

Web Usability

Gilles Bailly

gilles.bailly@telecom-paristech.fr

- Gilles Bailly
- Chercheur CNRS à Telecom ParisTech
- Équipe VIA (Visualization & Interaction)
 - Groupe IC2
 - Département INFRES

Thanks

- James Eagan
- Michael Rohs
- Patrick Baudisch
- Bill Buxton
- Jan Borchers

Web Usability

Gilles Bailly

gilles.bailly@telecom-paristech.fr

- Have you ever:
 - gotten **lost** in a Web site?
 - **left a site** without finding the information you wanted
 - waited **too long** for a page to download
 - gone to a site you **can't view or read**
 - visited a site with **outdated** information
- Do you want people **to visit and return** to your site

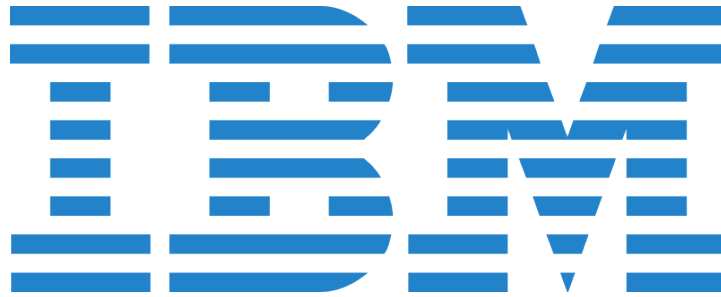
People **cannot find the information** they seek on
Web sites about **60% of the time**

[User Interface Engineering]

=> Wasted time, reduced productivity, increased
frustration, loss of repeat visits and money

*Studies of user behavior on the Web find a **low tolerance** for difficult designs or slow sites. People don't want to wait. And they **don't want to learn how to use a home page**. There's **no manual** for a Web site. People have to be able to grasp the functioning of the site **immediately** after scanning the home page*

[Jakob Nielsen]



Avant (1999)

La fonctionnalité **la plus utilisée** était ... **Recherche.**

“Les utilisateurs n’arrivaient pas à naviguer sur le site.”

La seconde fonctionnalité **la plus utilisée** était ...

Le bouton ‘HELP’.

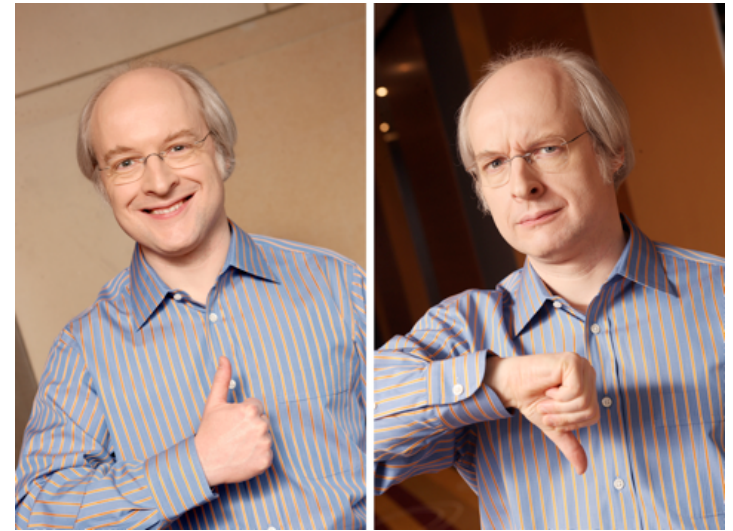
“car le moteur de recherche était inefficace.”

Après

L’utilisation du bouton ‘Help’ a **baissé de 40%**

Les ventes ont **augmenté de 400%**

A Story



- In 1995, now-famous web guru **Jakob Nielsen** had less than 24 hours to recommend if adding three new buttons to Sun's home page was a good idea
- He found that each new, but unused button costs visitors **500 000 \$** per year.
- 2 of the 3 new buttons were taken back out
- The method he used for his estimate: GOMS.

Check out his "**Alertbox**" online column for good (and often fun) web design advice0

DEFINITION



Usability assesses how easy your site is to **learn and use** by your customer (Jacob Nielsen)



The usability of a website is based upon whether people can **find information** they need (Jared Spool)



The usability is based on whether you are meeting your **business and user goals** with your product (Brian Sullivan)

Combination of factors

1. Ease of use
2. Efficiency of use
3. Memorability
4. Error frequency and severity
5. Subjective Satisfaction

Combination of factors

- Ease of learning
 - How fast can a **novice user** who has never seen the user interface before learn it sufficiently well to accomplish basic tasks?
- Efficiency of use
 - Once an **experienced user** has learned to use the system, how fast can he or she accomplish tasks?

Combination of factors

- Memorability
 - If a user has used the system before, can he or she remember enough to use it effectively the **next time** or does the user have to start over again learning everything?
- Error frequency and severity
 - How often do users make errors while using the system, how serious are these errors, and how do users recover from these errors

