Communication

Accessibility Chair of UPC
Architecture, design and technology for all

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C

Concepts

Communication

It is an exchange of information

1. Make another part (of what we possess).
2. Make it common to him and to us.
3. Transmit.

Communication levels

First level of communication : The feeling

It is the response of the senses to a stimulus.

- Transduction.
- Sensory thresholds.
- Differential threshold (subliminal messages).
- Sensory adaptation .
- Selective attention (1st + registration 2on identification).

1

1st Level

Communication levels

Second level of communication : the perception

2

2nd Level

It is the interpretation of sensation.

- Perceptual organization.
- Figure-ground relation (Figure provides information, the leftover background).
- The figure has a defined shape, dominating and is closer to the observer.
- The background keep going behind the figure.
- Perceptual evidences (size and shape).
- Illusions (size, area and shape).

Communication levels

Third level of communication : the cognition

3

3rd Level

It is the assimilation of perception-

- Acquisition, storage, retrieval and use of perception-
- Sense of responsibility-

Communication levels

Communication structure

- Adapts the rhythm of speech
- Simplify language
- Structure information
- Sequence concepts
- Emphasizes concepts instead of repeating
- Take advantage of nonverbal communication
- Reinforces the message with multimedia resources

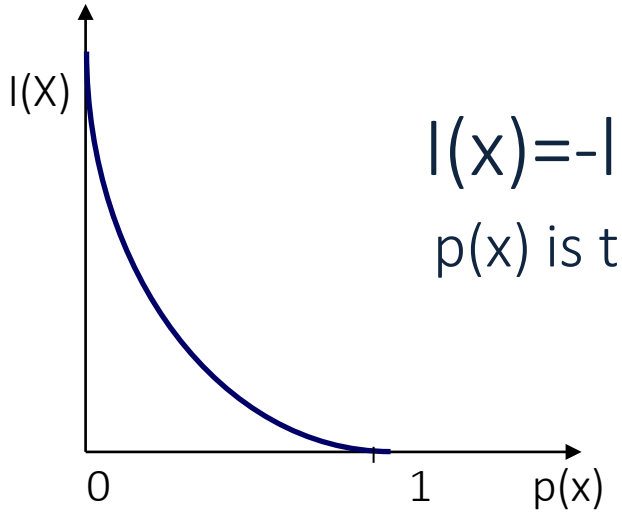
Information

Claude Elwood Shannon

Entropy of Shannon

Information

It's the message part that allows to characterize the uncertainty of an event. It’s the resolution of uncertainty.



$$I(x) = -\log_2 p(x) \quad [\text{bits}]$$

p(x) is the probability that the symbol x appears

Information ≠ Knowledge

Example:

