Web Accessibility and Web Usability

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Bachelor in Informatics Engineering and Computation (L.EIC)

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Outline

➔ Web Accessibility

➔ Web Usability

➔ Web Usability Patterns

➔ Web Usability Techniques

Web Accessibility

Web sites should be designed to ensure that everyone, including users with disabilities, can use them.

The World Wide Web is a medium that poses a new opportunity to improve content accessibility.

Why?

➔ Access to information and communication technologies is recognized as a **basic human right** by the United Nations.

➔ Promote **equal access and equal opportunity** to people with diverse abilities.

➔ Accessibility **supports social inclusion** for people with disabilities as well as others, such as older people, people in rural areas or people in developing countries.

➔ It is **mandatory by law** for public services in many countries.

Common Disabilities

➔ **Vision**: Blindness, Low vision, Color-blindness.

➔ **Hearing**: Deafness.

➔ **Motor**: Inability to use a mouse, Limited fine motor control skills.

➔ **Cognitive**: Learning disabilities, Inability to remember information.

Assistive Technologies

➔ **Screen readers**

➔ **Screen magnification**

➔ **Text enlargers**

➔ **Alternative input devices**: voice recognition, eye tracking.

➔ [en.wikipedia.org/wiki/Assistive_technology]

W3C Web Accessibility Initiative (WAI)

- "The Web Accessibility Initiative (WAI) develops strategies, guidelines, and resources to help make the Web accessible to people with disabilities." http://www.w3.org/WAI/

- This initiative was launched in 1997 and has several groups working on guidelines, technical reports, educational materials, and other documents related with web accessibility.

- The Web Content Accessibility Guidelines 1.0 were published by the W3C in 1999. The WCAG is a set of guidelines for making web content more accessible to persons with disabilities.

Accessibility Guidelines

➔ Design forms for users using assistive technologies

➔ Do not use color alone to convey information

➔ Enable users to skip repetitive navigation links

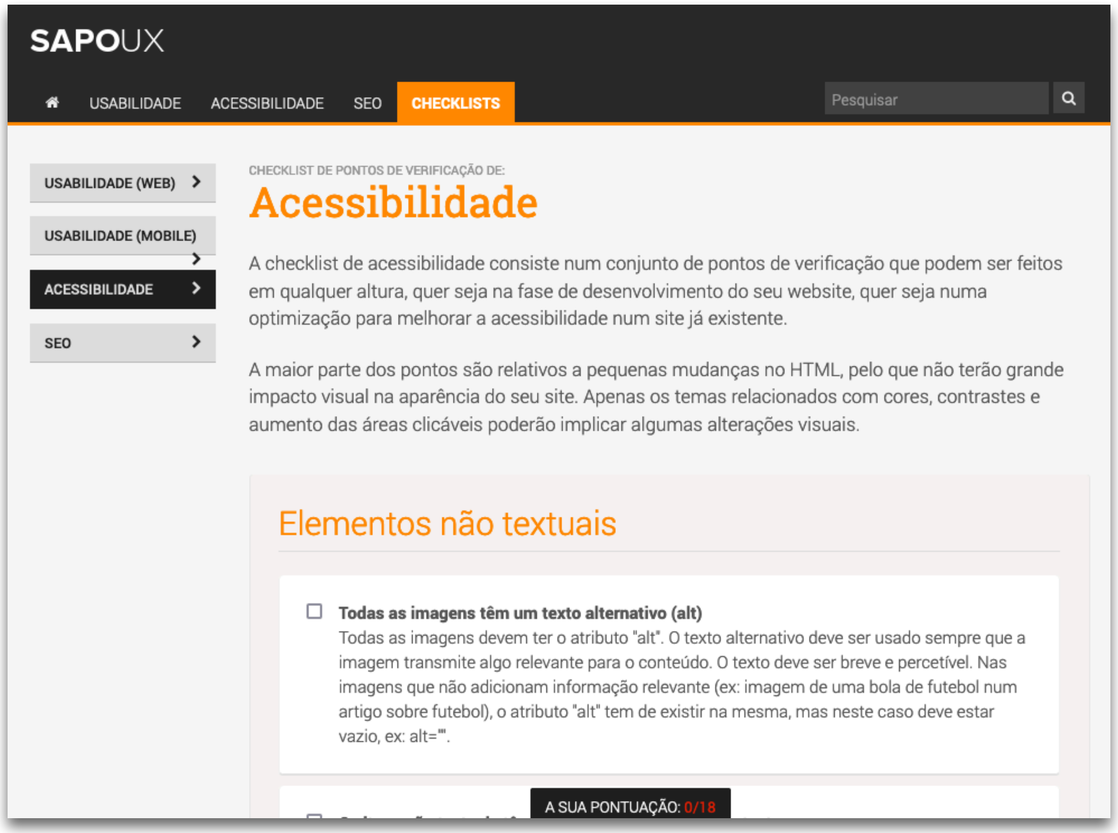
➔ Provide text equivalents for non-text elements

