
LUT
University

Intro to Usability and Usability Characteristics

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Slide set based on Dr. Victoria Palacin’s contributed lecture material

so… what is usability?

the official ISO 9241-11 defines **usability** as:

“the extent to which a product can be used by specified users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use.”

the characteristics of usable products (aka usability goals)

- effective to use (effectiveness)
- efficient to use (efficiency)
- safe to use (safety)
- having good utility (utility)
- easy to learn (learnability)
- easy to remember how to use (memorability)
- accessible!

questions to assess the usability of an interactive system

not helpful:

- is the system easy to learn?

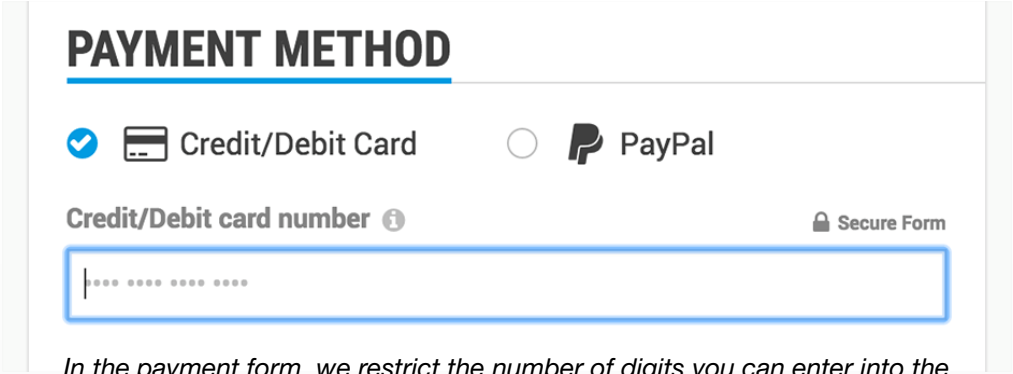
helpful:

- how long will it take a user to figure out how to use the most basic functions for a new smartwatch
- how much can they capitalize on from their prior experience?
- how long would it take a user to learn the whole set of functions?

effectiveness

how good a product is at doing what it is supposed to do

can users can complete their goals with a high degree of accuracy?

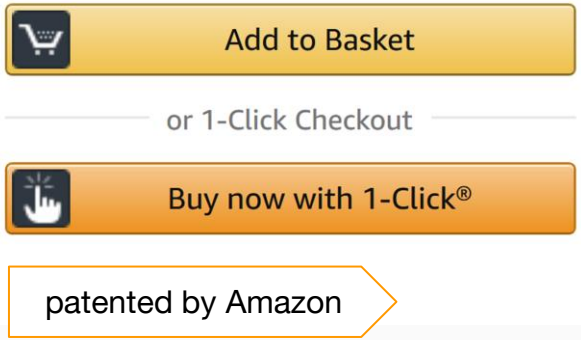


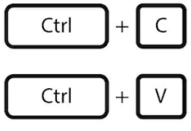
In the payment form, we restrict the number of digits you can enter into the credit card number field to reduce data entry errors.

- provide support
- use clear and simple language (ideally 6th-grade level)
- use the right level of technicality
- increase redundancy in navigation

efficiency

how good is a product supporting users in carrying out their tasks.
how fast can the user get the job done?





- examine the number of steps to achieving the objective
- clearly labeled navigation buttons with obvious uses help a lot!
- supporting common tasks by using single button or key presses
- examine how your users prefer to work (e.g. smartphone vs desktop)

safety

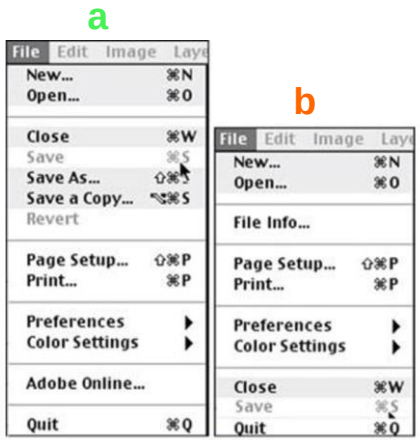
how well does a product protect the user from dangerous conditions and undesirable situations

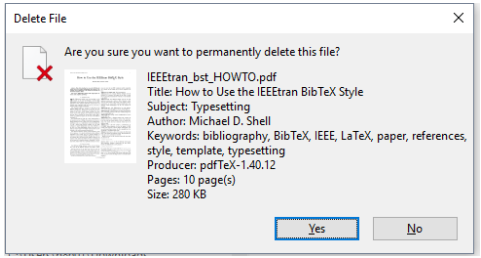
- **level 1: ergonomic aspect** (conditions related with the context of use)
  - for example, where there are hazardous conditions operators should be able to interact with and control computer-based systems remotely.

