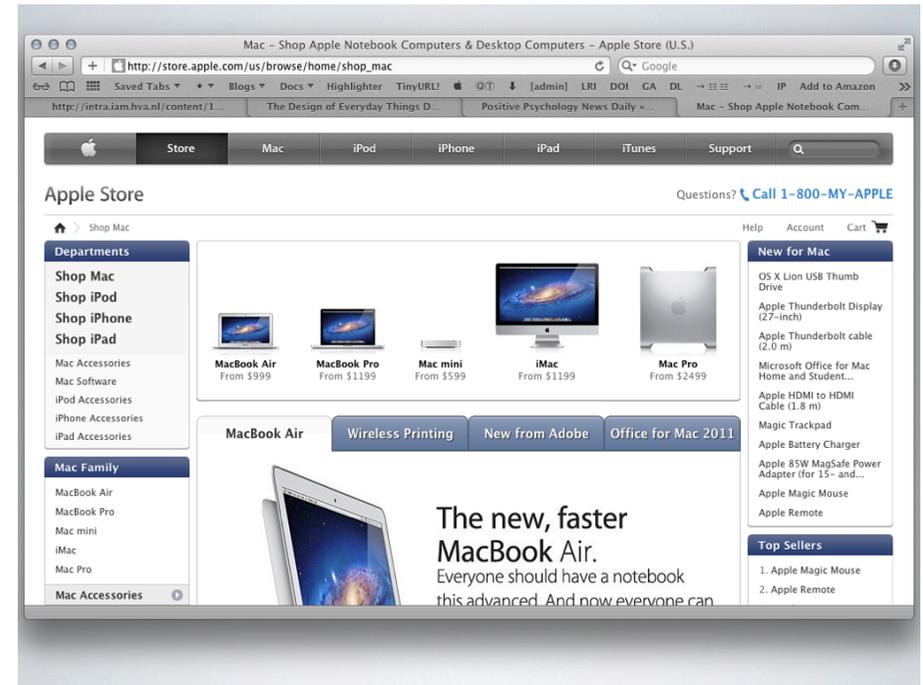


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PARADOX OF CHOICE



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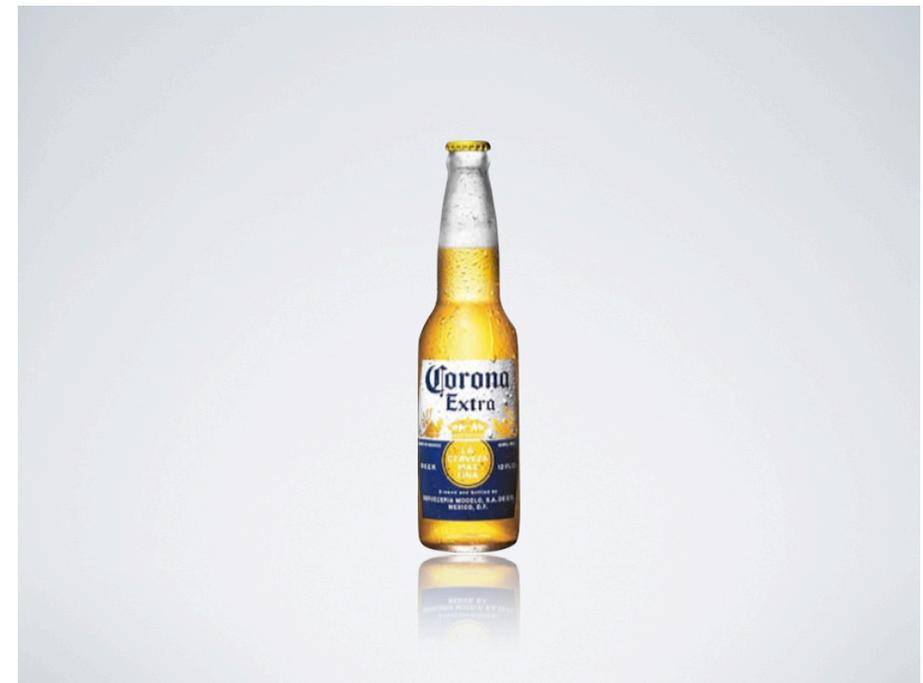


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INVOKE SCARCITY

- If it costs a lot, it must be good!
- Only two left in this size!