➔ Do not require style-sheets for content readability

➔ Ensure that scripts allow accessibility

SAPO Accessibility Checklist

➔ https://ux.sapo.pt/checklists/acessibilidade/



Accessibility Resources

➔ **W3C Web Accessibility Initiative (WAI)**
www.w3.org/WAI/

➔ **Usability.gov**
www.usability.gov

➔ **WebAIM: Web Accessibility in Mind**
webaim.org/

➔ **acessibilidade.gov.pt**
www.acessibilidade.gov.pt/

Web Usability

Usability is about creating effective user interfaces.

What is Usability?

- Usability corresponds to a combination of factors that affect the user's experience with the application, including:
  - Ease of Learning
  - Efficiency of Use
  - Memorability
  - Error Frequency and Severity
  - Subjective Satisfaction

Challenges in Web Usability

➔ Wide range of users, both in experience and in expectations

➔ Wide range of platforms and technologies

➔ User's experience is formed on other web sites

➔ Web users have a very low tolerance for poor usability

➔ Other products are only a click away

Top Ten Guidelines for Homepage Usability (2002)

1. Include a One-Sentence Tagline
2. Write a Window Title with Good Visibility in Search Engines and Bookmark Lists
3. Group all Corporate Information in One Distinct Area
4. Emphasize the Site's Top High-Priority Tasks
5. Include a Search Input Box
6. Show Examples of Real Site Content
7. Begin Link Names with the Most Important Keyword
8. Offer Easy Access to Recent Homepage Features
9. Don't Over-Format Critical Content, Such as Navigation Areas
10. Use Meaningful Graphics

www.nngroup.com/articles/top-ten-web-design-mistakes-of-2002/

Top Ten Mistakes in Web Usability (1999)

1. Using Frames
2. Gratuitous Use of Bleeding-Edge Technology
3. Scrolling Text, Marquees, and Constantly Running Animations
4. Complex URLs
5. Orphan Pages
6. Long Scrolling Pages
7. Lack of Navigation Support
8. Non-Standard Link Colors
9. Outdated Information
10. Overly Long Download Times

www.nngroup.com/articles/original-top-ten-mistakes-in-web-design/

Top Ten Web Design Mistakes of 2005

1. Legibility Problems — too small. no contrast.
2. Non-Standard Links — identifiable, differentiate visited.
3. Flash — bad use of technology.
4. Content That's Not Written for the Web — short, scannable, to the point.
5. Bad Search — users expect search functions.
6. Browser Incompatibility — don't turn away users that use a different platform.
7. Cumbersome Forms — usually too big. avoid mandatory fields.
8. No Contact Information or Company Information — most common use case.
9. Frozen Layouts with Fixed Page Widths — problems with big/small monitors.
10. Pop-ups — most hated advertising technique.

www.nngroup.com/articles/top-ten-web-design-mistakes-of-2005/

(Some) Basic Principles for Interface Design, Bruce Tognazzini

➔ **Anticipation**
Interfaces should attempt to anticipate the user's wants and needs.

➔ **Consistency**
Make objects consistent with their behavior. Object that act differently should look different.

➔ **Efficiency of the User**
Design for user productivity, not computer productivity.

➔ **Explorable Interfaces**
Make actions reversible. Always allow a way out.

➔ **Fitts' Law**
The time to acquire a target is a function of the distance to and size of the target.

