

FLUENCY⁶

with information technology

SKILLS, CONCEPTS, & CAPABILITIES



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Chapter 2

*Exploring the
Human-Computer
Interface*

Learning Objectives

- Give names to computing features that you know intuitively
- Explain how “metaphor” is used in computing
- Describe the desktop metaphor, giving examples of appropriate icons
- Describe the touch metaphor, giving sample motions
- Explain how the desktop and touch metaphors differ

Feedback

- **Feedback** is an indication that either the computer is still working or it is done
- Feedback takes many forms:
 - The revision is visible
 - Areas on the screen become highlighted, shaded, gray, underlined, color change, or you might hear a click

Consistent Interface

- Regardless of who makes the software, icons and menus tend to be similar
 - Look for similar menu names, like *File* and *Edit*
 - Look for similar functions within the menus, like *Cut*, *Copy*, *Paste* in the *Edit* menu
 - Especially so within a specific company (Microsoft for example)
 - SCCM console inconsistencies

Consistent Interface

- Why?
 1. Companies reuse the same code in each of their applications
 2. Aids **you** in learning and using additional applications
 3. Certain operations are so fundamental to processing that all apps just use those operations
 4. Helps us learn as we “click around” and “blaze away”

Perfect Reproduction

- Computers encode information as a sequence of binary digits, 0's and 1's
- Because of the use of two *digits*, we call it **digital information**
- Using only 0's and 1's means that digital information can be perfectly reproduced or replicated

10010111 10101100 11001010

Exact Duplicate

- A second copy is made simply by duplicating the sequence of 0's and 1's
- This is one way digital improves on *analog* information
 - Analog information comes from or is stored on a continuously variable medium
 - A copy of an image, for example, could come out too dark or too light when compared to the original

The Perfect Reproduction Property of Digital Information

- It also doesn't matter where the copy came from:
 - Both the original and the copy are the same sequence of 1's and 0's
 - Every copy can be made from the last copy, and still be identical to the original!

Metaphors

- In computing, a **metaphor** is an icon or image used as representative or symbolic of a computation
- When designers create a technology, they use metaphors to help users know how to operate their devices without reading a manual
- Metaphors are a terrific solution!

The Desktop

- In the '70s the first personal computer (the Alto) was developed by Xerox
- It introduced a graphical user interface instead of the (usual) text user interface
- Since the Alto was designed for office use, the metaphor that was used for the screen was *desktop*
 - Other office metaphors: *files, folder, documents*

Changing Metaphors

- A new idea, the *touch* metaphor
 - Users touch the content, smart phones, tablets, and other mobile devices
 - Example: the Cover Flow mechanism for scanning through a list, using a sweeping motion of the pointer



Metaphor Relationships

- The touch metaphor is intended to simplify the use of smart phone and tablets
- This technology is not new (use of stylus and touch screen interaction at kiosks)
- Touch has no mouse
- It's possible to use the touch metaphor with a trackpad or mouse so it is not limited to mobile devices

Why is *Touch* a Metaphor?

- It changes how humans *interact* with the computer
 - Scrollbars using the desktop metaphor for moving through a display
 - Small screens don't have room for scrollbars
 - Direction of motion is opposite between touch and desktop metaphors
 - With the touch metaphor, your hands are “on” the content

Summary of Metaphors

- We use technical metaphors daily
 - They are 100 percent synthetic, created by imagination of the developers
 - They are meant to simplify the use of the devices.
- The touch metaphor will not replace the desktop metaphor
- Both have extensively determined how we think and behave with technology

Summary

- We can figure out software because designers use consistent interfaces, suggestive metaphors, and standard functionality
- We should explore a new application by “clicking around” and “blazing away”
- Making exact copies is a fundamental property of digital information that we use daily

Summary

- *Find* and *ReplaceAll* are standard operations that simplify our computer use
- Metaphors are essential to computer usage because they guide us in learning and using software
- The desktop metaphor is classic; the touch metaphor is newer; they will co-exist