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[Source : James Hudson, PayPal]

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Affordable Dog Insurance - Covers 80% Of Your Vet Bill; Request A Free Quote & Start Your Pets Coverage Today!

Get Your Free Quote

Pet Name:

Pet Type: Dog Cat

Select Breed:

Spayed/Neutered? Yes No

Pet Date of Birth:

Gender: Female Male

Your Zip Code:

Email:

Simple & Easy

33 % conversion

Affordable Dog Insurance - Covers 80% Of Your Vet Bill; Request A Free Quote & Start Your Pets Coverage Today!

Get Your Free Quote

Pet Name:

Pet Type: Dog Cat

Select Breed:

Spayed/Neutered? Yes No

Pet Date of Birth:

Gender: Female Male

Your Zip Code:

Email:

Simple & Easy

66 % conversion

[Source : James Hudson, PayPal]

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[Source : James Hudson, PayPal]

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BESOINS UTILISATEUR

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MOTIVATION

- User
 - Low motivation, discretionary use
 - Low motivation, mandatory use
 - High motivation, due to fear
 - High motivation, due to interest
 - Design goal
 - Ease of learning
 - Control, power use
 - Ease of learning, robustness, control
 - Power, ease of use
-

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KNOWLEDGE & EXPERIENCE

Experience

<u>task</u>	<u>system</u>	<u>Design goals:</u>
low	low	– Many syntactic & semantic prompts
high	high	– Efficient commands, concise syntax
low	high	– Semantic help facilities
high	low	– Lots of syntactic prompting

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JOB & TASK IMPLICATIONS

- Frequency of use
 - High — Ease of use
 - Low — Ease of learning & remembering
- Task implications
 - High — Ease of use
 - Low — Ease of learning
- System use
 - Mandatory — Ease of use
 - Discretionary — Ease of learning



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DEFINE TASKS

- Consider the *whole* system
- Determine *who or what* should perform each task and each step :
e.g. the system remembers the login, but the user remembers the password
- Determine criteria: efficiency, cognitive effort, time
 - Task x should take no more than y seconds
 - A new user should be able to create a new account in 5 minutes

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DESIGN & PROTOTYPING

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PROTOTYPING THE INTERFACE

- Why prototype?
 - Creating the system is expensive
 - Start with low-fidelity mockups
 - Progress to prototypes
 - Storyboards, task diagrams, etc.

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DESIGN THE INTERFACE



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PAPER & PHYSICAL PROTOTYPING