➔ **Latency Reduction**
Reduce the user's experience of latency. Make it work faster.

➔ **Track State**
Track the user state as needed.

➔ **Visible Navigation**
Avoid invisible navigation.

asktog.com/atc/principles-of-interaction-design/

SAPO Usability Checklist

➔ https://ux.sapo.pt/checklists/usabilidade/

Web Design Patterns

➔ Web Design Patterns are recurring solutions that solve common web design problems.

➔ User Interface Design Patterns — ui-patterns.com

➔ Patterns in Interaction Design — www.welie.com/patterns [archived]

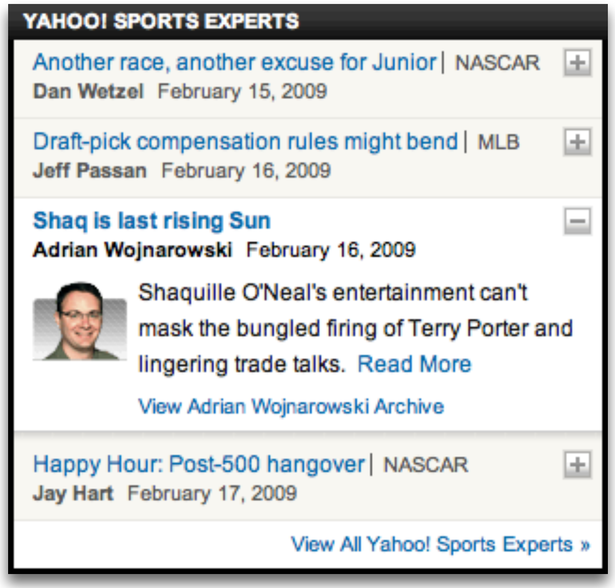
➔ Yahoo! Design Pattern Library — developers.yahoo.com/ypatterns [archived]

Yahoo! Design Patterns

Accordion

➔ "An accordion is a grouped set of collapsible panels that provides access to a large number of links or other selectable items in a constrained space.

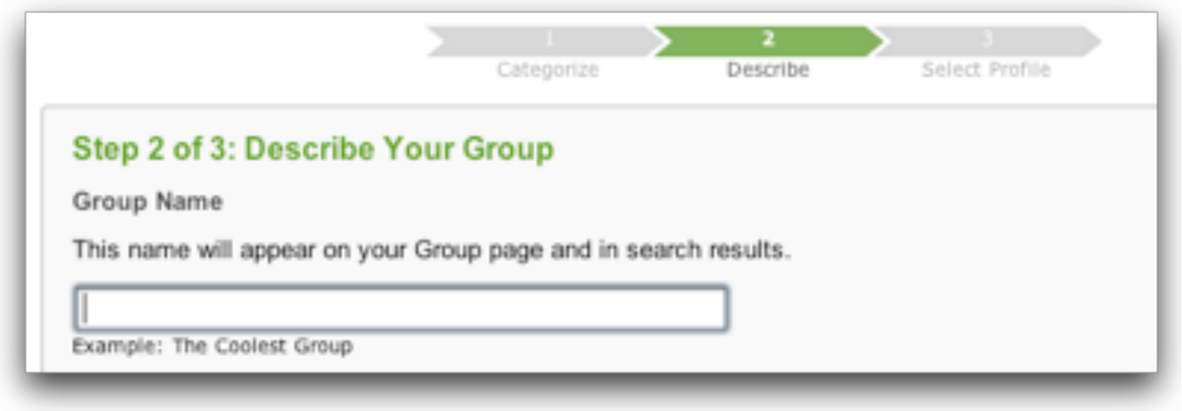
➔ "Use when the number of options is large, the space is constrained, and the list of items can be logically grouped into smaller, roughly equal sized chunks.



Progress Bar

➔ "A progress bar can help set expectations for length of process and for what to generally expect throughout the process, and can also let users know where they are in the flow.

➔ "Use a progress bar in a wizard or other predefined multistep process that the user may only ever have to complete one time, or at most on rare occasions.



Left Navigation Bar

➔ "A left navigation bar provides quick access to categorized content in a horizontally compact display space.