Tomorrow will rain I↓↓ p↑↑

Tomorrow you will win the lottery I↑↑ p↓↓

Interaction

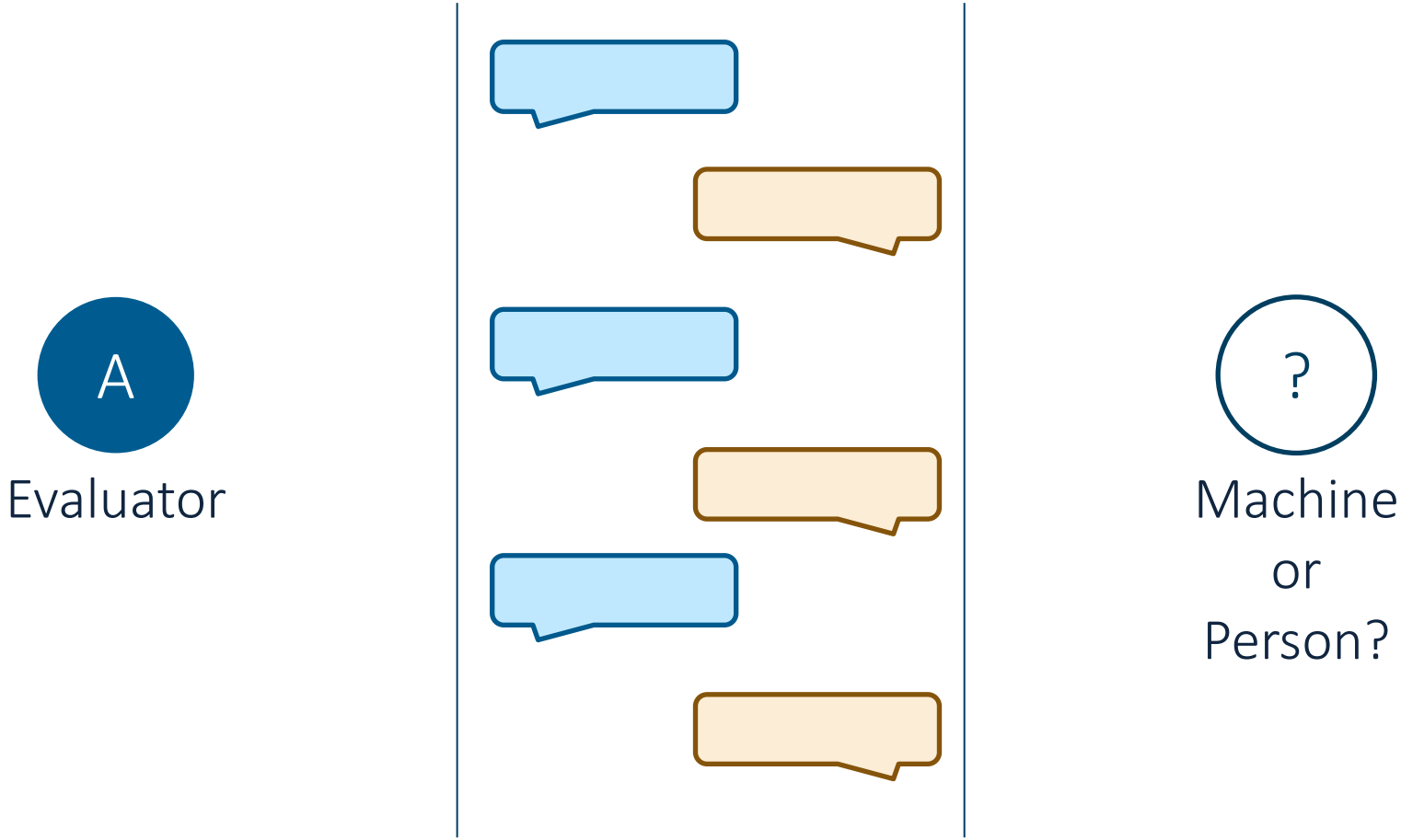
Alan Turing

Test of Turing

https://www.csee.umbc.edu/courses/471/papers/turing.pdf

Interaction

Test of Turing: responds a machine or a person



Reality-Virtuality Continuum

Paul Milgram and
Fumio Kishino

Reality-Virtuality Continuum

Defined in 1994

Reality-Virtuality Continuum

Reality

Reality. What is real. Which has actual existence (as opposed to purely mental or ideal, apparent or fictitious, to simply symbolic, etc.)

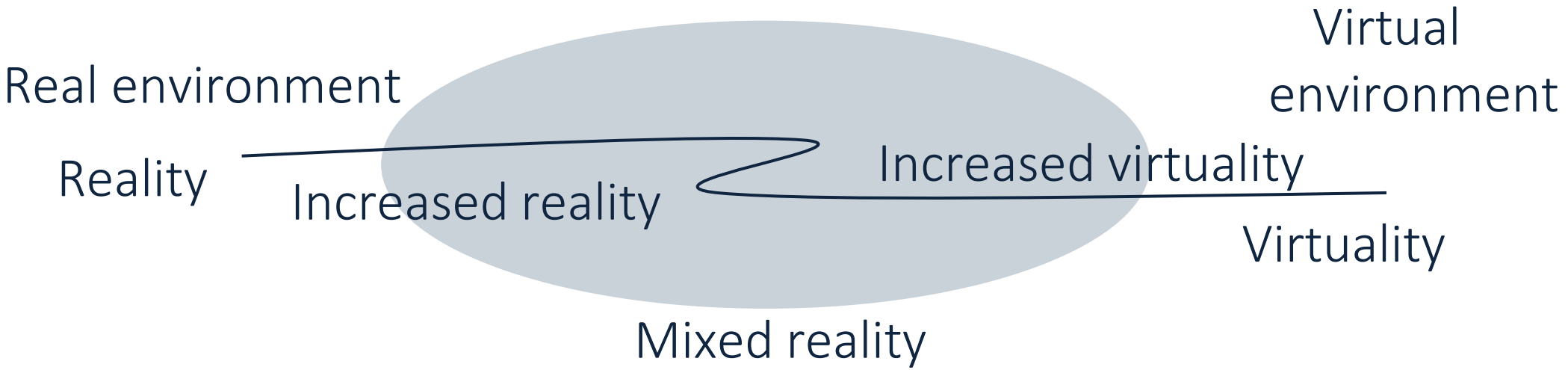
Virtual Reality

Virtual Reality. Set of optical and acoustic sensations, artificially generated by a computer and received through special devices (screens, helmets, goggles, etc.) that recreate a situation with a degree of realism.