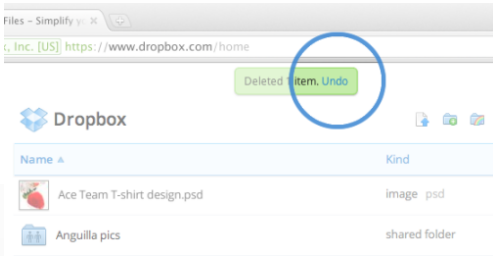
safety

what is the range of errors that are possible using the product and what measures are there to permit users to recover easily from them?

- **level 2: unwanted actions (help avoid accidents)**
  - reduce the risk of wrong keys/buttons being mistakenly activated
  - provide users with various means of recovery should they make errors.
  - include safety mechanisms such as undo and confirmatory boxes to give users another chance to consider their intentions





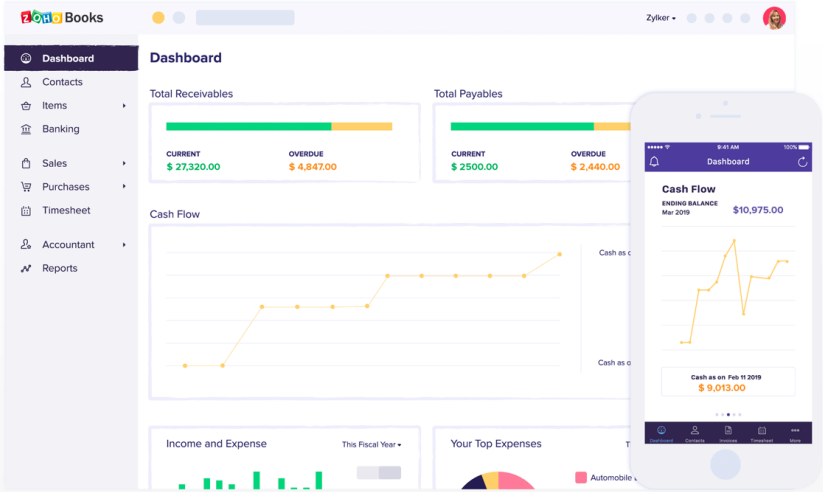


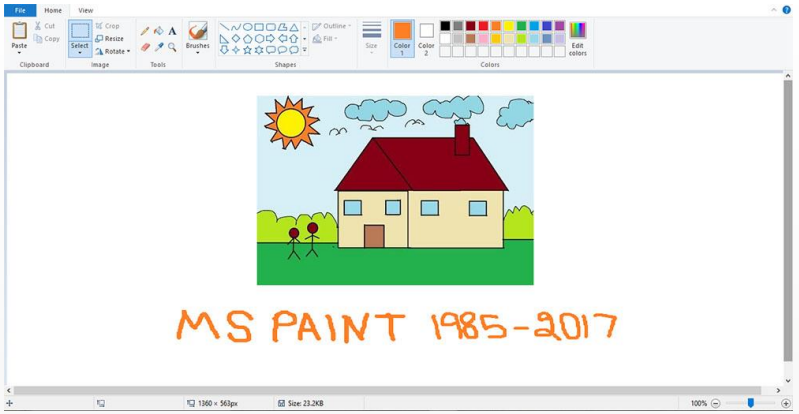
safe interactive systems should engender confidence and allow the user the opportunity to explore the interface to try out new operations