Combination of factors

- Subjective satisfaction
 - How much does the user like using the system

Combination of factors

1. Ease of use
2. Efficiency of use
3. Memorability
4. Error frequency and severity
5. Subjective Satisfaction

GOALS

- Create **Usable** Web sites
- Create **Usable** Web applications

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN">
```

```
<html>
```

```
<head>
```

```
<meta name="TITLE" content="..."/>
```

```
<meta name="KEYWORDS" content="..."/>
```

```
<meta name="DESCRIPTION" content="..."/>
```

```
<link rel="stylesheet" type="text/css" href="..."/>
```

```
<script language="javascript" src="..."/>
```

```
</head>
```

```
<body bgcolor="#ffffff" width="100%" height="100%">
```

```
</body>
```

```
</html>
```



Ouvrir un élément récent

Ouvrir...

Créer

- HTML
- ColdFusion
- PHP
- CSS
- JavaScript
- XML
- Mise en forme de grille fluide...
- Site Dreamweaver...
- Site Business Catalyst..
- Plus...

Principales fonctionnalités

- Vue d'ensemble de CSS
- Dispositions à grille fluide
- Création Business Catalyst
- Panneau Transitions CSS
- Nuanciers jQuery Mobile
- Panneau PhoneGap Build
- Plus...

- Mise en route >
- Nouvelles fonctions >
- Ressources >
- Dreamweaver Exchange >

Ne plus afficher



Adobe BrowserLab

Insertion

Styles CSS Éléments PA

Tous Actuel

Résumé de la sélection

Règles

Propriétés

Business Catalyst

Créez et publiez des Sites Web professionnels et de puissantes boutiques en ligne dans Dreamweaver.

Essayez Adobe Business Catalyst gratuitement dès aujourd'hui!

Mise en route

Fichiers Actifs

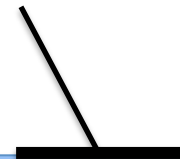


N'oubliez pas
l'utilisateur



Design Process

implementation



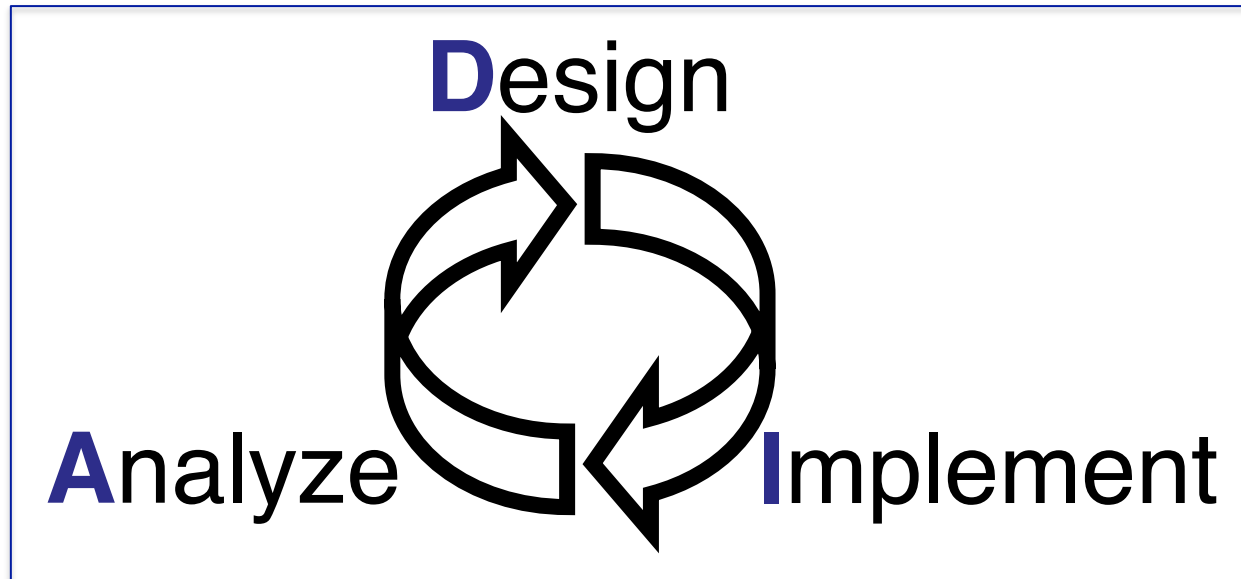
- Create **Usable** Web sites
- Create **Usable** Web applications

- Methods
 - **Human** centered design

Design Process

Gilles Bailly

Gilles.bailly@telecom-paristech.fr



Users

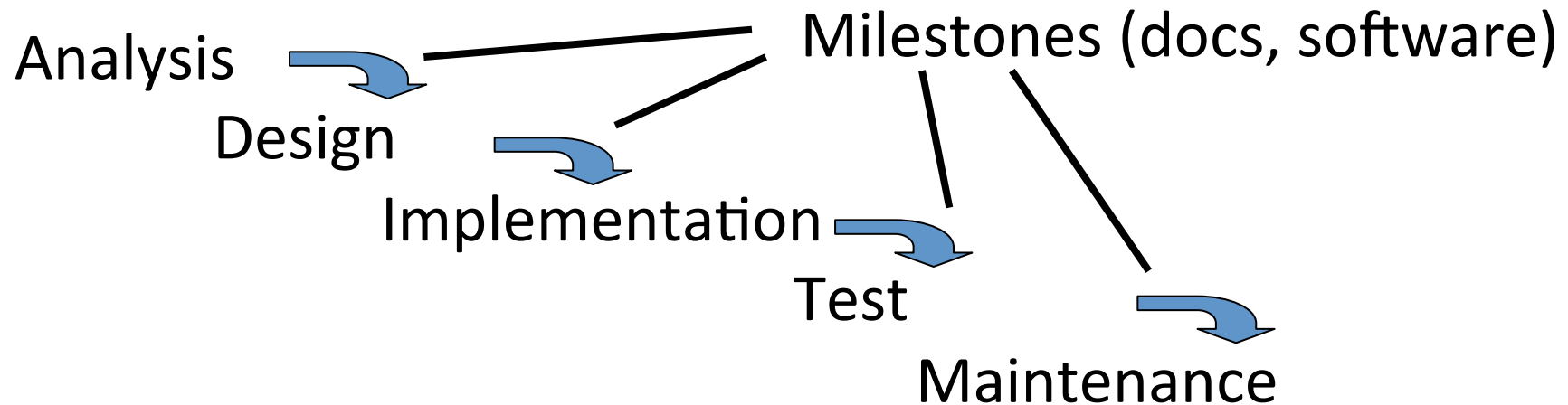


Alesandro, software engineer
Alesandro wants sporty looks and speed.
A two-door sports car meets his needs.

Requirements



The Wrong Way: Waterfall model



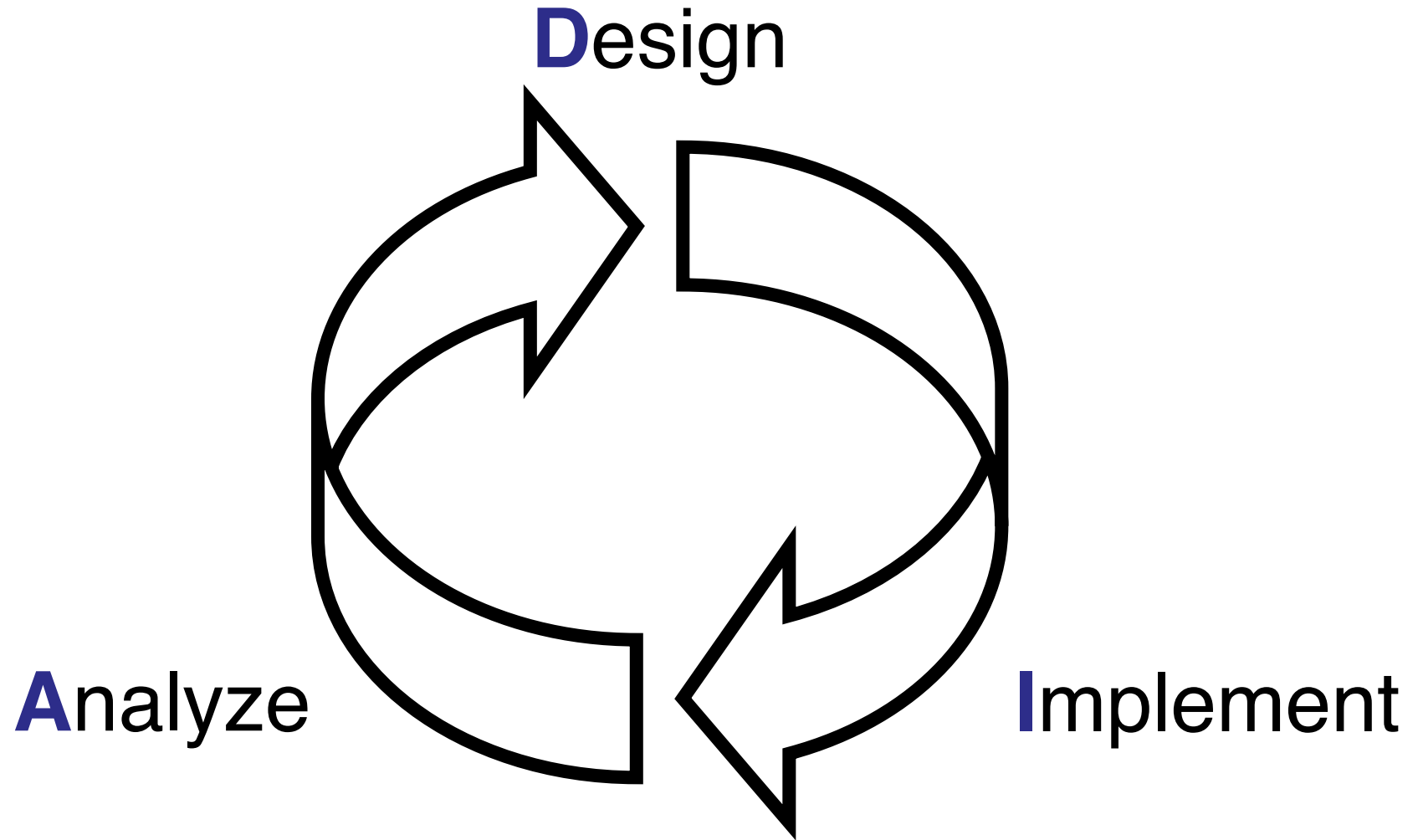
Problems

- Phases **idealistic**, reality requires backtracking
- **Specifications often too abstract** to guide design
- **Wrong assumptions** hard to detect & fix early

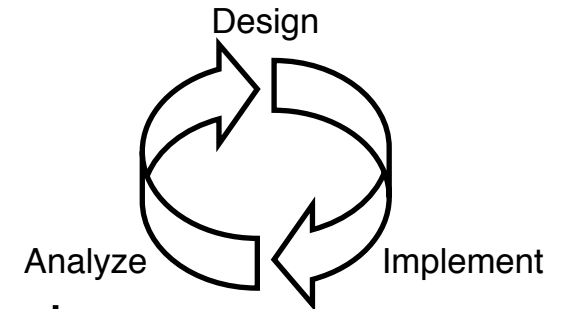
Human activity is **too complex and flexible**
for complete specification

⇒ **Involve final users as much as you can**

The Right Way: DIA Cycle

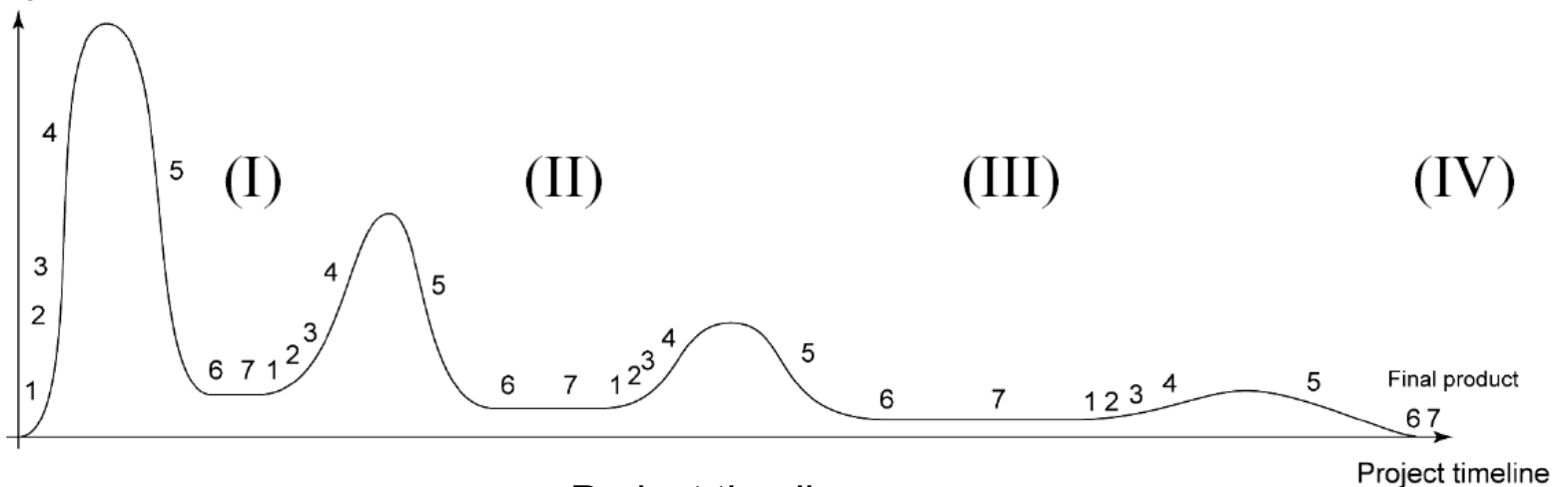


DIA Cycle



- For each **iteration**
 - Design becomes more concrete & precise
 - Implementation gets more detailed
 - Analysis and user feedback focuses on smaller and smaller problems
- Fix **big** design bugs **first**, **small** ones **later**

Number of design ideas under consideration



Source: François Guimbretière

Project timeline

Project timeline

Four Design Process Principles

(Gould et al.)

- A) Early and continual **focus on users**
- B) Early and continual **user testing.**
- C) **Iterative design**
- D) **Integrated design**

Gould, Boies, Ukelson:

How to Design Usable Systems.

Ch. 10, Handbook of HCI, Martin Helander, 1997

A) Early and Continual Focus on Users

Decide **who** the users will be

Decide **what** they will be doing with

*“You can not figure out what people want, need, can do, and will do without **talking** to them.”*

A) Early and Continual Focus on Users

- Methods: examples



Talk with users



Watch the users

B) Early and Continual User Testing

- Nobody can get it right the **first time**
 - Not limited to interface design

Build **Prototype**

*“The most important tools an architect has are the **eraser** in the drawing room and the **sledge hammer** on the construction site.”*

Frank Lloyd Wright



B) Early and Continual User Testing

- Methods: examples



C) Iterative Design

- **Identification** of required changes
- Ability to make the **changes**
- **Willingness** to make the changes

Have good **tools**

C) Iterative Design

- Methods
 - **Collect** the required improvements during user testing
 - **Organize** development work in a way that improvements can be made (Wiki, documentation, etc.)
 - Have software tools that **support** making the required improvements (Interface builder, Flash, CSV, etc.)

D) Integrated Design

- All aspects of usability should **evolve in parallel**
 - Functions, GUI, devices, ~~user manual~~, etc.
- Usability activities coordinated by a **single person**
 - Measure, control, and manage usability

Choose a **responsible** for integration

Questions?

A) Early and continual **focus on users**

Decide **who** the users will be

Decide **what** they will be doing with

B) Early and continual **user testing**.

Build Prototypes

C) **Iterative design**

Have Good Tools

D) **Integrated design**

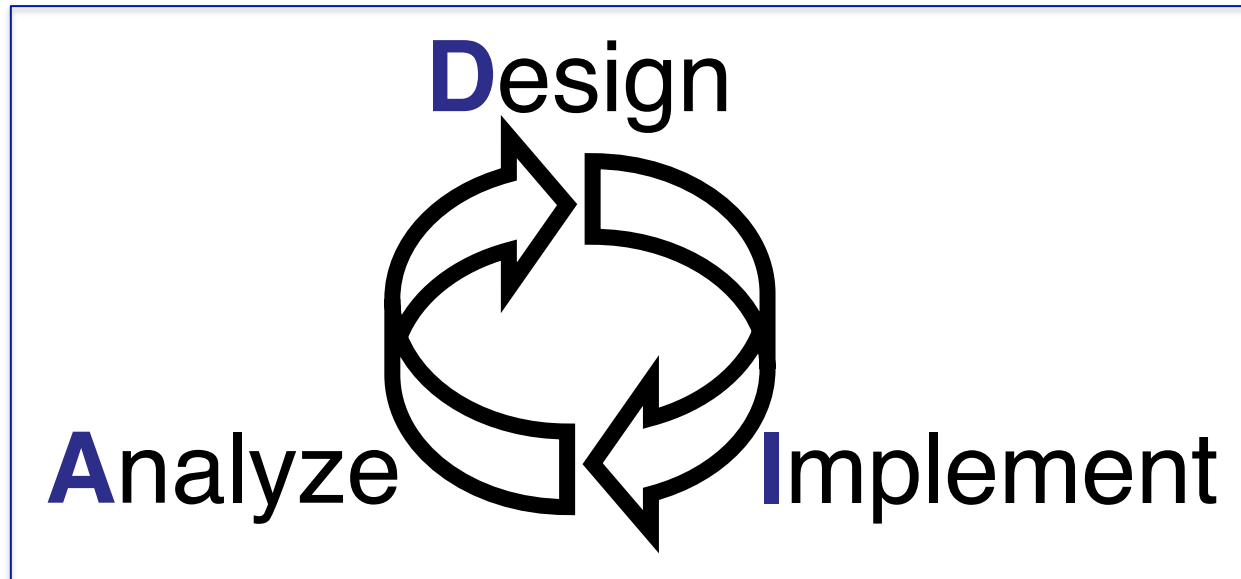
Choose a responsible for usability

Questions?

A) Early and continual **focus on users**

Decide **who** the users will be

Decide **what** they will be doing with



Users



Alesandro, software engineer
Alesandro wants sporty looks and speed.
A two-door sports car meets his needs.

Requirements



USERS

Learning About Users

- Providing **useful functions/contents is not enough**
- Functions/contents need to fit seamlessly to user's tasks
- Find real **people interested** in your system (otherwise there's a problem)

Know the user

Users' Experience

- Novice users
 - **Don't know UI, anxiety** → simple UI, few features, small consistent vocabulary, extensive feedback, help, and documentation
- Intermediate users
 - **Know task well, know UI, forget functions** → clear menu structures, consistency, see & choose instead of remember & type, continued error protection
- Expert users
 - **Know task & UI well** → speed, efficiency, short non-intrusive feedback, **shortcuts**, macros, customizability, extendibility

Finding Users

- Designer: “My system is useful for everyone”
- Designer: “I am a typical user myself”
 - Would you really use it daily?
 - Usefulness apparent to designer after long thought process may **not** be **obvious** to the user

Find users

Users' Characteristics

- Background
 - Name, age, sex, nationality, education, income
- Computer experience
 - Particular apps, duration, depth
- Personality
 - Introvert/extrovert, systematic/spontaneous, early/late adopter
- Impressions after use
 - Confused/OK, frustrated/controlled, bored/excited, reasons for (not) liking system

Personas Example

(Cooper, About Face, Chapter 5)

- Goal: Building a car that **pleases everyone**



Building a car based on three personas (representing larger groups)



Marge, *mother of three children*

Marge wants safety and room for many passengers. A minivan meets her needs.



Jim, *construction worker*

Jim wants cargo space and the ability to carry heavy load. A pickup truck meets his needs.



Alessandro, *software engineer*

Alessandro wants sporty looks and speed. A two-door sports car meets his needs.

Personas Help to...

- **Communicate** user characteristics to developers
 - Consistent, coherent understanding of target group
 - Features prioritized by how well they match personas' needs
- Avoid **elastic** users
 - Constantly changing target user to justify differing design choices
 - Clear focus towards the intended users
- Avoid **self referential** design
 - Designer: “I am a typical user myself”

Scenarios

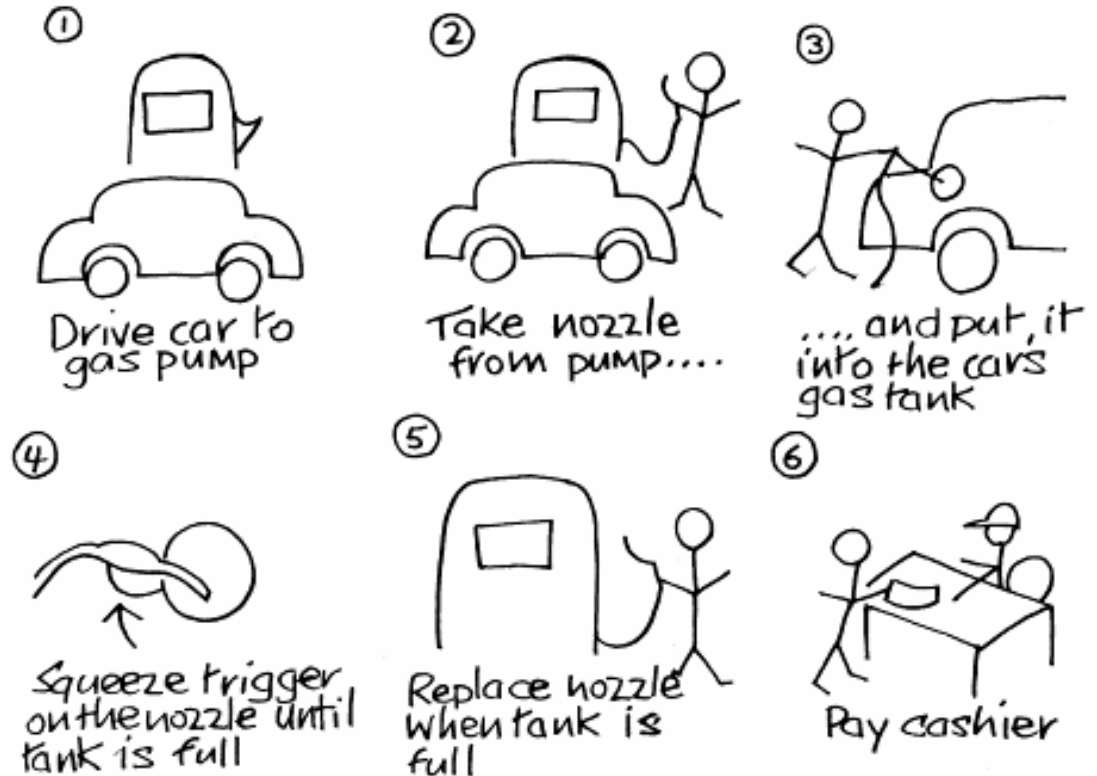
- Informal **narrative** description
- **Several scenarios** are recommended.
- Scenarios are **design-specific**
 - How would a task be performed in a **particular design**
 - Take into account the specificities of the system.
 - Task is design-independent

Scenario Perspective

- User's point of view of:
 - **what** happens,
 - **how** it happens
 - and **why** it happens
 - User **motivations** toward the system
 - User **actions** taken
 - User's **reasons** why actions were taken
 - User's **perception**
 - Results in terms of user's motivations and expectations

Representations of Scenarios

- Text
- Storyboards