Reality-Virtuality Continuum

Augmented reality

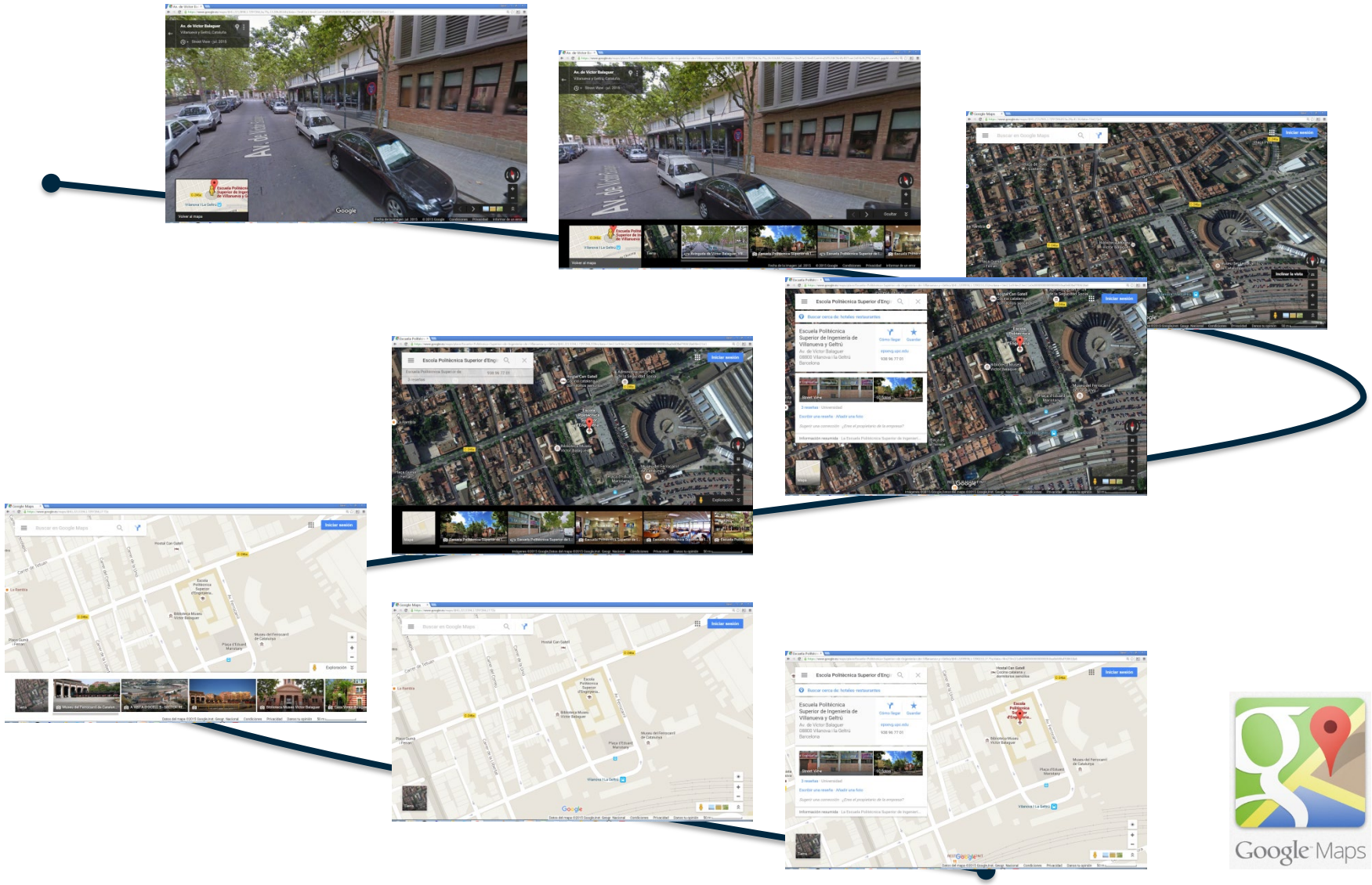
Incorporating elements of virtual reality in a real environment



