DESIGN METHODS

Second Year - Second Semester
2022 - 2023
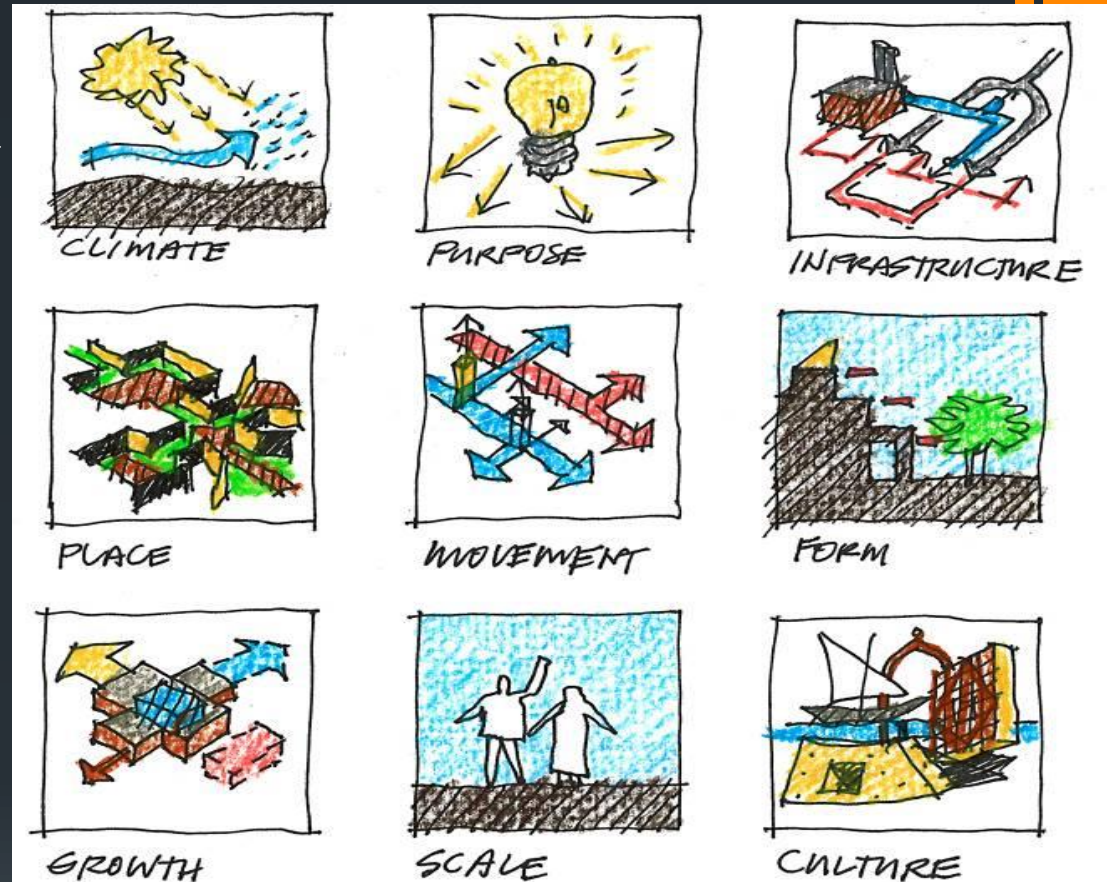
Design and Design Process

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What is Design?

- *DESIGN* is both
  - a **verb** (to design) &
  - a **noun** (a design).