- Video mock-ups
- Scripted prototypes
- Physical situations



- Different levels of detail possible
- Expanding scenarios if needed

Example storyboard

REQUIREMENTS

Getting the Requirements Right

Major cause of project failure:

Unclear requirements



How the customer explained it



How the Project Leader understood it



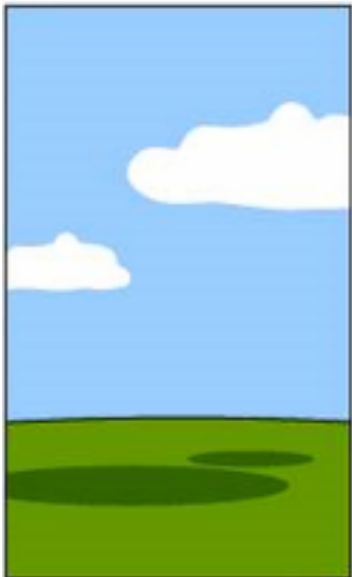
How the Analyst designed it



How the Programmer wrote it



How the Business Consultant described it



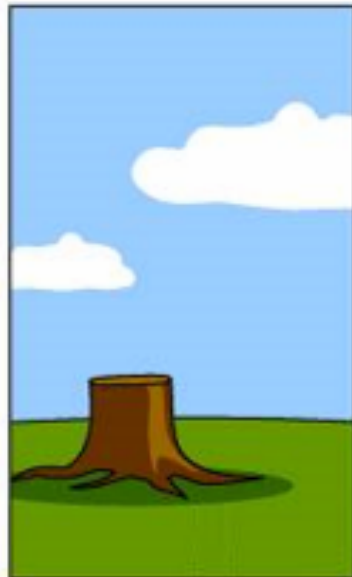
How the project was documented



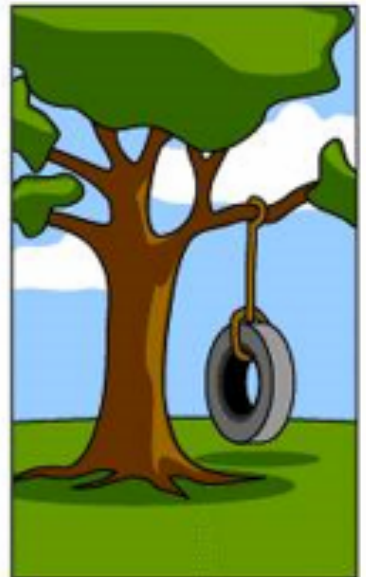
What operations installed



How the customer was billed



How it was supported



What the customer really needed

Kinds of Requirements

- **Functional requirements:**
what the product should do

- **Non-functional requirements:**
constraints on the product

Kinds of Requirements

- **Functional requirements:**
what the product should do
 - Example: **AMAZON.fr**.
 - Find a product
 - Compare products
 - Get information
 - Etc.

Kinds of Requirements

- **Non-functional requirements:**
constraints on the product
 - Example: Must work on interactive watch
- Environment (context of use)
 - Data
 - Physical environment (e.g., operate in low lighting conditions)
 - Social environment (e.g., many other people are nearby)
 - Technical environment (e.g., compatible with other systems)
- User: characteristics of intended user group
 - User profile: collection of attributes of a “typical user”
- Usability: measurable goals

SCENARIOS

Scenarios

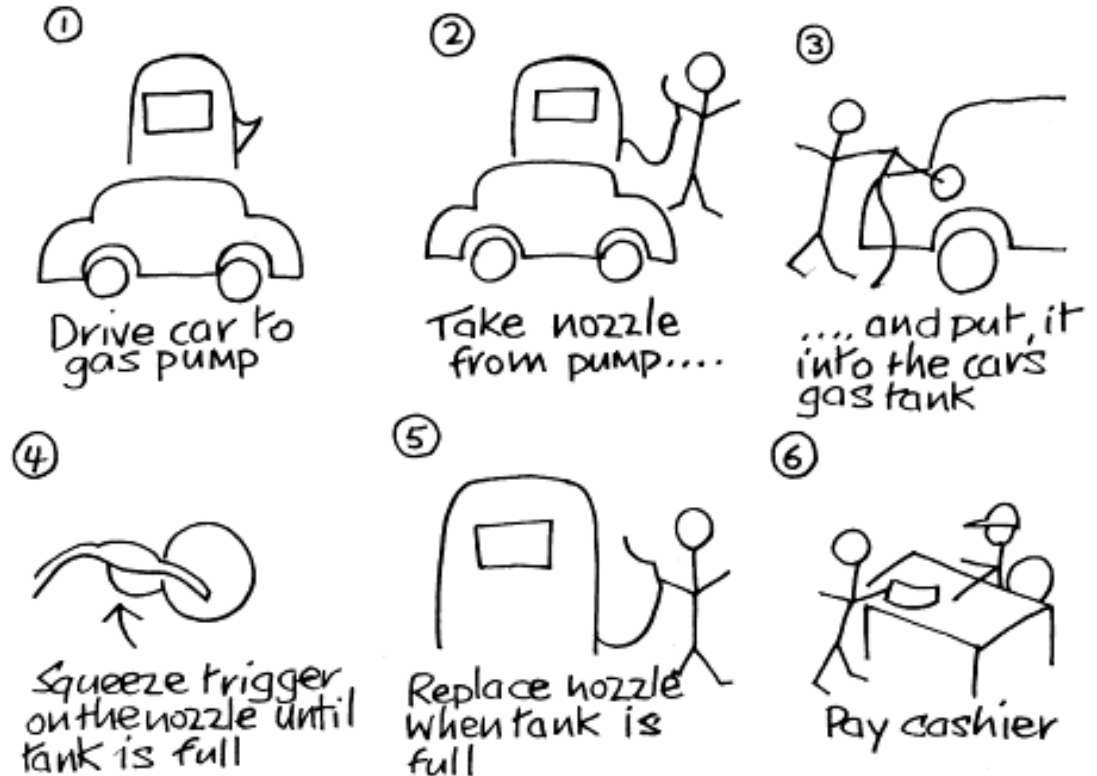
- Informal **narrative** description
- **Several scenarios** are recommended.
- Scenarios are **design-specific**
 - How would a task be performed in a **particular design**
 - Take into account the specificities of the system.
 - Task is design-independent

Scenario Perspective

- User's point of view of:
 - **what** happens,
 - **how** it happens
 - and **why** it happens
 - User **motivations** toward the system
 - User **actions** taken
 - User's **reasons** why actions were taken
 - User's **perception**
 - Results in terms of user's motivations and expectations

Representations of Scenarios

- Text
- Storyboards
- Video mock-ups
- Scripted prototypes
- Physical situations



- Different levels of detail possible
- Expanding scenarios if needed

Example storyboard

Questions?

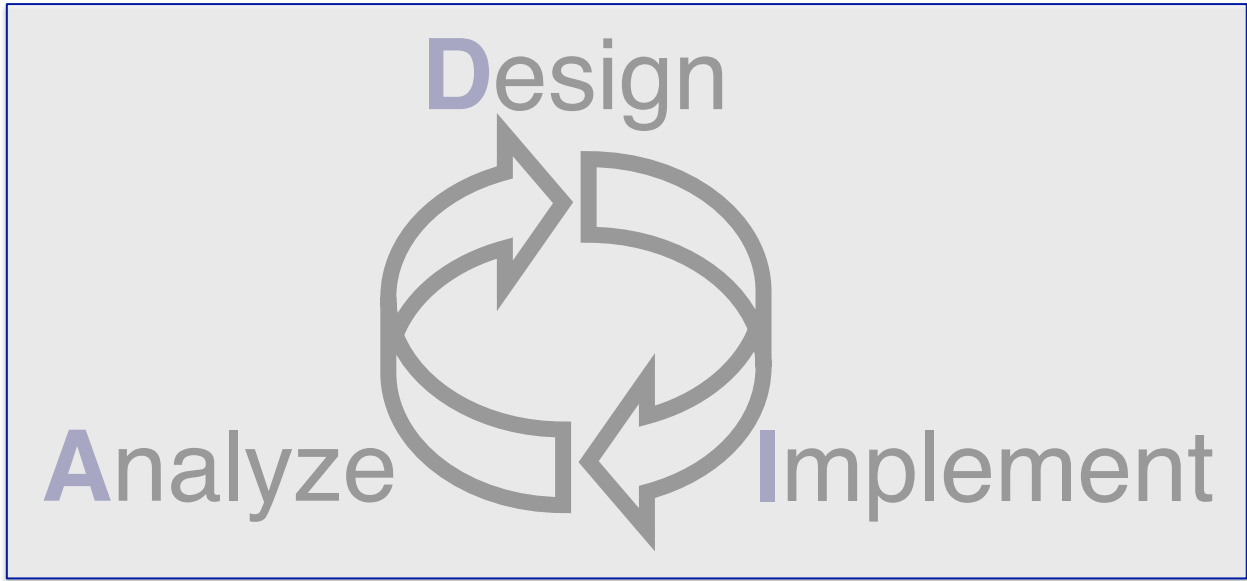
- Users

Know the user

Try to get as much information as you can

- Requirements

Define functional & non-functional requirements as soon as possible



Users

H  **O** 

eng
sandro wa
two-door sp
orty l
and speed
s needs.

Besoins

w  **?**

How to capture data?



Interviews

Likert Scales

Please circle the number that represents how you feel about the computer software you have been using

I am satisfied with it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is simple to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is fun to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It does everything I would expect it to do
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

I don't notice any inconsistencies as I use it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

Questionnaires



Observations

INTERVIEWS

Interview: Four Key Issues

1. Setting goals
 - Decide how to **analyze** data once collected
2. Relationship with participants
 - Clear and professional
 - **Protect privacy**
 - Informed consent form when appropriate
 - Signed agreement between evaluator and participant
3. Triangulation
 - **Use more than one approach**
 - Use different perspectives to understand a problem or situation
4. Iterate
 - If questions reveal that goal was not sufficiently refined: refine goal, repeat

Data Recording

- Notes, audio, video, photographs
- Notes plus photographs
- Audio plus photographs
- **Video**



Interviews

- Unstructured
 - Not directed by a script
 - Rich but **not replicable**
- Structured
 - Tightly scripted, often like a questionnaire
- **Semi-structured**
 - **Guided** by a script but **free** to explore interesting issues in more depth
 - Good balance between richness and replicability

How to Ask Questions?

- Clear and simple, **not** too **broad**
 - “How do you like the UI?” is too general!
 - The risk is people do not say the truth
- Affording logical, quantitative answers
 - Bad questions give unusable or wrong answers
 - Open vs. closed questions

Running the Interview

- Introduction
 - **Introduce yourself**, explain the goals of the interview, reassure about the ethical issues, ask to record, **present any informed consent form**
- Warm-up
 - Make **first questions easy**
- Main body
 - Present questions in a logical order
- A cool-off period
 - Include a few easy questions to defuse tension at the end
- Closure
 - Thank interviewee, signal the end, e.g., switch recorder off

How to capture data?



Interviews

Likert Scales

Please circle the number that represents how you feel about the computer software you have been using

I am satisfied with it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is simple to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is fun to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It does everything I would expect it to do
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

I don't notice any inconsistencies as I use it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

Questionnaires



Observations

QUESTIONNAIRES

Questionnaires

- Can be administered to **large populations**
 - Paper, email, social network and the web used for dissemination
- Provide **clear instructions** on how to complete the questionnaire
- Decide on whether phrases will all be positive, all negative, or mixed

Likert Scales

- Measures degree of agreement with a statement
- Widely used for measuring opinions, attitudes, beliefs

Likert Scales

Please circle the number that represents how you feel about the computer software you have been using

I am satisfied with it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is simple to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

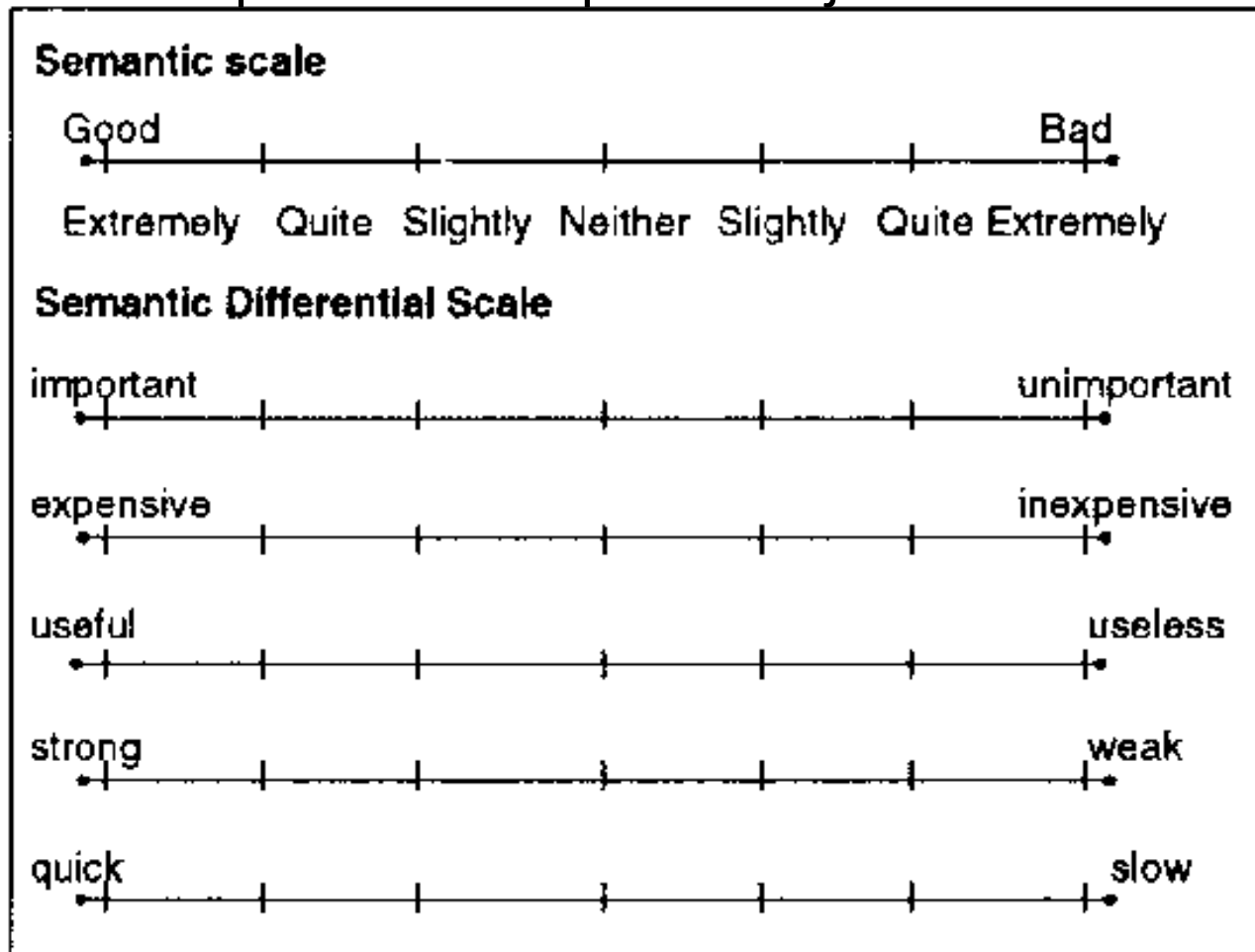
It is fun to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It does everything I would expect it to do
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

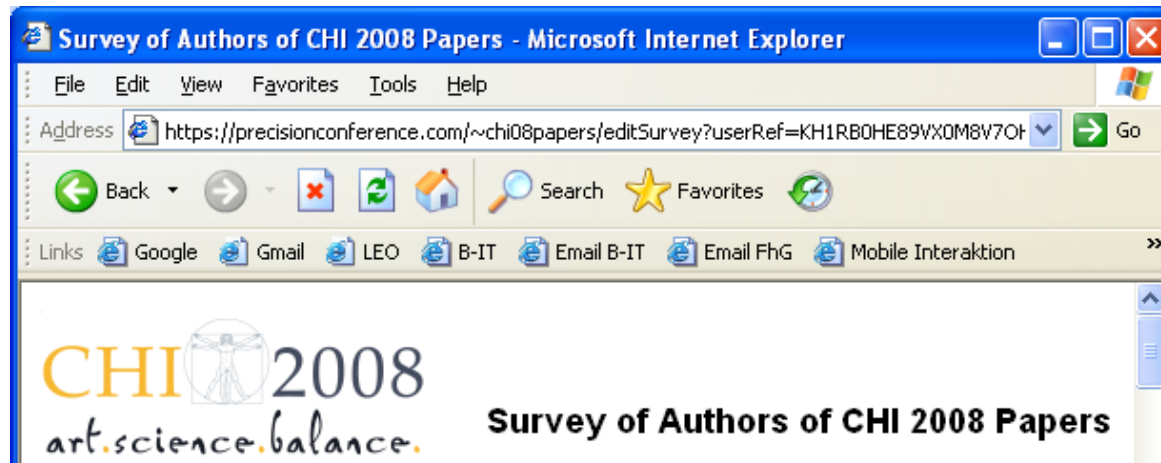
I don't notice any inconsistencies as I use it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

Semantic Differential Scales

- Range of bipolar attitudes about a particular item
- Pair of attitudes represented as pair of adjectives



Clear instructions, description of purpose



General Instructions. The purpose of this survey is to monitor and improve the CHI reviewing process. It has approximately 30 questions and should take five minutes or so. Please answer all questions to the best of your ability; **press the submit button at the end of the survey when you've finished.** When this form is submitted, your name and all other personally identifying information is removed so that your responses are anonymous. Thank you for your help!

Additional Instructions for Authors. You will receive one survey for each paper or note on which you were the contact author (i.e. the one who submitted it to the reviewing system). If you had multiple submissions, please complete a survey for each one: **This survey is for the submission whose title is shown at the top of this page.** (Note that, along with other personally identifying information, the submission number and title will be removed when the survey is saved, to maintain your anonymity).

Advantages of Online Questionnaires

- Responses are usually **received quickly**
- Data can be collected in **database** for analysis
- Time required for data analysis is reduced

- E.g.
surveymonkey.com
- Limesurvey
- Google Form

The screenshot shows a web browser window with a career website. The main content area contains a search form with the following elements:

- Text: "colleagues from abusive and intrusive individuals. Your privacy and anonymity are guaranteed as a CareerRedesign Colleague."