Increased virtuality

Incorporating real elements in a virtual environment

Reality and Virtual Reality



Google Maps

Augmented Reality Outline

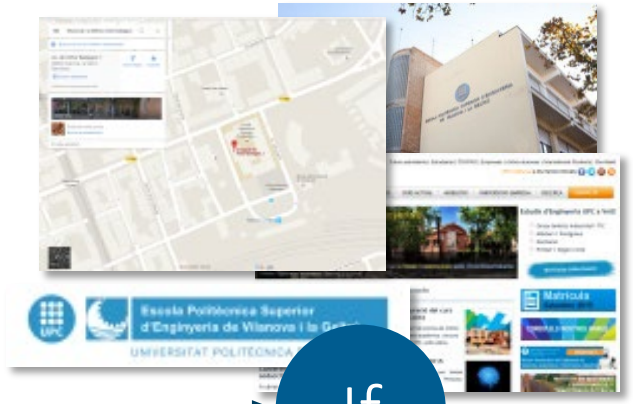
C

Scene capture

I

Identifying the scene

EPSEVG-UPC

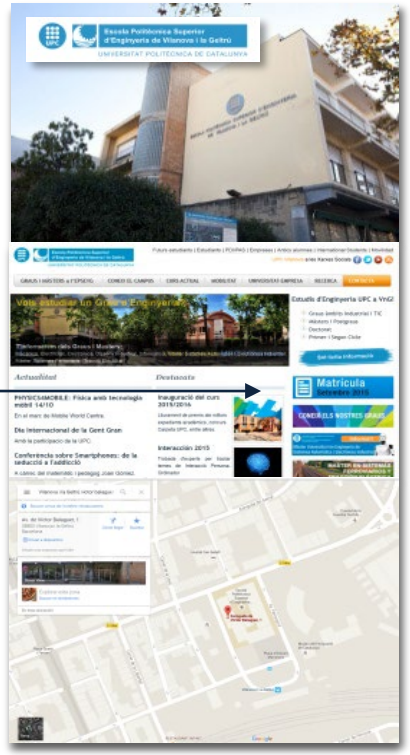


If

Incorporation of information

V

Viewing the scene



Increased Reality

Identifying the scene

- With bookmarks

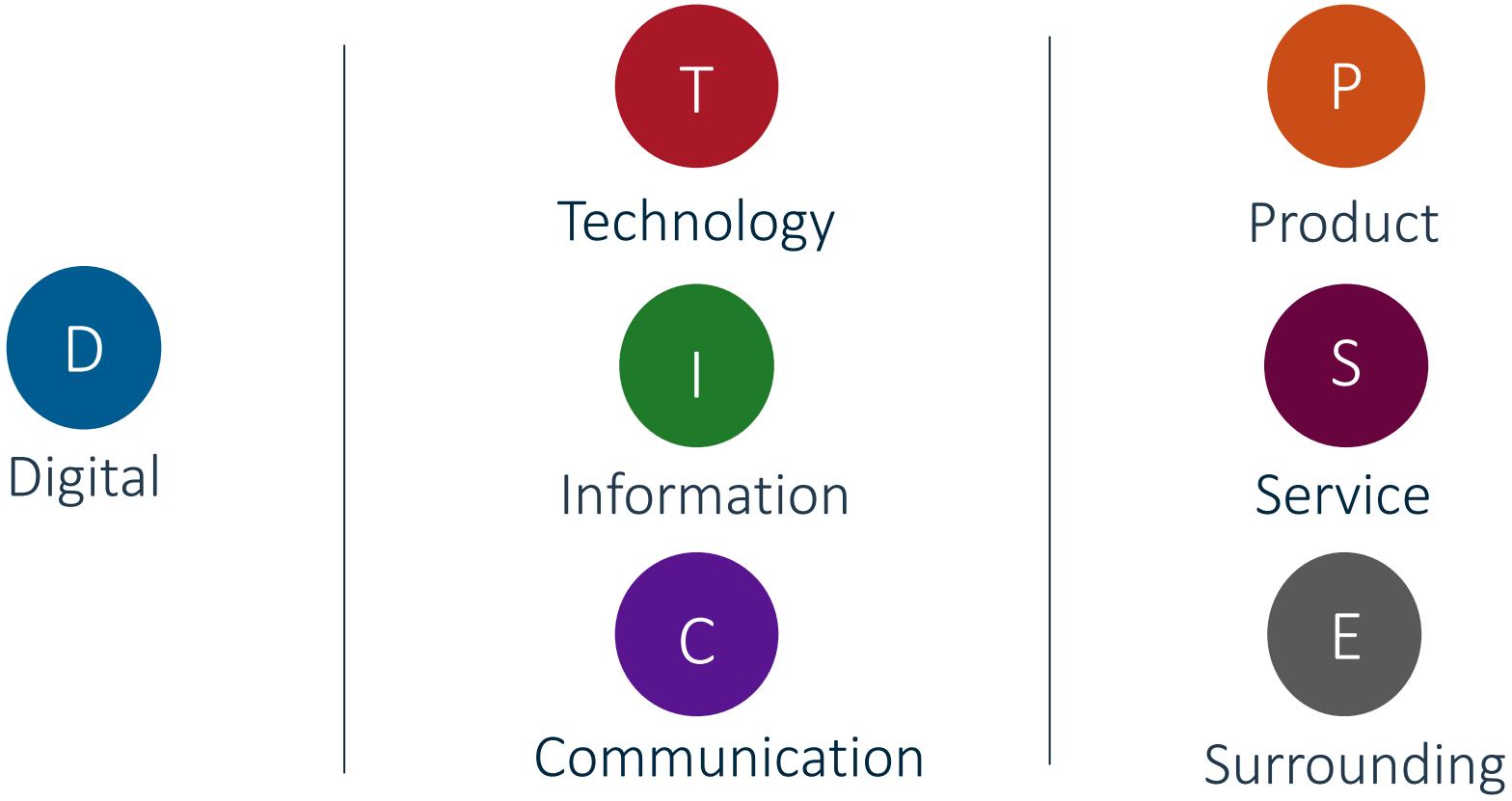
- With image recognition

- With positioning

- Hybrid techniques

The ICT

The Digital concept is used as a synonym for Information and Communication Technologies (ICT)



The ICT

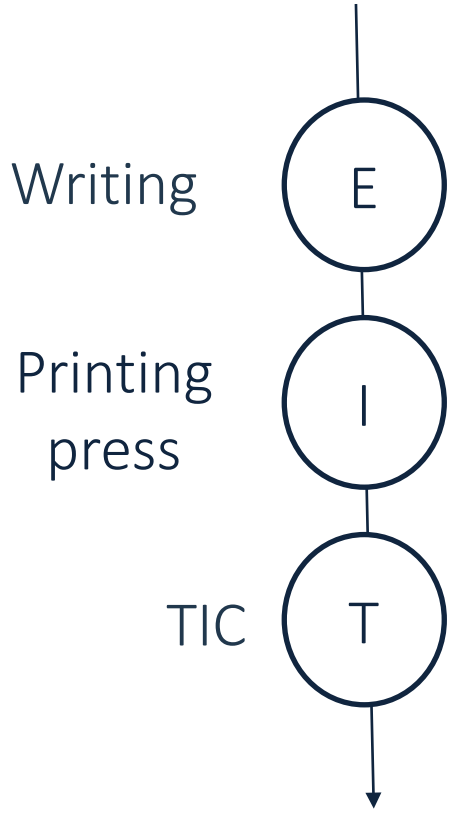
SMART (Intelligent)

The SMART feature is one that, taking advantage of Information and Communication Technologies (ICT), brings intelligence (to the product, environment or service) and the interaction (with its users) aimed at improving the quality of life of People and / or the efficient management of resources.

Definition based on Gómez, C. y Paradells, J (2015). Urban Automation Networks: Solutions for Sensed Data Collection and Actuation in Smart Cities. Sensors, 15, 22874-22898. DOI: 10.3390/s150922874

The ICT

Impact on history



It allows to store the knowledge.

It allows to spread the knowledge extensively.

It allows you to co-create the knowledge extensively.