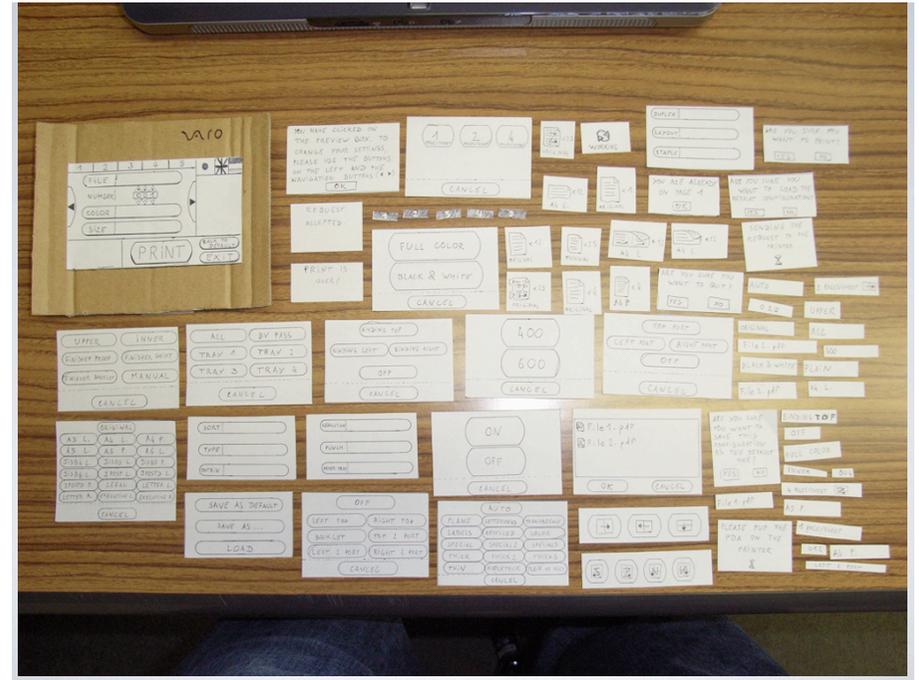


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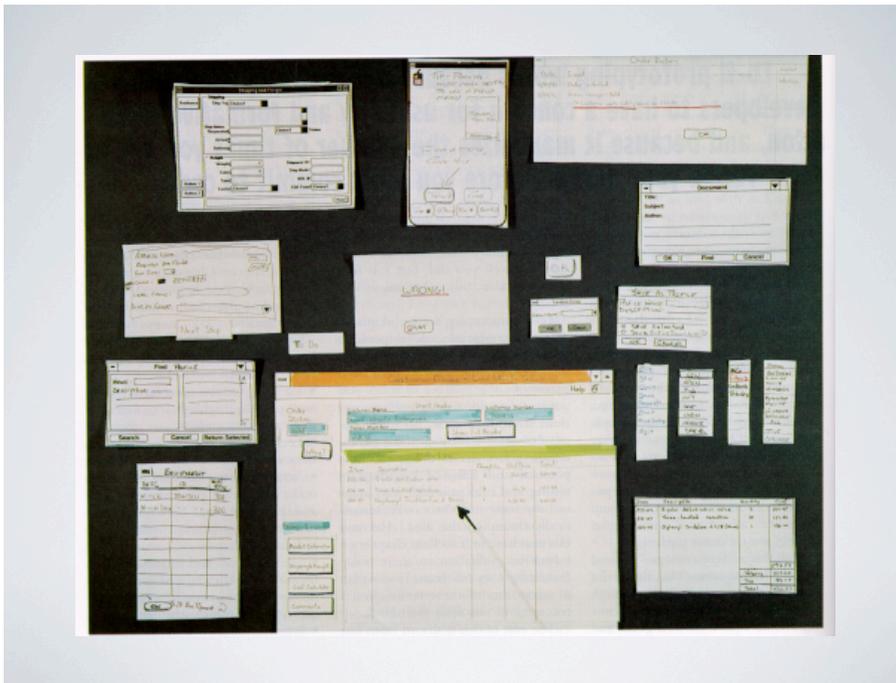




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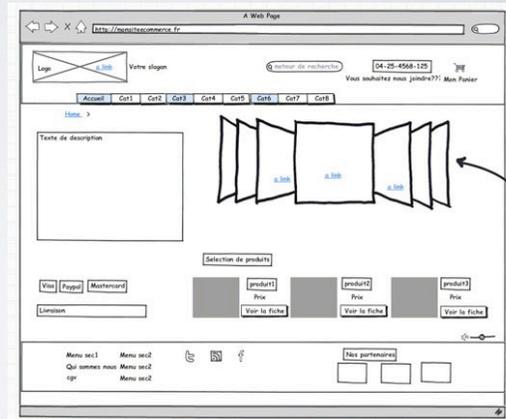
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WIREFRAME PROTOTYPES

- Paper or digital
- Layout & functionality
- Tools :
 - OmniGraffle
 - Browser plugins
 - e.g. Pencil project

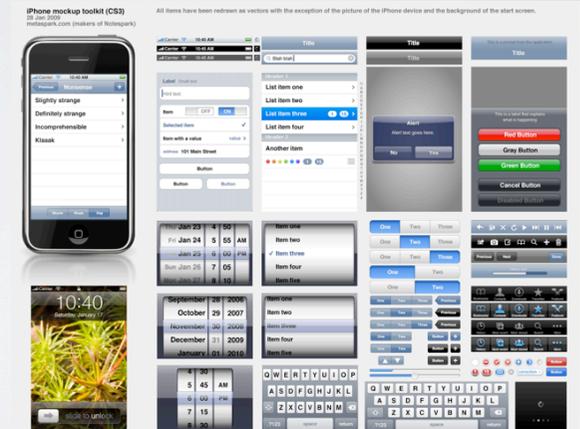


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CONCEPTION : UCD

6. Prototypage : mockup

- plus fidèle
- look & feel
- pixel prêt
- Outils :
 - Suite Adobe CS
 - OmniGraffle