- Text: "Not registered? [Register Now](#). It's free and secure!"
- Text: "Please enter your Colleague ID:
- Form fields:
 - Option 1: By Profile (dropdown menu with "Match My Profile" selected)
 - Option 2: Career Change Process Step: (dropdown menu with "None" selected)
 - Option 3: By Geography (dropdown menu with "All" selected)
 - Criteria: (dropdown menu with "Plan the Change" selected)
 - State:
- Button: "Find Colleagues"

The left sidebar contains navigation menus:

- Careers**
 - [Plan the Change](#)
 - [Thrive in Transition](#)
 - [Start the New Career](#)
- Services Center**
 - [Seminars, etc.](#)
 - [Schools](#)
 - [Assoc's & Non-Profits](#)
 - [Counselors, etc.](#)
 - [Financial Services](#)
 - [Public Sector](#)
 - [Recruiters](#)
- Colleague Center**
 - [Register Now!](#)
 - [Colleague Directory](#)
 - [Local Chapters](#)
 - [My Notebook](#)
 - [E-news Letter](#)
 - [My Homepage](#)
 - [Discussions](#)
- Shopping Center**
 - [Publications](#)
 - [Health & Fitness](#)

The right sidebar contains promotional text and links:

- Share Your Experience**
 - Add to the website a(n):
 - [Personal experience](#)
 - [Article or article review](#)
 - [Book review](#)
 - [Test, tool or tip](#)
- Recommend a:
 - [Service Center Provider](#)
 - [Career Showcase](#)
 - [Success Story Candidate](#)
- [Rate this website!](#)
- Ask Others**
 - Use our [directory email service](#) or our [online discussion groups](#) to make contacts, solve problems and find someone who listens
 - [Ask us a question](#)

The browser's address bar shows "Internet".

Problems with Online Questionnaires

- **No control** over user context
 - Validity of data cannot be guaranteed
- Difficult to get a random sample that represents the whole population
 - Preventing individuals from responding more than once

How to capture data?



Interviews

Likert Scales

Please circle the number that represents how you feel about the computer software you have been using

I am satisfied with it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is simple to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is fun to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It does everything I would expect it to do
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

I don't notice any inconsistencies as I use it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

Questionnaires



Observations

OBSERVATION

Observation

- Observation
 - Spending time with the users as they do tasks in natural setting
 - Capture context of tasks
- Follow the user “**like a shadow**”
 - Make notes
 - Observe activity
 - Ask questions (but not too many)
- Requires a lot of time and commitment
- Results in a lot of data that needs to be analyzed



Structuring Frameworks to Guide Observation

1. **what user** is going to use the system?
2. what **tasks** do they now perform?
3. what functionality is **desired**?
4. how are the tasks **learned**?
5. **where** are the tasks performed?
6. what's the relationship between **customer & data**?
7. what **other tools** does the customer have?
8. how do users **communicate with each other**?
9. **how often** are the tasks performed?
10. what are the **time constraints** on the tasks?
11. what happens when things **go wrong**?

Kinds of Observation

- **Indirect** observation: tracking users' activities
 - Interaction logging
- **Direct** observation **in the field**
 - Ethnography
- **Direct** observation **in controlled environments**

Preview: How to capture data?



Interviews

Likert Scales

Please circle the number that represents how you feel about the computer software you have been using

I am satisfied with it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is simple to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It is fun to use
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

It does everything I would expect it to do
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

I don't notice any inconsistencies as I use it
Strongly Disagree ---1---2---3---4---5---6---7--- Strongly Agree

Questionnaires



Observations

Combining Techniques

- Combining interviews and questionnaires
 - Interviews with core group of users
 - Questionnaires for wider group of stakeholders
 - Interviews face-to-face, questionnaires via email
 - **Triangulation**: Use different approaches and perspectives to understand a problem or situation

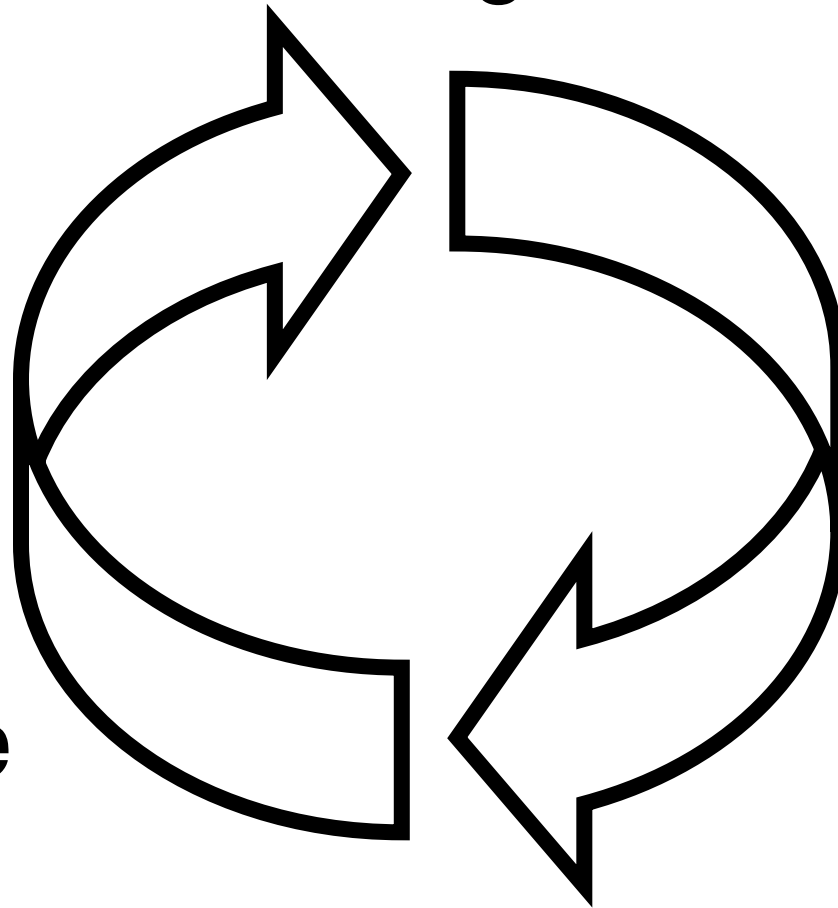
DESIGN TECHNIQUES

DIA Cycle

Design

Analyze

Implement



seattle public library

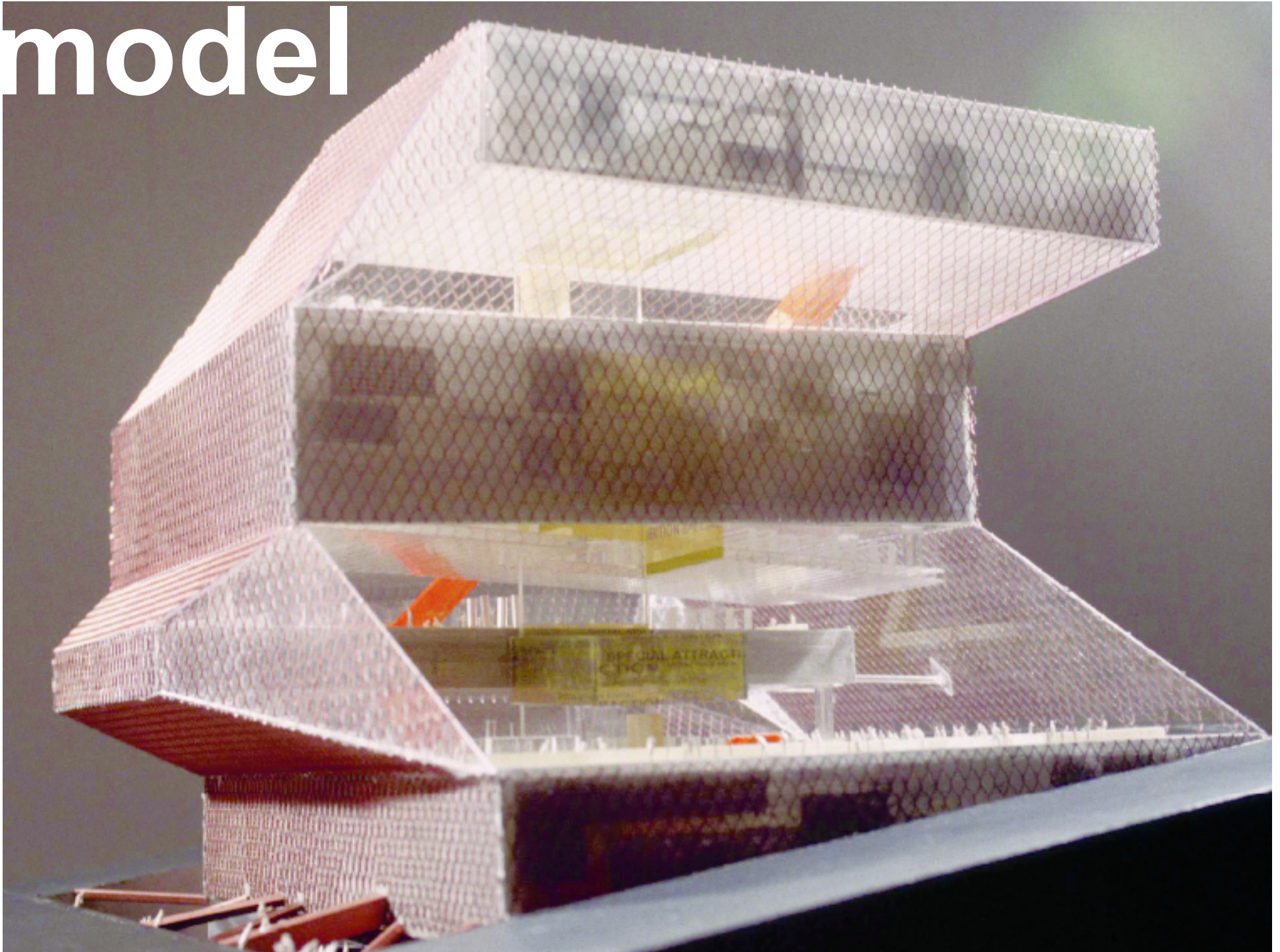
A close-up photograph of the Seattle Public Library's facade, showing the intricate white diamond-patterned structure. The building is set against a backdrop of other tall city buildings and some trees with green leaves.

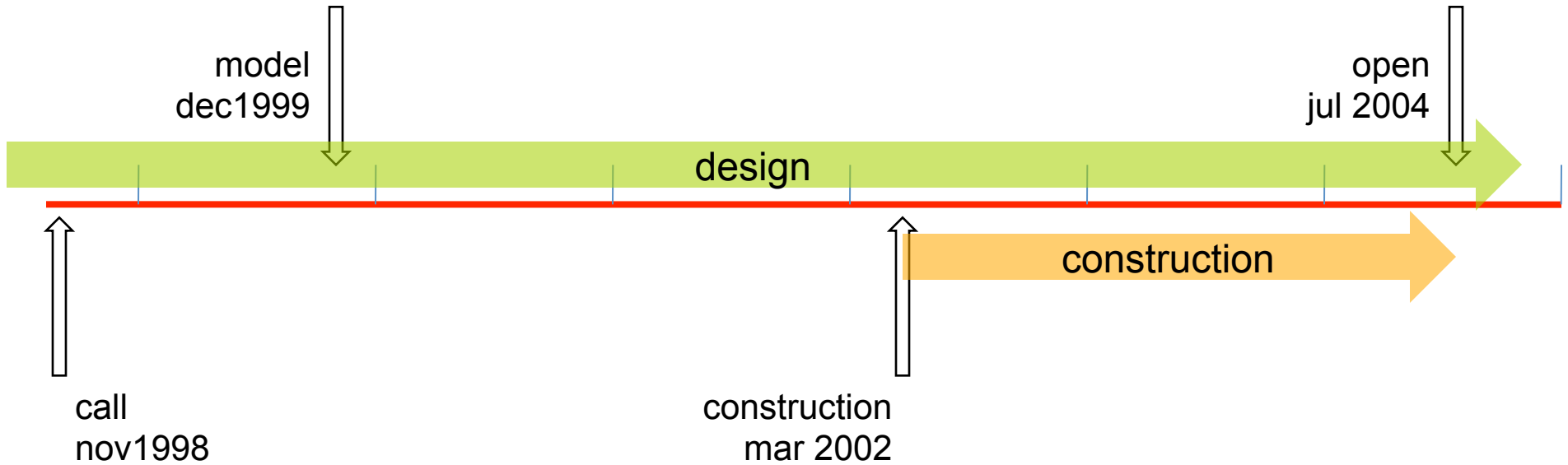
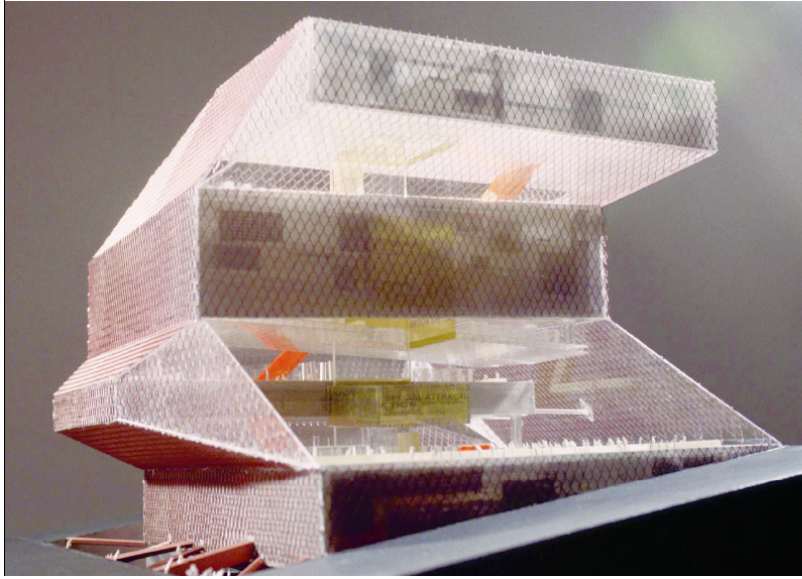
What is the process to get this?



many of the following slides: courtesy bill
buxton & Patrick Baudisch

model





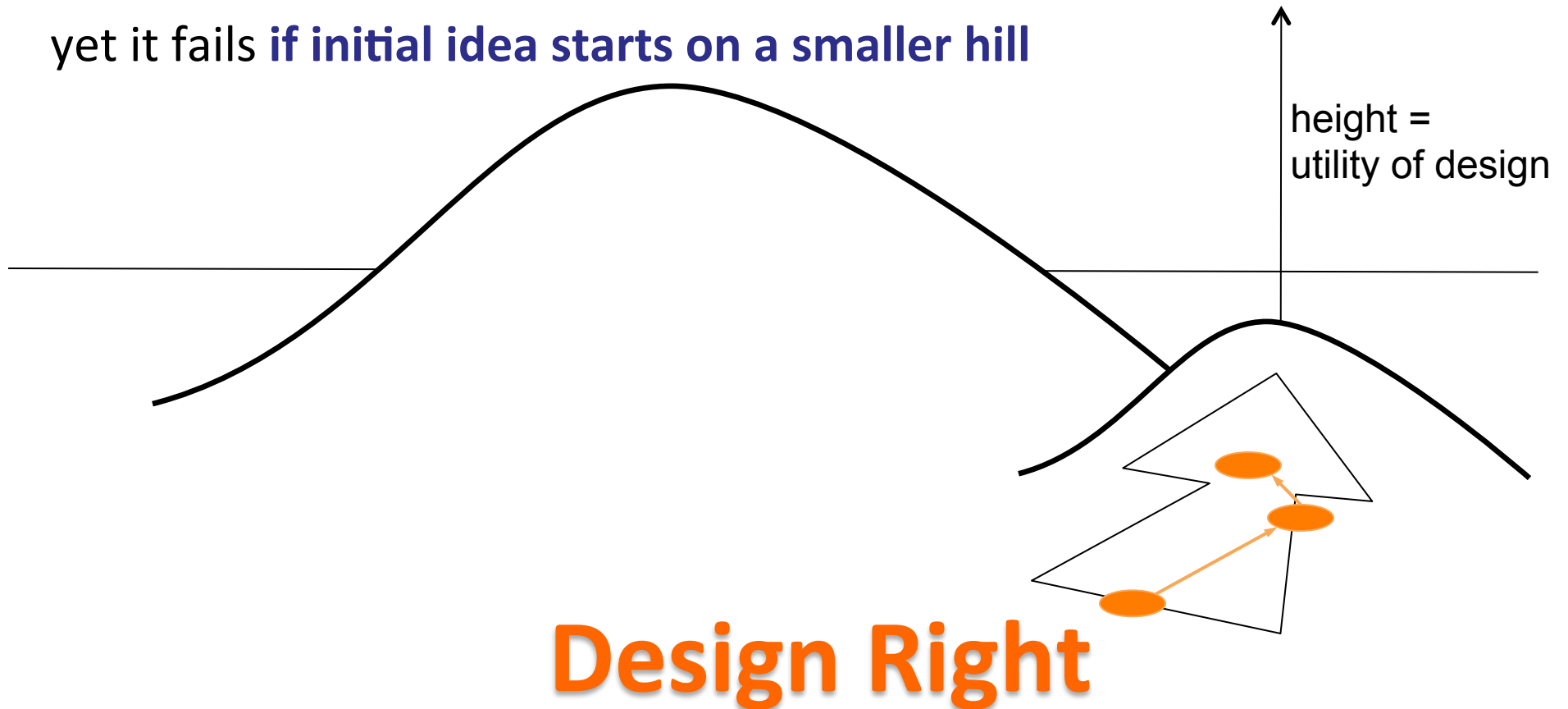
Engineering iteration

(1) **create** design / generate an idea

(2) **iterate** by hill climbing

→ this process finds the top of a hill

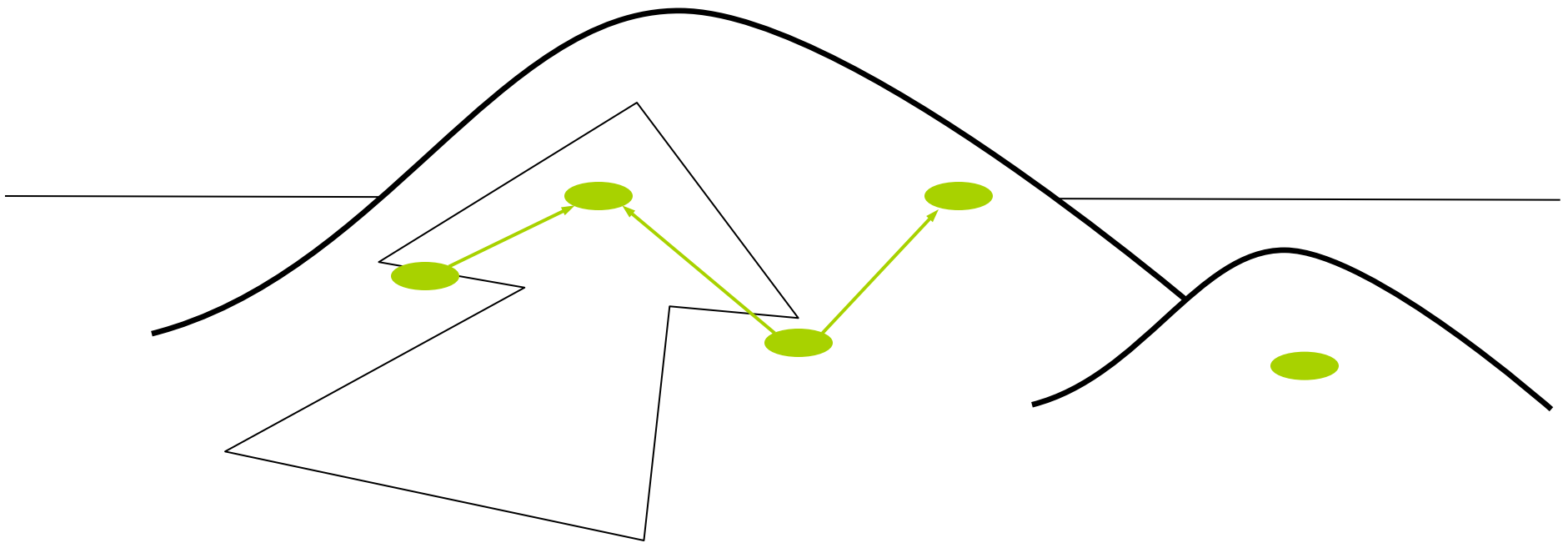
yet it fails if **initial idea starts on a smaller hill**



Design Process

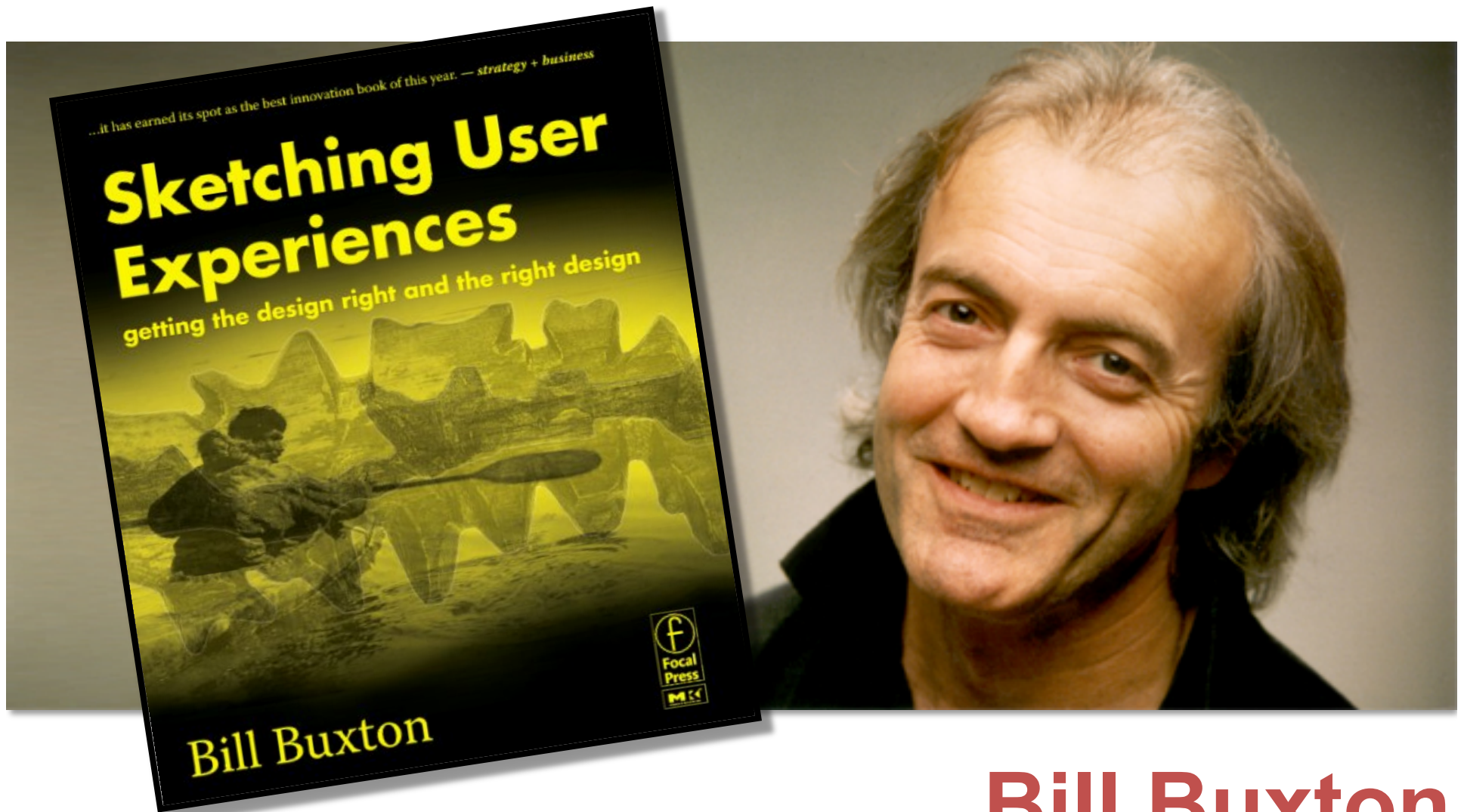
- (1) create k new designs, add to set;
- (2) drop k worst designs

this process finds the **tops of multiple hills**
and works with “distracter” hills



Right Design

The Master's Book

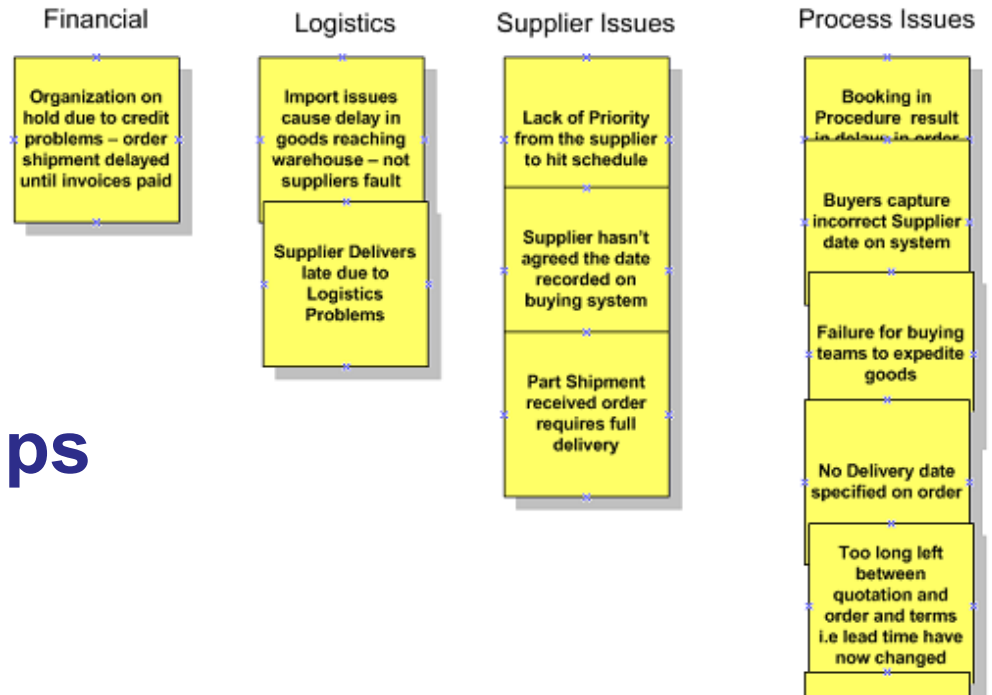


Bill Buxton

Brainstorming

- Collect as **many ideas** on a given topic as possible
- **Quantity**, not quality; include crazy ideas
 - Go for a large number of ideas
 - “To get a good idea, get lots of ideas” (Marc Rettig)
- **!!!!!!No judgments!!!!!!**
 - Do not criticize or argue
- How: Scribe collects ideas **visible for all: Whiteboard & Post-it.**
- Limit to **5-10** minutes

Affinity



Arrange cards into **groups**
(or structure)

Find category **names**

Capture and **discuss the groups**

Sketching & Prototyping

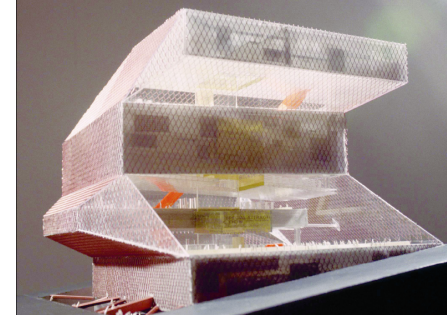
Sketching & Prototyping

How to **build** prototype?

Why to build prototype?

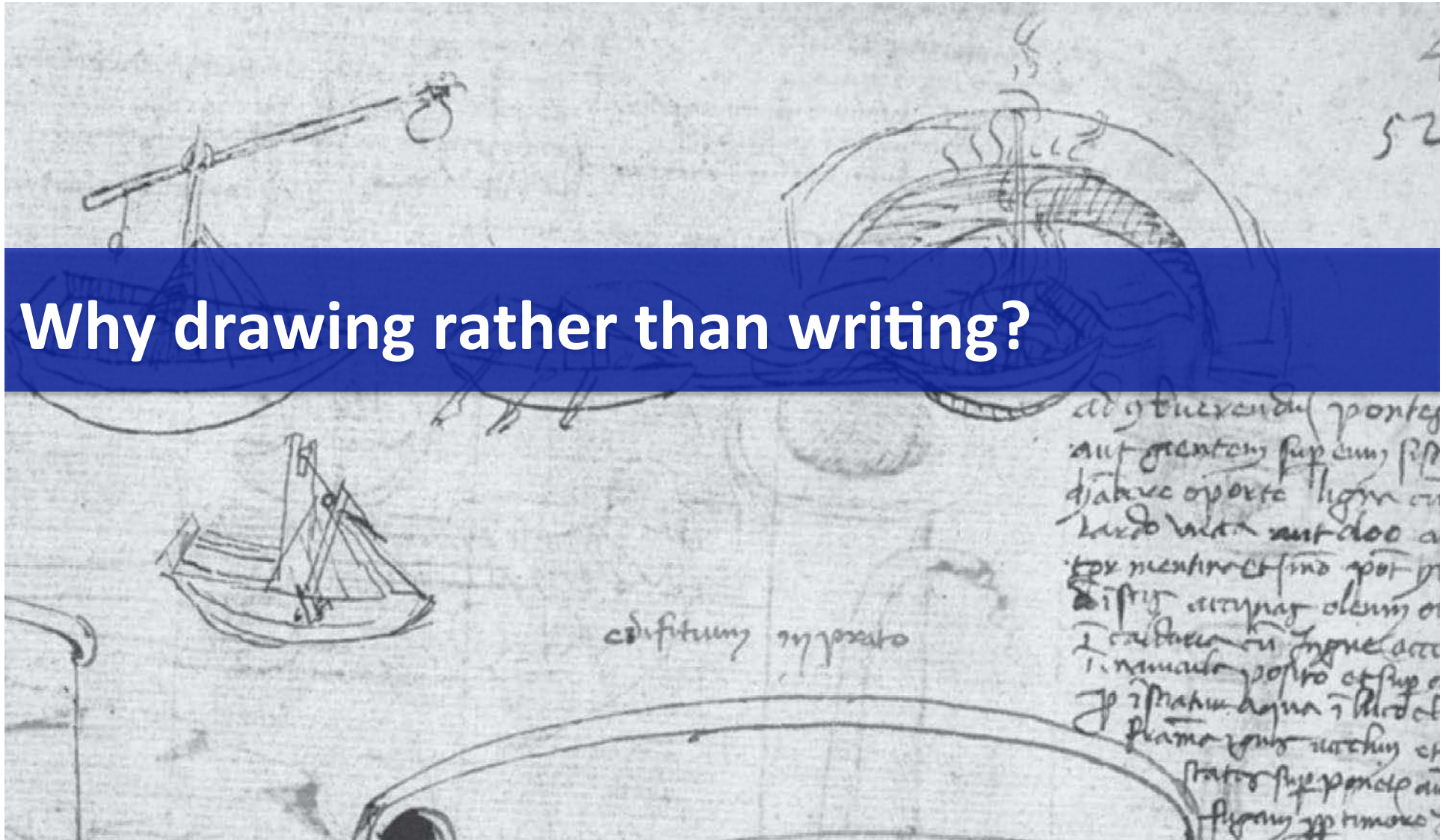
Different kinds of prototype

Pro & con



Sketching is a tool of thought

Why drawing rather than writing?



Sketching is a tool of thought

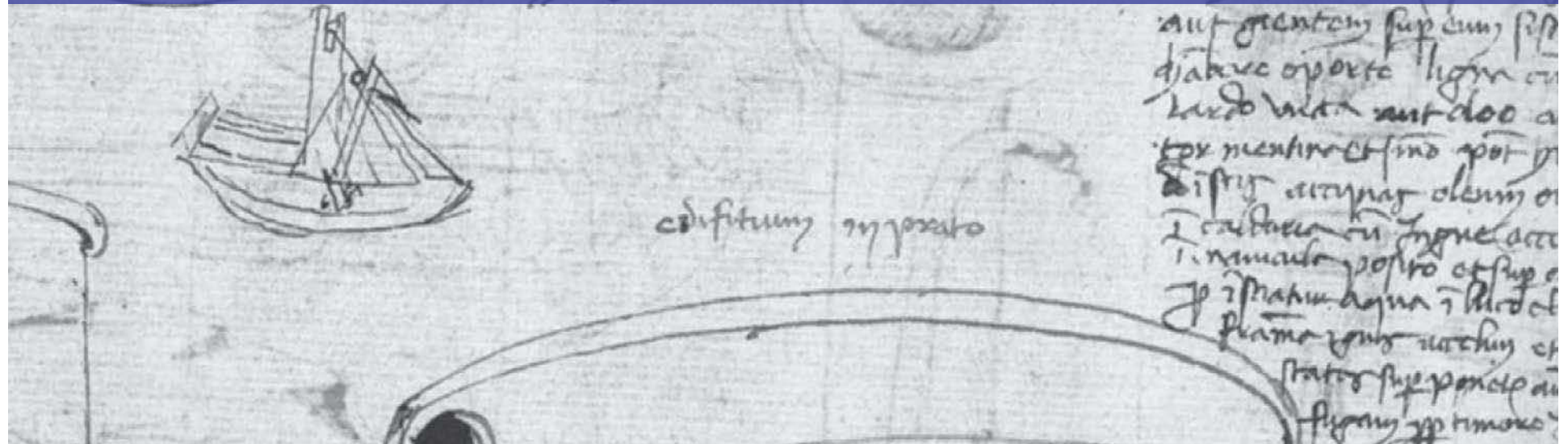


Writing is **slow**

Reading text is **slow**

Sketching is **slow**

Reading sketching is **fast**



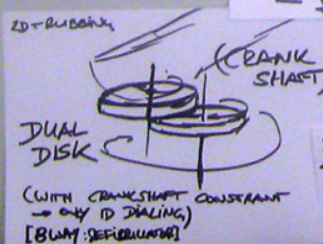
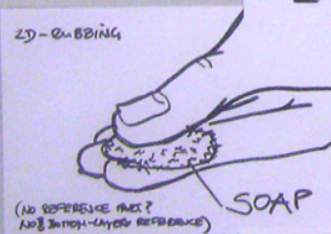
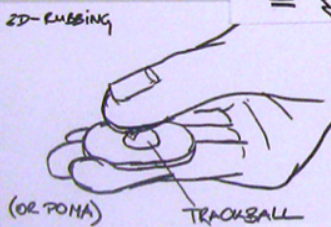
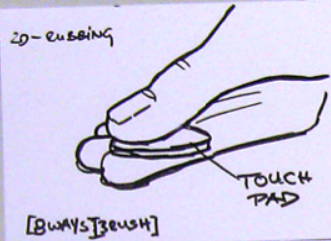
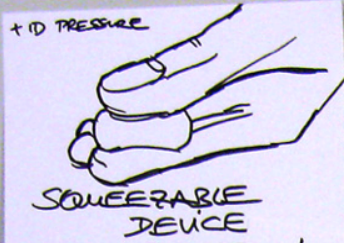
FLAT MOBILE DEVICES

TO MAKE SMALL BUT INTERACTIVE DEVICE,
WE NEED LOW VOLUME BUT HIGH SURFACE
& LONG EDGES

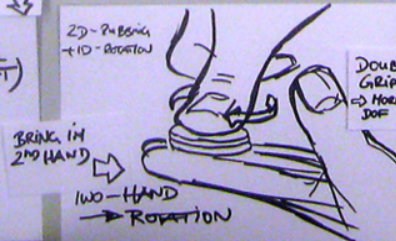


HOW TO INTERACT WITH A FLAT DEVICE?

ONE-HANDED = RUBBING

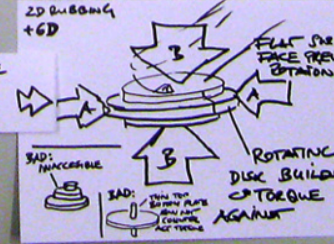
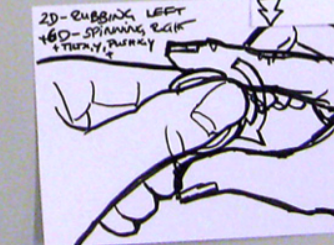
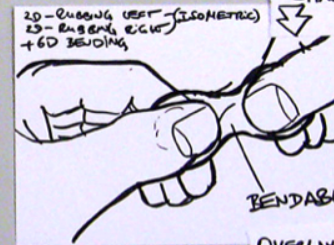
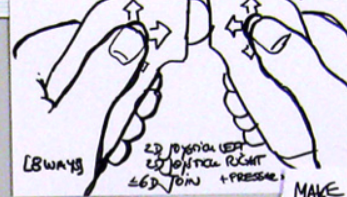


TWO-HANDED

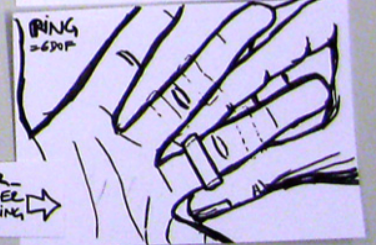


BENDING

SIDEWINDER (MS) GAMECONTROLLER
-> G. SCOTT (10) STUDENT PROJECT

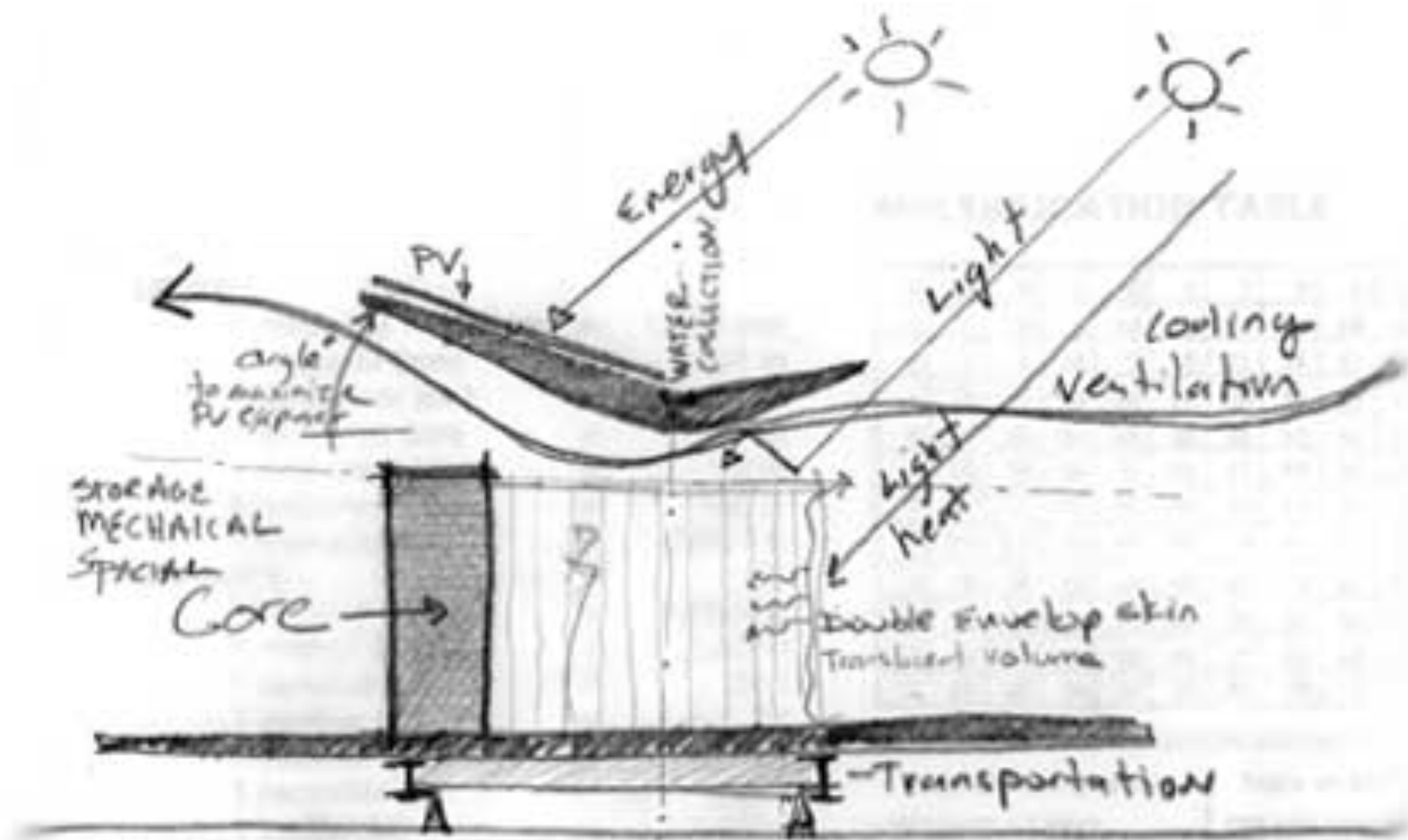


MAKING RING

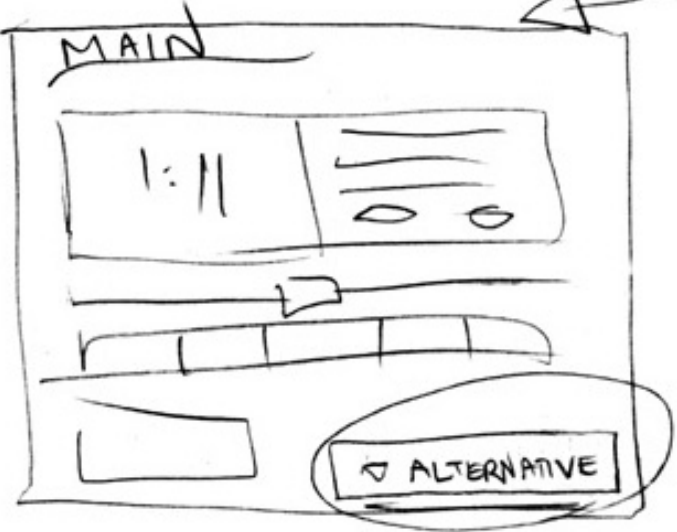
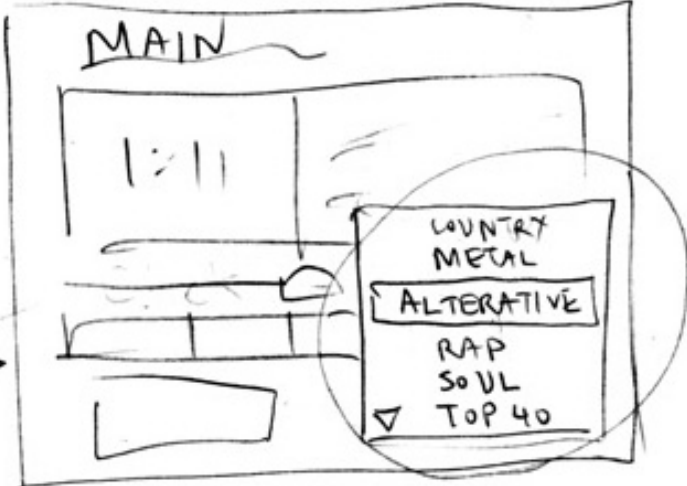
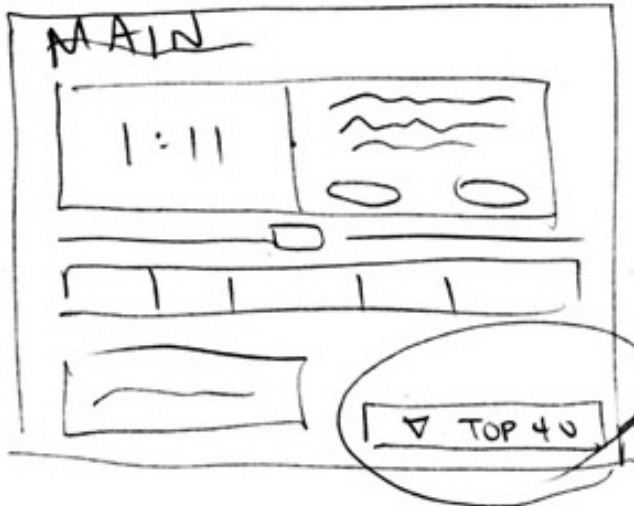




DES 8.05

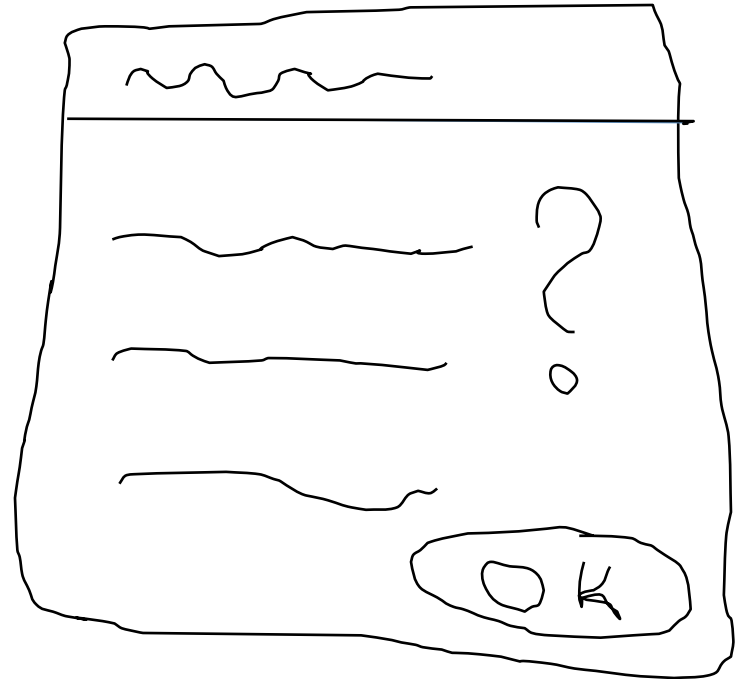


Concept Drawing



The Attributes of Sketches

- **Quick**
 - To make



The Attribute of Sketches

- Quick
 - To make
- **Timely**
 - Provided when needed



The Attribute of Sketches

- Quick
 - To make
- Timely
 - Provided when needed
- **Disposable**
 - Investment in the concept, not the execution
 - Inexpensive



The Attribute of Sketches

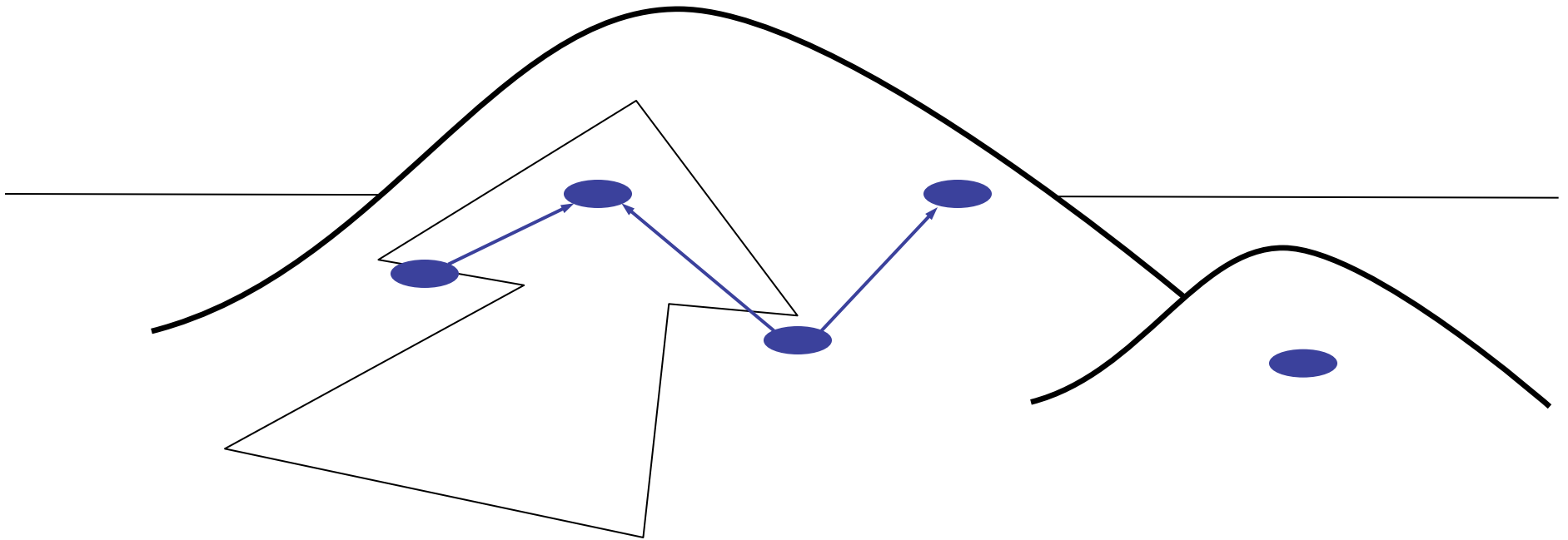
- Quick
 - To make
- Timely
 - Provided when needed
- Disposable
 - Investment in the concept, not the execution
 - Inexpensive
- **Plentiful**
 - They make sense in a collection or series of ideas.



Design Process (Right design)

- (1) create k new designs, add to set;