➔ "Use when there are at least 4 categories.
Use when there may be more than 10 categories.
Use when page width is not an issue.
...

Top Navigation Bar

➔ "A top navigation bar provides quick access to categorized content in a vertically compact display space.

➔ "Use when there are 2-12 category titles
Use when the category titles are relatively short and predictable
Use when the number of categories are not likely to change.
Use to present the highest-level navigation options on a single web product.
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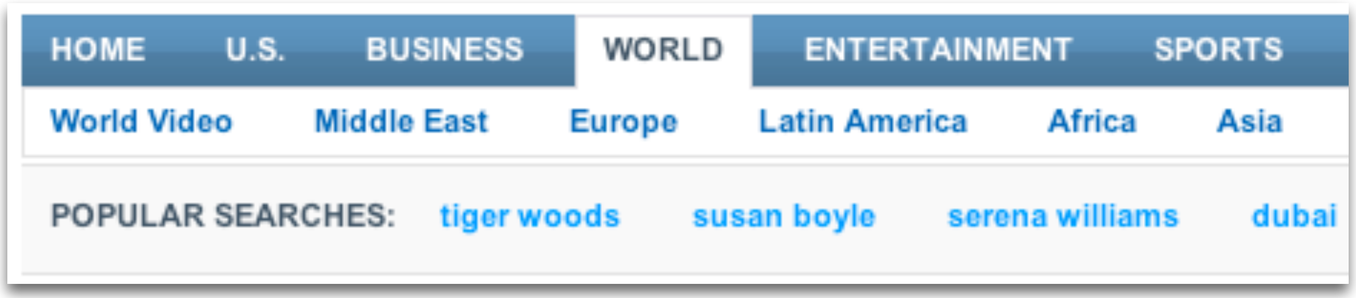


Item Pagination

➔ "The user needs to view a subset of data that will not be easy to display within a single page.

➔ "There is more information than can comfortably fit within one screen.
The items of interest can be usually found on the first few pages.
If the data needs to be explored deeply, consider displaying the content in a scrolled area instead.

Popular Interaction Patterns

➔ **Lazy Registration**
Let the user take actions before forcing them to register, e.g. Amazon.

➔ **Progressive Disclosure**
Show most relevant features or information to user, and delay further details or complex features until requested, e.g. Facebook.

➔ **Breadcrumbs**
Clearly show the path from the front page to the current location.

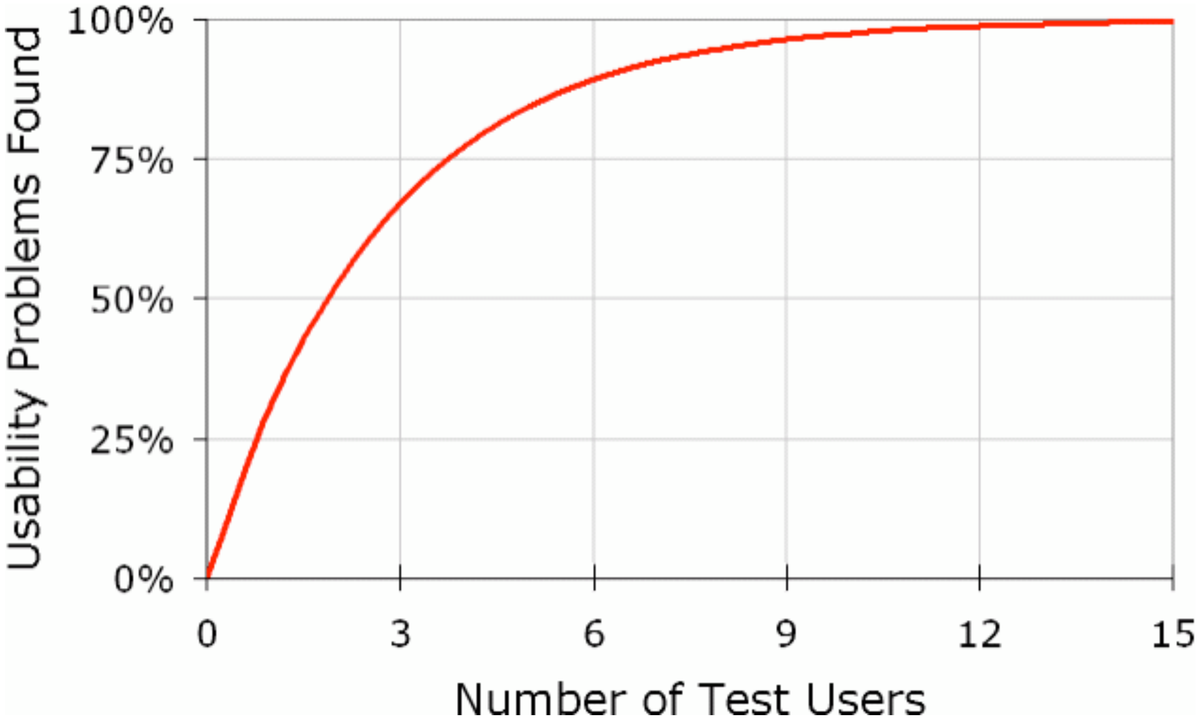
➔ **Account Registration**
Require only necessary information.