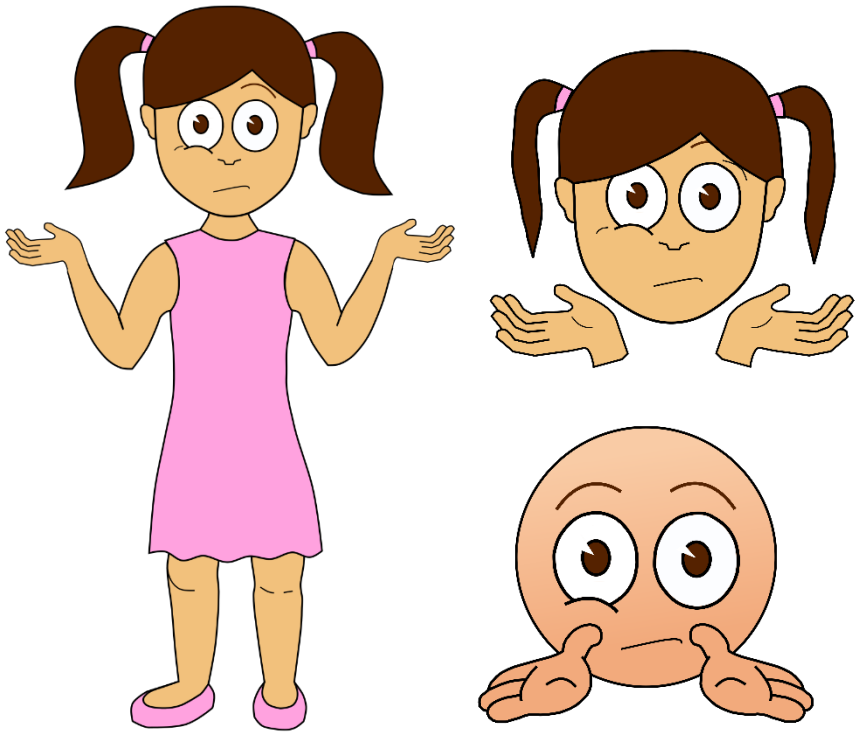
Semiotics Engineering

Clarisse de Souza

Semiotics Engineering

Semiotics Engineering

Semiotics and Semiosis



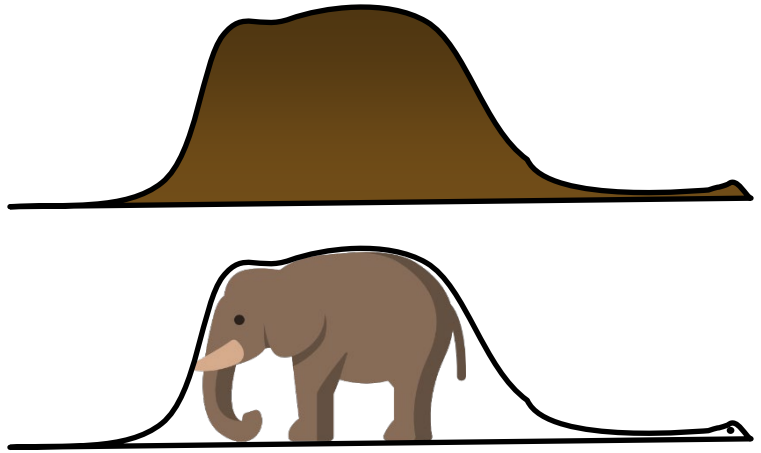
Semiotics studies the properties of signs, for understanding all human activity

Semiosis is the process by which something becomes a sign for someone.

Semiotics Engineering

Sign

A sign is anything that is synonymous with other des from the perspective of someone.



I. What it is
II. What it is in relation to something else
III. What it symbolizes in a context

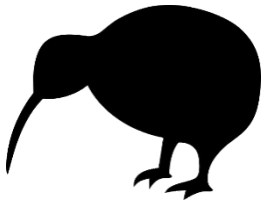
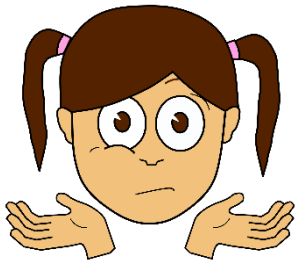
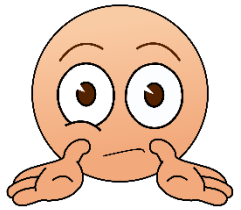
a. Static f(t)
b. Dynamic f(t)

Abduction is the interpretation that a user do of a sign, and does not depend on previous formal rules.

Fire

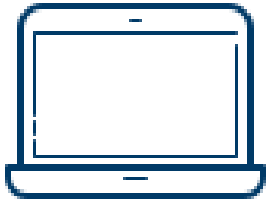
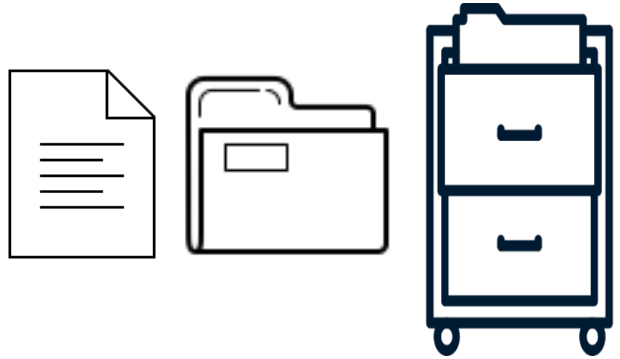
Semiotics Engineering

