What Does Usability Mean: Dimensions of Usability

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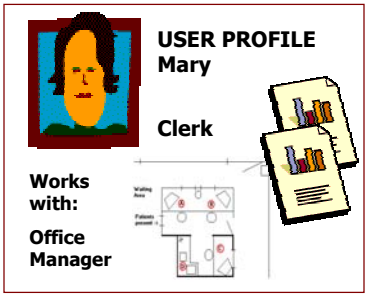
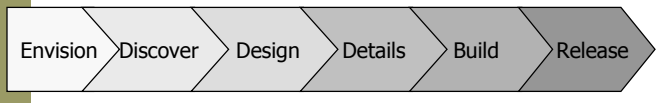
Usability is...



Techniques for learning about and from users



A user-centered design process

A result: design that works for people

Defining usability

- ease of use
- user friendly
- efficiency
- effective
- satisfying
- memorable
- pleasure
- accessible
- learnability
- findability
- quality
- usefulness
- error-averse

"The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" - ISO 9241-11

"A usable product or process is one that is learnable, efficient, memorable, error-averse, and satisfying." - Dick Miller

"Usability is the measure of a product's potential to accomplish the goals of the user"

- learnability
- efficiency
- memorability
- errors (low rate, easy to recover)
- satisfaction

- Nielsen, Usability Engineering

But..how to talk to ...

- Clients
- Developers
- Managers
- Friends…
- and everyone else who doesn't yet understand what we do for a living

The 5 Es: dimensions of usability

- Effective
- Efficient
- Engaging
- Error tolerant
- Easy to learn

Effective

The completeness and accuracy with which users achieve their goals.

Questions to ask

- Is the task completed successfully?
- Is the work completed correctly?

Design considerations

- Assistance in the UI for doing the job - checklists, scripts
- Language that creates clear choices
- Navigation that reduces backtracking and rework

Efficient

The speed (with accuracy) in which users complete their tasks.

Questions to ask

- How long does it take to complete a task?
- Can users work with minimal interaction
- Does the interface *feel* efficient?

Design considerations

- Navigation shortcuts
- Visible menus or breadcrumbs
- Keyboard shortcuts
- Placement of controls

Engaging

How pleasant or satisfying the interface is to use

Questions to ask

- What kind of work (or play) does the product support?
- What are the expectations for style and tone?
- What is the context of use?

Design considerations

- Frequent v. casual use
- Long sessions v. short interactions
- Physical environment - readability, visibility, accessibility
- Competitive environment

Error tolerant

The ability of the interface to prevent errors or help users recover from those that occur

Questions to ask

- Does the design help prevent errors?
- When an error occurs, is the interface helpful?

Design considerations

- Clarity of language in error messages
- Whether corrective actions are available when a problem occurs
- Providing duplicate or alternative paths to meet different needs

Easy to learn

How well the product supports both initial orientation and deeper learning

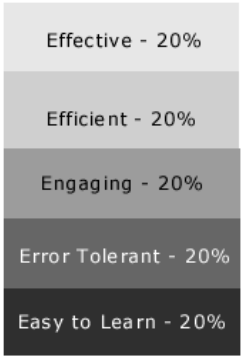
Questions

- Can both initial and advanced tasks can be mastered without outside help
- Is the level of difficulty (or knowledge required) appropriate?

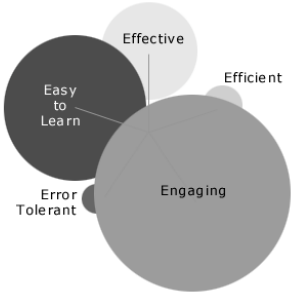
Design considerations

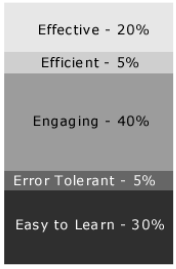
- Helpfulness of the interface
- Built-in instruction for difficult/infrequent tasks
- Access to just-in-time training elements
- Ability of the user to build on initial learning

A question of balance



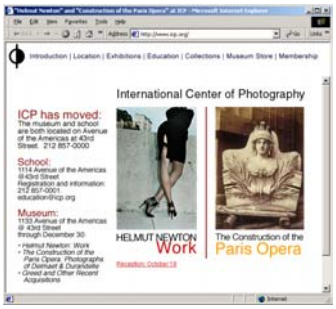
An online exhibition

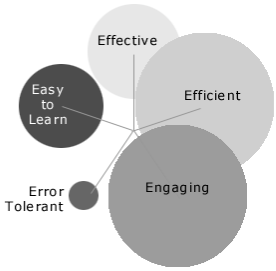




engaging	encourages visitors to become involved with the artist
easy to learn	invites exploration; not frustrating
effective	questions answered, information communicated

