

Interaction Styles

Paulo Dias, Beatriz Sousa Santos



departamento de electrónica telecomunicações e informática



universidade de aveiro

1

Interaction Styles



“The concept of Interaction Styles refers to all the ways the user can communicate or otherwise interact with the computer system.”

Soegaard, Mads. Interaction Styles, 2010 (Retrieved March 2017)
http://www.interactiondesign.org/encyclopedia/interaction_styles.html

2

Interaction styles – Possible classification



- **Menus**
- Direct manipulation
- Fill-in-forms
- Dialog boxes
- Function keys
- Command languages
- Natural languages
- 3D interfaces
- ...
- Often two or more styles are used simultaneously

3

Outline



- Menu types
- Structure
- Advantages and disadvantages
- User profile
- Design guidelines

5

Not new



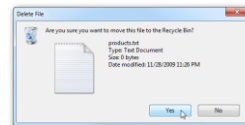
- The concept existed long before computers
- Selection of options
- There are several types

6

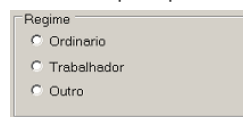
Menus - Single Menu



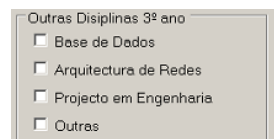
- Selection between one or several items
 - Binary:



– Multiple options:



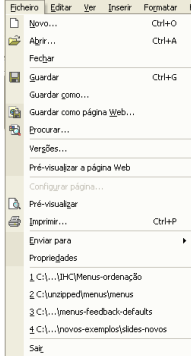
Radio Buttons



Check Box

7

Menus - Pull Down Menus

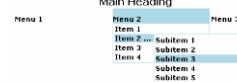
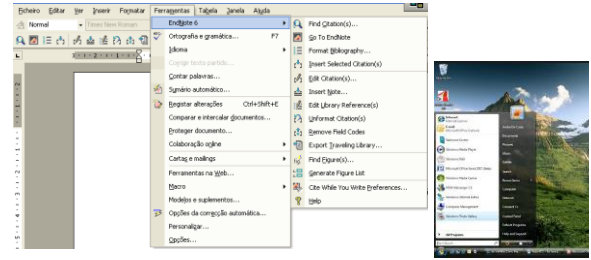