Metaphor: A is B by similarity

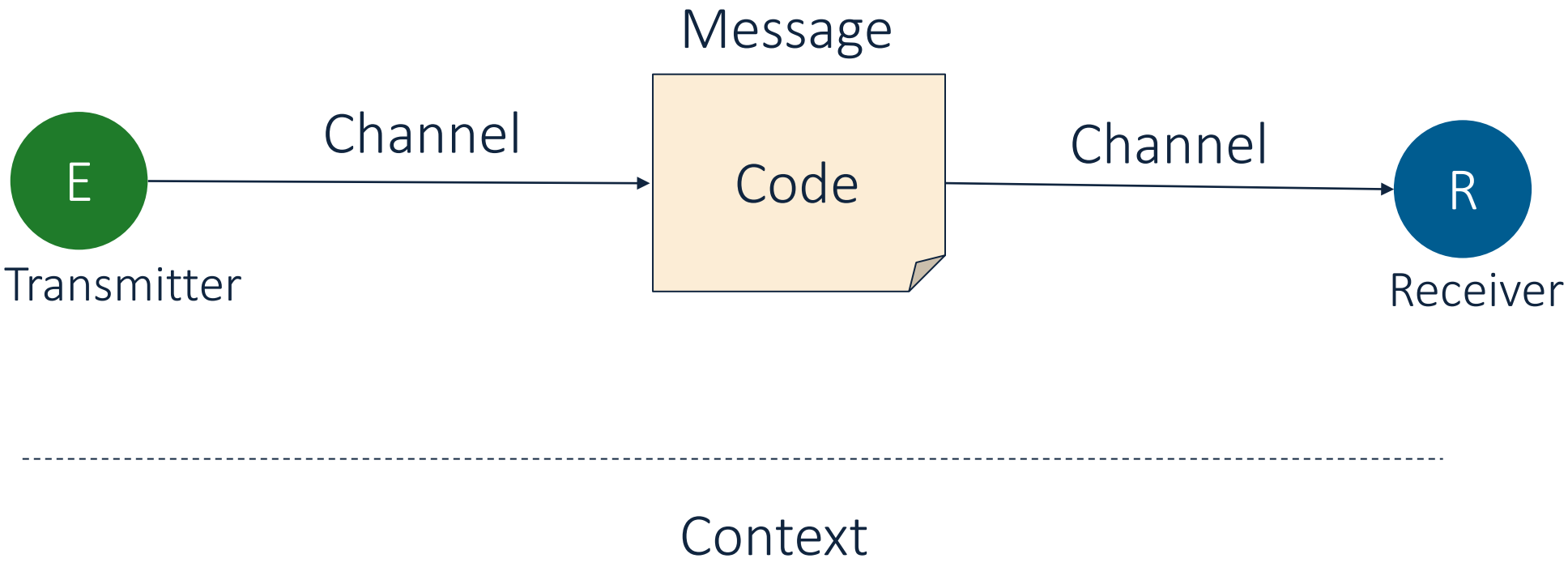
Metonymy: A is B based on the behavior of B



Semiotics Engineering

Communication schematic model of JAKOBSON



Semiotics Engineering

ES

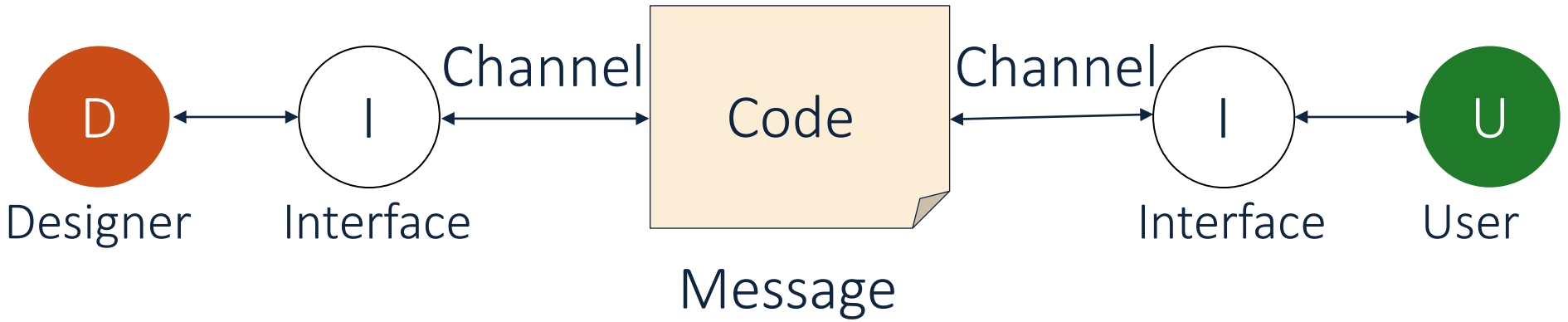
Semiotics Engineering

Semiotics engineering analyzes in depth the messages displayed in the interfaces depending on how the user perceives.

«This is my understanding of who you are, what you've learned what you want or need to do, what your preferences are and why. This is the system that I designed for you, and this is the way in which you can or should use it in order to meet the variety of purposes that are within this view.»

Semiotics Engineering

Communication model Interaction designer-user

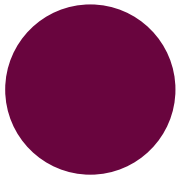


Context

How the designer conceived the user, the function to make the product and the interaction between them.

