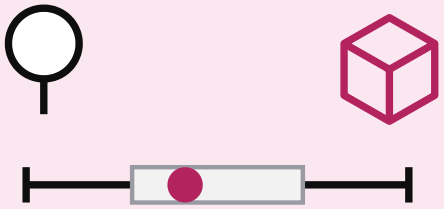
Concept

Reality–virtuality continuum

A scale running from a fully real environment to a fully virtual one. In between is mixed reality: augmented reality, closer to the real, and augmented virtuality, closer to the virtual.



In Spanish
Continuo realidad–virtualidad

Origin
Milgram and Kishino (1994)

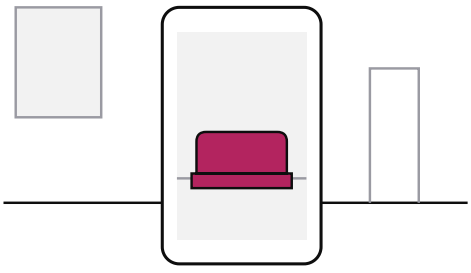
What problem it addresses

It sorts out terms that get used interchangeably, such as augmented, mixed or virtual reality, so you know which experience you are designing.

An example

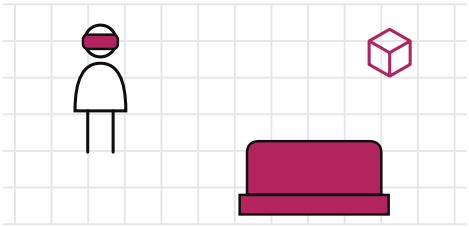
An illustrative example: two ways to see a sofa before buying it.

Augmented reality



The virtual sofa appears in your real living room, seen through your phone. **The real, with something virtual.**

Virtual reality



With a headset you enter an invented store where everything, the sofa included, is digital. **All virtual.**

They are two points on the same line: what changes is how much of the real world remains in view, and with it, what has to be designed.

Why it happens

1 

You start from the real environment.

2 

You add more and more virtual content.

3 

Until you reach a fully virtual world.

Applications in design

Use it like this

Before designing, place your experience on the line: how much of the real world the person will see and what you will have to respect in it.

Avoid

Using “mixed reality” as a trendy label without saying what the person sees and does.

Don’t fall for it

The closer to the real, the more the environment rules: design for light, space and people you don't control.

6 classes

What the research says

Milgram and Kishino sorted mixed reality displays into six classes and proposed describing them with three questions: how much the system knows about the world, how faithfully it shows it, and how much it makes the person feel inside it.

●●● **Solid evidence.** It is a classification, not an experiment: it helps name and compare technologies, not measure their effect.

Connections

Used in

- XR design (extended reality)

Authors and works

1994	**Paul Milgram and Fumio Kishino**	Proposed the continuum and called mixed reality everything that combines the real and the virtual on the same display.
1994	**Paul Milgram, Haruo Takemura, Akira Utsumi and Fumio Kishino**	Placed augmented reality on the continuum, as a real environment to which virtual objects are added.

Sources

Original sources

- Milgram, P., & Kishino, F. (1994). A taxonomy of mixed reality visual displays. IEICE Transactions on Information and Systems, E77-D(12), 1321–1329. View source (https://global.ieice.org/en_transactions/information/10.1587/e77-d_12_1321/_p)
- Milgram, P., Takemura, H., Utsumi, A., & Kishino, F. (1994). Augmented reality: A class of displays on the reality-virtuality continuum. In Proceedings of SPIE 2351, Telemanipulator and Telepresence Technologies. SPIE. View source (https://doi.org/10.1117/12.197321)

Last reviewed: October 25, 2026

Atlas público de diseño, de Adriana Ojeda. Texto e ilustraciones bajo licencia CC BY 4.0.