Design principles and guidelines for mobile and web interface

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Design principles can guide the designer during the design process and can be used to **evaluate and critique prototype design ideas**. Our list of **high-level design principles**, put together **from Norman, Nielsen and others**, is shown below.

All the principles interact in complex ways, affecting each other, sometimes conflicting with each other and sometimes enhancing each other. However, they help to orientate the designer to key features of good design, with a high degree of usability and inform the designer to important issues. Delivering a product or service with a high degree of usability will result in a better UX.

For ease of memorizing and use, we have grouped them into three main categories – **learnability, effectiveness and accommodation.** Systems should be learnable, effective and accommodating.

- Principles 1–4 are concerned with access, ease of learning and remembering (learnability).
- Principles 5–7 are concerned with ease of use, and principles 8 and 9 with safety (effectiveness).
- Principles 10–12 are concerned with accommodating differences between people and respecting those differences (accommodation).

Designing user experience from a human-centred perspective is concerned with the following.

- **Helping people access, learn and remember the system**

1) **Visibility:** Try to ensure that **things are visible** so that people can see what **functions are available and what the system is currently doing**. This is an important part of the psychological principle that it is easier to recognize things than to have to recall them. If it is not possible to make it visible, make it observable. Consider making things **'visible' through the use of sound and touch**. Avoiding clutter will help to ensure visibility. Attention needs to be paid to the use of appropriate, **non-clashing colors and the careful layout** of information using tables, graphs or text as appropriate.

"You Are Here" indicators on mall maps show people where they currently are, to help them understand where to go next.

2) **Consistency:** Be consistent in the use of language and design features and be consistent with similar systems and standard ways of working. Both conceptual and physical consistency are important.

   Consistency **is a slippery** concept because consistency is always relative. Design will be consistent with respect to some things but may be inconsistent with respect to others. There are also times when to be **inconsistent is a good thing because it draws people's attention** to something that is important.

   On mobile devices, the physical buttons afford pressing, but because of the limited screen space the same button has to do different things at different times.

   Check-in counters are usually located at the front of hotels. This consistency meets customers' expectations.

3) **Familiarity:** Use language & symbols that the intended audience will be familiar with. **Participatory design techniques** (involving people closely in the design process) can be used, and stakeholders can participate in the design process through workshops, meetings and evaluation of design ideas.

4) **Affordance:** Design things so it is clear what they are for, for example, make buttons look like push buttons so people will press them. **Affordance refers to the properties that things have (or are perceived to have) and how these relate to how the things could be used.** Buttons afford pressing, chairs afford sitting on, and Post-it Notes afford writing a message on and sticking next to something else. Items that are not greyed out will afford selecting. Care needs to be taken to ensure that opportunities are easily and correctly perceived.

- **Giving them the sense of being in control, knowing what to do and how to do it**

5) **Navigation:** Menus are the main form of navigation in GUI applications. Provide support to enable people to move around the parts of the system: maps, directional signs and information signs.

6) **Control:** Control is usually left in the hands of the users. They have to initiate actions, although some features that provide security are undertaken automatically.

Many applications, for example, automatically save people's work to help with recovery if mistakes are made. Make it clear who (person) or what (task/command/action) is in control and allow people to take control. Control is enhanced if there is a clear, logical mapping between controls and the effect that they have. Also make clear the relationship between what the system does and what will happen in the world outside the system.

7) **Feedback:** Rapidly feedback **information from the system to people** so that they know what effect their actions have had. Constant and consistent feedback will enhance the feeling of control. Feedback can be provided through sound, such as a beep when a message is received on an email system or a sound to indicate that a file has been safely saved.

- **Safely and securely**

8) **Recovery:** Enable recovery from actions, particularly mistakes & errors, quickly & effectively. A good design will ensure that there is easy error recovery by providing warning signs for drastic actions, such as 'Are you sure you want to destroy the database?'. A good example of designing for recovery is the **Undo** command.

9) **Constraints:** Providing constraints such as **greying out items** on a menu that are not relevant at a particular point, so that people do not try to do things that are unavailable or inappropriate. In particular, people should be prevented from making

serious errors through properly constraining allowable actions and seeking confirmation of dangerous operations.