utility

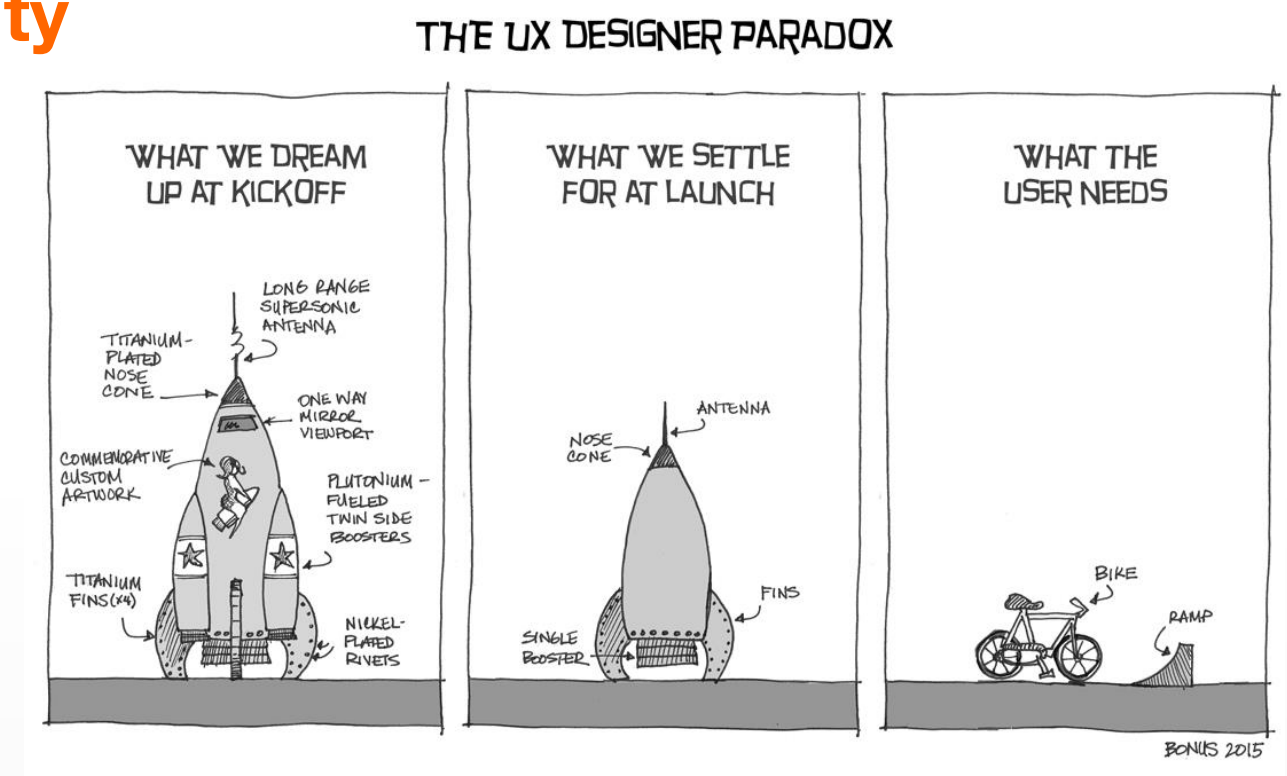
the extent to which the product provides the right kind of functionality so that users can do what they need or want to do

does the product provide an appropriate set of functions that will enable users to carry out all their tasks in the way they want to do them?





utility



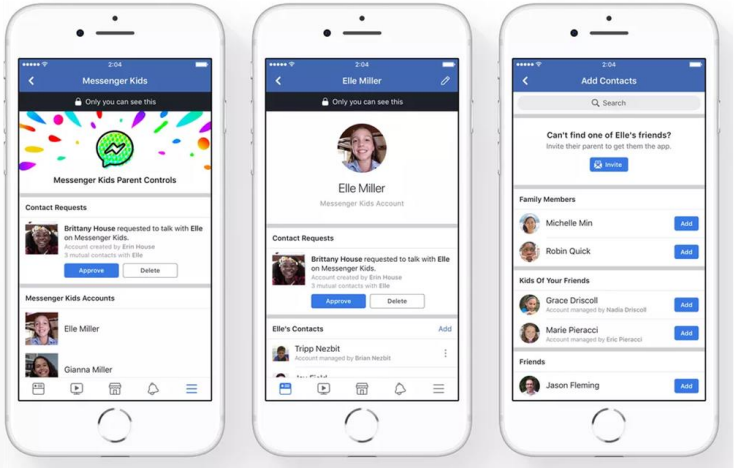
https://uxmag.com/content/comic-the-ux-designer-paradox

learnability

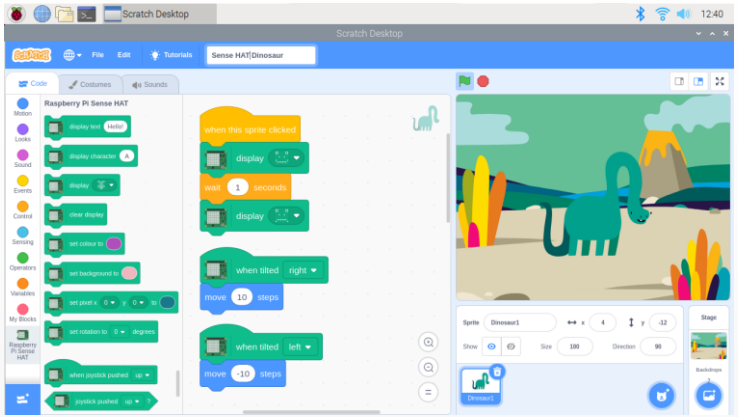
how easy a system is to learn to use.

