IE 403/476

Human-Computer Interaction

Week 2-Lec2

Usability

- ISO 9241 defines usability as effectiveness, efficiency and satisfaction with which users accomplish tasks
- The ability of a User to Use the product/ system / environment as desired
- Usability Engineering: The ‘affordance’ offered by a product that makes it useable

Why usability?

- Usability affects how software is perceived
  - user interface is the means by which the software presents itself to the world. “Ease of use” ratings example
- Usable Software sells
- Unusable websites are not used/preferred
- User’s time does not obey Moore’s law
  - Time is expensive
  - Users cannot waste their time on an interface
- Unusable or bad interfaces
  - Major errors
  - Cost lives

- You are not the User
- Users are always right
- Users are not always right either
  - Google search results
  - (Survey Vs Reality)

Interface Hall of Shame

Source: Interface Hall of Shame

- This interface is clearly graphical.
- It's mouse-driven – no memorizing or typing complicated commands.
- It's even what-you-see-is-what-you-get (WYSIWYG) – the user gets a preview of the award that will be created.
- So why isn't it Usable?

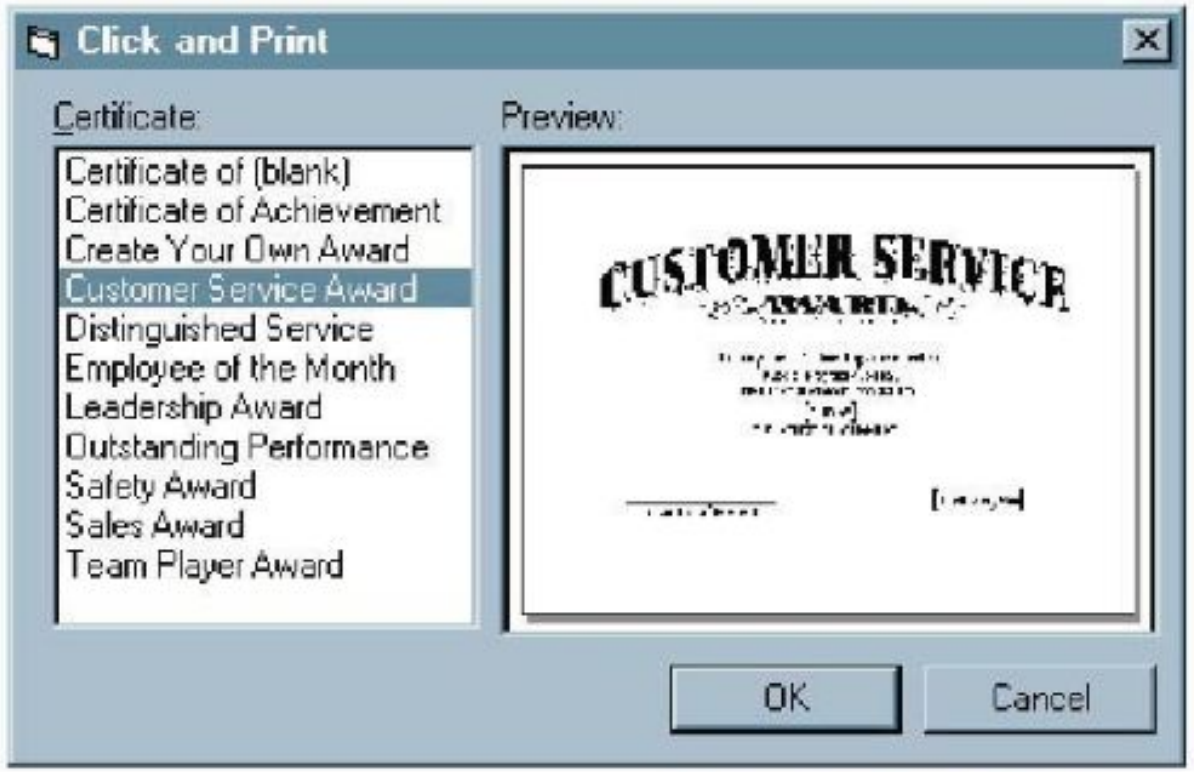
Problems

- Scrollbar for selecting template
  - Although an Affordance , no signifiers/marks
  - How many templates? How far to scroll to select the next template?
- Normal use of scrollbar for horizontal content viewing
- New/inexperienced users go with that pattern in mind
- Affordance for continuous scrolling not Discrete
- Random access process Linear
- Long Help message similar to Fig 2
- Press OKAY..where is OKAY?
- Usability as part of the process

Fig 1

Fig 2

A better solution???