- *DESIGN* is both
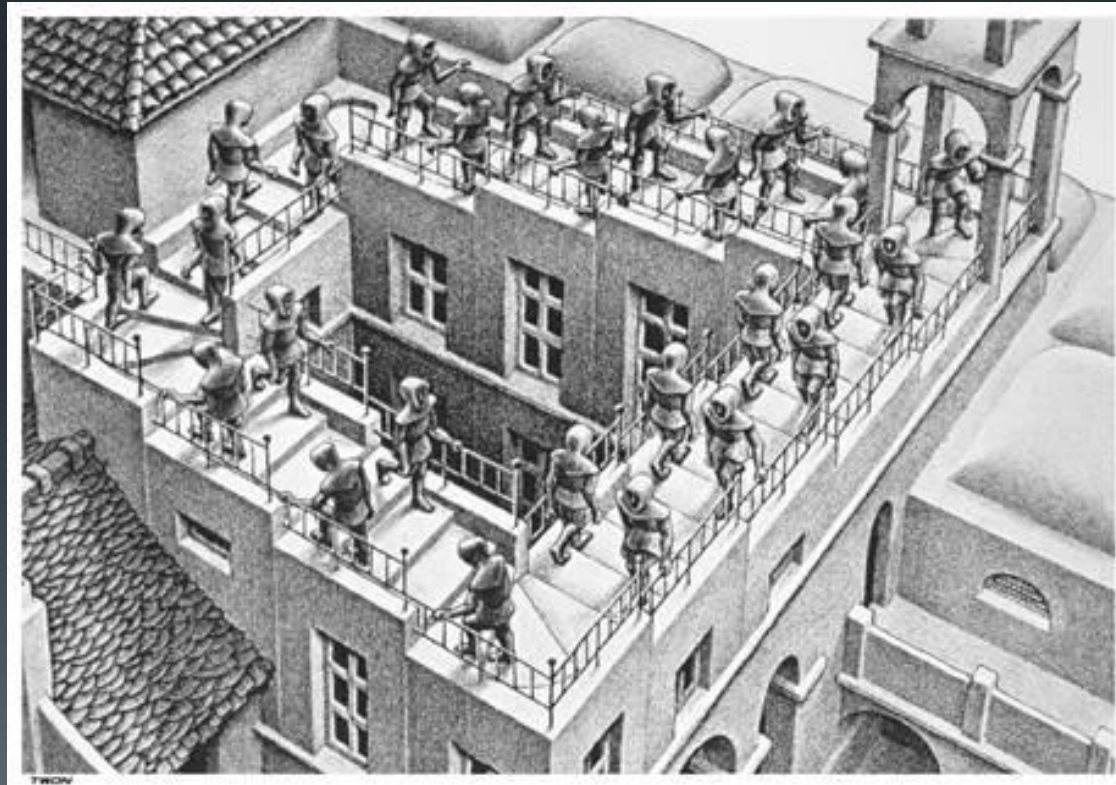 - a **process** &
  - a **product**

- The **process** of designing and **product** that is designed.

What is Design?

DESIG

Design is an activity aimed at producing a plan of action that, if carried out, is expected to lead to a situation with some desirable characteristics and without unexpected and undesirable side effects.

Architectural Design

- **Design is an everyday activity that everybody does**

Everyone designs his/her own room, decides how to arrange things on shelves or in storage systems, designs his/her own appearance every morning, plants, cultivates and maintains his/her gardens, selects food and prepares his meals, plans his/her holidays.

- **All these everyday domestic actions can be seen as design tasks or at least design-like tasks.**

When someone is at work he/she is still designing by planning his/her time, arranging the desktops of his computers, arranging rooms for meetings, and so he could go on. These humble tasks may not be dealt with by the word 'design', but they share many of the characteristics of professional design tasks (Lawson, 2005).

What Is Design ?

"The process of inventing physical things which display physical order, organization, and form in response to function" (Christopher, 1980).

"Design is not a one-dimensional activity. Rather, like other developmental processes, design is a complex activity more usefully thought of as including several analytically distinct elementary activities: imaging, presenting and testing '" (John Zeisel, 1984).

What Is Design ?

"A Goal – directed, Problem-Solving Activity" (Archer,1965).

"Decision-making, in the face of uncertainty, with high penalties for error" (Asimow,1962).

"The Imaginative jump from present facts to future possibilities" (Page,1966).

What Is Design ?

" The performing of a very complicated act of faith " **(Jones,1966).**

" A creative activity – it involves bringing into being something new and useful that has not existed previously" **(Reswick,1965).**

" The creation and organization of formal elements in a work of art " **(Ching,1966).**

What Is Design ?

A structural engineer
may describe the process of *calculating* the dimensions of a beam in a building as *design.*

What Is Design ?

A fashion designer creating a **new collection** might be slightly puzzled by the engineer's use of the word **'design'.**

What Is Design ?

The engineer's process seems to us to be relatively *precise*, *systematic* and even *mechanical*. *Fashion design* seems more imaginative, unpredictable and *spontaneous.*

Many forms of design :
  deal with both:
    ❖ **precise** and **vague/unclear ideas.**
    ❖ **systematic and chaotic thinking.**
  need both:
    ❖ **imaginative thought.**
    ❖ **mechanical calculation.**

What Is Design ?

The three-dimensional and environmental design fields of *architecture,* require the designer to produce:

- **Beautiful products .**
- **Useful and well functioning products.**

It is *Famous*, But, *USELESS*

What Is Design ?

Mistakes,
It can cause serious **inconvenience/problem**, may will be **expensive** and can even be **dangerous**.

