

Nielsen-Shneiderman Heuristics: A tool for evaluating product usability*

Visibility of the current state of the system

Users should be informed regarding what is going on with the system

Can the user readily determine the current state of the system? (Is it on or off?)

Is the user able to determine what options are available in each current state?

Can users easily determine how to navigate the menus?

If a change will occur as a result of an action performed by the user, is it easily apparent what has just happened?

Match the prior experience of the users

If the user must perform an action in order to complete a task, the action should be intuitive

Buttons are pressed, knobs are turned, handles are pulled, and switches are flipped

Simple user interface

Avoid irrelevant information which can distract the user

Consider the context in which the device is used. Is it often used in emergent situations?

Minimize reliance on the user's memory

Users should not be required to memorize information than necessary in order to carry out tasks

Keep reference information visually available (e.g., prior settings are displayed for reference)

If default values are used, consider the unintended consequences if they remain unchanged or only partially changed

Does the interface guide the user with concrete examples? (e.g., DD/MM/YY)

Messages are informative and actionable

Messages should provide adequate, timely information to allow for action and error recovery

Are messages vague (e.g., Error 132) or actionable (e.g., cartridge failure - dispose cartridge and replace)

Deliberate and judicious use of customization and shortcuts

Give users the ability to customize the interface to accelerate performance, within the boundary of safe usage

Does the system allow expert users to customize the user interface, or offer shortcuts for frequently used functions?

Error prevention and mitigation

Is the system designed to prevent errors and/or mitigate errors if they occur?

Clear closure of actions

Every task has a beginning and an end. Users should be clearly notified when a task has been completed

Allow users to undo actions

Human error should be anticipated, and the user given the opportunity to recover from slips, lapses and mistakes

Once the user begins to complete a task, is the option available to discontinue the action?

Does the product give the user an opportunity to confirm high risk actions? (e.g., please confirm to delete this order)

Language

The language should be presented in a form understandable by the intended users

Consistency

Design features should appear uniformly and have consistent meaning throughout the product

If formatting or colors are used, does it add function to the interface, or distract from completion of the task?

Help and documentation

If the user requires assistance, how would they obtain it?

Avoid reliance on user manuals at the point of care. Embedded help is preferred

*Adapted from Zhang, J., Johnson, T. R., Patel, V. L., Paige, D. L., & Kubose, T. (2003). Using usability heuristics to evaluate patient safety of medical devices. *J Biomed Inform*, 36(1-2), 23-30.