- (2) drop k worst designs

this process finds the **tops of multiple hills**
and works with “distracter” hills



Ok, I have plenty of ideas...

What's next?

PROTOTYPING

A Sketch is not a Prototype

- Difference is
 - A contrast of purpose/intent (always)
 - A contrast in form (usually but not always)

Sketch \neq Low Fidelity Prototype

- Rather it is
 - A continuum

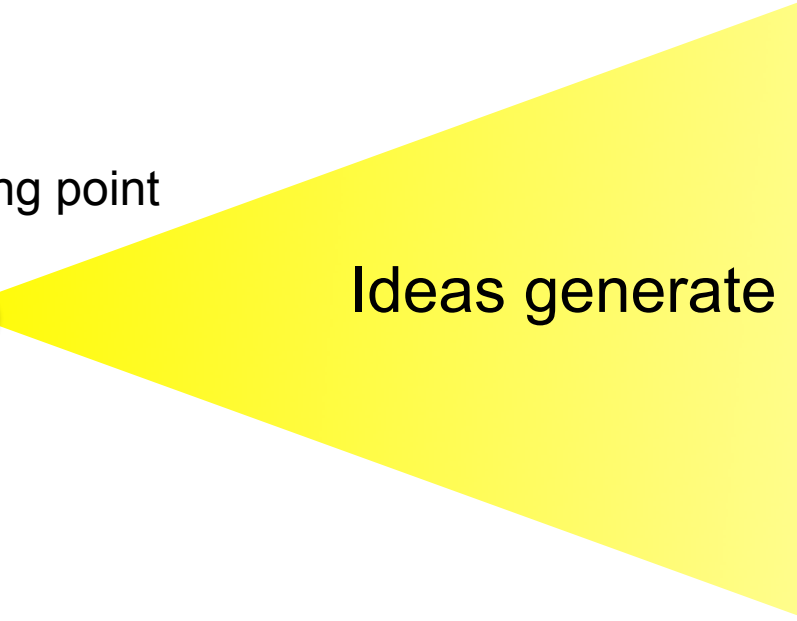


Low investment
More opportunities to explore
Fail early... learn

Starting point

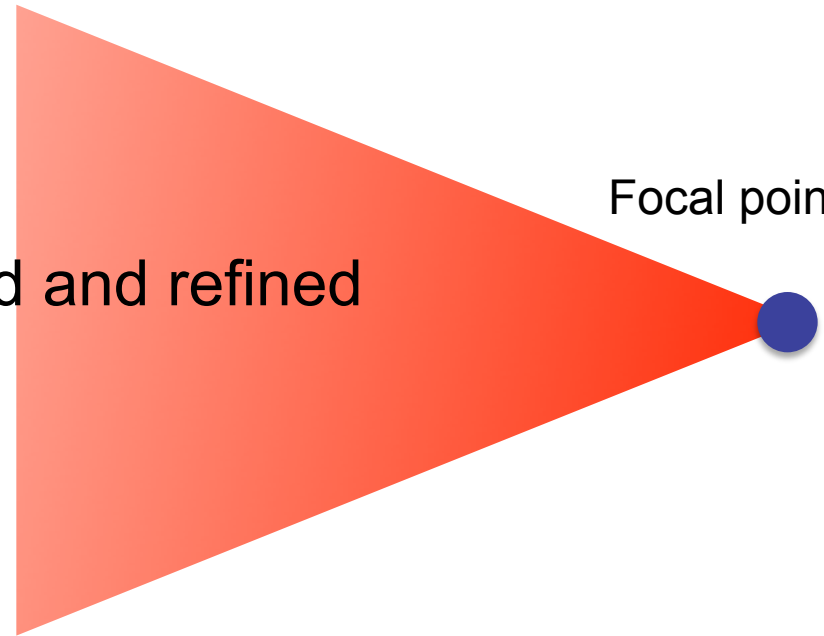


Ideas generate more ideas



Focal point

Ideas selected and refined



Sketch



Prototype

Low investment
More opportunities to explore
Fail early... learn

sketch vs. prototype

PROTOTYPE

→ DIDACTIC

→ DESCRIBE

→ ~~REFINE~~

→ ANSWER

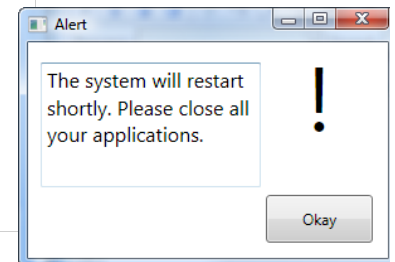
→ TEST

→ RESOLVE

→ SPECIFIC

→ DEPICTION

Summary: Sketches ask questions

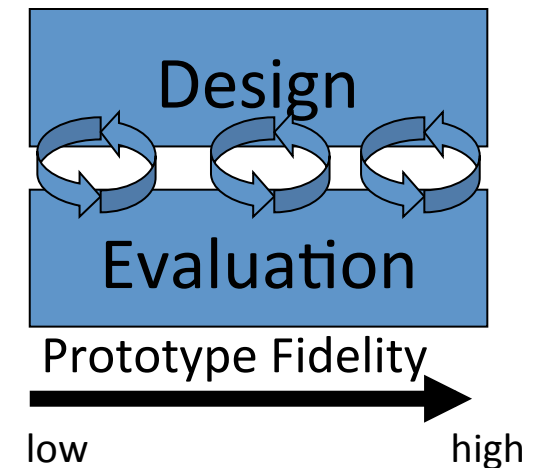
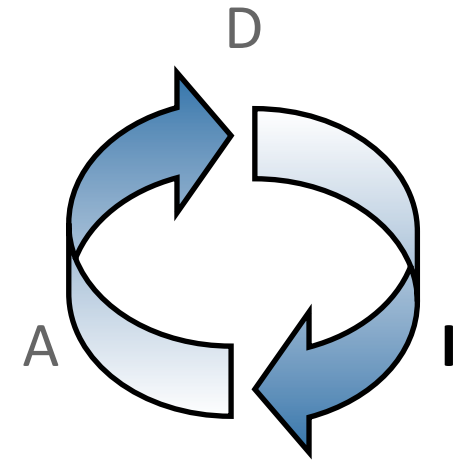


Why Prototype?

- **Easier/cheaper** than building & discarding
- **Learn** about interface problems early
 - before extensive resources committed
 - before **emotional** investment
- **Identify** hard parts of the design
 - help budget and plan

Why Prototype?

- **Guide the design** of the interactive system
 - Invaluable for **iterative** design
 - Central in the DIA cycle
- Get early **feedback** on emerging designs
- Something for **developers** to **evaluate**
 - Walkthrough, heuristics
- Something for **users** to **evaluate**
 - User testing
- Help **choosing** between different **alternatives**



Prototyping for Whom?

- Central role of prototypes in **communication** and coordination
 - Designers
 - Developers
 - Users
 - Clients
 - Management

Limiting Prototypes

- Vertical prototypes

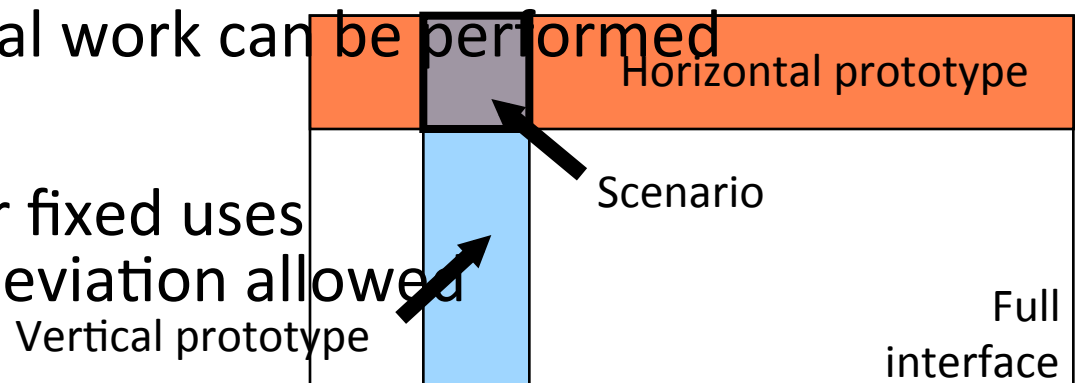
- Includes in-depth functionality for only a few selected features
- Common design ideas can be tested in depth

- Horizontal prototypes

- The entire surface interface with no underlying functionality
- A simulation; no real work can be performed

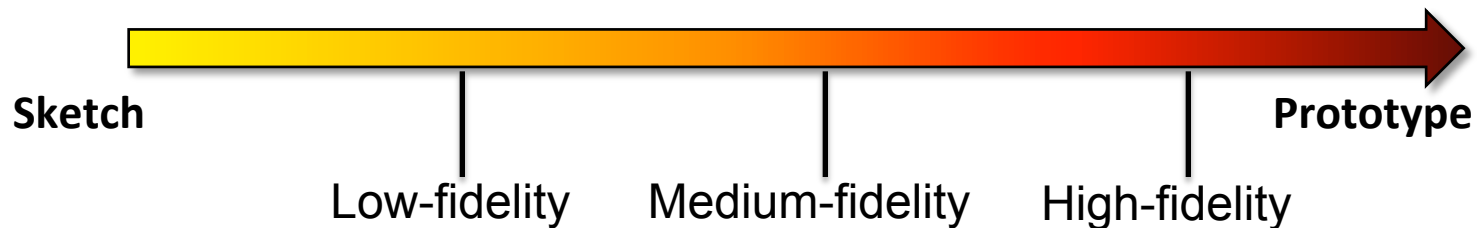
- Scenario

- Scripts of particular fixed uses of the system; no deviation allowed



Forms of Prototyping

- **Low-fidelity** prototyping
- **Medium-fidelity** prototyping
- **High-fidelity** prototyping



Contacts [≡] [←] [M] [⊗]

No Categories ▾ []

#	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
	B	a	k	e	s	c	h	w	i	e	l	e	r	d	@	n	a	v	i	m	a	t	i	o	n	.	e
	DSL, Verizon	(877)483-1794	w																								
	JPMorgan Cha...																										
	Ken Scott	Kscott@randrascene																									
	Verizon	(212) 890																									

New View Tools

Contacts [≡] [←] [M] [⊗]

No Categories ▾ []

#	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
	B	a	k	e	s	c	h	w	i	e	l	e	r	d	@	n	a	v	i	m	a	t	i	o	n	.	e
	DSL, Verizon	(877)483-1794	w																								
	JPMorgan Cha...																										
	Ken Scott	Kscott@randrascene																									
	Unnamed																										
	Verizon	(212) 890-6611	w																								

New View Tools [≡] [△]

Contacts [≡] [←] [M] [⊗]

No Categories ▾ []

#	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
	B	a	k	e	s	c	h	w	i	e	l	e	r	d	@	n	a	v	i	m	a	t	i	o	n	.	e
	DSL, Verizon	(877)483-1794	w																								
	JPMorgan Cha...																										
	Ken Scott	Kscott@randrascene																									
	Unnamed																										

Create Copy
Delete Contact
Send E-mail to Contact
Beam Contact...

New View Tools

Contacts [≡] [←] [M] [⊗]

No Categories ▾ []

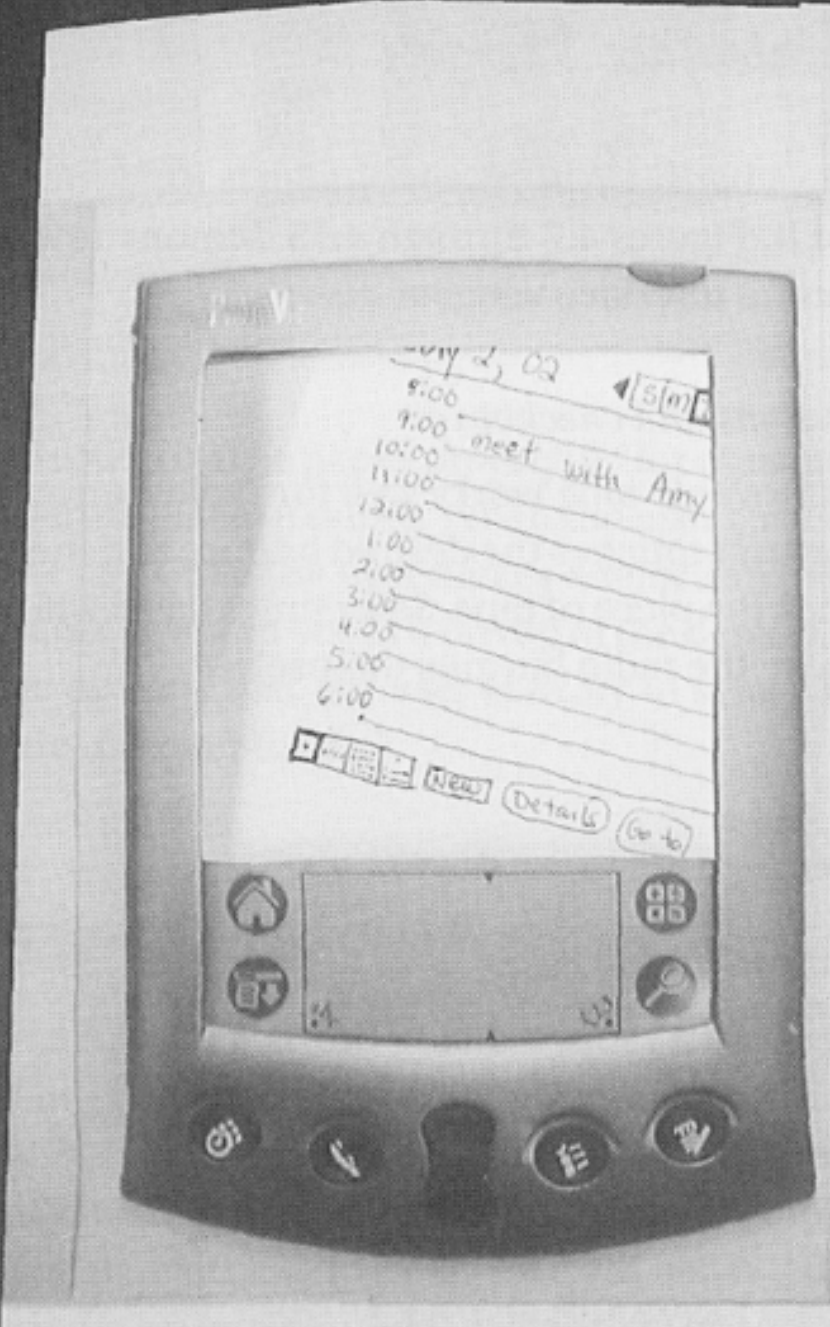
#	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
	B	a	k	e	s	c	h	w	i	e	l	e	r	d	@	n	a	v	i	m	a	t	i	o	n	.	e
	DSL, Verizon	(877)483-1794	w																								
	JPMorgan Cha...																										
	Ke																										
	Di																										
	Vi																										

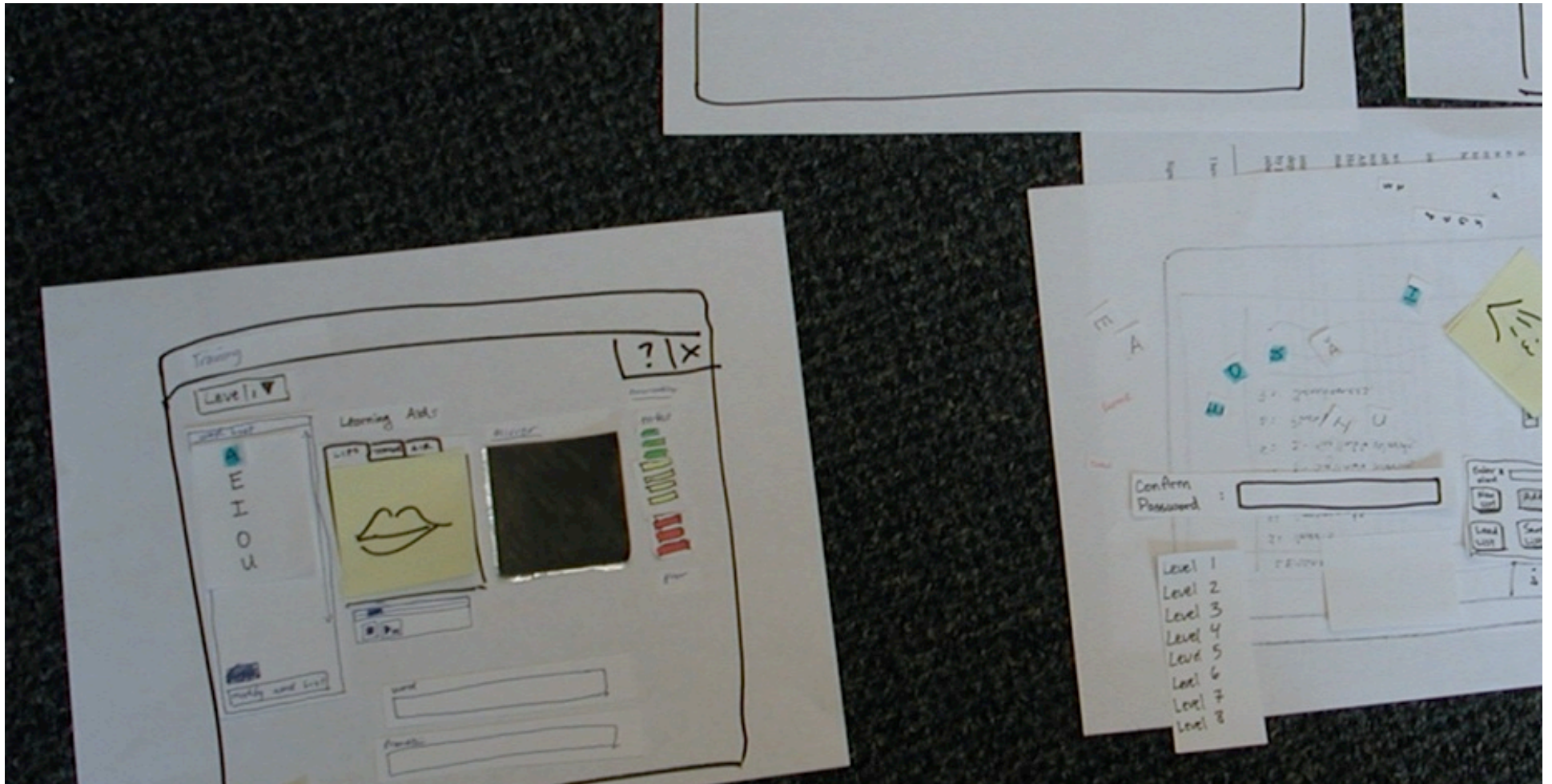
Contacts

⚠ Contacts will be permanently deleted. Continue?

Yes No

New View Tools [≡] [△]



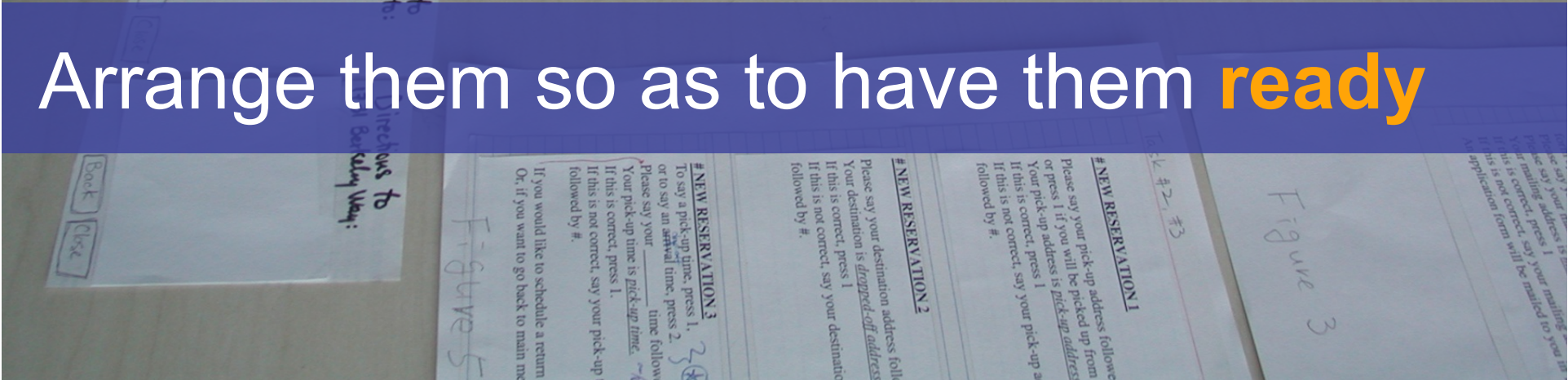


Add post-its etc for interactive widgets

WELCOME TO...
... STEAKIT!
In order for SpeakIT! to
work, please first complete the
diagnostic test



Arrange them so as to have them **ready**





participant

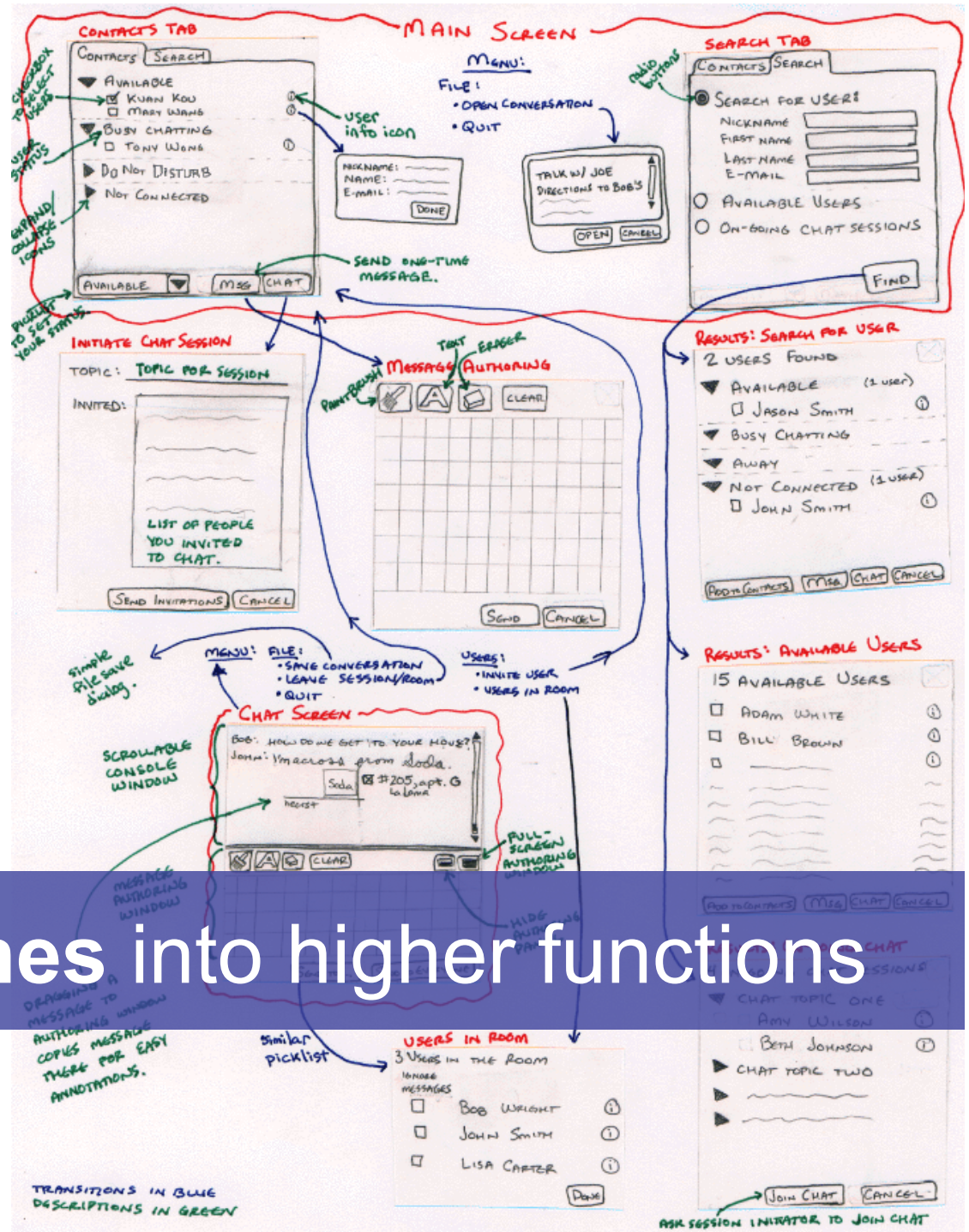
interviewer

computer

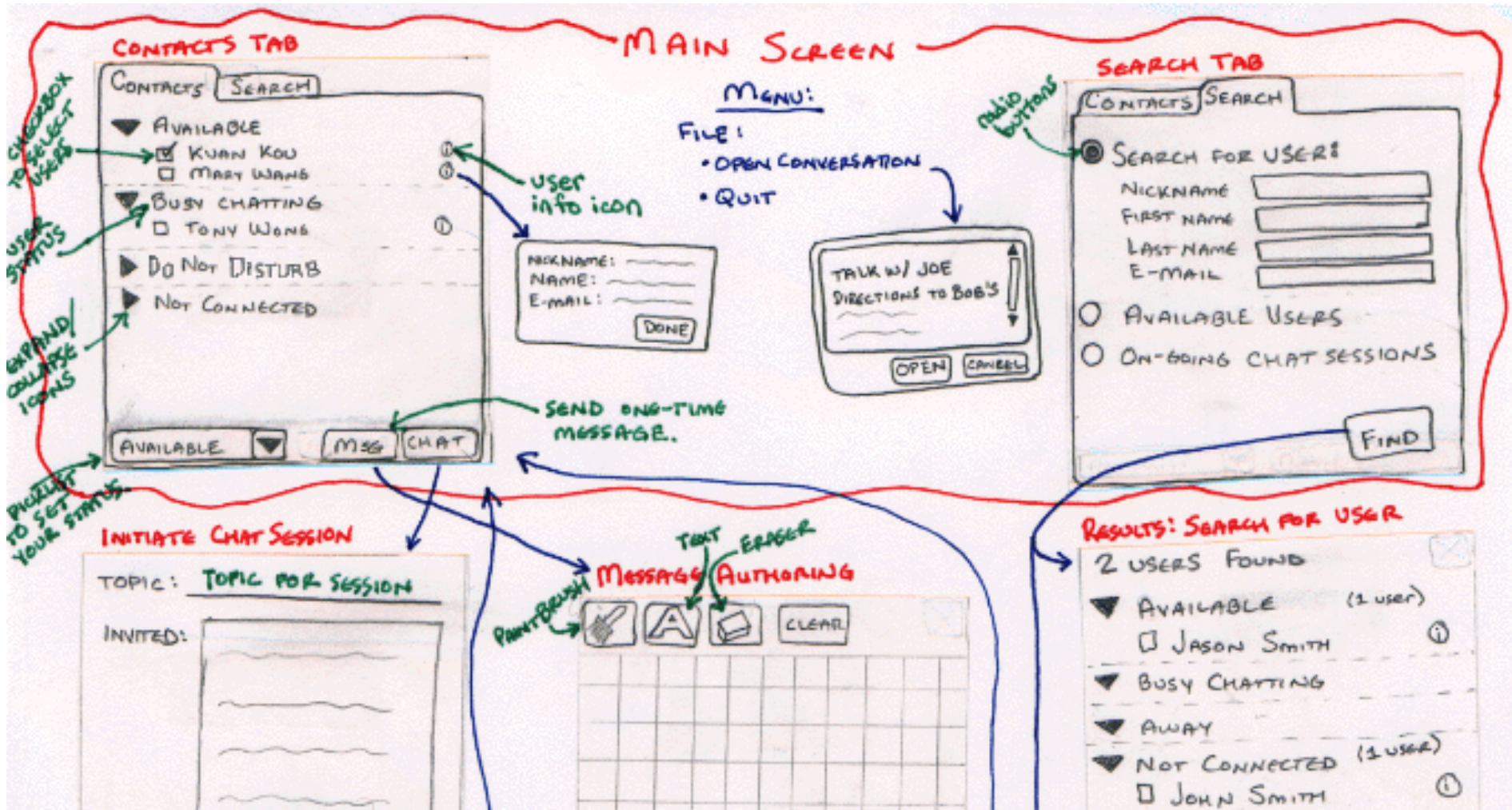
Play it out with paper as if it was real



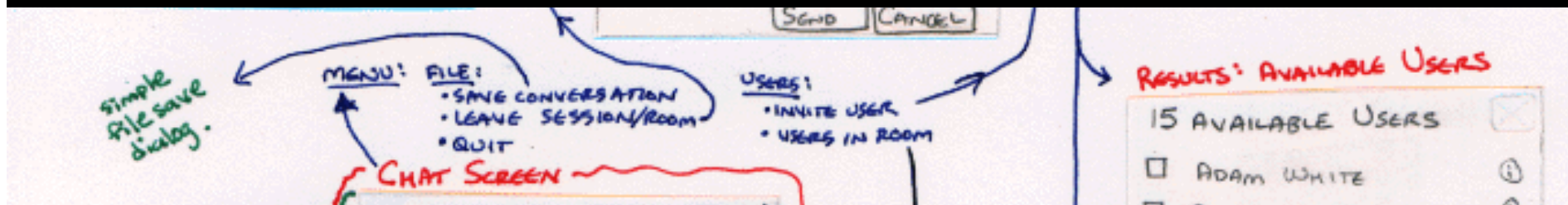
Link diagrams



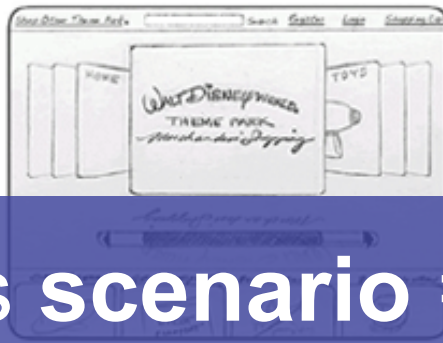
assemble sketches into higher functions



here: blue = links between pages



Storyboard



describes **scenario** = task on specific device



REVISED SEP 8 1982 © L.F.L. 1982



DESCRIPTION: EXT. FOREST - MS LUKE & LEIA - TRUCKING
Luke & Leia coming toward camera. Behind them,
Biker #3 & Biker #4 bank in, chasing.

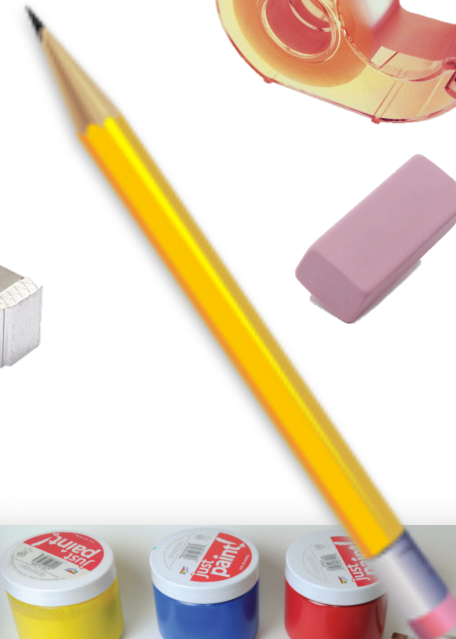
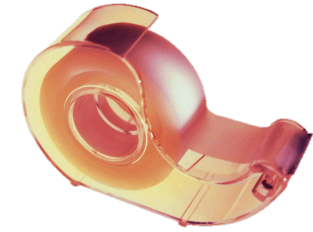
NOTES:

ELEMENTS:		STAGE	ANIM	PLATE	MATTE	NON L.M.	ELEMENTS:		STAGE	ANIM	PLATE	MATTE	NON L.M.	SHOT # / SEQUENCE
Forest				x										
Leia				x										
Biker #3		x												
Biker #4		x												
														BC 28
													FRM COUNT 50	PAGE # 135

storyboards come from... film & animation

Instruments

- Large heavy Paper/ cards
- Color pens
- The eraser and sharpener
- Tape, scissors and glue
- Small camera



Microsoft PowerPoint - [Presentation1]

File Edit View Insert Format Tools Slide Show Window Help Type a question for help

18 B I U A A %

GUI Controls in PowerPoint

CommandButton

CheckBox1
CheckBox2
CheckBox3

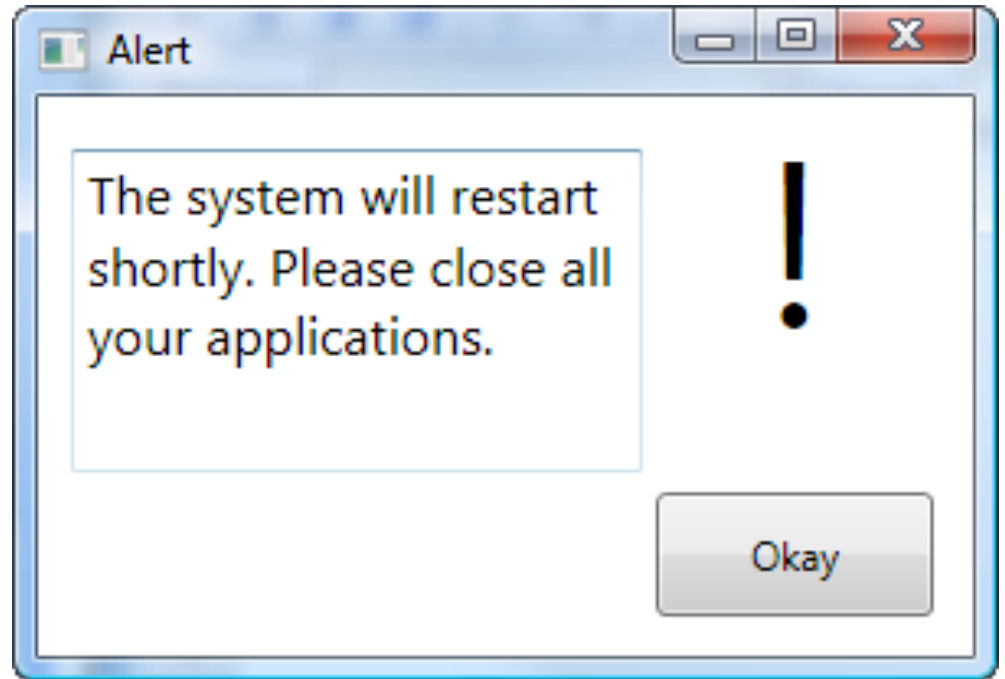
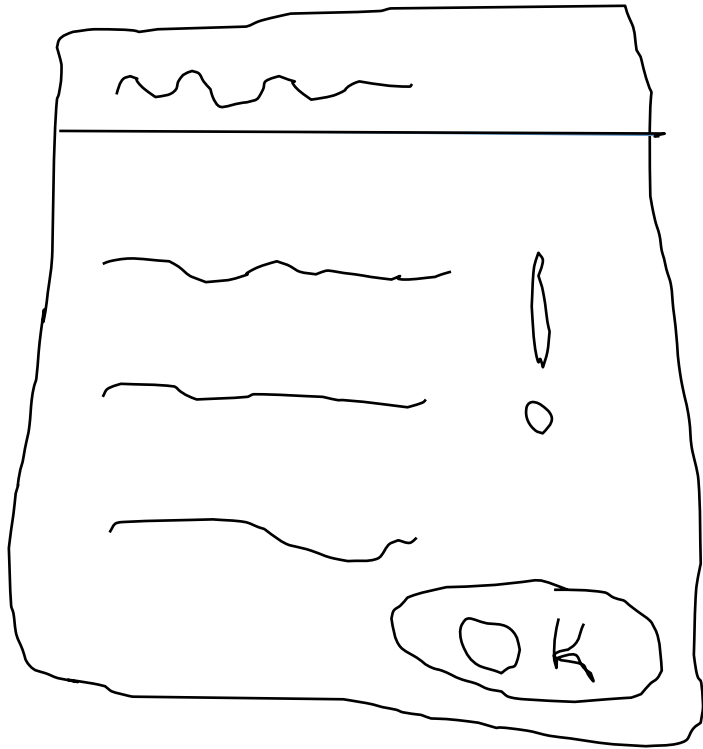
OptionButton1
OptionButton2

ScrollBar

ContextMenu

Design AutoShapes Default Design German (Germany)

Slide 1 of 1



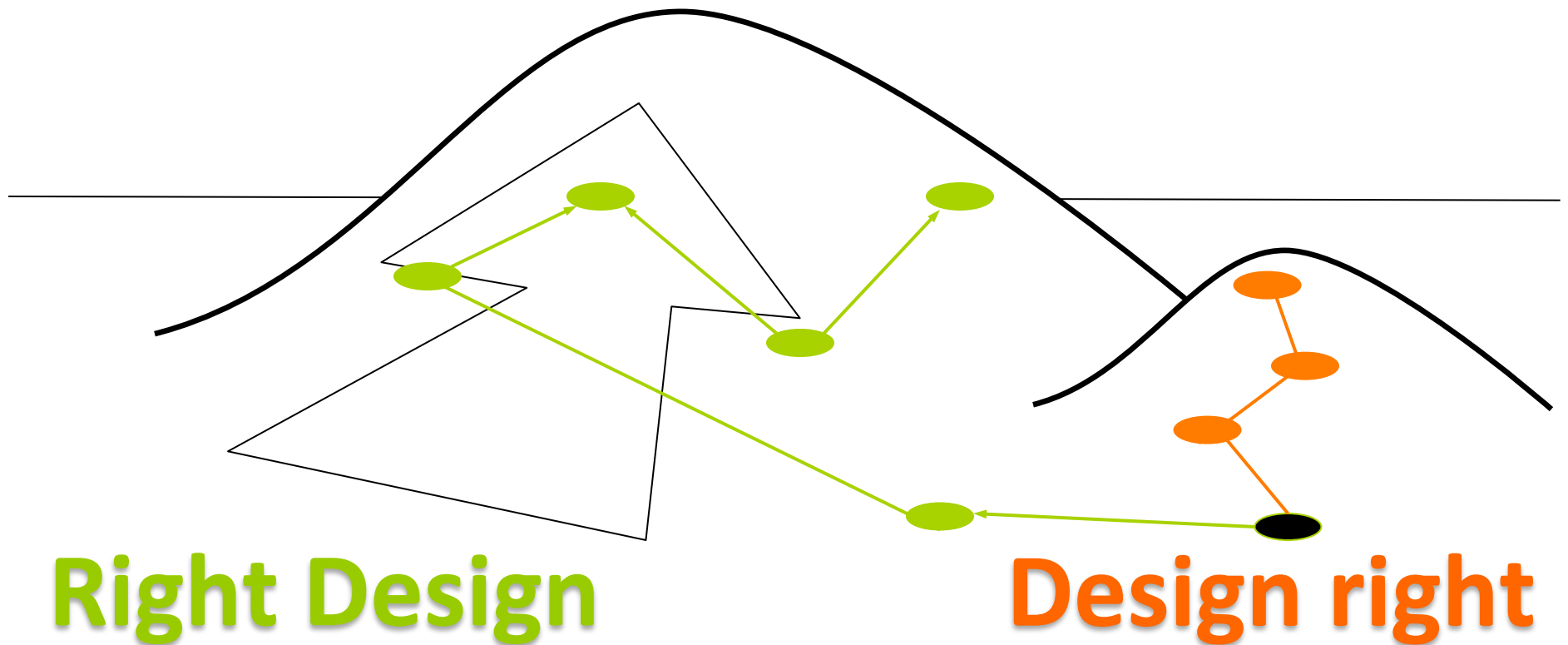
Questions?

- What is the difference between:
 - Design Right
 - Right Design

Design Process

- (1) create k new designs, add to set;
- (2) drop k worst designs

this process finds the **tops of multiple hills**
and works with “distracter” hills



Questions?

- How to get the RIGHT design?

Brainstorming

Questions

- What are the three rules?

Questions

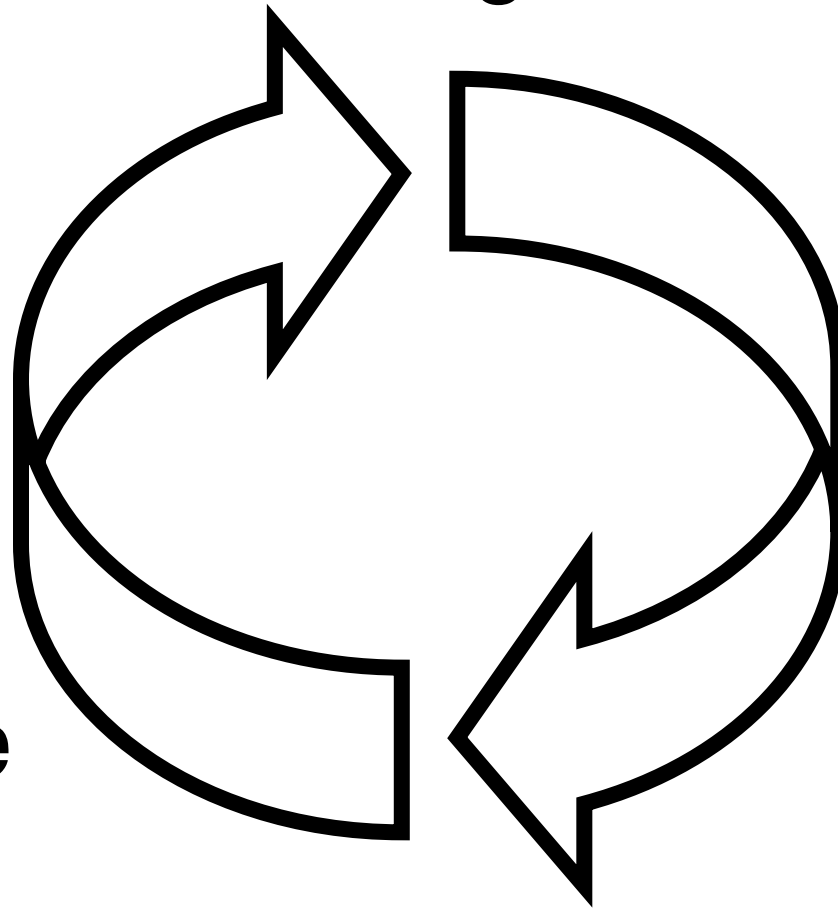
- What are the three rules?
 - Quantity not quality
 - No Judgement
 - Keep it short

DIA Cycle

Design

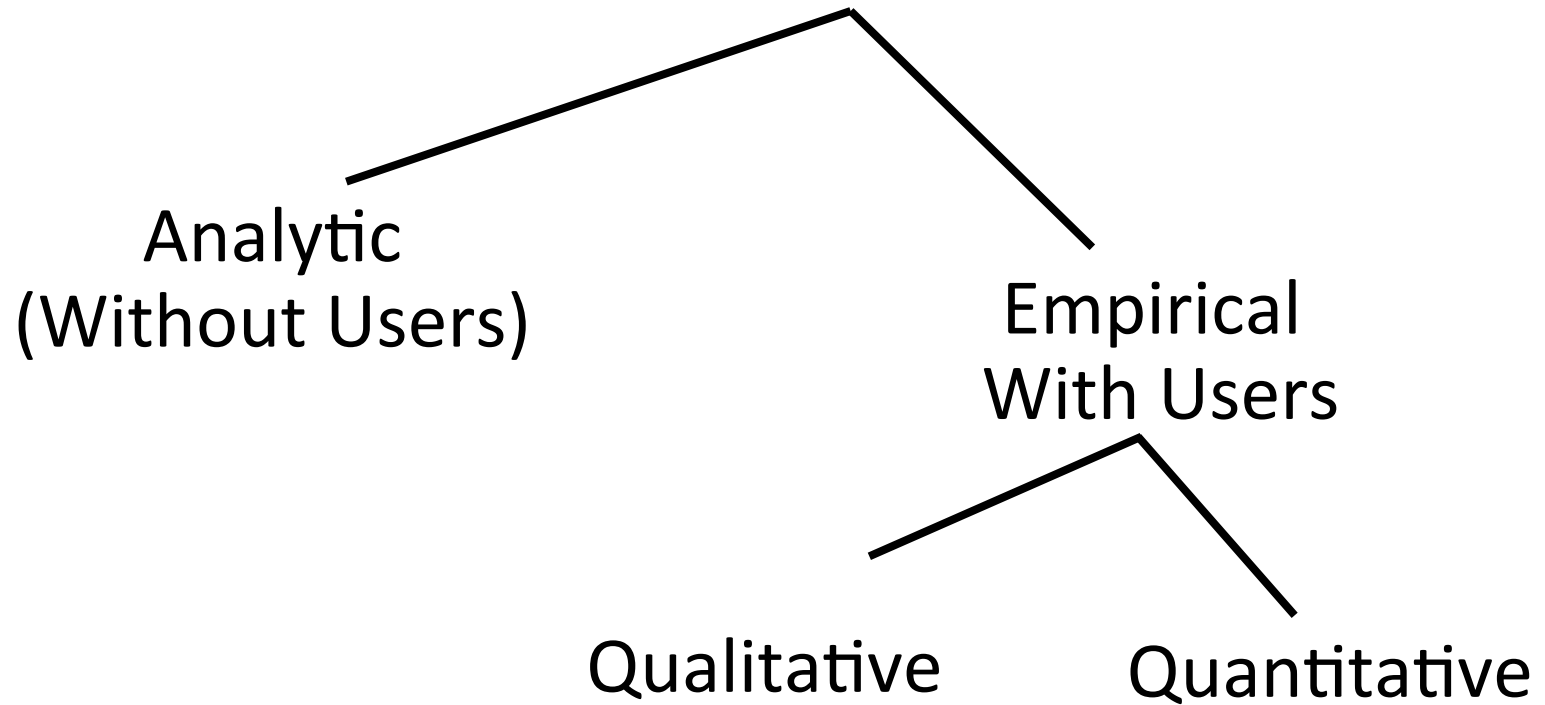
Analyze

Implement



EVALUATION

Evaluation Methods



ABOUT US HELP FEEDBACK

HOME Send SOME FLOOZ Spend YOUR FLOOZ ACCOUNT

• SPECIALS • WHAT IS FLOOZ? • SECURITY GUARANTEE

flooz
The better way to gift.



The online gift currency that's thoughtful to send anytime, and fun to spend every time.

What does 'flooz' mean? Meet Fez, your gift genie; he'll explain it all. >>>

Security Guarantee
flooz is 100% secure. Read about our security commitment to you.



flooz nooz

NEW THIS WEEK!
Gap Joins flooz
Gap joins the flooz crew. Another great place to shop with flooz.

FLOOZ MERCHANT LIST >>>

FATHER'S DAY DILEMMA
A Tie Rack? (you)



With flooz, email Dad a groovy card, then let him choose the gift he really wants.

SEE ALL OUR CARDS >>>

about feedback help!

HOME send flooz shop with flooz ACCOUNT

flooz
The better way to gift.

The better way to gift!



Flooz is the online gift certificate that lets receivers choose the perfect gift everytime.

meet Dot!

Father's Day is tomorrow!
but don't worry – there's still time to send flooz!
choose a card to send
Never miss an event or occasion again!
register for reminders

IN THE NOOZ:
The Gap is floozed!
Cool fashions with flooz-friendly gifting now available!
view merchants

GIFTAMONIAL:
I forgot my mother's birthday! It was a disaster. When I looked in my pilot, it was already too late to send a gift. But...
submit your own giftamonial

THE STORY OF FLOOZ:
Ages ago, traders in the Mesopotamian valley used the word "Flooz" as slang for "cash" in the markets of ancient Persia.
read the full Flooz story



Controlled Experiments

Quantitative, empirical method

Steps

- Formulate **hypothesis**
- Design experiment, pick **variable** and fixed **parameters**