Source: Interface Hall of Shame

Usability involves...

Navigation

Familiarity

Consistency

Error prevention

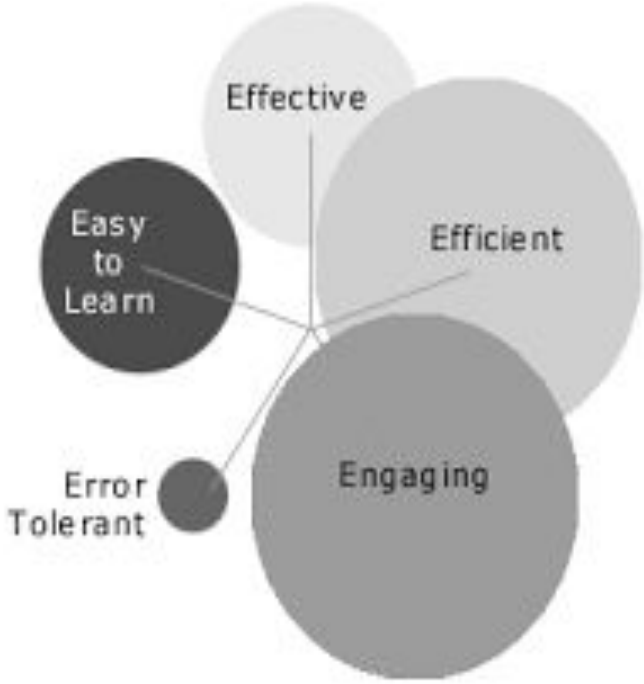
Feedback

Visual clarity

Flexibility & efficiency

Dimensions of Usability

- Learnability: Easy to learn
- Efficiency: Once learned, is it fast to use?
- Errors: Are errors few and recoverable?
- Visibility: Is the state of the system visible‘
- Effectiveness: Can it do the job well and correctly?
- Satisfaction: Is the user happy with the interface?



Building all these dimensions into a product is called Usability Engineering

Usability is related to Human performance

- Capabilities
- Limits
- Consequences

Intuitiveness

Maximum success for first-time users, with minimum training, explanation or thought

Efficiency

Maximum success for long-term users, with minimum time, mental load, physical effort

The UE lifecycle

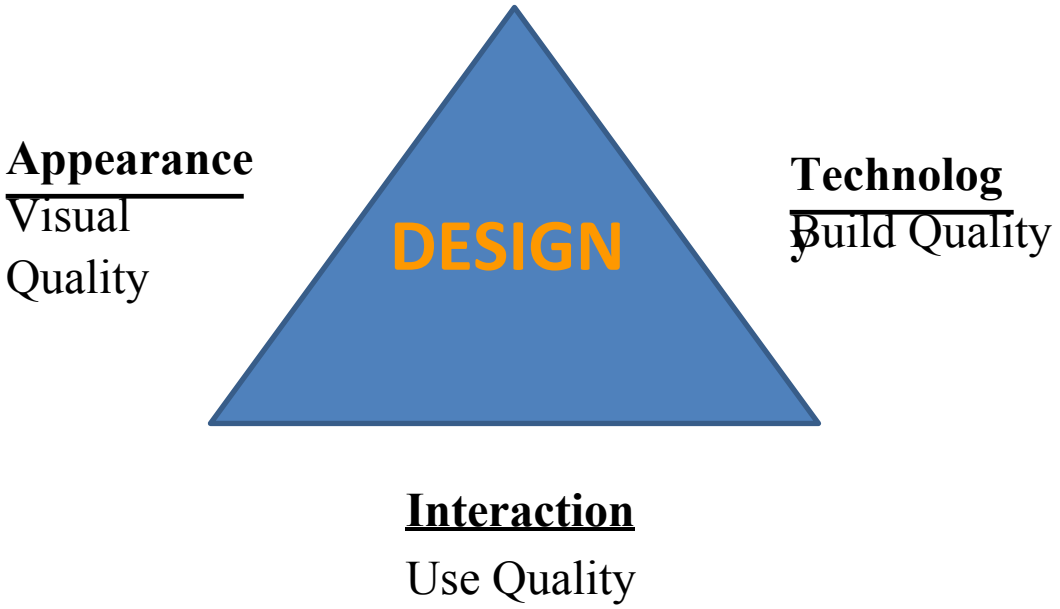
UCD Methods (ISO 13407)