- Always available
- Short cuts

8

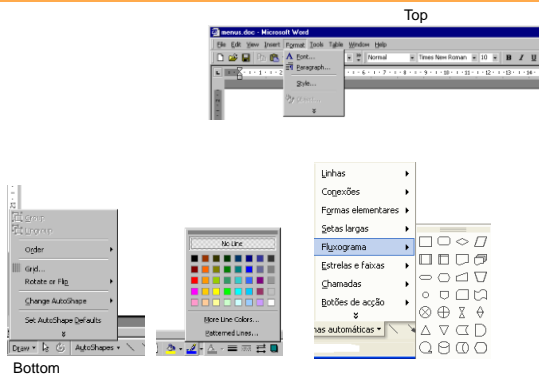
8

Cascading menus



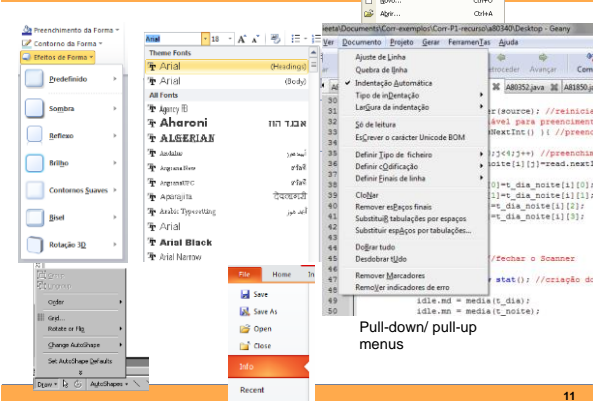
9

Cascading menus - Anchor



10

Textual and Iconic



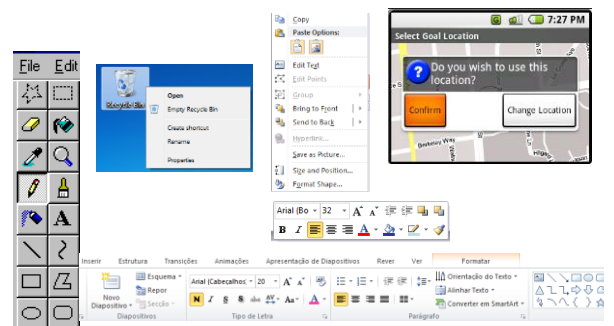
11

Textual and Iconic



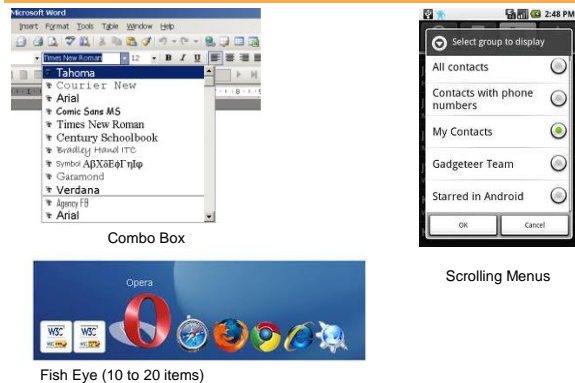
12

Always visible vs Pop-ups



13

Menus – Extensive lists



14

Menus: main advantages and disadvantages

Advantages (potential, i.e. if properly designed)

- Auto-explanatory
- Do not load memory (recognition rather than recall)
- Require little typing
- Prevent syntactic errors
- Visible improvements

Disadvantages

- Not efficient
- Not flexible
- Not practical for many options

16

User profile to whom menus are adequate

- Knowledge and experience:
 - Low system and task experience
 - Frequent usage of other systems
 - Low computational literacy
- Work and task:
 - Low frequency of use
 - No training
 - Optional usage
 - Highly structured tasks

17

Menu design relevant aspects

- Menu structure
- Option ordering
- Option selection
- Menu invocation
- Navigation

18

Menu structure

- Menu structure
 - Adequate the menu structure to the task structure
 - Minimize depth increasing breadth (within reasonable limits)
 - Use an adequate ordering method
 - Indicate currently unavailable options

19

Menu structure

- Find the adequate structure using card sorting:
 - a low-cost method that helps understanding how users expect to find content or functionality



http://www.interaction-design.org/encyclopedia/card_sorting.html

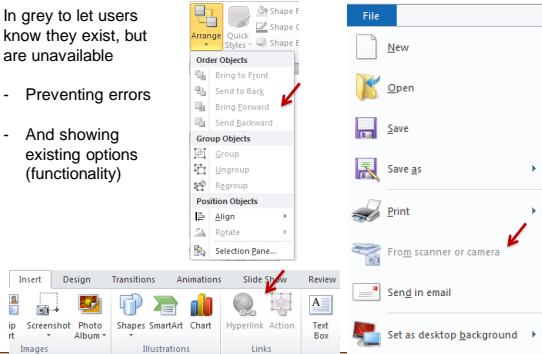
21

Menu design guidelines: selection

Make clear the available options

In grey to let users know they exist, but are unavailable

- Preventing errors
- And showing existing options (functionality)

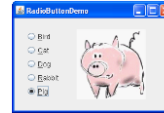


29

29

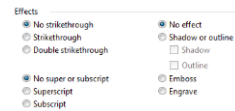
Menu design guidelines: selection

Make clear the difference between choices of only one or several

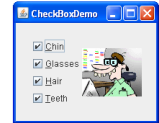


"Radio button": Only a single option can be selected from several mutually exclusive options

https://en.wikipedia.org/wiki/Radio_button



"Check box": Permits to make a binary choice. A series of checkboxes may be presented. The user may select several of the choices



30

30

Menu design guidelines: selection

Number of choices

Select only one alternative:

	Service	From	To
<input type="radio"/>	AP No. 180	06:21	08:22
<input checked="" type="radio"/>	AP No. 130	07:21	09:22
<input type="radio"/>	IC No. 520	07:31	09:52

