

INF 143

Discussion #1

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visualization

“The use of computer-supported, interactive visual representations of data to amplify cognition.”

visualization

- really is a cognitive process
 - form a mental image of something
 - Internalize an understanding
- the purpose of visualization is insight, not pictures

information visualization

- What is information?
- Items, entities, things which do not have a direct physical correspondence
- examples: baseball statistics, stock trends, connection between criminals,...

links

<http://well-formed.eigenfactor.org/>

<http://www.visualcomplexity.com/vc/>

<http://infosthetics.com/>

<http://www.openprocessing.org/>

software tools

Prefuse

Processing

Nodebox

Flare

Piccolo

InfoVis Toolkit

HTML/JavaScript/XML

Jakob Nielsen's usability heuristics

Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Match between system and the real world

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms.

Follow real-world conventions, making information appear in a natural and logical order.

User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue.

Support undo and redo.

Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place.

Recognition rather than recall

Make objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another.

Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users.

Allow users to tailor frequent actions.

Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed.

Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.

Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation.

Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.