Very good design,
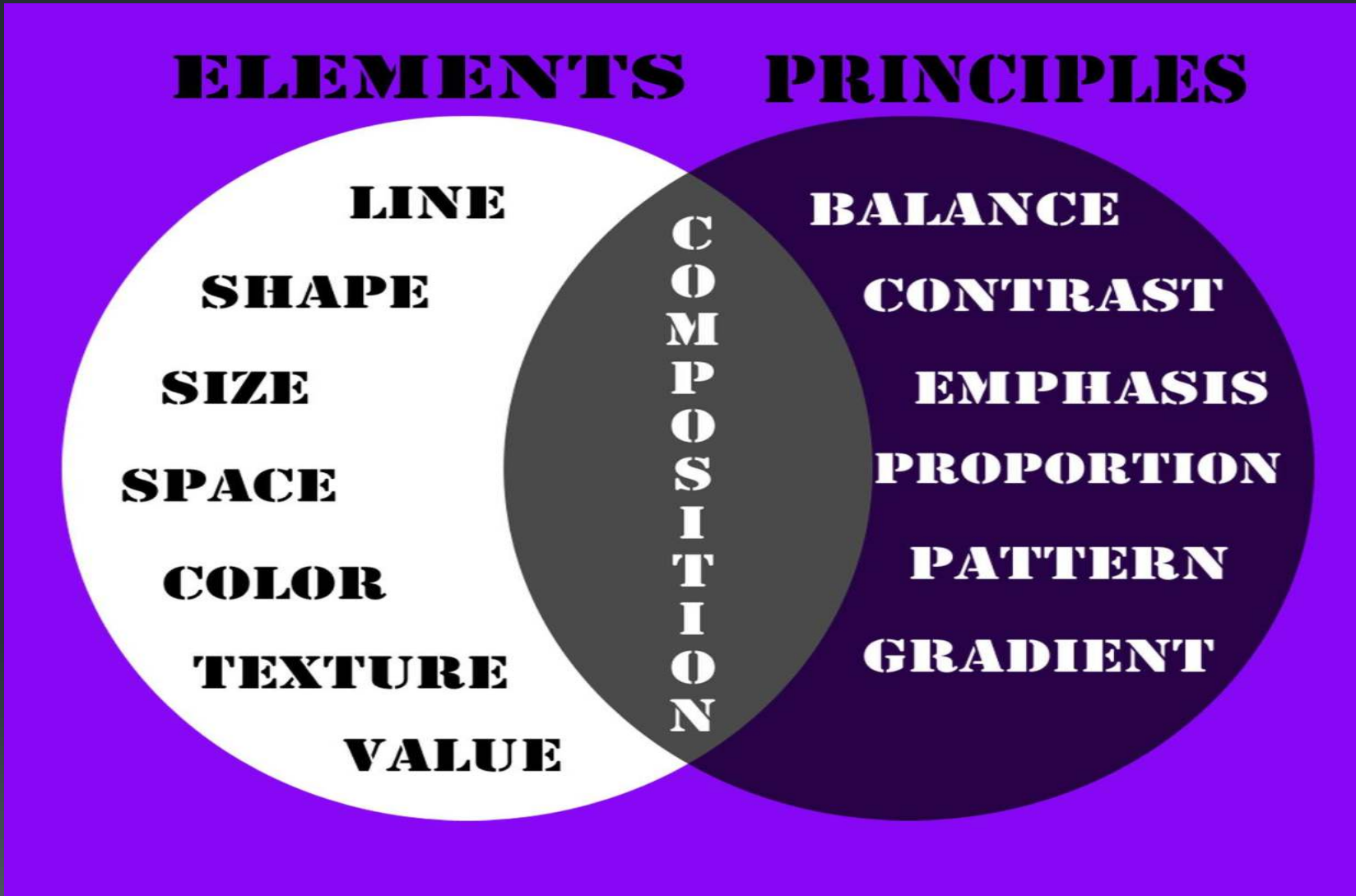can approach the power of art and music to lift the spirit and **enrich our lives**.

Such work,
requires more than just a **'feeling'** for **materials**, **forms**, **shapes** or **colors**; it requires a wide range of **skills**.

What Is Design ?

((Do not try to teach Design, teach Principle))

What Is Design ?