Possible to select more than one alternative:

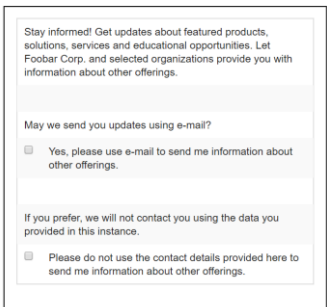


31

31

Menu design guidelines: selection

- Bad example



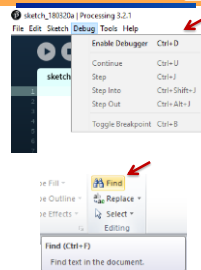
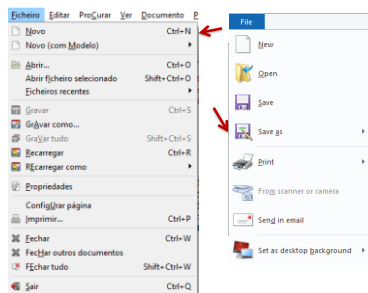
<https://www.nngroup.com/articles/checkboxes-vs-radio-buttons/>

32

32

Menu design guidelines: selection

Show alternative ways of accessing the same functionality



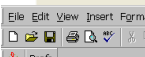
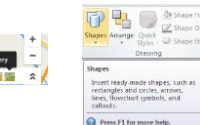
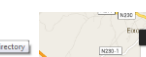
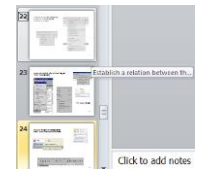
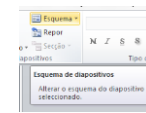
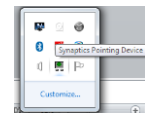
Use accelerators (Flexibility and efficiency of use)

33

33

Menu design guidelines: selection

Include tooltips describing options if the names or icons are not clear

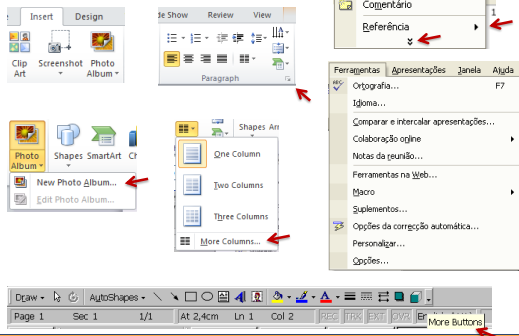


34

34

Menu design guidelines: selection

Make clear that there are more options

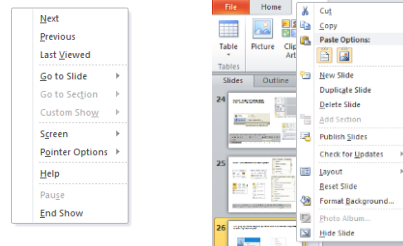


35

35

Menu design guidelines: invocation

- Use pop-up menus (context menus) only for experienced users or when it is very important not to take up screen spaces



(e.g.: during a Power Point presentation)

36

36

Menus design guidelines - summary

- Adequate the menu structure to the task structure
- Minimize depth increasing breadth (within reasonable limits)
- Use an adequate ordering method
- Be coherent (design, option names, etc.)
- Give selection feedback to the user
- Include tooltips if names or icons are not auto-explanatory
- Indicate currently unavailable options
- Etc.

45

45

Main Bibliography

- Shneiderman, B., C. Plaisant, M. Cohen, S. Jacobs, *Designing the User Interface- Strategies for Effective Human-Computer Interaction*, 5th ed., Addison Wesley, 2010
- Soegaard, Mads. *Interaction Styles*, 2010 (Retrieved March 2018) http://www.interactiondesign.org/encyclopedia/interaction_styles.html
- Hudson, W., Card Sorting. In: Soegaard, Mads and Dam, Rikke Friis (eds.). "The Encyclopedia of Human-Computer Interaction, 2nd Ed.". Aarhus, Denmark: The Interaction Design Foundation, 2013 (Retrieved March 2018) http://www.interaction-design.org/encyclopedia/card_sorting.html

47

47