is it possible for the user to work out how to use the product by exploring the interface and trying certain actions?

how much time would you be willing to spend to learn to use:



vs

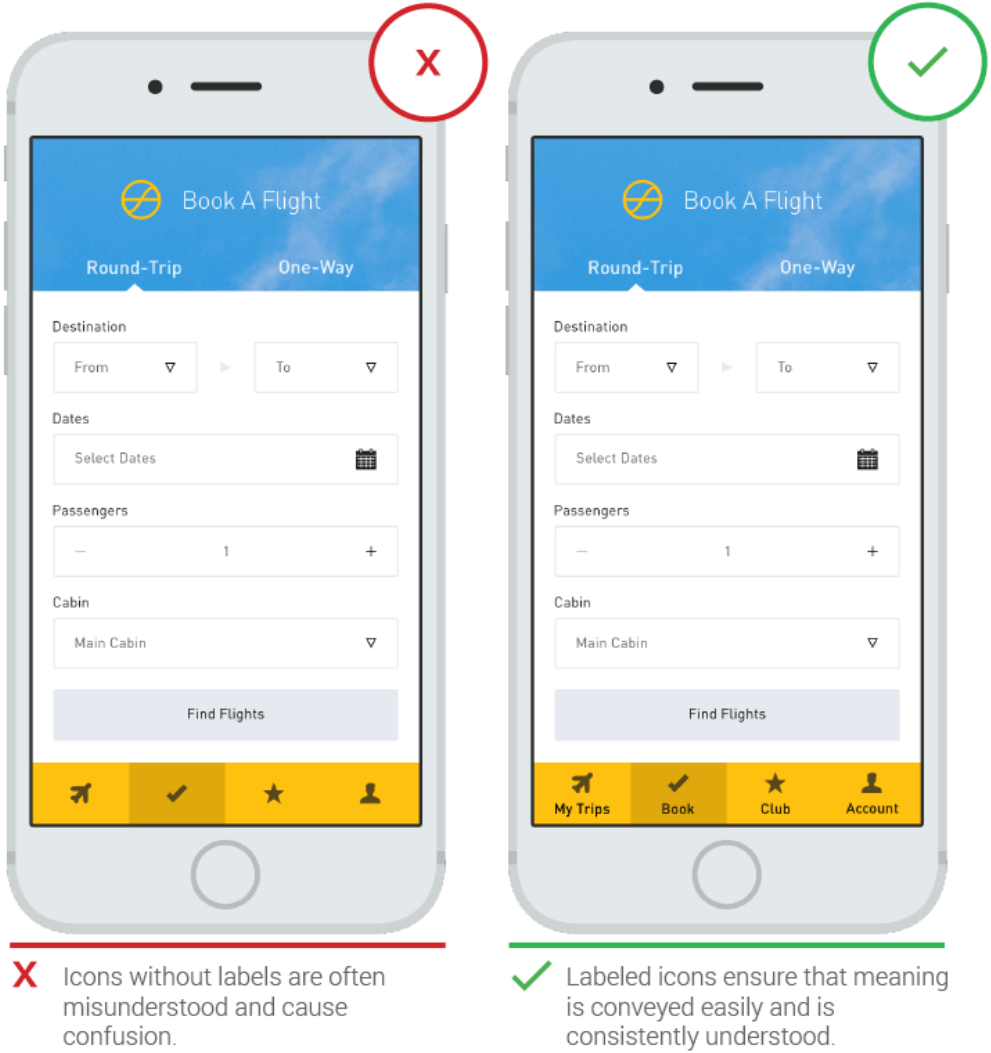


memorability

once learned, how easy is to remember how to use a product

what kinds of interface support have been provided to help users remember how to carry out tasks, especially for products and operations they use infrequently?