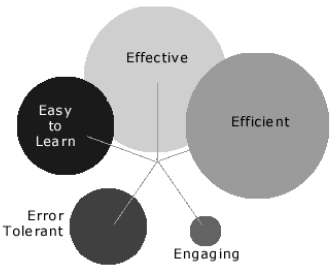
The museum web site

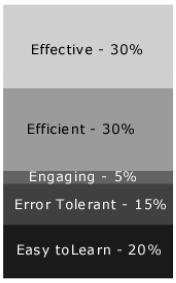




engaging	first impression of the museum - will they visit the galleries?
efficient	attention spans are short - get information quickly
effective	must answer key questions accurately

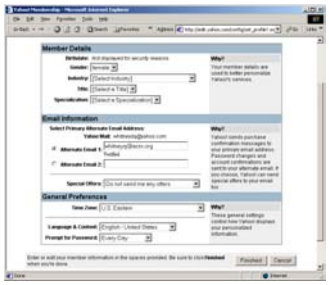
An intranet document library

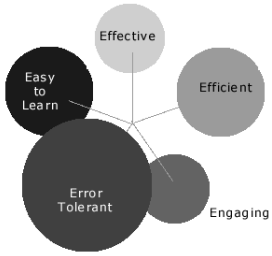




efficient	used frequently, so it can't take too many "clicks" to find a document
effective	users need to know they have the latest, or most complete documents
easy to learn	no training provided!

A registration update form





error tolerant	must ensure a valid registration, and can't cause problems using the site
easy to learn	no training provided - and this stuff is complicated!
efficient	this can't take longer than calling technical support

The 5Es from a user's point of view

- What kinds of things do users say that give you hints as to their needs in each dimension?

error tolerant	"Can I make a change as often as I like? What if I get it wrong?"
easy to learn	"I never understand the questions they are asking me in these forms!"
efficient	"This looks like a lot to read. How long will this take, anyway?"
effective	"I really hope that I've gotten the privacy settings right so I don't get email"
engaging	"At least the text is big enough to read"

The 5Es exercise

- Discuss the meaning of each of the Es
  - Be sure they understand the definitions
  - Create user statements for each E
- Give the group $100 in play money
- Ask them to spend it on the Es
  - They have to buy all of them
  - But, some will be more valuable than others
- Discuss the priorities they have set in setting these prices

At Cognetics, designers have used variations of this exercise to help teams understand what kinds of things we mean by 'usability' and to set priorities that make sense for their own users and their own product.

Matching 5Es to design tactics

Dimension	User Needs	Design Tactics
effective	accuracy	• eliminate opportunities for error • provide feedback on all actions
efficient	operational speed	• provide just information needed • navigation for workflow and alternate paths • appropriate interaction styles
engaging	draw users in	• incorporate "brand promise" into the design
error tolerant	validation	• transform 'errors' into corrections • use controls that aid in selection
easy to learn	just in time instruction	• make interface helpful with minimal prompts and instructions

Matching 5Es to testing techniques

Dimension	Types of usability testing needed
effective	evaluate tasks for how accurately they were completed and how often they produce errors
efficient	time tasks with realistic tasks and working versions of the software
engaging	user satisfaction surveys to gauge acceptance review logs for 'time on site'
error-tolerant	construct task scenarios to create situations with potential problems
easy to learn	control how much instruction is given to test participants, or recruit participants with different levels of knowledge

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About Whitney Quesenbery

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UPA Outreach Director
STC Usability SIG Web master
UXnet Executive Committee

"It's exciting when a new design changes people's lives by helping them work better."

User Interface Designer, Interaction Designer, Information Architect...with a user-centered approach

Whitney Quesenbery is an expert in developing new design concepts that achieve the goal of meeting business, user *and* technology needs.

As one of the developers of LUCID (Logical User-Centered Interaction Design), she promotes the importance of a user-centered approach and usability in design.

Special areas of Interest: Search interfaces and how people find information, using personas for user analysis, information architecture.

Cognetics Corporation 1989 - 2002: Principal and the design leader for many design and usability projects web sites to software applications with companies such as Novartis, Deloitte Consulting, Lucent, McGraw-Hill, Siemens, Hewlett-Packard, and Dow Jones.

Theatrical Lighting Designer 1974-1989: Discovered that a computer screen is just like a tiny stage in the way that audience attention is directed by the design.

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