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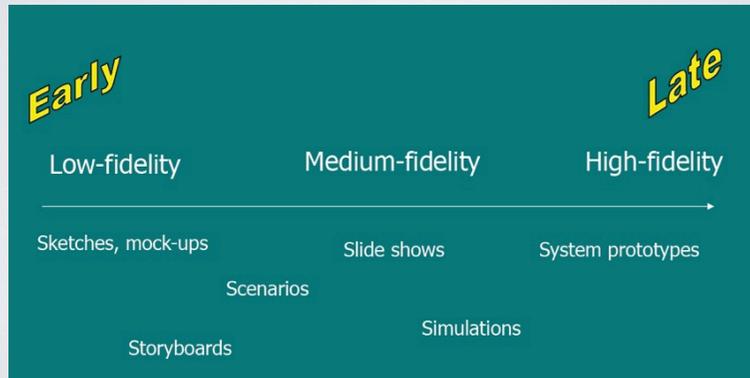
WIZARD OF OZ

- Simulate the system with a human wizard



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PROTOTYPING TOOLS



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PROJET

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RECOLTE DE BESOINS

- Normalement, déjà faite !
- Identification des catégories d'utilisateurs
- Besoins de chaque type d'utilisateur
- Tâches ...

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PROTOTYPES SUR PAPIER

- Commencer avec des sketches
- Ignorer les détails, concentrer sur l'idée
- Au moins trois idées différentes
- Élaborer chaque idée afin d'explorer l'interaction, le flot, ...

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USER TESTING & EVALUATION

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WHY TEST?

- Identify problems with software
- You are not your user
- The *earlier* you find your problems, the *cheaper* they are to fix

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EVALUATION METHODS

- Experimental, Observational
 - Typically with users
 - Controlled experiments based on usability requirements
- Predictive
 - (without users)

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PREDICTIVE EVALUATION

- Idea:
 - Observational studies are expensive, time consuming
 - Let's predict rather than observe usage
 - Save resources (quick, cheap)

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APPROACH

- Expert review
 - HCI professional (not a real user) interacts with the system, tries to find usability problems
- Ideally:
 - Has not used previous prototypes
 - Knows the problem domain
 - Understands the user's perspective

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PREDICTIVE EVALUATION METHODS

- Heuristic Evaluation
- "Discount" usability testing
- Cognitive Walkthrough

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HEURISTIC EVALUATION

- Developed by Jakob Nielsen (www.useit.com)
- Several experts evaluate the system according to simple and general heuristics

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METHOD

- Determine inputs
- Evaluate the system
- Collect observations
- Rank by severity

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INPUTS

- Who are the experts?
 - Learn domain, practices
- What is the prototype to evaluate?
 - Mock-ups, storyboards, ... or even a working system

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EVALUATION METHOD

- Reviewers evaluate system according to high-level usability principles :
- Use simple and natural dialog
- Speak user's language
- Minimize memory load
- Be consistent
- Provide feedback
- Provide clearly-marked exits
- Provide shortcuts
- Provide good error messages
- Prevent errors

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PROCESS

- Perform at least two passes
 - Look at each screen
 - Flow from screen to screen
- At each step, evaluate according to heuristics
- Look for problems:
 - Subjective (if you think its a problem, it is)

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DEBRIEFING

- Gather all identified problems
 - Identify which ones aren't really problems
 - Group, classify
 - Document and record the problems

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ORDER BY SEVERITY

- Scale from 0 to 4
- Based on:
 - Frequency
 - Impact
 - Persistence
 - Market impact

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ADVANTAGES

- Cheap, good for small companies that can't afford more
- Can be performed on mockups
- Experienced evaluators ideal
- According to Nielsen, 5 evaluators finds 75% of problems

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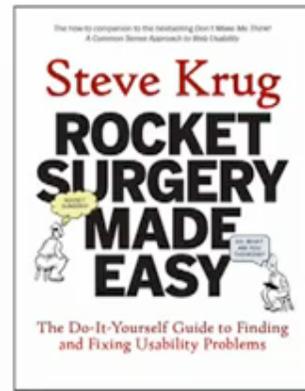
LIMITATIONS

- Evaluation is subjective, depends on reviewer expertise
- Are these the right heuristics?
- Are the identified problems really problems?

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Demo Usability Test

for readers of



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