ELEMENTS · **PRINCIPLES**

LINE

SHAPE

SIZE

SPACE

COLOR

TEXTURE

VALUE

COMPOSITION

BALANCE

CONTRAST

EMPHASIS

PROPORTION

PATTERN

GRADIENT

The arranging of parts or elements into proper proportion or relation so as to form a *unified whole.*

Design Process:

Process:
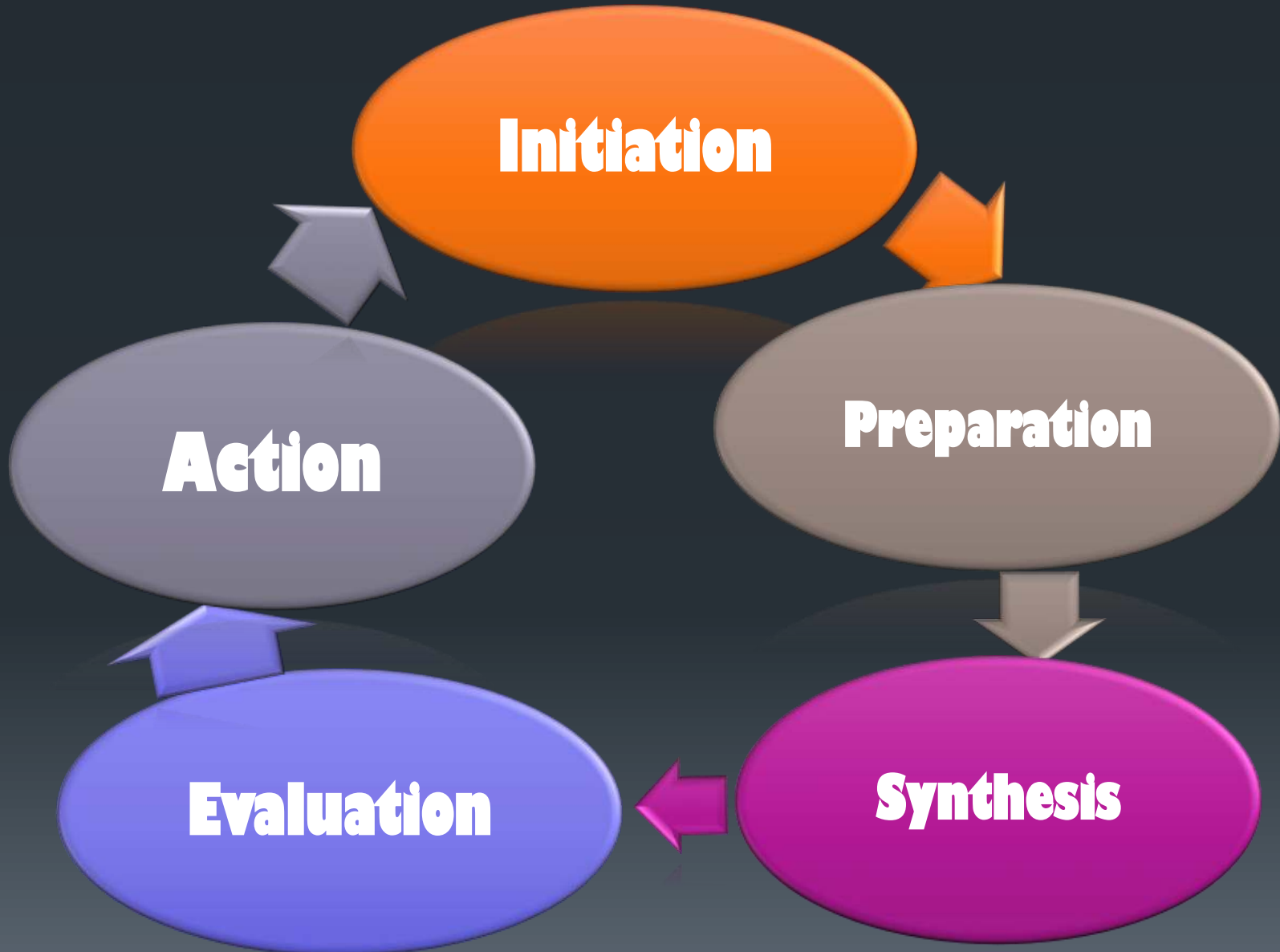
"The systematic series of actions or operations leading or directed to a particular end".

Design Process:

"A purposeful activity aimed at developing a plan for changing an existing situation into a future preferred status, especially the cyclical interrelated process comprising the following Phases".

Design Process Phases:

Why Is Designing Difficult ?

Use existing information to predict a future condition that will only occur if their expectations are *correct*.

The instability of the *problem* during design process.