- **In a way that suits them**

10) Flexibility: Allow multiple ways of doing things so as to accommodate people with different levels of experience and interest in the system. Flexibility is provided with things such as **shortcut keys, allowing more expert users to use combinations of keyboard controls** in place of using menus to initiate commands and navigate through the system. Shortcuts may speed up the interaction for the expert user so that the design can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

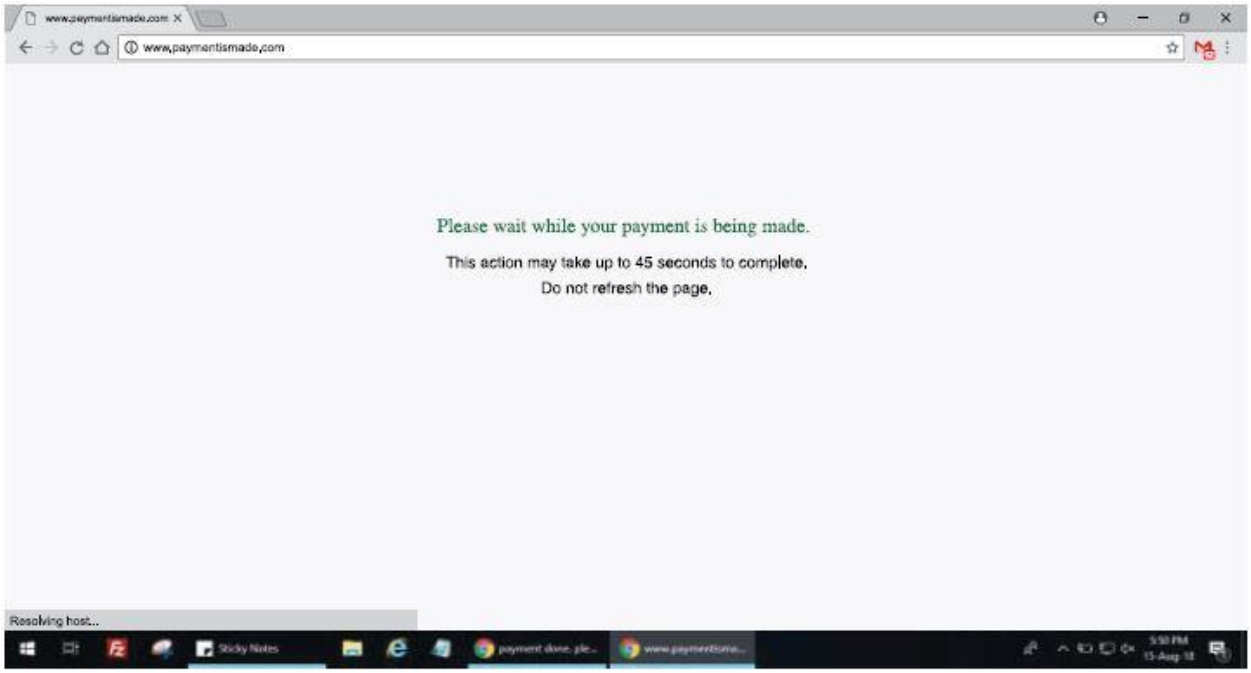
Regular routes are listed on maps, but locals with knowledge of the area can take shortcuts.

11) Style: The use of animation, video and other design features can really develop a whole sense of engagement with the site. Designs should be stylish, appealing and attractive.

12) Conviviality (Pleasantness): Interactive systems should be polite, friendly and generally pleasant. Nothing ruins the experience of using an interactive system more than an aggressive message or an abrupt interruption. Pleasantness also suggests joining in and using interactive technologies to connect and support people.

Issues of recovery, feedback and control figure most highly in shopping sites. There are often long pauses when processing things such as a payment transaction. Feedback is critical here and statements such as ‘this action may take 45 seconds to

complete' are used to persuade people not to do anything while the transaction is processed (Figure below).



Accessibility

Accessibility guidelines for UX designers

1) Create user personas.
2) Design for all platforms and devices.
3) Organize the content logically.
4) Ensure consistency in design.
5) Use accessible fonts.
6) Choose appropriate color contrast.
7) Include alt-text for media content.
8) Provide transcriptions and subtitles.

Designing for Web Accessibility

1) Provide sufficient contrast between foreground and background
2) Don't use color alone to convey information
3) Ensure that interactive elements are easy to identify

4) Provide clear and consistent navigation options
5) Ensure that form elements include clearly associated labels
6) Provide easily identifiable feedback
7) Use headings and spacing to group related content
8) Create designs for different viewport sizes
9) Include image and media alternatives in your design
10) Provide controls for content that starts automatically

Some examples include smartphone's spilt keyboard, automatic doors, large-grip kitchen utensils, e-readers with adjustable print sizes, and everyday voice assistants.

Stories:

Lee is colorblind and encounters barriers when shopping online. He has one of the most common visual disabilities that affect men: red and green color blindness. Lee frequently shops online and sometimes encounters problems on websites and with apps where the color contrast of text and images is not adequate and where color alone is used to indicate required fields and sale prices. When red and green color combinations are used, Lee cannot distinguish between the two, since both look brown to him. It is also very difficult for him to make product choices when color swatches are not labeled with the name of the color.

Lee has better experiences with online content and apps that use adequate contrast and allow him to adjust contrast settings in his browser. He is also better able to recognize when information is required when asterisks are used. Lee can more easily identify the products he would like to purchase, especially clothing, when the color label names are included in the selection options rather than color swatches alone.

More stories: https://www.w3.org/WAI/people-use-web/user-stories/#shopper