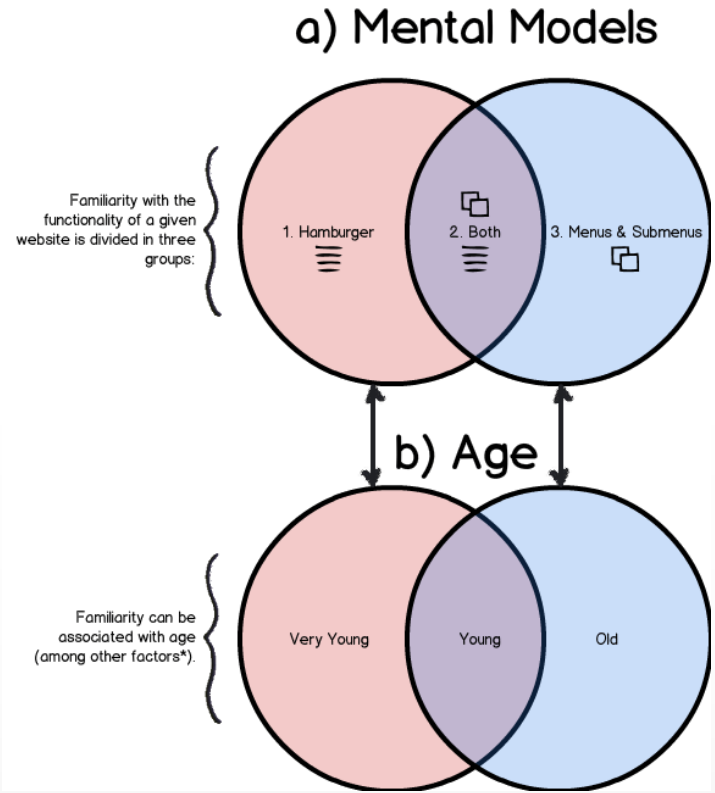
- use icons according to your user



X Icons without labels are often misunderstood and cause confusion.

Labeled icons ensure that meaning is conveyed easily and is consistently understood.

the hamburguer icon problem



https://www.smashingmagazine.com/2016/10/icons-as-part-of-a-great-user-experience/

accessibility

refers to the extent to which an interactive product is accessible by as many people as possible.

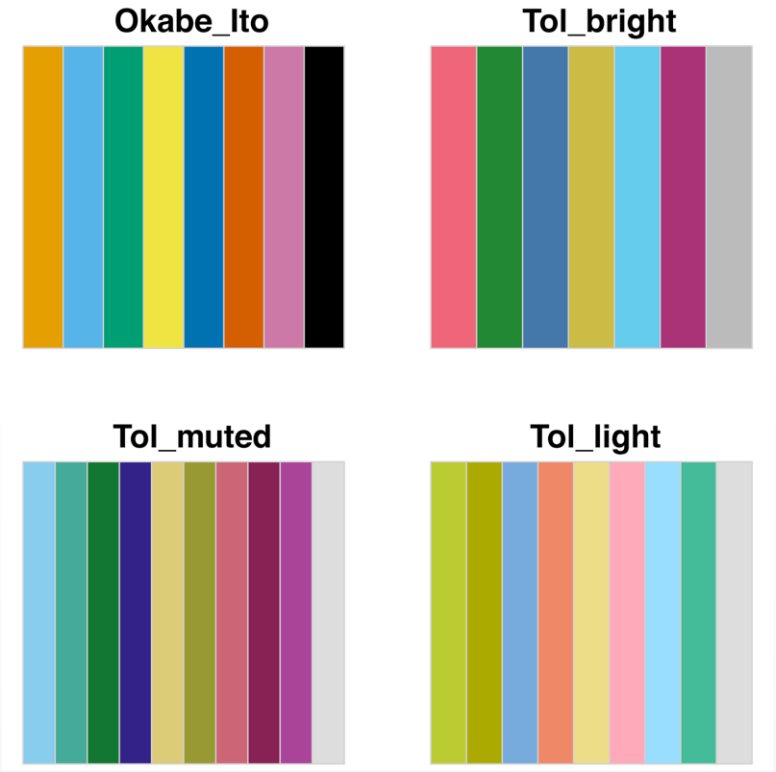
accessible vs assistive?

here, disability is the result of poor interaction design between a user and the technology, not the impairment alone.

how to achieve accessibility?

inclusive design of technology

- understand different types of impairments
  - sensory
  - physical
  - cognitive
- color blindness may be the easiest to overcome with design
- fewer than 20 percent of people are born with a disability, whereas 80 percent of people will have a disability once they reach 85.



how to achieve accessibility?

design of assistive technology

- some types of impairment need assistive technology
- people who use assistive technology, consider them to be life-essential and an extension of their self
- examples include wheelchairs (people now refer to “wearing their wheels”) and augmented and alternative communication aids.

why is usability important?

from a human perspective:

- using technology should be easy and pleasant
- increased well-being
- positive experiences
- reduced stress
- productivity
- loyal and satisfied users

from a company's perspective:

- easier to sell & marketing
- more stars & good reviews
- less training costs
- more revenue
- less maintainability cost
- competitive advantage!