- Choose **subjects** and **method**
- **Run** experiment
- Interpret results to **accept or reject hypothesis**

Controlled Experiments: Hypothesis

A claim that **predicts outcome** of experiment

- Example: Reading text in capital letters takes longer than in reading text in small letters

Experimental goal: **Confirm** hypothesis

Approach: **Reject null hypothesis** (inverse, i.e., “no influence”)

- Null hypothesis is a term from statistical testing: The samples are drawn from the same statistical distribution

Controlled Experiments: Variables

Variables

- Independent: are varied under your control
 - E.g., web pages
- Dependent: are measured
 - E.g., execution time, cognitive load, recall, subjective preferences, etc.

Hypothesis claims that **changing independent variables influences dependent variables**

- Example: Changing small to capital letters (independent variable) influences reading time (dependent variable)

Controlled Experiments: Subjects

Similar to real users in profile

- Age, education, computer and domain expertise, system knowledge,...

Use at least 10 subjects

Use more if you need finer details

Controlled Experiments: Method

Between-groups

- Each subject only does one variant of the experiment

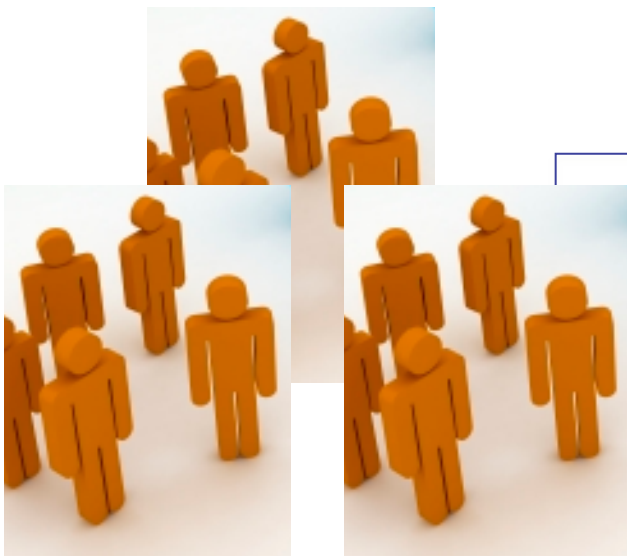
Within-groups

- Each subject does all variants of the experiment

Between groups

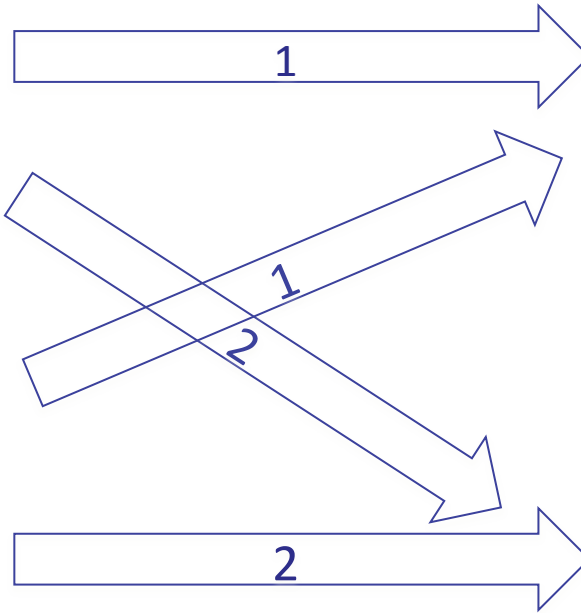


The screenshot shows the Flooz website homepage with an orange header. The main content area features a cartoon genie character and the headline "The online gift currency that's thoughtful to send anytime, and fun to spend every time." Navigation links include "HOME", "Send SOME FLOOZ", "Spend YOUR FLOOZ", and "ACCOUNT". A "Security Guarantee" section states "flooZ is 100% secure." A "flooZ nooZ" section highlights "Gap Joins flooZ" and "FATHER'S DAY DILEMMA: A Tie Rack?". Payment logos for MasterCard, American Express, VISA, and Flooz are visible at the bottom.

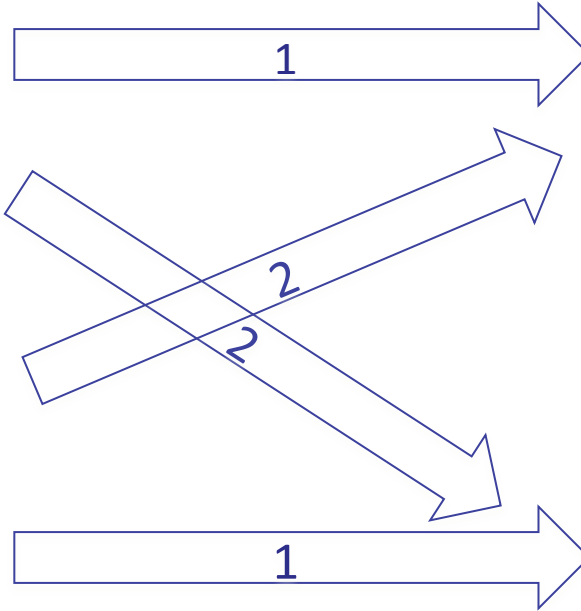


The screenshot shows the Flooz website homepage with an orange header. The main content area features a cartoon woman character and the headline "The better way to gift!". Navigation links include "HOME", "send flooz", "shop with flooz", and "ACCOUNT". A "Father's Day is tomorrow!" section includes a "choose a card to send" button. A "FlooZ is the online gift certificate" section includes a "meet dot!" button. A "GIFTAMONIAL:" section includes a "submit your own giftamonal" button. Payment logos for MasterCard, American Express, VISA, and Flooz are visible at the bottom.

Withingroups



Withingroups



Controlled Experiments: Method

Between-groups

- Each subject only does one variant of the experiment
- + No learning effect across variants
- But requires more users

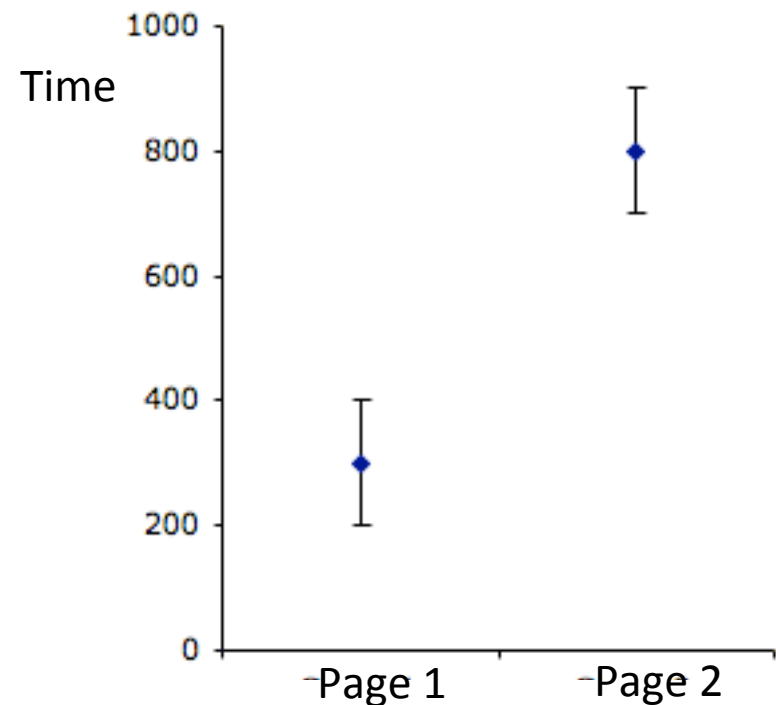
Within-groups

- Each subject does all variants of the experiment
- + Less users required, individual differences canceled out
- But often **learning effect** across variants problem

Controlled Experiments: Analyzing Results

Statistical analysis

- Often assumptions about underlying distribution
- t-test; ANOVA; Wilcoxon- or Mann/Whitney test, X^2 test
- Confidence interval



ABOUT US HELP FEEDBACK

HOME Send SOME FLOOZ Spend YOUR FLOOZ ACCOUNT

• SPECIALS • WHAT IS FLOOZ? • SECURITY GUARANTEE

flooz
The better way to gift.



The online gift currency that's thoughtful to send anytime, and fun to spend every time.

What does 'flooz' mean? Meet Fez, your gift genie; he'll explain it all. >>>

Security Guarantee
flooz is 100% secure. Read about our security commitment to you.



flooz nooz

NEW THIS WEEK!
Gap Joins flooz
Gap joins the flooz crew. Another great place to shop with flooz.

FLOOZ MERCHANT LIST >>>

FATHER'S DAY DILEMMA
A Tie Rack? (you)

With flooz, email Dad a groovy card, then let him choose the gift he really wants.

SEE ALL OUR CARDS >>>

about feedback help!

HOME send flooz shop with flooz ACCOUNT

flooz
The better way to gift.

The better way to gift!



Flooz is the online gift certificate that lets receivers choose the perfect gift everytime.

meet Dot!

Father's Day is tomorrow!
but don't worry – there's still time to send flooz!
choose a card to send
Never miss an event or occasion again!
register for reminders

IN THE NOOZ:
The Gap is floozed!
Cool fashions with flooz-friendly gifting now available!
view merchants

GIFTAMONIAL:
I forgot my mother's birthday! It was a disaster. When I looked in my pilot, it was already too late to send a gift. But...
submit your own giftamonial

THE STORY OF FLOOZ:
Ages ago, traders in the Mesopotamian valley used the word "Flooz" as slang for "cash" in the markets of ancient Persia.
read the full Flooz story



Is it sufficient?

Wake up
the red
in your hair.



SUNMILK

Wake up
the red
in your hair.



SUNMILK



[Source : James Hudson, PayPal]

Before



Extra gentle for the most sensitive skin.

Start with ultra sensitive skin, add the chemicals and moisture of urine and stools, and you have diaper rash.

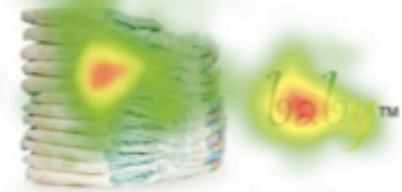


After



Extra gentle for the most sensitive skin.

Start with ultra sensitive skin, add the chemicals and moisture of urine and stools, and you have diaper rash.



Account login

Email address

jahudson@paypal.com

PayPal password

Go to

My account

Log In

Forgot your [email address](#) or [password](#)?

New to PayPal? [Sign up](#).

Top questions

- [Why use PayPal when I have credit cards?](#)
- [What can I do with PayPal?](#)
- [Is PayPal free to use?](#)



PayPal Shopping

Get up to **20% off** top brands.

It's like music to your ears. [Find Deals](#)

Pay With:     

Pay online

- > [Learn how](#) PayPal works.
- > [Shop without exposing](#) your financial information.
- > [Send money](#) to friends and family around the world.

[Sign up](#)

Get paid online

- > [Accept payments](#) for your eBay listings.
- > [Start accepting credit cards](#) on your website.
- > [See all the ways](#) to get paid online.

[Sign up](#)

PayPal Shopping

Get up to **20% off** top brands.



drugstore

[Find Deals](#)

Account login

Email address

PayPal password

Go to

[Log in](#)

Forgot your [email address](#) or [password](#)?

New to PayPal? [Sign up](#)

Top questions

- [Why use PayPal when I have credit cards?](#)
- [What can I do with PayPal?](#)
- [Is PayPal free to use?](#)



PayPal Shopping

Get up to **20% off** top brands.

It's like music to your ears.

[Find Deals](#)

Pay With:     

Pay online

- > [Learn how](#) PayPal works.
- > [Shop without exposing](#) your financial information.
- > [Send money](#) to friends and family around the world.

[Sign up](#)

Get paid online

- > [Accept payments](#) for your eBay listings.
- > [Start accepting credit cards](#) on your website.
- > [See all the ways](#) to get paid online.

[Sign up](#)

PayPal Shopping

Get up to **20% off** top brands.



drugstore

[Find Deals](#)

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

Get Your Free Quote

Simple & Easy

Pet Name:

Pet Type: Dog Cat

Select Breed:

Spayed/Neutered? Yes No

Pet Date of Birth

Gender: Female Male

Your Zip Code:

Email:

We value your privacy and will not sell or give your information to anyone. Period.



33 % conversion

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

Get Your Free Quote

Simple & Easy

Pet Name:

Pet Type: Dog Cat

Select Breed:

Spayed/Neutered? Yes No

Pet Date of Birth

Gender: Female Male

Your Zip Code:

Email:

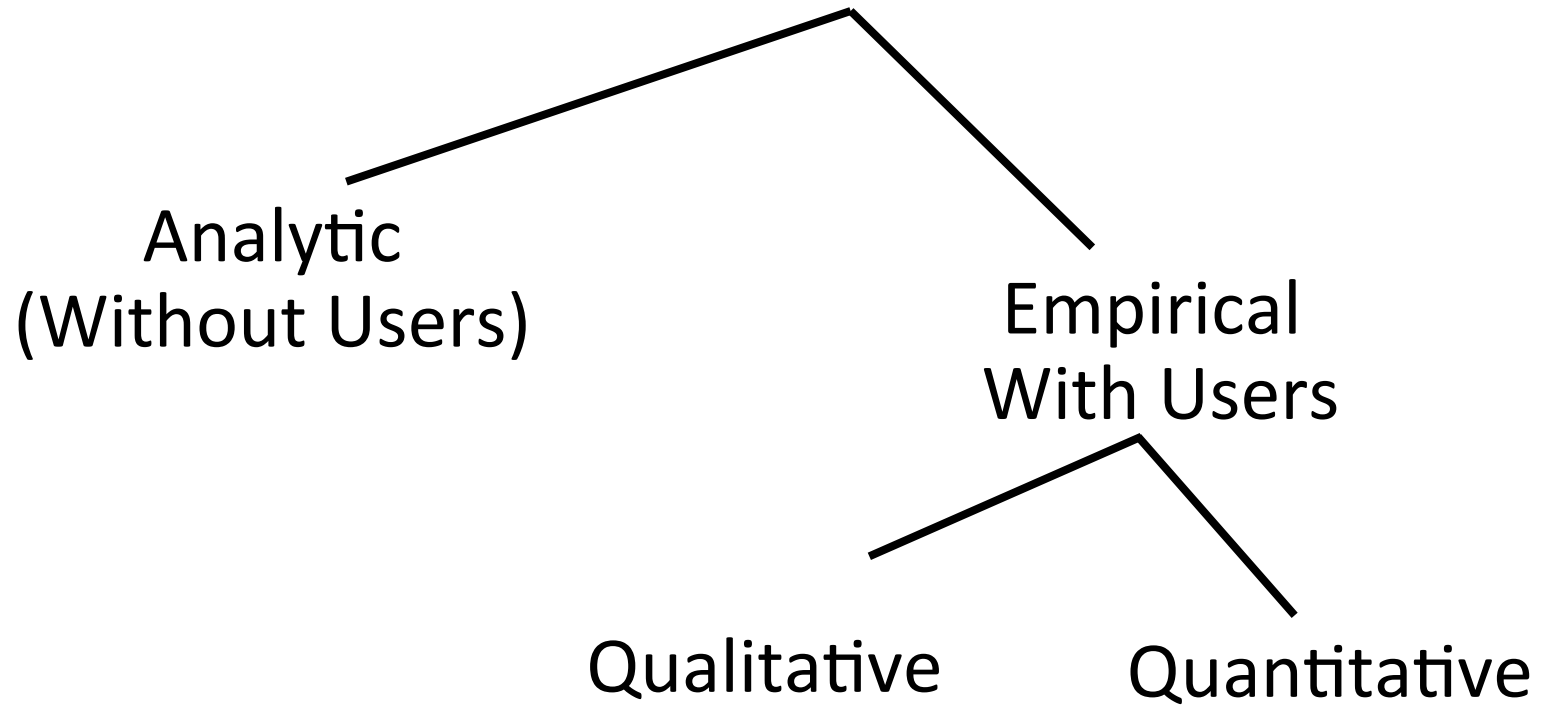
We value your privacy and will not sell or give your information to anyone. Period.



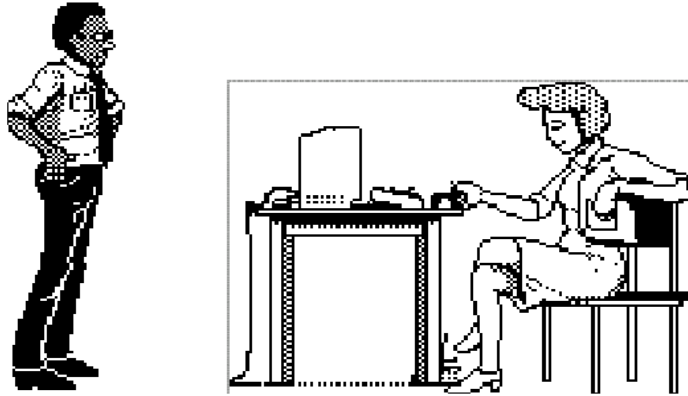
66 % conversion

[Source : James Hudson, PayPal]

Evaluation Methods



Silent Observation



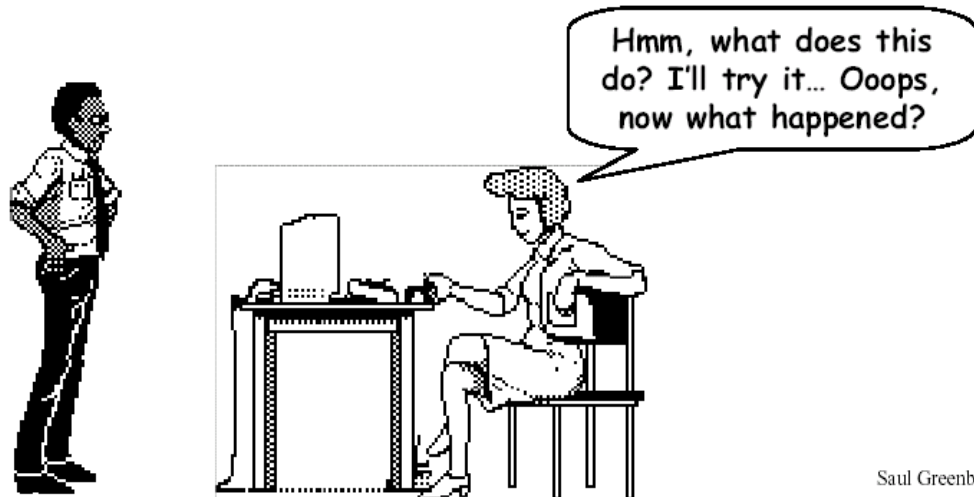
Designer **watches** user in lab or in natural environment while working on one of the tasks

No communication during observation

+Helps discover big problems

–No understanding of decision process (that may be wrong) or user's mental model, opinions, or feelings

Think Aloud



but user is asked to **say aloud**

- **State**: What he thinks is happening.