The role of *imagination* is to enable the Designer to *avoid incompatibility* from the stage to stage by changing his/her original aims to others that are more *compatible* but equally *satisfactory* in the long or short-term.

Is Designing An Art,
A Science,
A form of Mathematics ?

❑ *Design* is a *hybrid activity* which depends for its successful execution upon a proper *combination* of all the *three*.

❑ The main point of difference is *(Timing)*.

❑ *Artists* and *Scientists*:
Work on the physical world as it exists in the present (real or symbolic).

Is Designing An Art,
A Science,
A form of Mathematics ?

- ❑ ***Mathematicians:***
  Work on an ***abstract*** relationships that are ***independent*** of historical time.

- ❑ ***Designers:***
  Deal with what is real that exists only in the ***imagined future***, and have to ***specify ways*** in which the expected thing can be ***made*** or exist.

Is Designing An Art,
A Science,
A form of Mathematics ?

Scientists
- **Des**cribe, **exp**lain exist phenomena.

Artists
- **Man**ipulate for satisfaction.
- **Act** in real-time

Mathematicians:
- **Rel**ational, **Pre**cise, timeless.
- **Rep**resented symbolically.

Designers
- Needs to know the **present** before predict the **future**.
- Needs scientific **doubt** and ability to **observe** the results.
- Needs mathematics for **optimizing**, finding the best solution to a **problem** that has already been defined.

Is Designing An Art, A Science, A form of Mathematics ?

Design is not Art:

Design

- ➢ Use.
- ➢ Constraints.
- ➢ Representation.

Art

- ➢ Artificial.
- ➢ Unconstrained.
- ➢ Expression.

Is Designing An Art,
A Science,
A form of Mathematics ?

Design is not Science:

Design

- ➢ **Soft Process.**
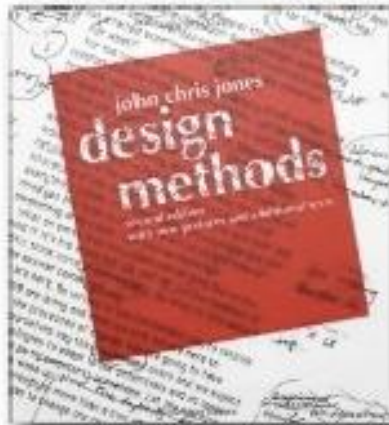- ➢ **Human Analysis.**
- ➢ **Intuition.**

Science

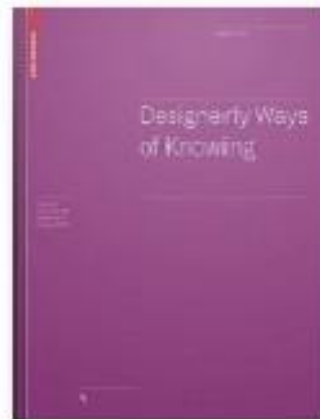- ➢ **Rigid Process.**
- ➢ **Data Analysis.**
- ➢ **Proof.**

Design is not art. It is about crafting solutions to real issues.
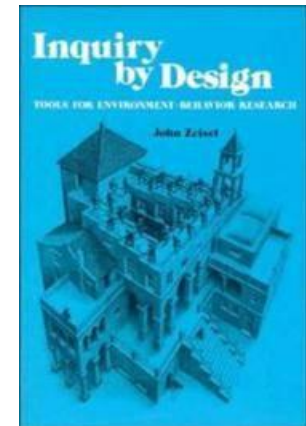
Mark Boulton

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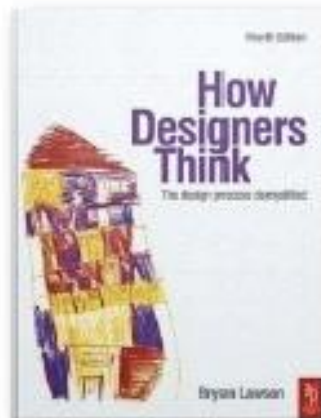
Design Methods
John C. Jones

Designerly ways of knowing
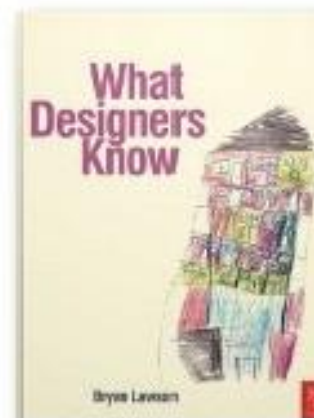Nigel Cross

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