SAAC

Augmentative and alternative communication systems



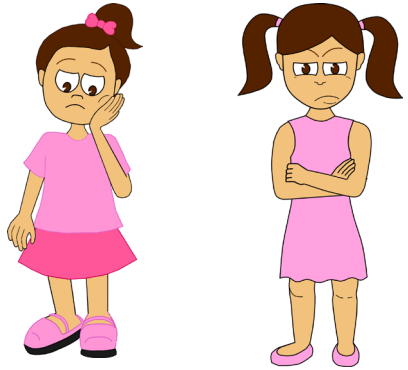
Augmentative and alternative communication systems

Augmentative communication systems complement the oral language.

Alternative Communication Systems replaced the oral language.

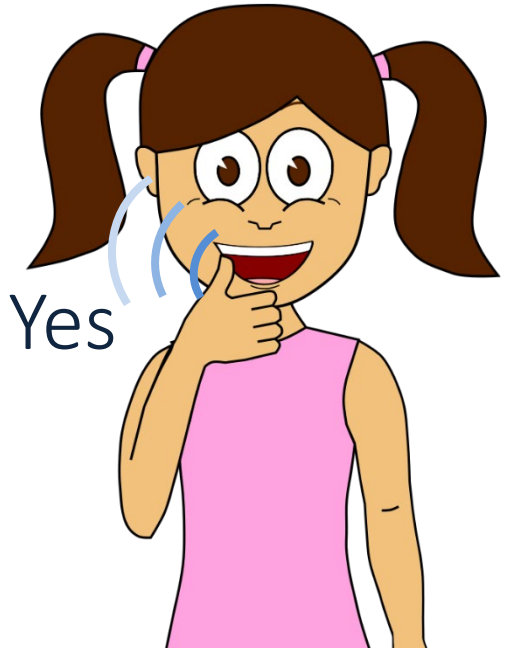
They may be assisted or unassisted (with or without help)

SAAC without help

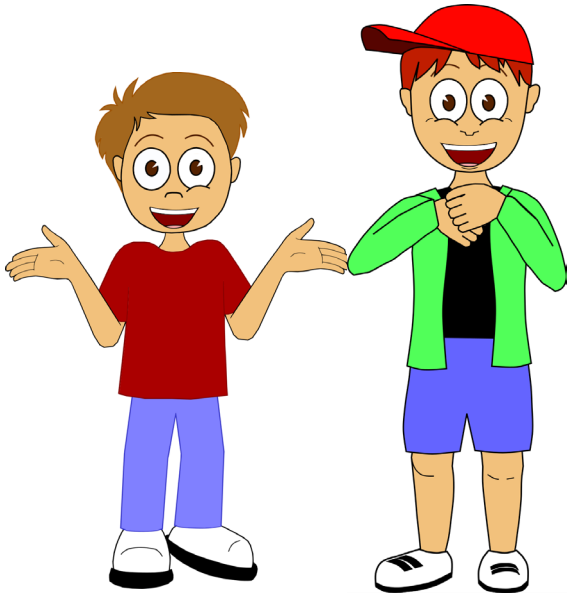


Gestures commonly used

Bimodal system



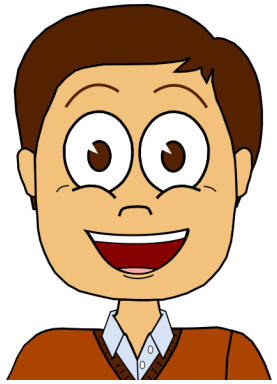
Sign language



Fingerspelling

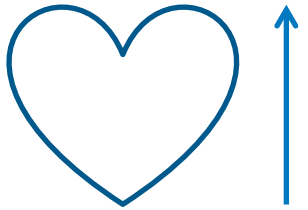
Systems with help

PECS (Communication system Picture Exchange)



SPC (Pictorial Communication System)

Bliss (Graphic-visual symbolic system)



The messages

Messages may consist of one or more symbols

Symbols can be:

Pictographic: they resemble what they represent

Ideographic: they express an idea

Abstract: no relation to reality

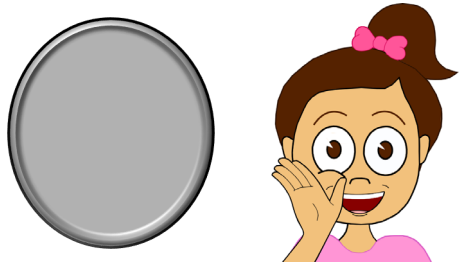
Cognitive reinforcement

The concepts that provide the elements of a message need to be consistent to reinforce