- **Goals**: What he is trying to achieve
- **Actions**: Why he is doing something specific

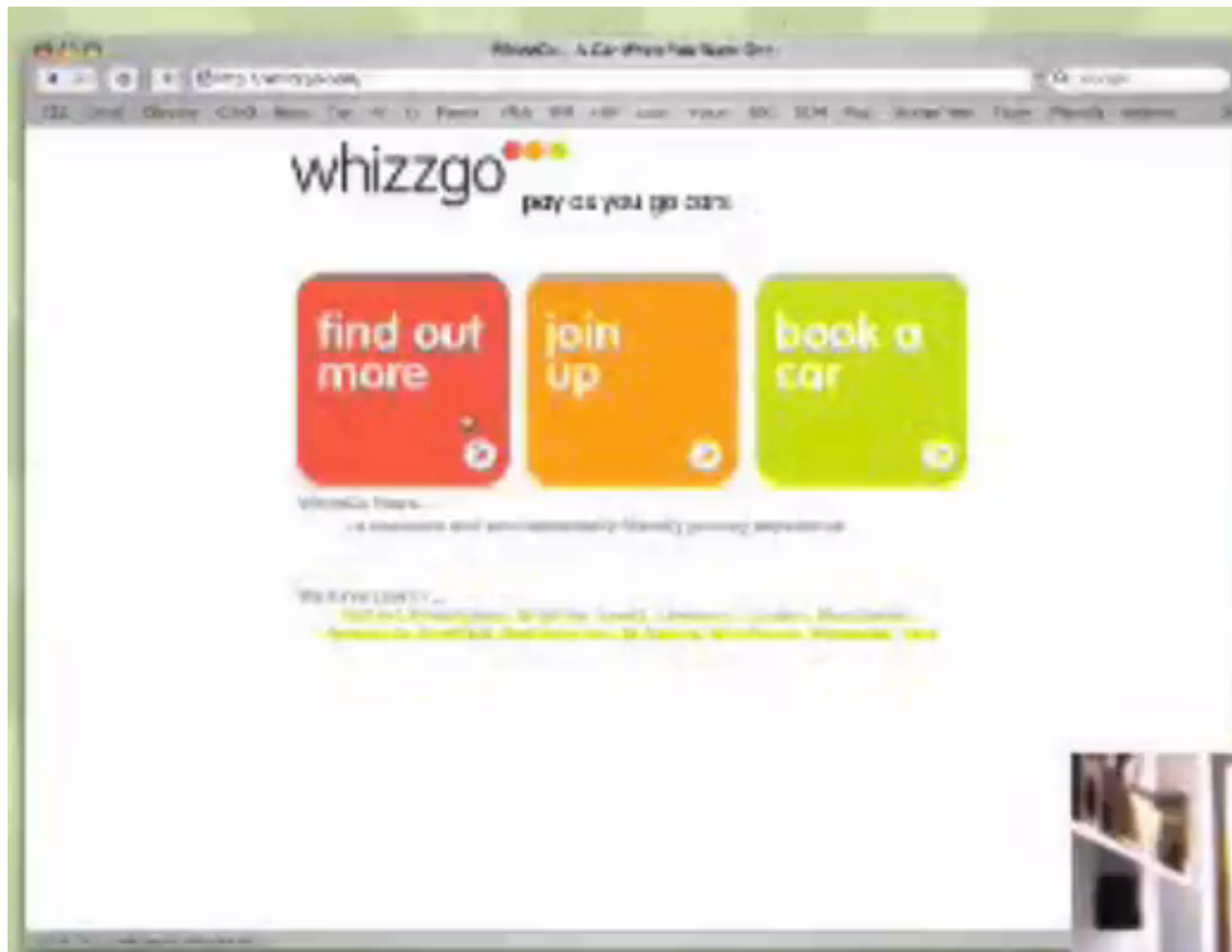
+ Good to get some insight into user's thinking, but:

- Talking is hard while focusing on a task
- Feels weird for most users to talk aloud
- Conscious talking can change behavior



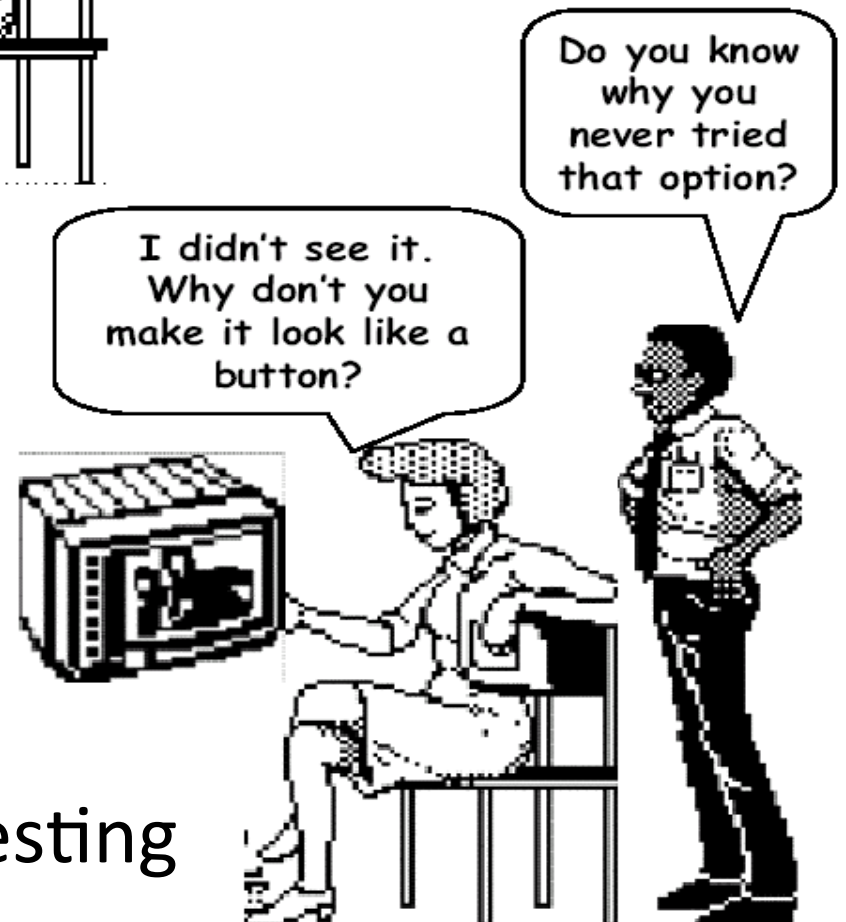
agility feat
www.agilityfeat.com

**Arin tries to plan a route:
Is there a train
from Linz to Zurich?**





Constructive Collaboration



Retrospective Testing



screen capture

+



live video & audio

Usherbak Projects

Usherbak Projects

PROJECTS

Usherbak Projects

Name	Date
Wiley usability review	Yesterday, 16:04:53
Pearson publishing project 2	Yesterday, 17:50:08
Rede Parade Jamaica (imagery)	Today, 17:03:45
Leximetric templates	Today, 14:58:24
Usability Professionals Association	Today, 16:11:06
Riverford Organic Web	Today, 17:04:55
Clearsoft redesign 2008	
Rate My Area beta test	
Edubase pre-beta 2	

Usherbak Projects

Usherbak Projects

Sophie Barrett

Export

117.56 GB used / 125.81 GB available

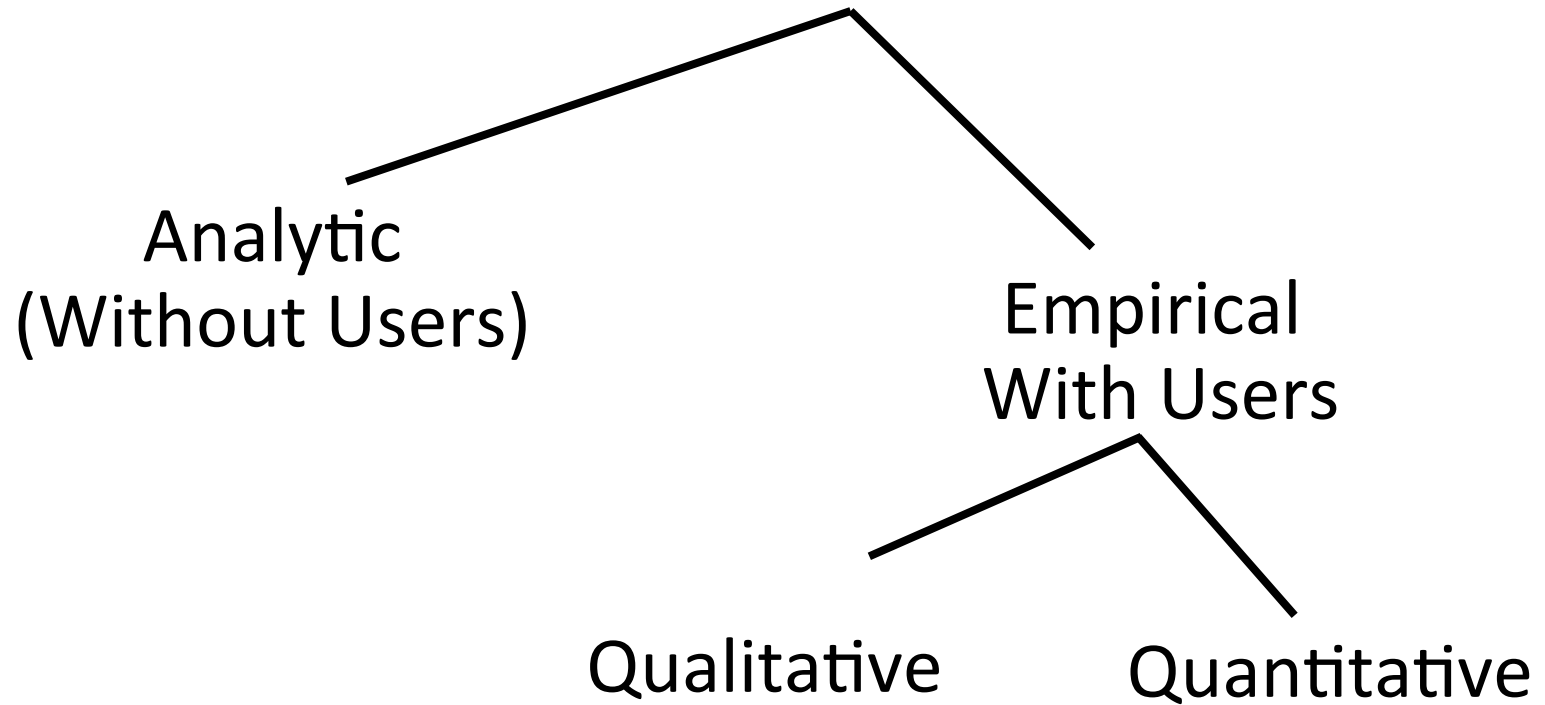
magic!

Silverback



Quicktime composite

Evaluation Methods



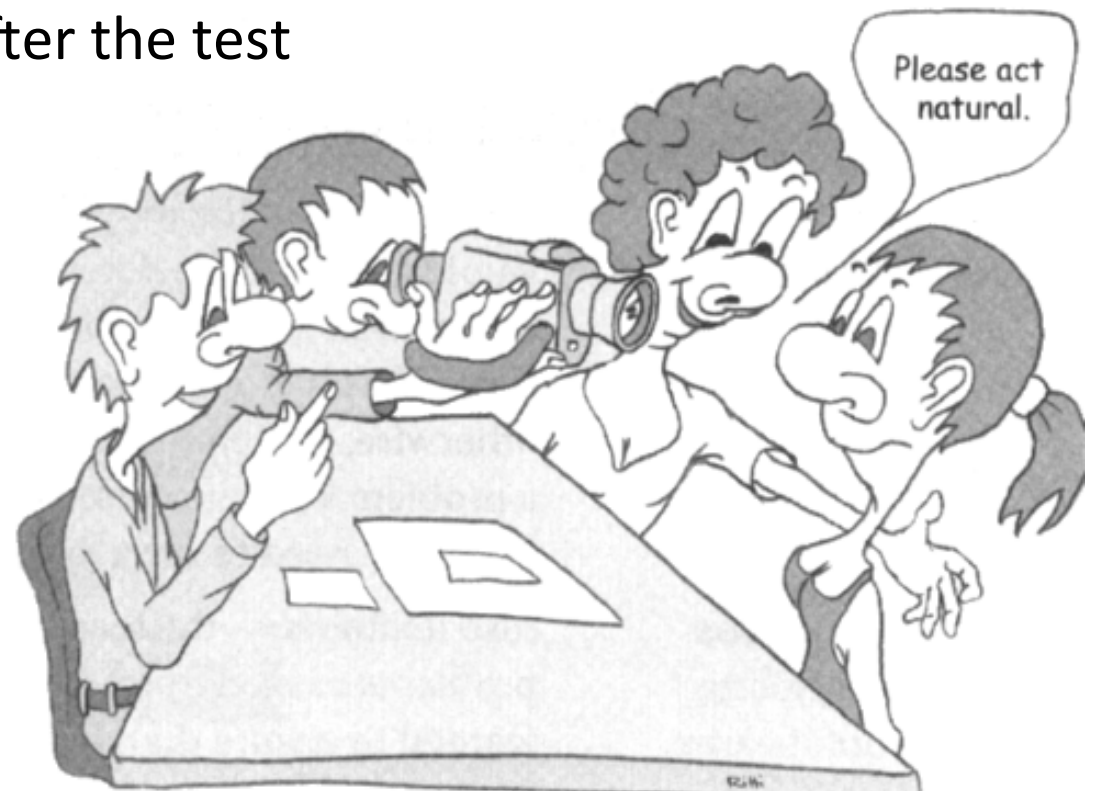
Dealing with Participants

Tests are **uncomfortable** for the participant

- Pressure to perform, mistakes, competitive thinking

So treat participants with **respect** at all times!

- Before, during, and after the test



Before the Test

Run **pilot tests** before

- Do not waste the participant's time
- Have everything ready when testers arrive

Make sure **participants** feel comfortable

- Stress that the system is being tested, **not them**
- Confirm that the system may still have bugs
- Let participants know they can stop at any time

Guarantee privacy

- Individual test results will be handled as private
- Explain what is being recorded

- Answer any other questions (but do not bias)

During the Test

Do not waste the participants' time

- Do not let them complete unnecessary tasks
- Make sure participants are comfortable
- Early success in the task possible

Relaxed atmosphere

- **Breaks**, coffee, ...
- Hand out test tasks one by one
- Never show you are unsatisfied with what the tester does
- Avoid interruptions (cell phones!)
- Abort the test if it becomes too uncomfortable

Guarantee privacy

- Never let participants' boss (or others) watch

After the Test

Make sure participants are comfortable

- Stress that participant has helped finding ways to improve the system

Inform

- Answer any questions that could have changed the experiment if answered before the test

Guarantee privacy

- **Never publish results** that can be associated with specific individuals
- Show recordings outside your own group only with **written consent** from testers



We don't have
the time.



We don't have
the money.



We don't have
the expertise.

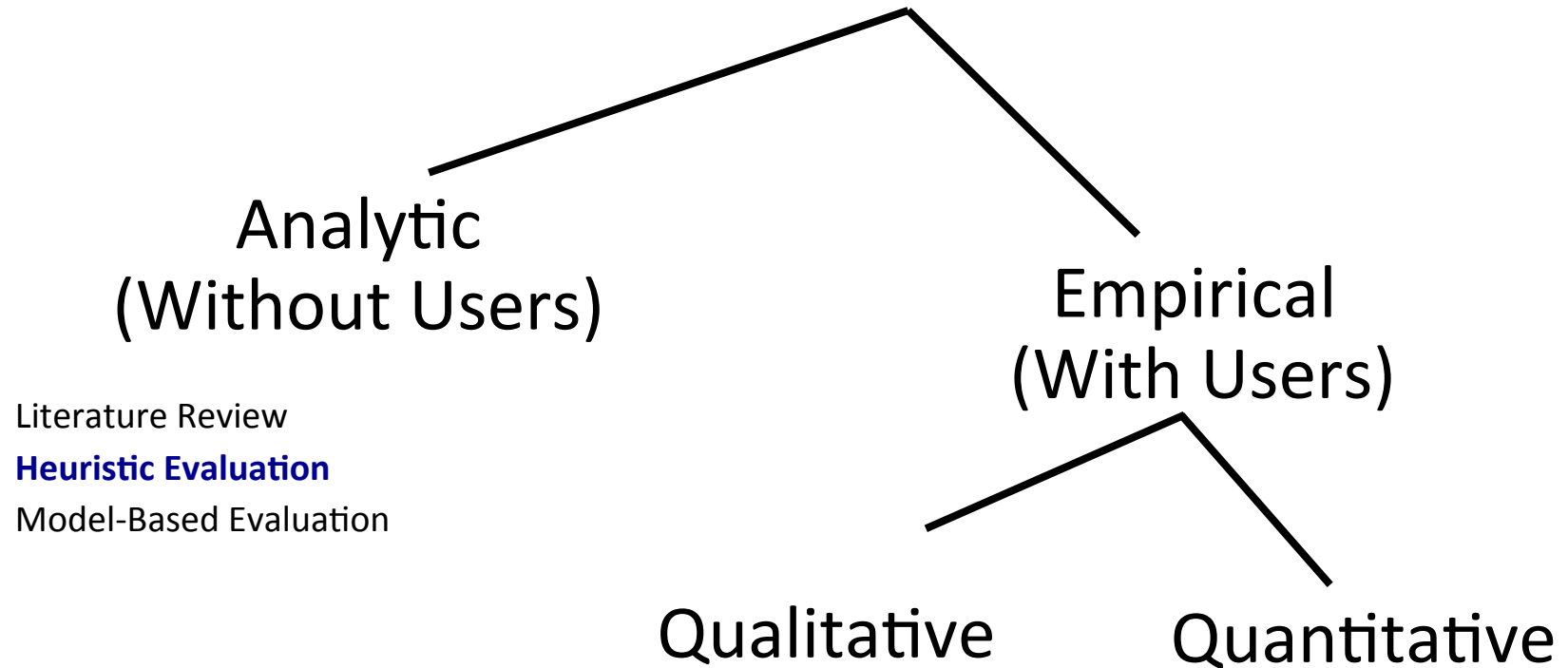


We don't have a
usability lab.



We wouldn't know
how to interpret
the results.

Evaluation Methods



Heuristic Evaluation

1. recruit a small set (3-5) of “evaluators”
2. evaluators independently check for compliance with usability principles (“heuristics”)
3. different evaluators will find different problems
4. evaluators **only communicate afterwards**
5. findings are then **aggregated**

  → use list of problems to redesign/fix application

Heuristic Evaluation

can't copy info from one window to another

–violates “Minimize the users’ memory load” (H1-3)

–fix: allow copying

typography uses different fonts in 3 dialog boxes

–violates “Consistency and standards” (H2-4)

–slows users down

–fix: pick a single format for entire interface

Severity rating for each problem (Nielsen)

0 = I don't agree this is a problem at all

1 = cosmetic problem

2 = minor usability problem, low priority to fix

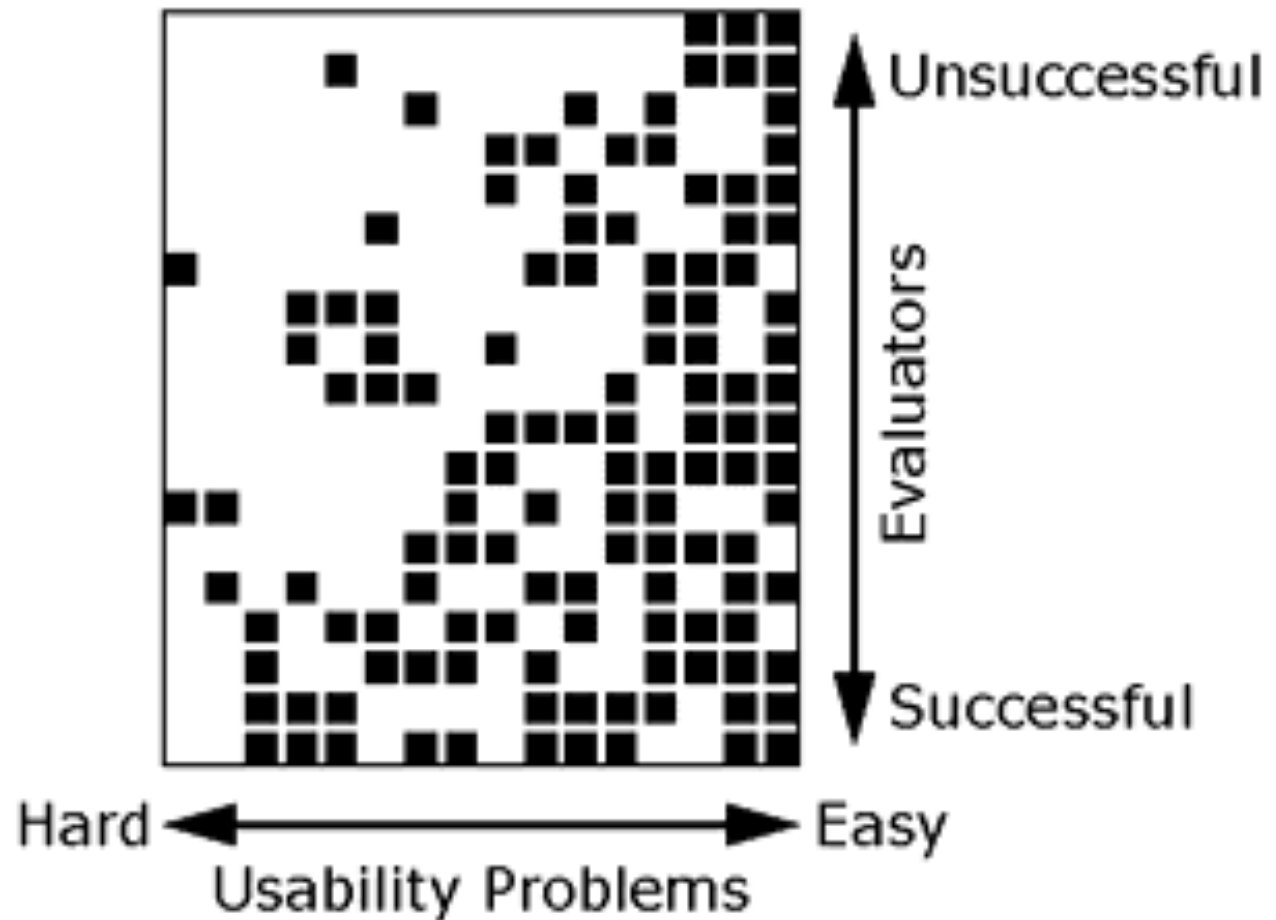
3 = major usability problem, high priority to fix

4 = usability catastrophe, imperative to fix before release

Heuristic Evaluation

every evaluator does not find every problem

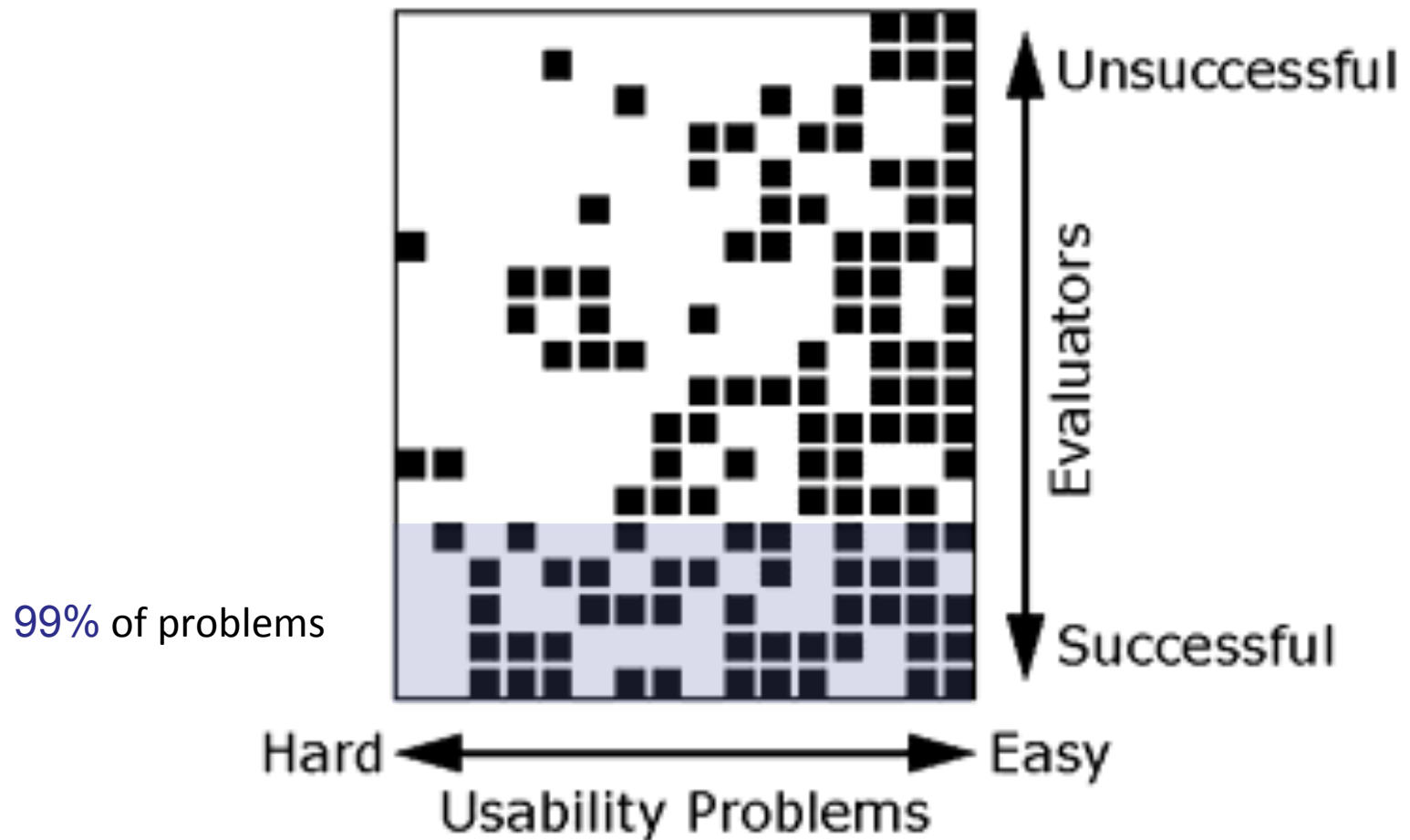
good evaluators find both easy & hard ones



Heuristic Evaluation

every evaluator does not find every problem

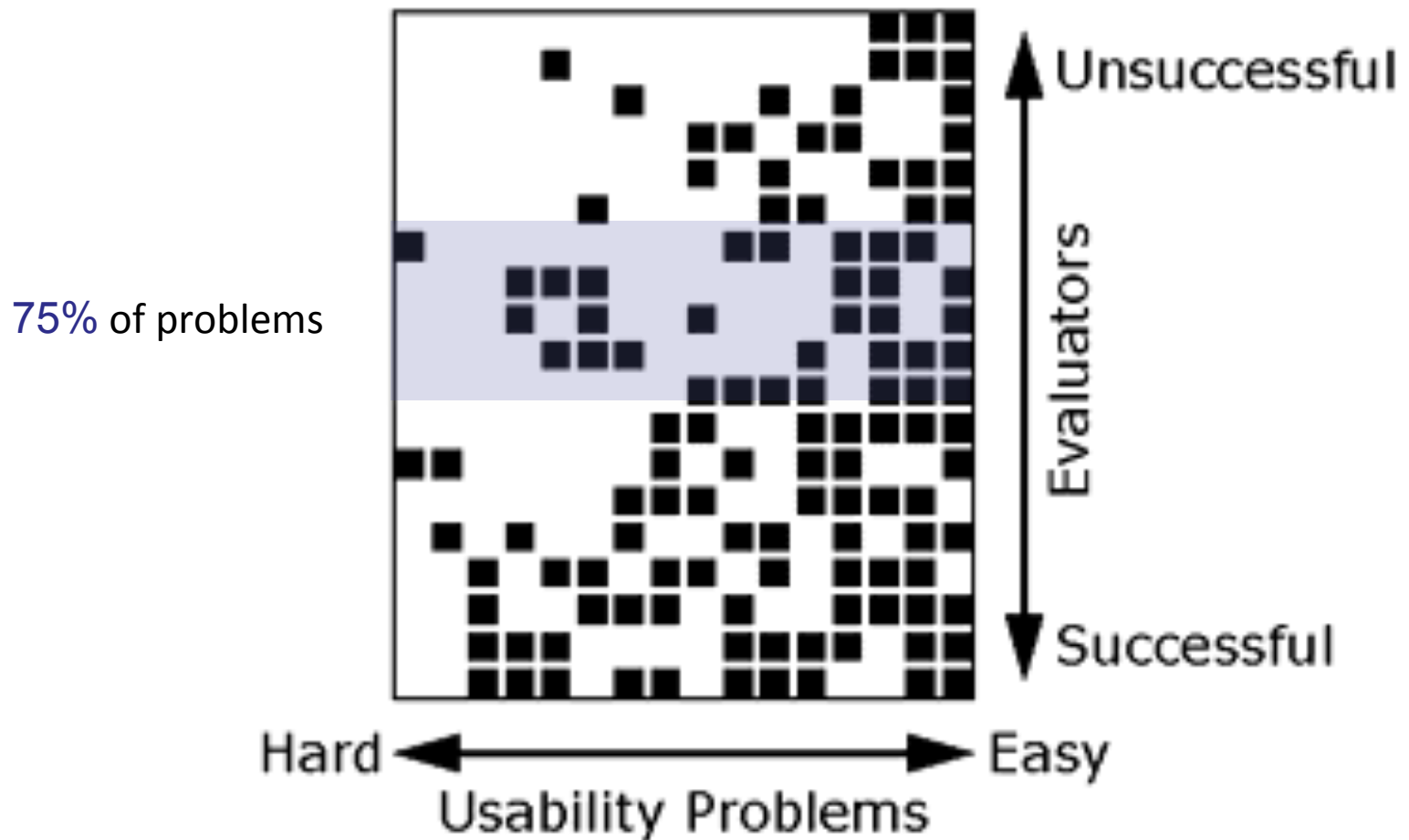
good evaluators find both easy & hard ones



Heuristic Evaluation

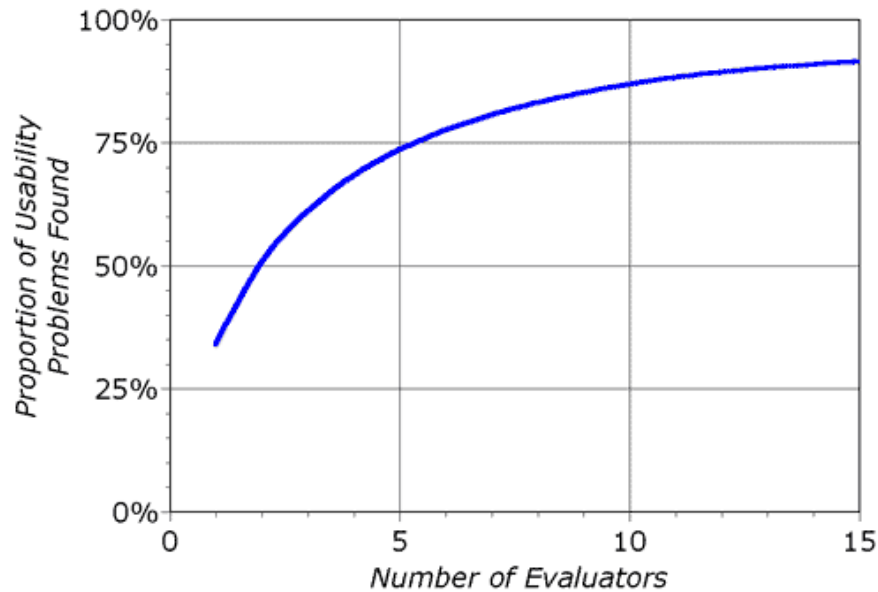
every evaluator does not find every problem

good evaluators find both easy & hard ones

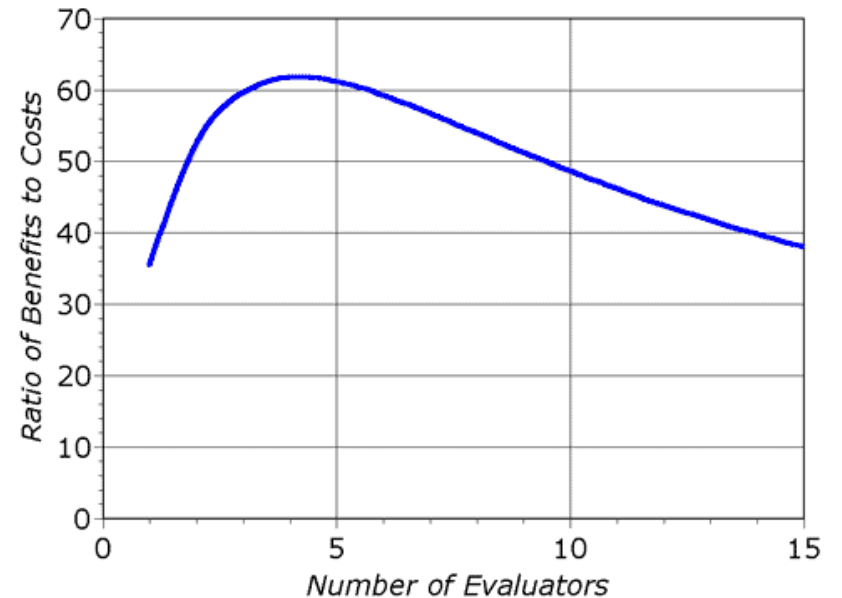


E3: Heuristic Evaluation

problems found



benefits / cost



- + Quick and cheap
- Subjective (better done by several independent designers)

ONE TEST WITH 8 USERS

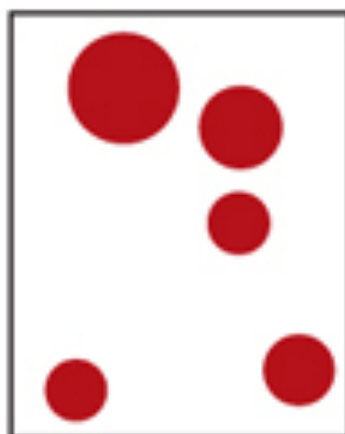
8 users



Eight users may find more problems in a single test.

But the worst problems will usually keep them from getting far enough to encounter some others.

TOTAL PROBLEMS FOUND: 5



TWO TESTS WITH 3 USERS

First test: 3 users



Three users may not find as many problems in a single test.

Second test: 3 users



But in the second test, with the first set of problems fixed, they'll find problems they couldn't have seen in the first test.

TOTAL PROBLEMS FOUND: 9



The heuristics

H2-1: visibility of system status

H2-2: match between system & real world (speak the users' language)

H2-3: user control and freedom

H2-4: consistency and standards

H2-5: error prevention (minimize users' memory load)

H2-6: recognition rather than recall

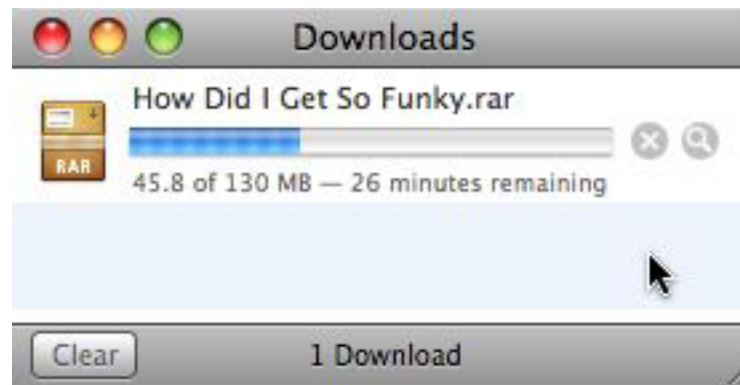
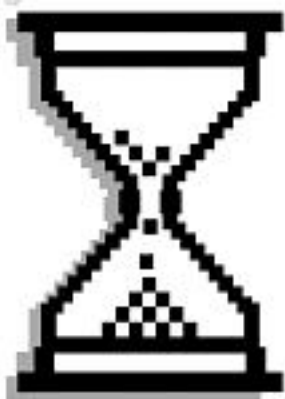
H2-7: flexibility and efficiency of use (shortcuts)

H2-8: aesthetic & minimalist design

H2-9: help recognize, diagnose, & recover from errors

H2-10: help and documentation

visibility of system status



- pay attention to response time
 - 0.1 sec: no special indicators needed (< human processing)
 - 1.0 sec: user tends to lose track of data
 - 10 sec: max. duration if user to stay focused on action
 - for longer delays, use percent-done progress bars

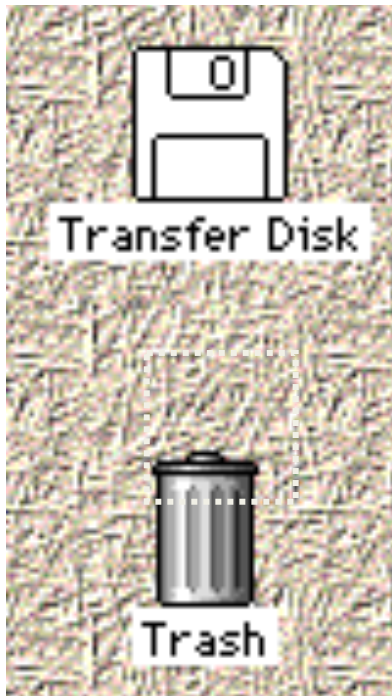


Your password has been emailed.

Theresa Neil sign in

match between system & real world

bad



- speak the users' language
- follow real world conventions

•**example of violation:**
dragging disk to Mac trash
should delete it, not eject it

LIBRARY



Music



Movies



TV Shows



Podcasts



Audiobooks



Applications



Radio

STORE



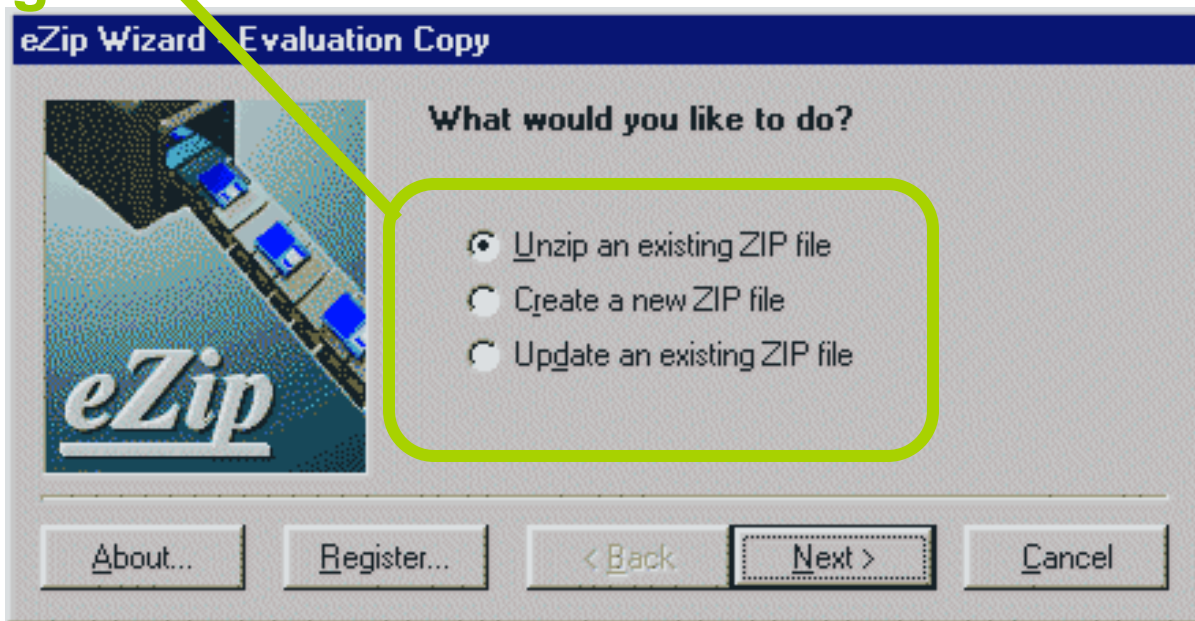
iTunes Store



Purchased

user control & freedom

good



–offer “exits” for mistaken choices, undo, redo

- **wizards:** must respond to question before going to next
- good for infrequent tasks (e.g., modem config.) and beginners
- not for common tasks and experts → **have 2 versions (WinZip)**

The Wufoo
FORM
GALLERY

Search

Forms

Surveys

Invitations

Registrations

Lead Generation

Online Orders

Survey
TEMPLATES

- 1 Customer Satisfaction Survey
- 2 Cancellation Survey
- 3 Business Demographic Survey
- 4 Web Site Visitor Survey
- 5 Tech Support Satisfaction Survey
- 6 Health Survey

Download HTML

Add to Wufoo

WUFOO

Customer Satisfaction Survey

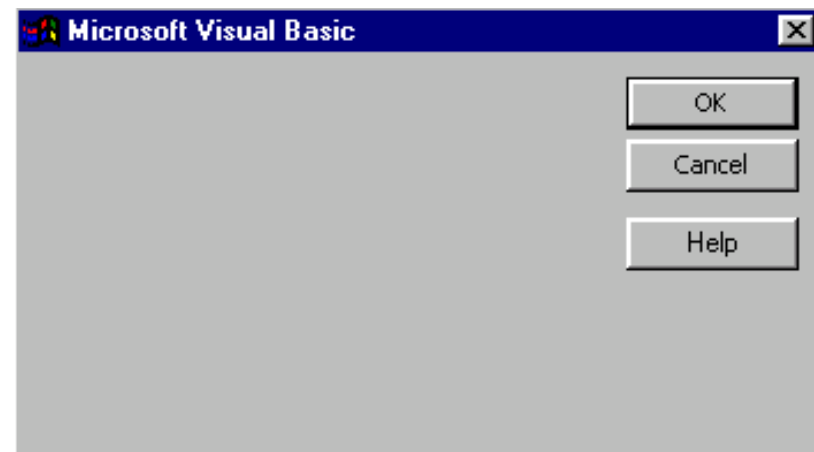
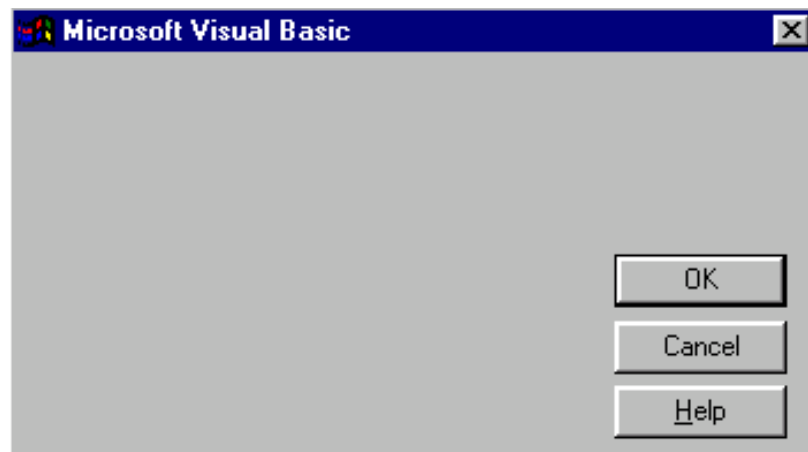
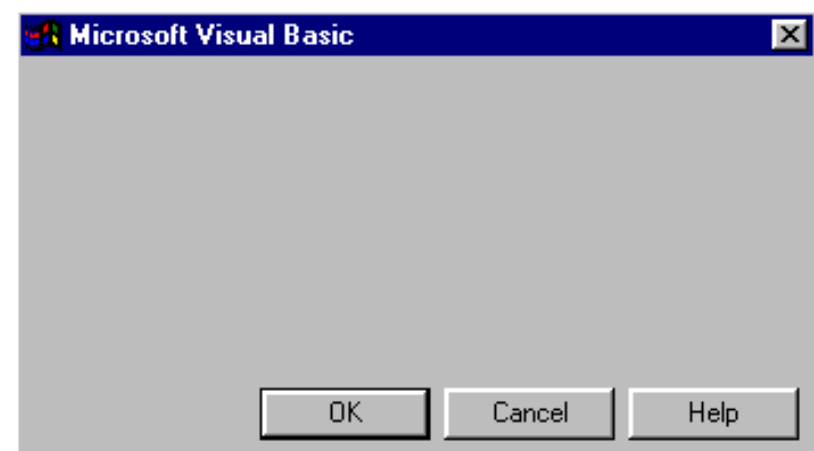
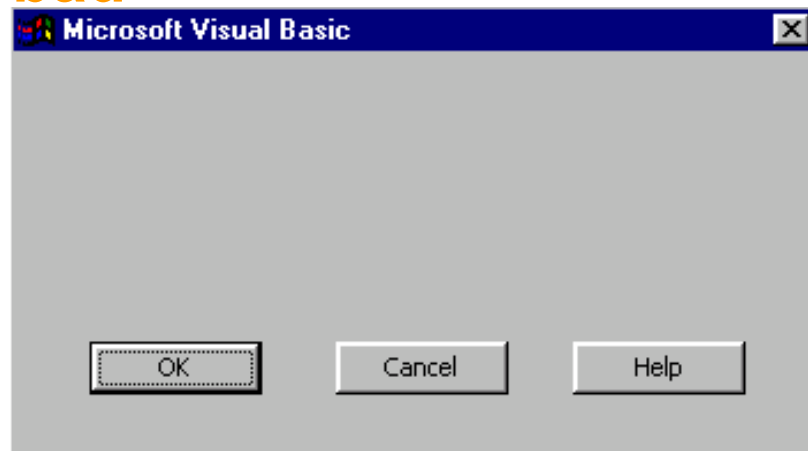
Please take a few moments to complete this satisfaction su

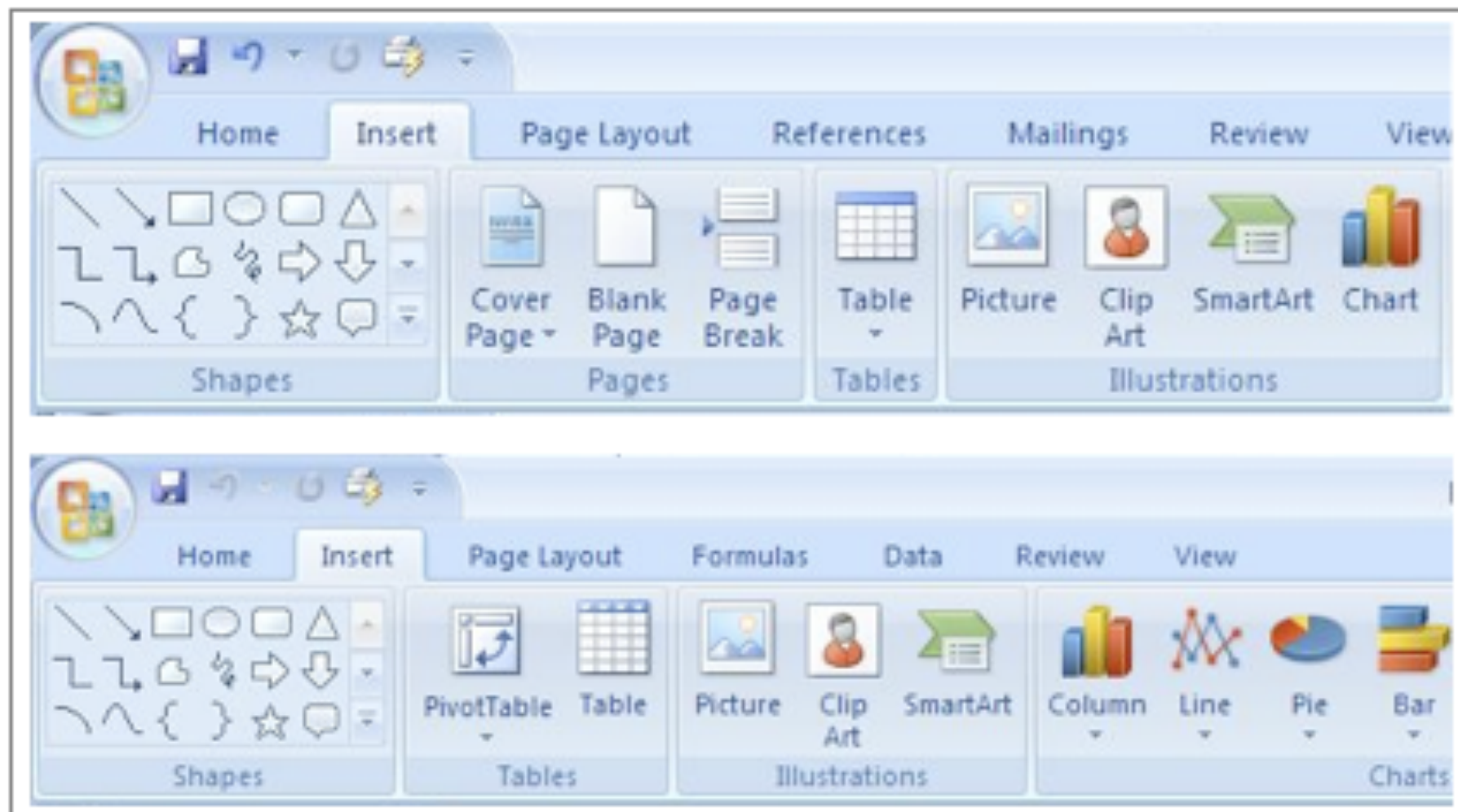
How long have you used our product / service?

- Less than a month
- 1-6 months
- 1-3 years
- Over 3 Years

consistency & standards

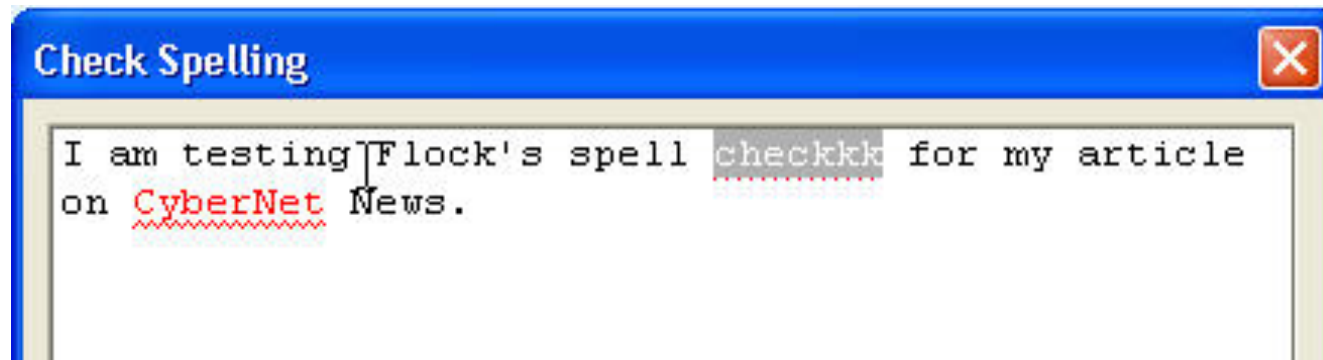
bad





error prevention

good



Share something with **Usabilitypost:**

Update

 [Attach file](#)

Submit

| [Cancel](#)

PRIMARY ACTION

SECONDARY ACTION

design|

design within reach	6,350,000 results
designer handbags	3,430,000 results
designer shoes	2,630,000 results
designer clothes	3,120,000 results
designer dresses	1,110,000 results
design sponge	9,930,000 results
designer	285,000,000 results
design museum	13,600,000 results
designers guild	530,000 results
designer jeans	2,010,000 results

[close](#)

[Advanced Search](#)
[Preferences](#)
[Language Tools](#)

recognition, not recall