➔ **Required Field Marker**
Make obvious the required fields in any form.

Usability Techniques

Web Usability Testing

➔ Testing with only 5 users will find > 80% of the problems.



www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/

Discount Usability

➔ **Simplify User Testing**
Handful of participants, a focus on qualitative studies, and use of the think-aloud method.

➔ **Narrowed-down Prototypes**
Use narrowed-down prototypes, such as paper prototypes, for user testing.

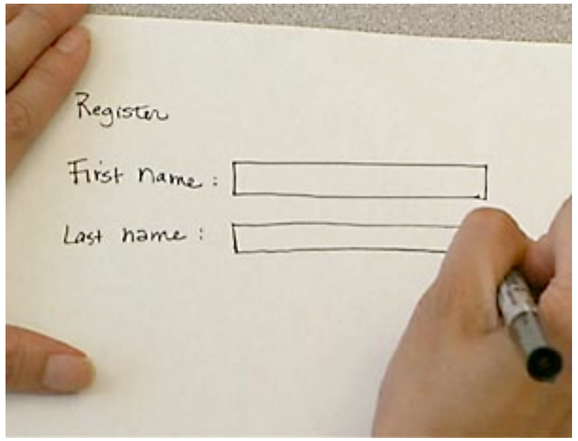
➔ **Heuristic Evaluation**
Inspect user interfaces by comparing them to established usability guidelines.

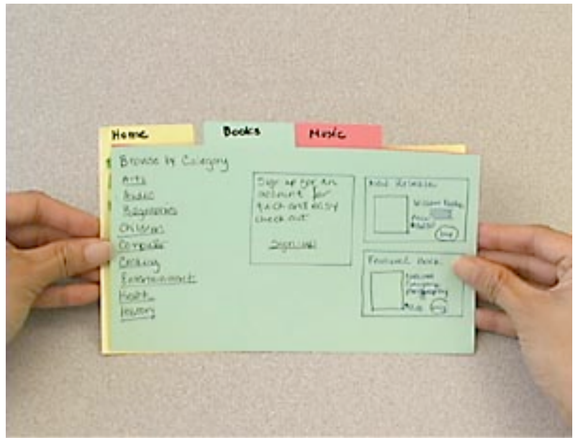
www.nngroup.com/articles/web-discount-usability/

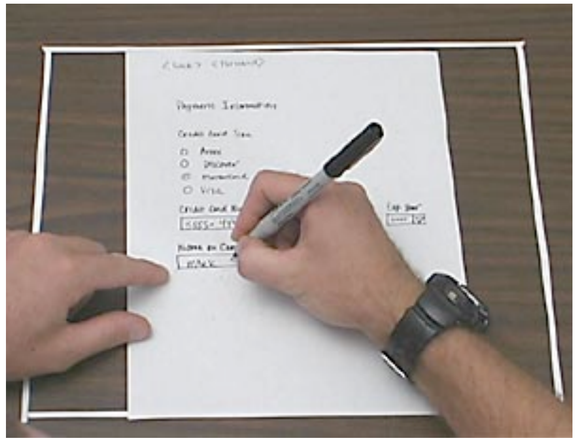
Paper Prototyping

➔ Paper prototyping is one of the fastest and cheapest techniques that can be employed in a user-centered design process.