Hello

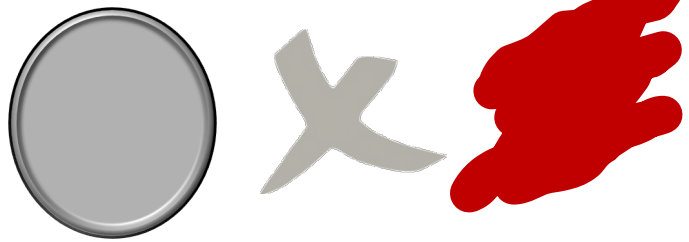
Right

Incorrect



Hello

Right



Incorrect

E

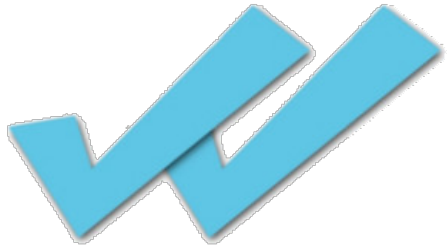
Examples

Application example: messaging

WhatsApp

Google Hangouts

Messenger



12:21

Application example: Video conference

FaceTime

Google Meet

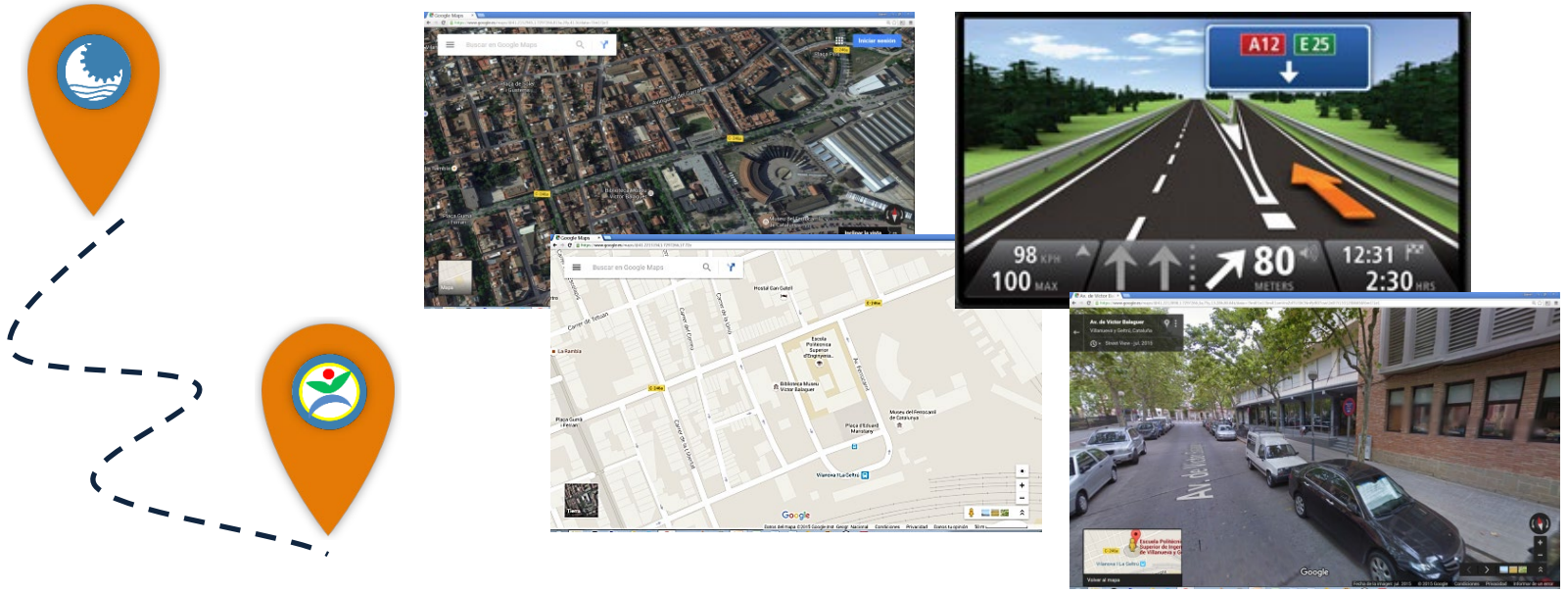
Application example: GPS Navigators

Google Maps

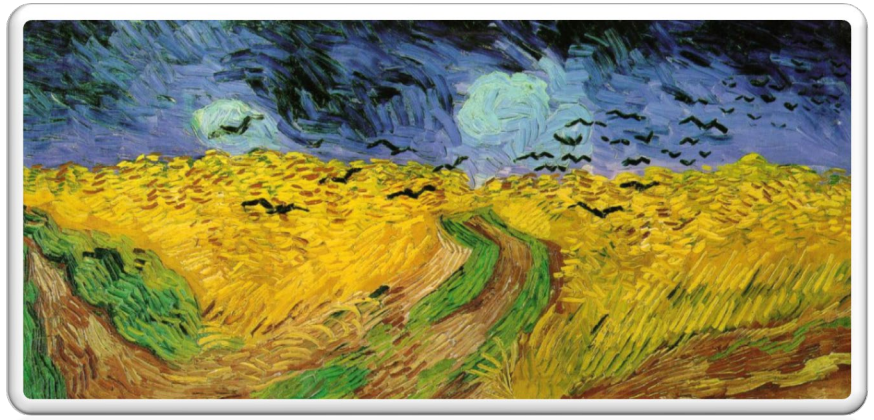
TOMTOM

IOS Maps

Waze



Application example: museums



Wheatfield with Crows
(July 1890)
Oil on Canvas, 50 x 100 cm
Museum Van Gogh, Amsterdam.

Vincent Willem van Gogh (Zundert, March 30, 1853 - Auvers-sur-Oise, July 29, 1890) was a Dutch post-impressionist painter, author of some 900 paintings (27 of them self-portraits) and some 1,600 drawings. In addition, he left 800 letters, 650 of them addressed to his little brother, Theo van Gogh. The central figure, in the life of Van Gogh, was this his brother, who continuously and selflessly gave him financial support. The great friendship that united all their lives is documented in the numerous letters that were exchanged as of August 1872. Van Gogh was a pioneer of expressionism. Despite the quality of the work, it was necessary to wait until his death so that the merits were recognized and he became a great figure of painting. He had a great influence on twentieth-century art, especially among Fauves and German Expressionists. His art was followed by Derain, Vlaminck and Van Dongen.

Application example: signaling

Application example: disability

Easy Communicator

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