



Copyrighted Material
REVISED & EXPANDED EDITION

The DESIGN
of EVERYDAY
THINGS



DON
NORMAN

Copyrighted Material

**THE COMPLEXITY
OF MODERN DESIGN**
pp 4-22

THE COMPLEXITY OF MODERN DESIGN

All artificial things are designed.

Products fulfill human needs.

Products should also give us delight and joy.

THE COMPLEXITY OF MODERN DESIGN

They must satisfy the requirements of engineering, manufacturing and ergonomics.

Attention must also be paid to the entire experience:

- Aesthetics of form**
- The quality of interaction**

MAJOR AREAS OF DESIGN

INDUSTRIAL DESIGN

INTERACTION DESIGN

EXPERIENCE DESIGN

INDUSTRIAL DESIGN

The **professional service** of creating and developing concepts and specifications that optimize the **function, value and appearance** of products and systems for both **the benefit of user and manufacturer.**

(The Industrial Society of America website)

INTERACTION DESIGN

How people interact with technology. **The goal is to enhance people's understanding** of what can be done, what's happening and what has occurred.

It draws on **the principles of psychology, design, art and emotion** to ensure enjoyment of the total experience.

EXPERIENCE DESIGN

The practice of designing products, processes, services, events and environments with **a focus placed on the quality and enjoyment of the total experience.**

THE DESIGN OF THINGS

Design is concerned with how things work, how they are controlled and the nature of the interaction between the user and technology.

THE DESIGN OF THINGS

Machines usually follow simple, rigid rules of behavior.

Many of these rules followed by a machine are known by the machine and its designers.

THE DESIGN OF THINGS

Fail to follow these hidden rules and the machine does the wrong thing.

The user is blamed for not understanding the machine and not following the rigid specifications.

THE DESIGN OF THINGS

This is because **engineers are trained to think logically.**

They design for people the way they would like people to use them, not for the way people really are.

Machines should be designed on the assumption that people will make errors.

HUMAN-CENTERED DESIGN

(HCD)

HUMAN CENTERED DESIGN

Good design starts with an understanding of psychology and technology.

Good design requires good communications.

This communication is especially important from machine to person.

HUMAN CENTERED DESIGN

It is a design philosophy.

It starts with a good understanding of people and the needs that the design is intended to meet.

The understanding comes about primarily through observation.

HUMAN CENTERED DESIGN

Experience design, industrial design and interaction design are areas of focus.

Human-Centered Design is a process that ensures that the designs match the needs and capabilities of the people for whom they are intended.

HUMAN CENTERED DESIGN

FUNDAMENTAL PRINCIPLES OF INTERACTION

FUNDAMENTAL PRINCIPLES OF INTERACTION

Great designers produce pleasurable experiences.

Cognition and emotion are tightly intertwined.

Designers must design with both in mind.

FUNDAMENTAL PRINCIPLES OF INTERACTION

- 1. Affordances**
- 2. Signifiers**
- 3. Constraints**
- 4. Mappings**
- 5. Feedback**
- 6. The Conceptual Model**

FUNDAMENTAL PRINCIPLES OF INTERACTION

AFFORDANCES

FUNDAMENTAL PRINCIPLES OF INTERACTION: **AFFORDANCES**

The relationship between a physical object and a person.

A chair **affords** (is for) support — it affords sitting

The presence of an **affordance** is jointly determined by the qualities of the object and abilities of the agent that is interacting.

FUNDAMENTAL PRINCIPLES OF INTERACTION: **AFFORDANCES**

AN EXAMPLE: A pane of clear glass.

AFFORDANCE: Seeing through and support.

ANTI-AFFORDANCE: The blockage of passage.

FUNDAMENTAL PRINCIPLES OF INTERACTION: **AFFORDANCES**

Affordances exist even if they are not visible.

Perceived affordances help people figure out what actions are possible without the need for labels or instructions.

This signaling component of affordances is called signifiers.

FUNDAMENTAL PRINCIPLES OF INTERACTION

SIGNIFIERS

FUNDAMENTAL PRINCIPLES OF INTERACTION: **SIGNIFIERS**

The term **signifier** refers to any mark or sound, any perceivable indicator that communicates appropriate behavior to a person.

Signifiers can be deliberate and intentional – the sign PULL on a door.

FUNDAMENTAL PRINCIPLES OF INTERACTION: **SIGNIFIERS**

They can also be accidental or unintentional — a visible trail or path through a field made by people previously walking through

FUNDAMENTAL PRINCIPLES OF INTERACTION: **SIGNIFIERS**

A BOOKMARK

A deliberately placed **signifier** of a person's place in reading a book.

The physical nature of books makes bookmarks a **signifier**.

How much remains, how much has been completed.

Electronic book readers are different. How?

FUNDAMENTAL PRINCIPLES OF INTERACTION: **SIGNIFIERS**

Simply put, **signifiers** are signals.

They can be signs, labels, drawings — infographics.

Push, pull or exit on doors.

Some **signifiers** are the perceived affordances — the handle of a door or the physical nature of a switch.

FUNDAMENTAL PRINCIPLES OF INTERACTION: **SIGNIFIERS**

In design, **signifiers** are more important than affordance because they communicate how to use the design.

Hand-lettered signs pasted on a door is an example of poor design.

FUNDAMENTAL PRINCIPLES OF INTERACTION

CONSTRAINTS

FUNDAMENTAL PRINCIPLES OF INTERACTION: **CONSTRAINTS**

Identifies the limitations of user, designed object and intended purpose.