SYSTEM LIFE CYCLE						
FEASIBILITY		REQUIREMENTS		DESIGN	IMPLEMENT	RELEASE
USER REQs	CONTEXT OF USE	FUNCTIONAL	TECHNICAL	PROTOTYPE	USEABILITY TESTING	FEEDBACK

Design Stages

Task	Information produced
Knowing the user	User characteristics, User background
Knowing the task	User's current task, Task analysis
User requirements	User requirements specification
Setting usability goals	Usability specification
Design process	Design Specification
HCI Guidelines & heuristic analysis	Feedback for design iteration
Prototyping	Prototype for user testing
Evaluation with users	Feedback for freezing design
Redesign and evaluate with users	Finished product
Evaluate with users and report	Feedback on product for future systems

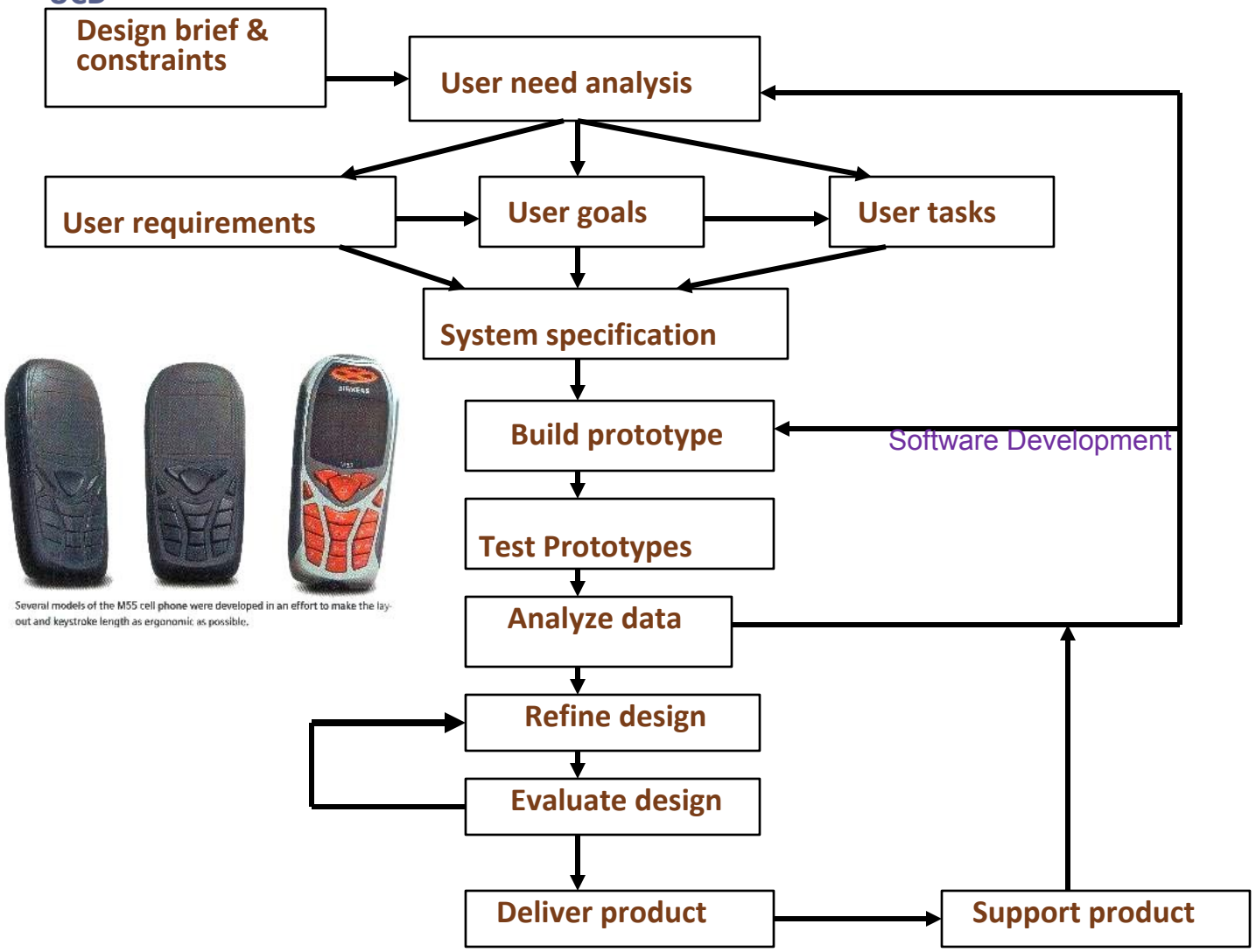
Components of Usability



The UCD Methodology.

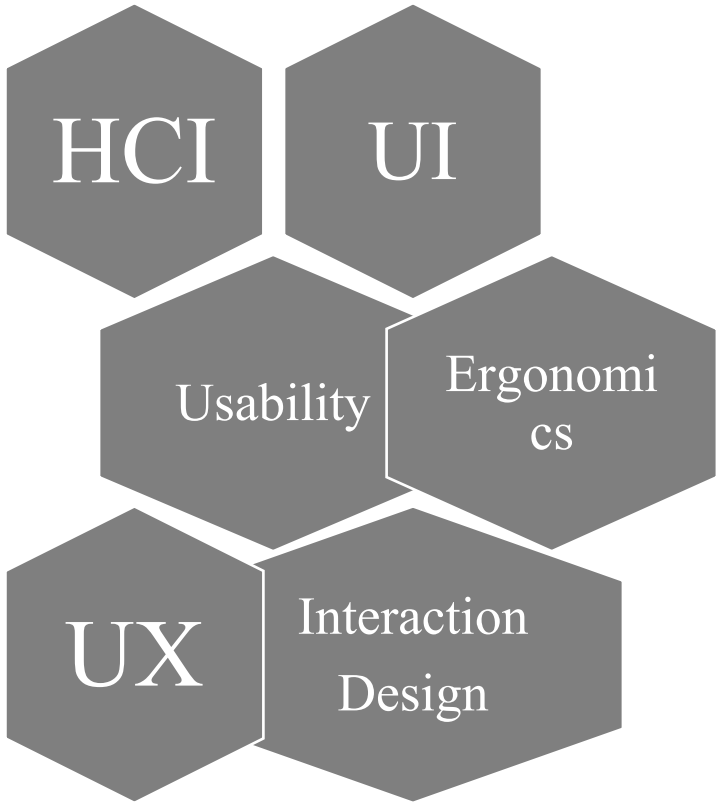
User centered design processes :

UCD



Several models of the M55 cell phone were developed in an effort to make the lay-out and keystroke length as ergonomic as possible.

Too many Terminoligies…whats the difference?



- user interfaces – the part of a computer system that *interacts* with a person, using *input and output* -- and the property that most concerns us about those user interfaces is usability.

- HCI is common term
- Ergonomics: Stress on human physical issues (physiology)

- UX: products, systems and processes that those user interfaces are part of.
- ID: creating the interactive experience. Includes UI and is part of UX

Nielsen (1993) identified five attributes that contribute to usability:

•**Learnability**. The user should be able to promptly start performing their tasks with the system.

•**Efficiency**. Once the user has learned the system, a high level of productivity should be possible.

•**Memorability.** The casual user should be able to return to the system after not having used it for some time, without having to relearn everything.

•**Errors.** Users should not make many errors using the system, and if they do, they should be able to easily recover from them. Catastrophic errors should not occur.

•**Satisfaction.** Users should like using the system and should be subjectively satisfied when using it. The system should be pleasant to use.

Short Video of Usability concepts

In Class Exercise

Usability Evaluation

Conduct a quick Usability evaluation of your mobile phone &

		Rating out of 10
Effective to use	- Functional	
Efficient to use	- Efficient	
Error free in use	- **Safe**	
Easy to use	- Friendly	
Enjoyable in use	- Pleasurable	
	Total :	