➔ The biggest improvements in user experience comes from gathering usability data as early as possible. It is estimated to be 100 cheaper to make a change before any code has been written than after the implementation.







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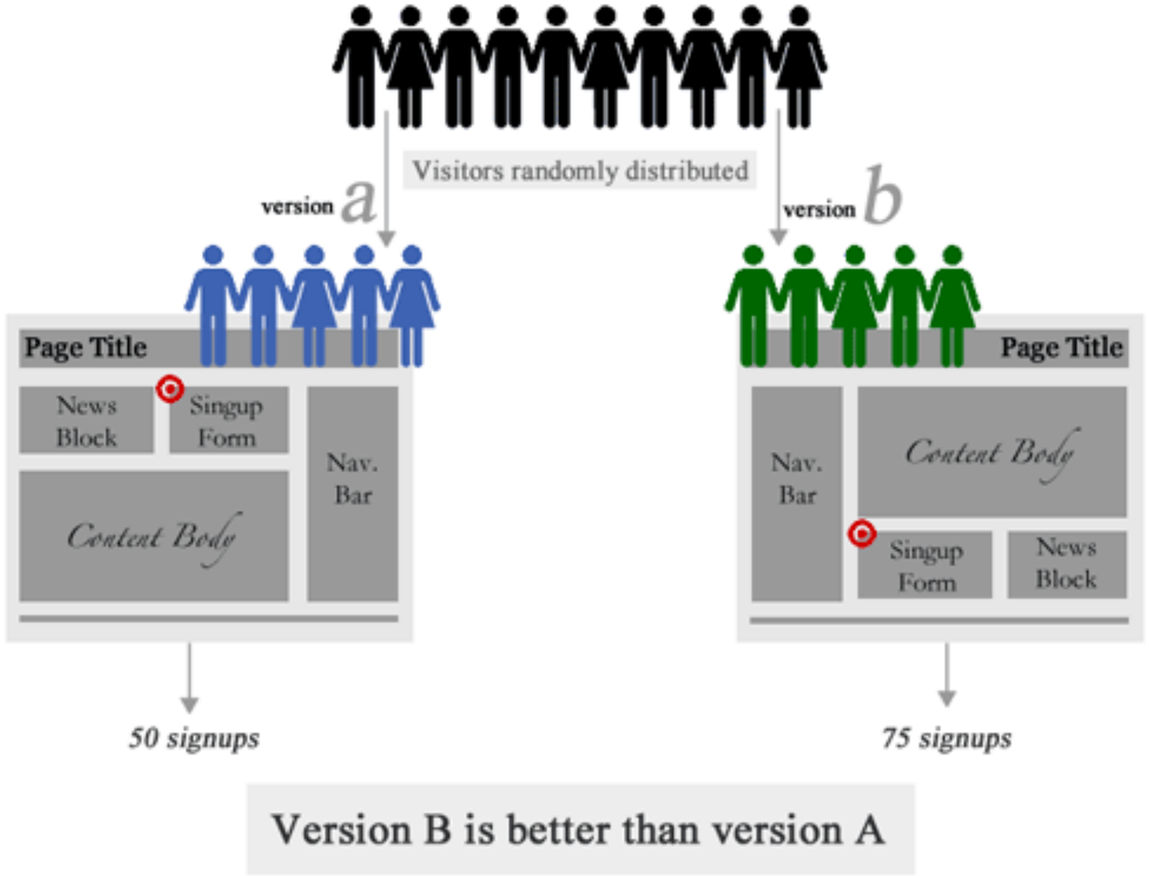
A/B Testing

- ➔ Randomized controlled experiments to evaluate the effects of two different versions (A and B) of a given web site, page or interaction. Two competing designs are shown to real users.
- ➔ Main benefits: measures actual user behavior, can measure very small performance differences, results in objetive measures, is cheap.
- ➔ Limitations: requires a clear, well-defined goal (e.g. sales, subscriptions, clicks), not everything is measured, requires fully implemented designs.

A/B Testing



Source: Smashing Magazine

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  guidelines.usability.gov

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