THE UNIVERSITY of ADELAIDE

Web and Database Computing

adelaide.edu.au

UX: Cognitive & Kinematic Load

How can we make user interfaces easier to use?

Performance Load

"Good design doesn't get in the way"

The usability of an interface can be simplified to two general principles:

- Cognitive Load
  - How much thought does a task require?
- Kinematic Load
  - How much effort does a task require?

Together, these are commonly also known as Performance Load

https://uxdesign.cc/designing-performance-load-a5ff8e3159d5

Cognitive Load

Consider this door:

Cognitive Load

Cognitive load describes the amount of thought/mental work required to complete a given task.

- The lower the cognitive load, the less a user needs to think about how to use our system.
  - The more they can enjoy it.
- Systems should be intuitive for end users.
  - Aim to remove the need for instructions.

Minimising Cognitive Load

"Don't make me think!"

Affordance

- Make the actions that users want to take easily accessible and readily percievable.
- Use icons/symbols that clearly reflect the meaning of what they are used for.

Consistency

- Use consistent style/layout.
- Both in relation to other parts of your site, and other sites.

Minimising Cognitive Load

"Don't make me think!"

Simplicity

- Avoid clutter

Choice of Words

- Use words that match the user's goals
- Use common language; avoid jargon

Kinematic Load

Consider this kitchen:

Kinematic Load

Kinematic load describes the amount of physical work required to complete a given task.

- The lower the kinematic load, the less a user needs to do to use our system.
  - The more they can enjoy it.
- Systems should require as little physical effort to use as possible.
  - Aim to remove excessive/extraneous actions.

Minimising Kinematic Load

"Don't make me work!"

Proximity

- Related objects should be close to each other...
- Positioning objects that are likely to be used together far away from each other creates extra effort to interact with them.

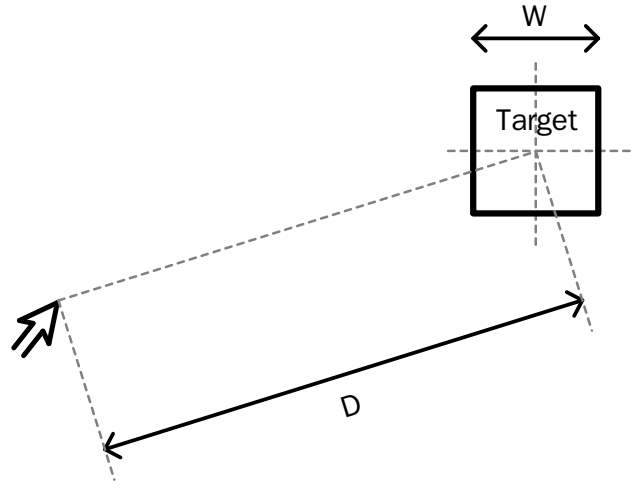
Layers

- Avoid hiding controls multiple layers/menus/dialogs/pages deep.
- Keep frequently used controls always available

Minmise Kinematic Load

Fitt's Law

- Model of human movement primarily used in human–computer interaction and ergonomics.
- Provides a way to quantify Kinematic load.
- The amount of time/ease for a person to touch a target area is a function of the ratio between the distance to the target and the width of the target (in the direction of travel).
  - Larger controls are easier to interact with.
  - Closer controls are easier to interact with.
  - Controls close to screen edges are easier to interact with.



Source https://en.wikipedia.org/wiki/Fitts%27s_law

Summary

- Minimising Performance load improves user experience
- Cognitive Load; mental effort needed
  - Try to make everything as intuitive as possible.
- Kinematic Load; physical effort needed
  - Try to make everything easy to access.

THE UNIVERSITY
of ADELAIDE