Sets the range of operability.

Recognizes the range of performance of the object.

Does not limit the scope of purpose

FUNDAMENTAL PRINCIPLES OF INTERACTION

MAPPINGS

FUNDAMENTAL PRINCIPLES OF INTERACTION: **MAPPINGS**

A technical term borrowed from mathematics.

The relationship between the elements of two sets of things.

Consider:

- **Light switches**
- **Steering wheels**

FUNDAMENTAL PRINCIPLES OF INTERACTION: **MAPPINGS**

Some natural mappings are cultural or biological.

- Upward movement: more**
- Downward movement: less**

A device is easy to use when the set of possible actions is visible

When the controls and displays exploit natural mappings

FUNDAMENTAL PRINCIPLES OF INTERACTION

FEEDBACK

FUNDAMENTAL PRINCIPLES OF INTERACTION: **FEEDBACK**

Feedback = communicating the results of an action

Feedback must be immediate, even a delay of 1/10 second can be disconcerting

Feedback must be informative

Poor feedback can be worse than no feedback

Too much feedback can be even more annoying than too little

FUNDAMENTAL PRINCIPLES OF INTERACTION: **FEEDBACK**

Feedback must be planned.

All actions must be confirmed.

Feedback must be prioritized with unimportant information presented in an unobtrusive manner

Important signals must be presented in a way that captures attention

FUNDAMENTAL PRINCIPLES OF INTERACTION

THE CONCEPTUAL MODEL

FUNDAMENTAL PRINCIPLES OF INTERACTION: **THE CONCEPTUAL MODEL**

A conceptual model is an explanation of how something works.

It is usually highly simplified.

Files, folders and icons on a computer screen...

FUNDAMENTAL PRINCIPLES OF INTERACTION: **THE CONCEPTUAL MODEL**

**They help people create conceptual models of documents
and folders inside the computer . . .**

Or of apps residing on the screen.

In many cases the actual material can be “in the cloud.”

FUNDAMENTAL PRINCIPLES OF INTERACTION: **THE CONCEPTUAL MODEL**

There are often multiple conceptual models of a product or device.

The simpler ones are “mental models.”

FUNDAMENTAL PRINCIPLES OF INTERACTION: **THE CONCEPTUAL MODEL**

CONSIDER A PAIR OF SCISSORS

The number of possibilities are limited

Holes are there to put something into

The logical thing to fit are fingers

FUNDAMENTAL PRINCIPLES OF INTERACTION: **THE CONCEPTUAL MODEL**

The holes are affordances – they allow fingers to be inserted

The holes are signifiers – they indicate where the fingers are to go

The mapping between the holes and fingers – the set of possible operations – **is signified and constrained by the holes.**

FUNDAMENTAL PRINCIPLES OF INTERACTION: **THE CONCEPTUAL MODEL**

The operation is not sensitive to finger placement.

Use the wrong fingers and it will still work — a bit uncomfortably

You can figure out the the scissors because the operating parts are visible and the implications are clear.

The conceptual model is obvious with effective use of signifiers, affordances and constraints.

FUNDAMENTAL PRINCIPLES OF INTERACTION: **THE CONCEPTUAL MODEL**

A good conceptual model allows us to predict the effects of our actions.

For everyday things good conceptual models need not be very complex.

Scissors, pens and light switches are good conceptual models.

Emotional Design

"The book pops with fresh paradigms, applying scientific rigor to our romance with the inanimate. You'll never see housewares the same again." -Wired



Why we
love
(or hate)
everyday
things

Donald A. Norman

By the author of *The Design of Everyday Things*

USABILITY

(or the lack thereof)

AESTHETICS

PRACTICALITY

THREE ASPECTS OF DESIGN

VISCERAL DESIGN

BEHAVIORAL DESIGN

REFLECTIVE DESIGN

DESIGN ASPECT #1

**VISCERAL
DESIGN**

Concerns itself with appearances.

Fast; it makes rapid judgements.

The start of affective processing.

Can be enhanced or inhibited by the reflective layer.

DESIGN ASPECT #3

REFLECTIVE
DESIGN

Considers the rationalization and intellectualization of a product.

It does not have access either to sensory input or to the control of behavior.

It watches over, reflects upon and tries to bias the behavioral level.

FOCUS & CREATIVITY

**POSITIVE
EFFECT**

vs.

**NEGATIVE
EFFECT**

POSITIVE EFFECT

Muscles relax and the brain can attend to opportunities offered by the positive affect.

NEGATIVE EFFECT

**Muscles tense and the brain
narrows its focus, limiting the
opportunities.**

Emotion makes you smart.

**Aesthetically pleasing objects
enable you to work better.**

Human behavior is unconscious.

**Many judgements have already
been made before they reach
consciousness.**

**AFFECTIVE
SYSTEM**

vs.

**COGNITIVE
SYSTEM**

AFFECTIVE SYSTEM

Makes judgements.

**Quickly helps a person determine
which things in the environment are
dangerous or safe, good or bad.**

AFFECTIVE SYSTEM

**General term for the judgmental system,
whether conscious or unconscious.**

Emotion is the conscious experience of affect.

COGNITIVE SYSTEM

**It interprets.
Makes sense of the world.**

COGNITIVE SYSTEM

**General term for the judgmental system
whether conscious or unconscious.**