

Appendix B

Categorised Usability Guidelines

This appendix presents the full list of guidelines that were collated, categorised in the areas of: Consistency, Errors, Information Processing, User Experience, Design for the User(s), User Control, Goal Assessment, and Ease of Use. Note that to distinguish between the different lists, an alphabetic identifier has been added to the guideline number. This identifier is where possible the first letter of the first author. Where two lists both had the same single letter (e.g. 'Hansen' and 'Hedberg and Perry'), the first letter of the second author's name was added.

The keys for the identifiers are: N for Nielsen[7], S for Schneiderman[9], L for Lund[6], H for Hansen[3], C for Cheriton[1], G for Gaines and Facey[2], K for Kennedy[5], P for Pew and Rollins [8], W for Wasserman [11], T for Turoff, Whitescarver and Hiltz [10] and HP for Hedberg and Perry [4].

B.1 Consistency

N4 Consistency and standards.

S1 Strive for Consistency.

L2 Things that look the same should act the same.

L5 Every action should have a reaction.

L8 Consistency, Consistency, Consistency (alternative version of L2).

L20 Things that look different should act different.

G4 Consistency and uniformity.

B.2 Errors

N5 Error prevention.

N9 Help users recognize, diagnose, and recover from errors.

S5 Offer error prevention and simple error handling.

- S6 Permit easy reversal of actions.
- L4 Error messages should actually mean something to the user and tell the user how to fix the problem.
- L6 Everyone makes mistakes, so every mistake should be fixable.
- L17 If I made an error, let me know about it before I get into REAL trouble.
- L21 Don't let people accidentally shoot themselves.
- L24 Provide a way to bail out and start over.
- L31 If I made an error, at least let me finish my thought before I have to fix it.
- H4 Engineer for errors.
- H4A Good error messages.
- H4B Engineer out the common errors.
- H4C Reversible actions.
- H4D Redundancy.
- H4E Data structure integrity.
- C4 Flexible. Flexibility in common structure and tolerance or errors.
- C5 Stable. Able to detect user difficulties and assist him in returning to correct dialog; never deadening' the user (ie, offering (no recourse)).
- C6 Protective. Protect the user from costly mistakes or accidents (eg, overwriting a file).
- C8 Reliable. Not conducive to undetected errors in man-computer communication.
- K2 Use short entries to facilitate error correction and maintain tempo.
- K6 Error messages should be polite, meaningful and informative.
- K7 Give help when requested or when errors are in difficulty.
- P5 Provide the users with every opportunity to correct their own errors.

B.3 Information Processing

- N10 Help and documentation.
- L22 Even experts are novices at some point. Provide help.
- C7 Self-documenting. The commands and system responses are self-explanatory and documentation, (explanations or tutorial material are part of the environment).
- G1 Introduce through experience.
- G6 Query-in-depth (tutorial aids).
- T5 Guidance - direction and learning.

W3 Provide a large number of explicit diagnostics, along with extensive online user assistance.

N6 Recognition rather than recall.

S8 Reduce short-term memory load.

L7 Don't overload the user's buffers.

L9 Minimise the need for a mighty memory (alternative of L7).

H2 Minimise memorisation.

H2A Selection not entry.

H2B Names not numbers.

H2C Predictable behavior.

H2D Access to system information.

L3 The information for the decision needs to be there when the decision is needed.

P3 Carry forward a representation of the user's knowledge base.

B.4 User Experience

N8 Aesthetic and minimalist design.

S4 Design dialogs to yield closure.

L10 Keep it simple.

L14 Eliminate unnecessary decisions, and illuminate the rest.

L15 The best journey is the one with the fewest steps. Shorten the distance between the user and the goal.

L23 Keep it neat. Keep it organized.

L27 Colour is information.

L28 If it is not needed, its not needed.

L29 Everything in its place, and a place for everything.

L33 "Cute" is not a good adjective for systems. (Function over aesthetics tradeoff).

C1 Simple. Project a 'natural', uncomplicated 'virtual' image of the system.

K4 Maintain 'social element' to the communication.

K8 Simple, logically consistent command language.

K10 Avoid redundancy in dialog.

W2 Minimize the need for the user to learn about the computer system.

B.5 Design for the User

- N2 Match between system and the real world.
- L1 Know thy user and you are not thy user.
- L26 The fault is not in thyself, but in thy system.
- L25 Design for regular people and the real world.
- H1 Know the user.
- G3 Use the user's model.
- K1 Use terse 'natural' language, avoid codes, allow abbreviations.
- P1 Know the user population.
- P3 Carry forward a representation of the user's knowledge base.
- P4 Adapt wordiness to user needs.
- HP1 User characteristics.

B.6 User Control

- N3 User control and freedom (Undo and redo).
- S2 Enable frequent users to use shortcuts.
- S7 Support internal locus of control.
- C3 User-controlled. All actions are initiated and controlled by the user.
- C9 User-modifiable. Sophisticated users are able to personalize environment.
- L13 The user should control the system. The system shouldn't control the user. The user is the boss, and the system should show it.
- L16 The user should be able to do what the user wants to do.
- L32 Let people shape the system to themselves and paint it with their own personality.
- K3 Allow single or multiple entries to match user ability.
- K5 Permit user to control length of cues or error messages.
- K9 Control over all aspects of the system must appear to belong to the user.
- K12 Keep exchange rate in user's stress-free range; user can control rate.
- W4 Provide program short-cuts for knowledgeable users.
- W5 Allow the user to express the same message in more than one way.
- H3 Optimise operations.

H3A Rapid execution of common operations.

H3B Display inertia.

H3C Muscle memory.

H3D Reorganize command parameters.

G7 Sequential - parallel tradeoff (allow choice of entry patterns).

T3 Variety - choice of style.

HP4 User control and feedback.

B.7 Goal Assessment

N1 Visibility of system status.

S3 Offer informative feedback.

L11 The user should always know what is happening.

L18 You should always know how to find out what to do next.

C2 Responsive. Respond quickly and meaningfully user commands.

G2 Immediate feedback.

G5 Avoid acausality.

G8 Observability and controllability.

P2 Respond consistently and clearly.

B.8 Ease of Use

N7 Flexibility and efficiency of use.

L12 The more you do something the easier it should be to do.

L19 The idea is to empower the user, not speed up the system.

L30 The user should be in a good mood when done.

L34 To know the system is to love it.

K11 Adapt to the user's ability.

P6 Promote the personal worth of the individual user.

T2 Segmentation - layered approach.

T6 Leverage - flexible, powerful features.

W1 Provide a program action for every possible type of user input.

HP2 Simplicity.

HP3 Flexibility.