```
12 | $maxcol = 5;  
13 | st  
stat  
str_pad  
str_repeat  
str_replace  
str_rot13  
strcasecmp  
strchr  
strcmp  
strcoll  
strcspn  
strftime  
strip_tags
```



The image shows a code editor window. On the left, a list of string functions is displayed, with 'stat' selected. The functions listed are: stat, str_pad, str_repeat, str_replace, str_rot13, strcasecmp, strchr, strcmp, strcoll, strcspn, strftime, and strip_tags. On the right, a snippet of HTML code is visible, including a title tag and a content type declaration.

```
); $i++) {  
    case ". $pendin  
3C//DTD HTML 4  
  
<title>  
    c-Type" content  
    ontent="Quanta :  
    ype="text/css" :  
  
    der="0" cellpadding  
    ght" >
```

Arno Pro

Ayuthaya

Baghdad

✓ **BANK GOTHIC**

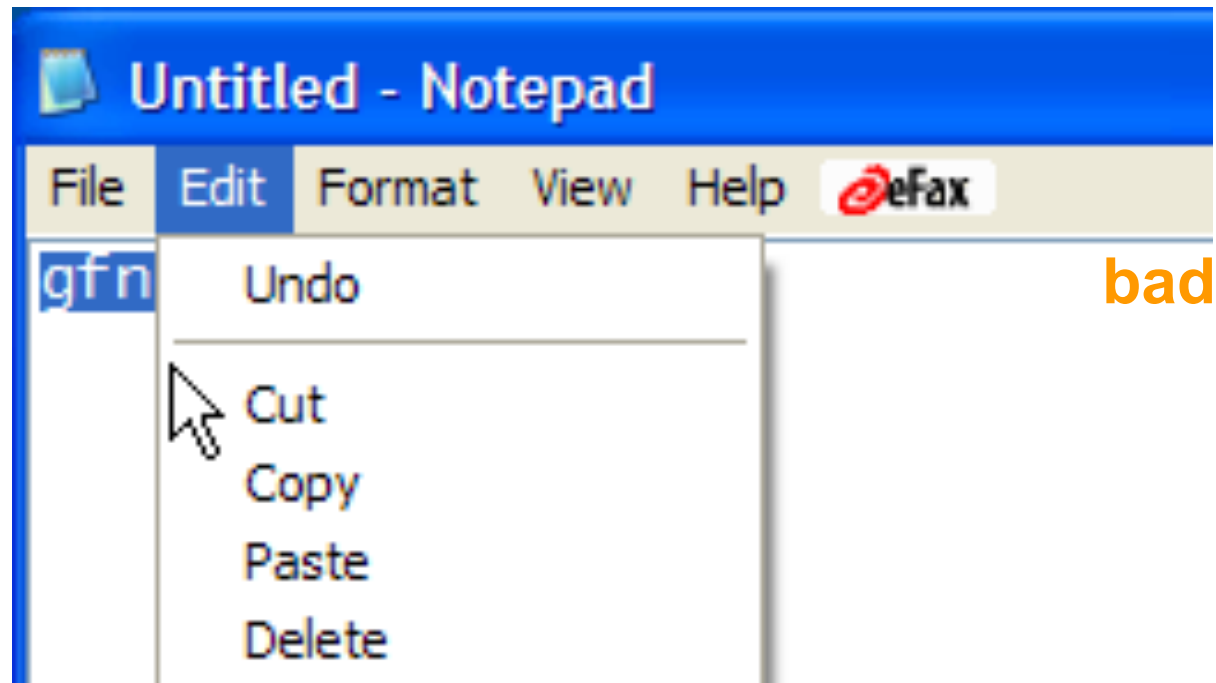
Baskerville

Baskerville Old Face

Bastion

Batang

flexibility and efficiency of use



- accelerators for experts (e.g., gestures, kb shortcuts)
- allow users to tailor frequent actions (e.g., macros)

aesthetic & minimalist design

bad

Form Title -- (appears above URL in most browsers and is used by WWW search)		Background Color:
Q&D Software Development Order Desk		FFFBF0
Form Heading -- (appears at top of Web page in bold type)		Text Color:
Q&D Software Development Order Desk <input checked="" type="checkbox"/> Center		000080
E-Mail responses to (will not appear on)	Alternate (for mailto forms only)	Background Graphic
dversch@q-d.com		
Text to appear in Submit button	Text to appear in Reset button	<input type="radio"/> Mailto
Send Order	Clear Form	<input checked="" type="radio"/> CGI
Scrolling Status Bar Message (max length = 200 characters)		
****WebMania 1.5b with Image Map Wizard is here!!****		
<input type="button" value=" << Prev Tab"/>		<input type="button" value=" Next Tab >>"/>

–avoid irrelevant information in dialogues

[Home](#)

[Entries](#)

[Photos](#)

[Videos](#)

[Audio](#)

Everything ▾

Search:

Everything

Entries

Photos

Videos

Audio

Users

Tags: (coming soon)

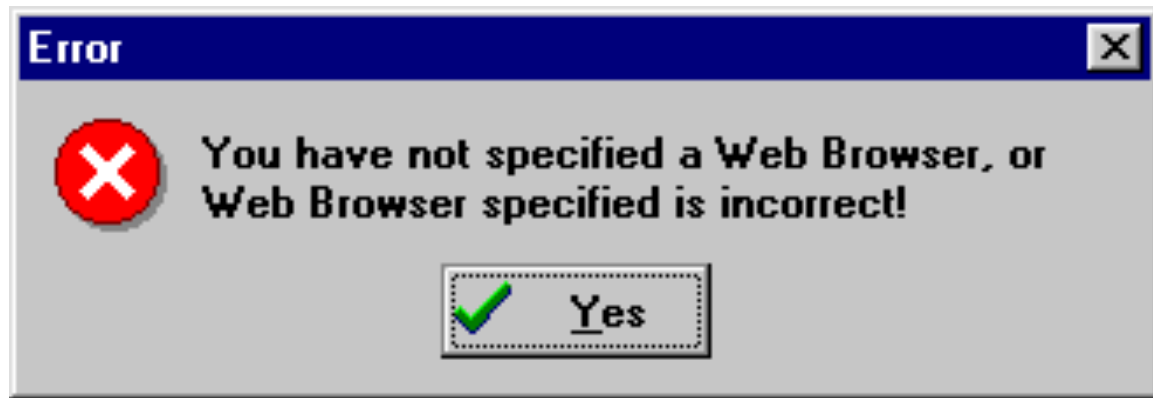
Search Tags Only

the **easiest**
to blog

Beautiful
videos & audio



help recognize, diagnose, & recover from errors




- error messages in plain language
- precisely indicate the problem
- constructively suggest a solution


help & documentation

Or start a new account

Choose a username (no spaces)


 bert is already taken. Please choose a different username.

Choose a password

 Passwords must be at least 6 characters and can only contain letters and numbers.

Retype password

Email address (must be real)

 The email provided does not appear to be valid

Send me occasional Digg updates.



Oh no!

It seems the page you were trying to find on my site isn't around anymore (or at least around here).

[Report it missing using my contact form](#) and I'll see what I can do about it.

Whilst your here why not check out my [articles listing](#) or [browse my blog](#)? You never know - you may just

DEPARTMENTS

[Audio / Video](#)
[Business / Education](#)
[Cameras](#)
[Clothing](#)
[Communications](#)
[Computers](#)
[Electronics](#)
[Factory Serviced](#)
[Gift Shop](#)
[Golf Shop](#)
[GPS Navigation](#)
[Housewares](#)
[Outdoors](#)
[Sports / Recreation](#)
[Tools](#)
[Telephones](#)



Global Mart®
Products for all horizons

**CLICK
HERE**

To View Our
Home Appliance Selection



DVD Players
[Audio/Video Main](#)



Toshiba DVD Players



Go.Video DVD Players



JVC DVD Players



Pioneer DVD Players



Samsung DVD Players



Sharp DVD Players



Philips DVD Players



Panasonic DVD Players



Surge Suppressors



Global Mart[®]
The Only Way To Shop™



Search

[Current
Specials](#)

[Customer
Service](#)

[Order
Tracking](#)

[View Cart/
Checkout](#)

DEPARTMENTS

[Audio/Video](#)
[Business/Education](#)
[Cameras](#)
[Clothing](#)
[Communications](#)
[Electronics](#)
[Factory Serviced](#)
[Gift Shop](#)
[Golf Shop](#)
[GPS Navigation](#)
[Housewares](#)
[Musical](#)
[Instruments](#)
[Outdoors](#)
[Sports/Recreation](#)
[Telephones](#)
[Tools](#)



DVD Players
[Audio/Video Main](#)



Toshiba DVD Players



Go.Video DVD Players



JVC DVD Players



Pioneer DVD Players



Samsung DVD Players



Sharp DVD Players



Philips DVD Players



Panasonic DVD Players



Aiwa DVD Players



Sony DVD Players



Surge Suppressors



Global Mart[®]
The Only Way To Shop™



Search

[Current Specials](#)

[Customer Service](#)

[Order Tracking](#)

[View Cart/Checkout](#)

DEPARTMENTS

- [Audio/Video](#)
- [Business/Education](#)
- [Cameras](#)
- [Clothing](#)
- [Communications](#)
- [Electronics](#)
- [Factory Serviced](#)
- [Gift Shop](#)
- [Golf Shop](#)
- [GPS Navigation](#)
- [Housewares](#)
- [Musical Instruments](#)
- [Outdoors](#)
- [Sports/Recreation](#)
- [Telephones](#)
- [Tools](#)



[Audio/Video](#)

DVD Players



Toshiba DVD Players



Pioneer DVD Players



Philips DVD Players



Sony DVD Players



Go.Video DVD Players



Samsung DVD Players



Panasonic DVD Players



Surge Suppressors



JVC DVD Players



Sharp DVD Players



Aiwa DVD Players

Heuristics for blogs

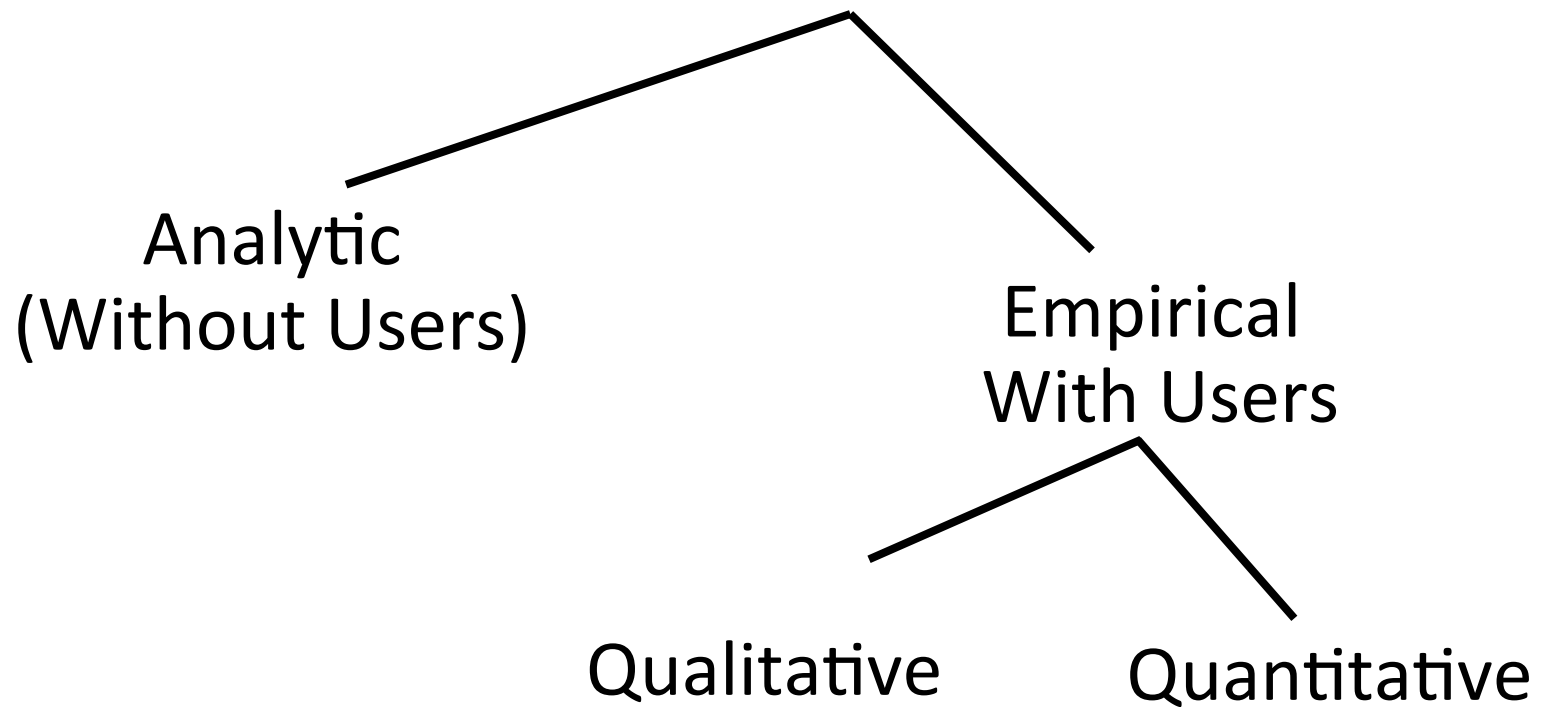
1. Strategy. No clear Blogging strategy
2. Credibility. Lack of Credibility Cues
3. Headlines. Poorly Written Headlines to Grab
4. Navigation. Using only One Navigation Search schemes
5. Content. Writing Ineffective Content
6. Frequency. Infrequent or Irregular Updates
7. Burying. Classic Hits are Buried
8. Bad Forms. Cumbersome Forms to Use
9. Search. Bad Search Forces Users to Think
10. Unresponsive. Blog can only be viewed on one device

Usability guidelines for Website on mobile devices

- Reduce the amount of content
- Single column layouts work best
- Minimize text entry
- Take advantage of inbuilt functionality

Questions?

- 3 kinds of evaluation methods?

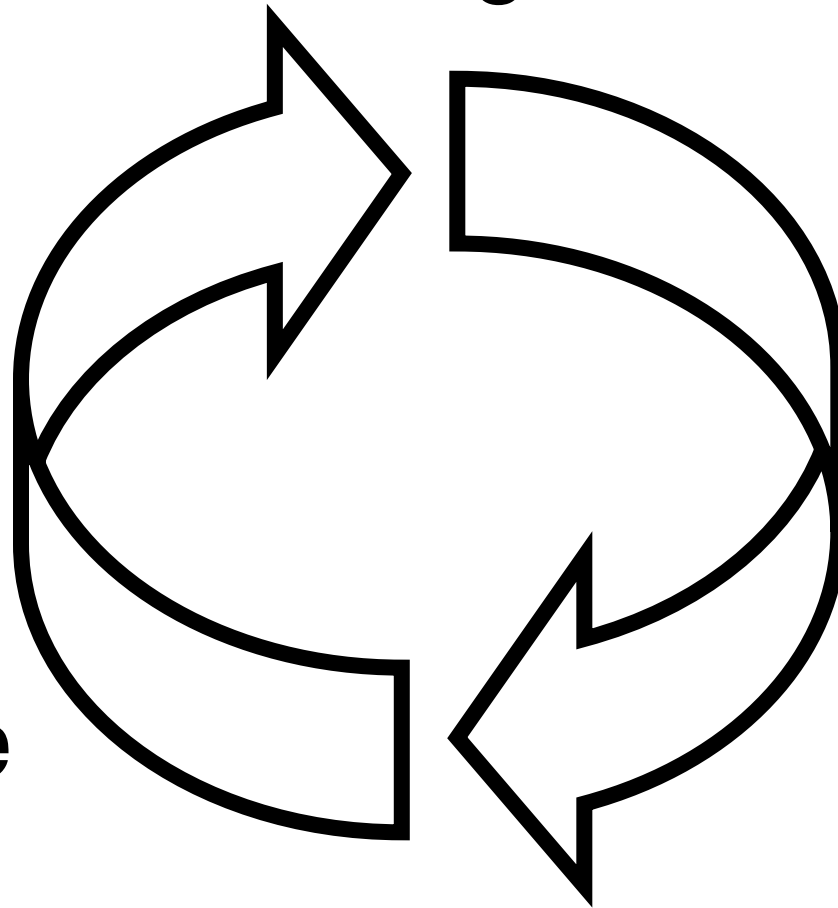


DIA Cycle

Design

Analyze

Implement



WEB 2.0



paris



Itinéraire

Mes adresses



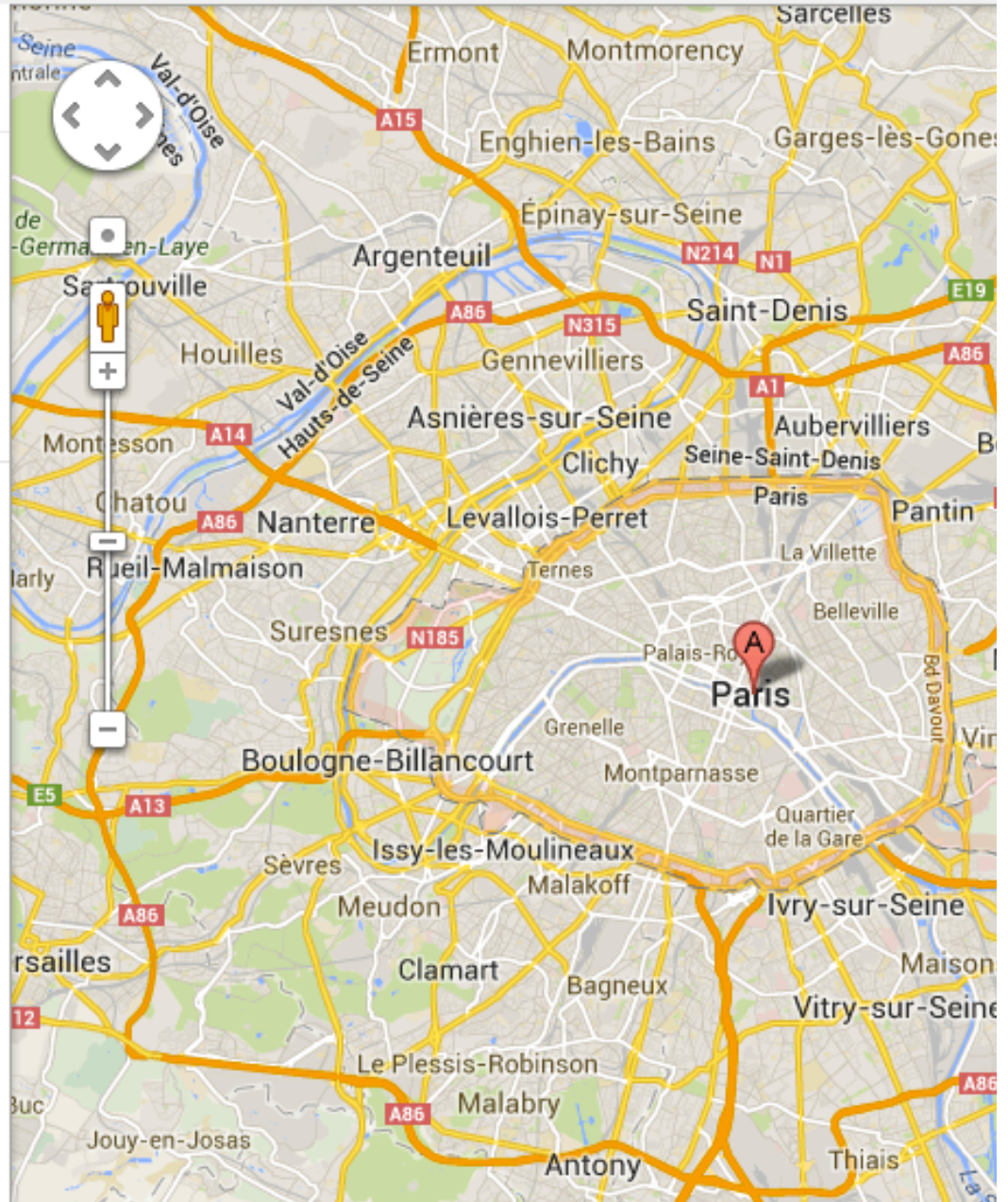
Paris



Itinéraire Recherche à proximité Ajouter à mes cartes plus

Labos de Google Maps - Aide

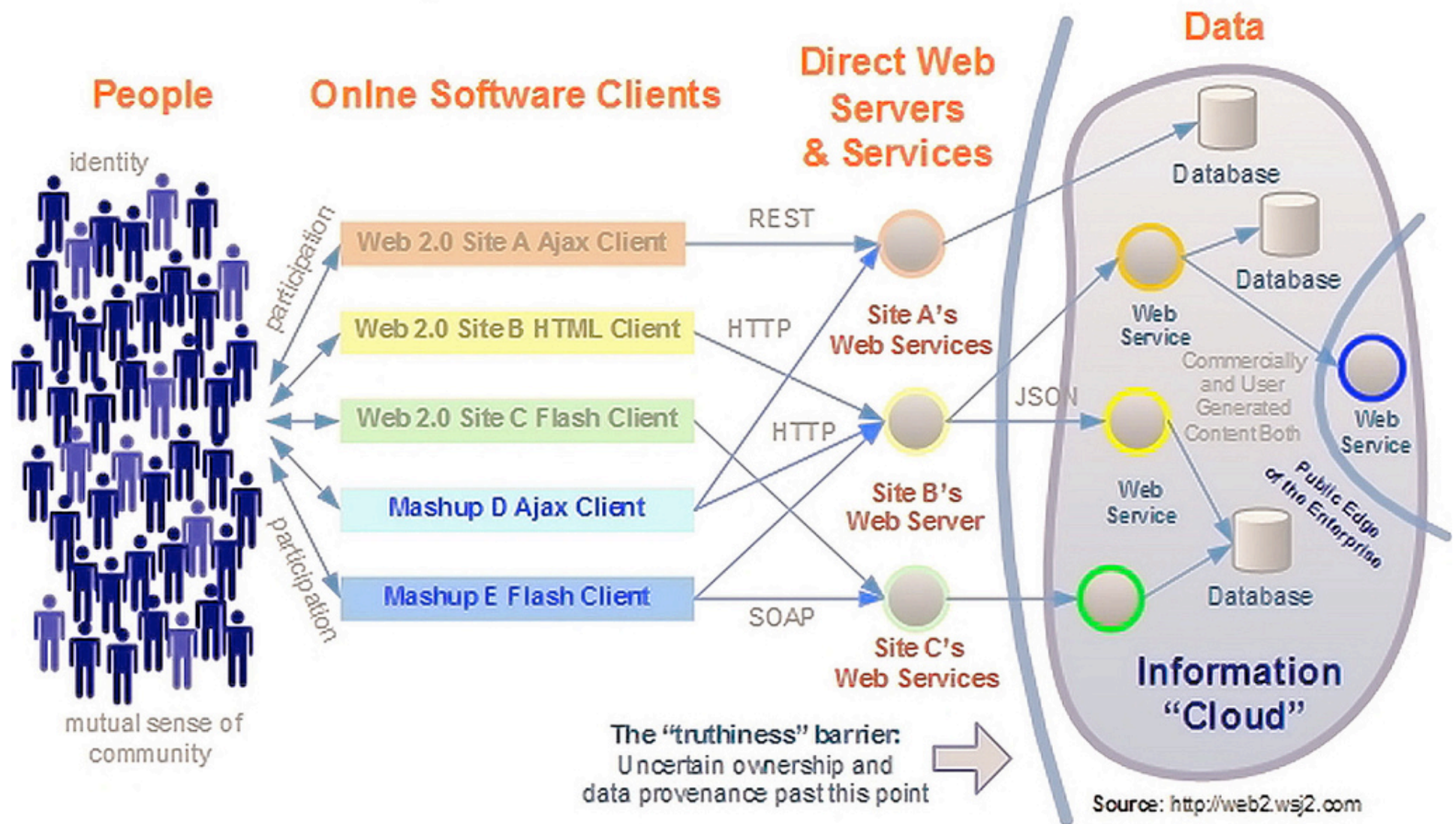
Google Maps - ©2013 Google - Conditions d'utilisation - Confidentialité



Responsive

The Web 2.0 Architecture of Participation:

"People in the Machine Nurture the Cloud"



End of software cycle

- Software must be maintained on a daily basis
- **Real-time** DIA cycle
- Users are treated as co-developoppers
 - Perpetual beta

Lightweight Programming Models

- **Simplicity** in APIs
- Generates new interesting applications of software
- Barrier to entry is **low**

Rich User Experience

- Full scale applications
- Fluid movements are appealing
- (Re)implemenation on the web vs. specialized desktop applications

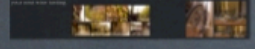
<http://zoom.it/>

www.simile-widgets.org/exhibit/

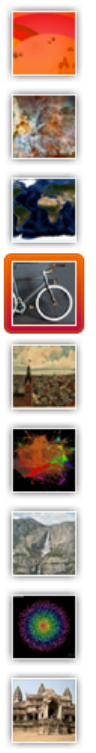
<http://slides.html5rocks.com/#landing-slide>

The Contoso Fixster

Forged in Seattle's Skid Row



High quality track stems



Conclusion

- It's good usability to make interfaces more reactive
- Offers a richer experience in the web browser
- It is a continuum (Desktop Application vs. Web Browser vs. hosting data online for mobile access)
- Still have basic usability issues in websites
 - Jeff Johnson: Web Bloopers

