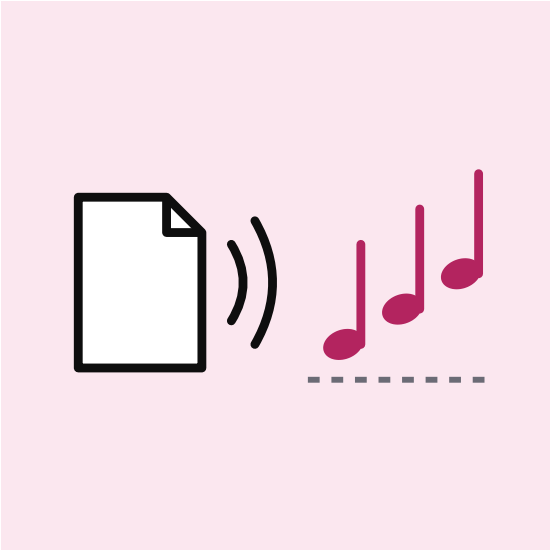
Concept

Auditory icons and earcons

Two ways of informing with non-speech sounds: auditory icons imitate everyday sounds; earcons are short musical motifs with a learned meaning.



In Spanish

Iconos auditivos y earcons

Origin

Gaver (1986); Blattner, Sumikawa and Greenberg (1989)

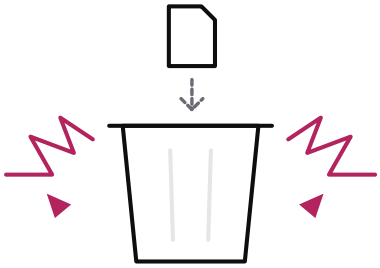
What problem it addresses

It helps you choose which sound to use in an interface: one that is understood without learning it, or one that forms an orderly system of alerts.

An example

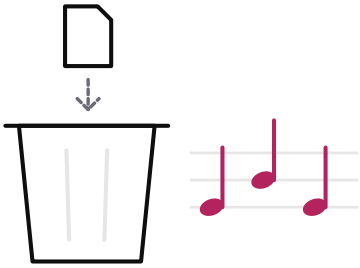
Two ways of signaling with sound that a file has gone to the trash.

Auditory icon



As in Gaver's SonicFinder: when you drop the file, it sounds like dishes breaking. **It's understood right away.**

Earcon



A few notes play, with a rhythm of their own for "delete." **It has to be learned, but it fits into a family of alerts.**

The auditory icon resembles what happens; the earcon is a code that is learned and organized into families. They can be combined.

Why it happens

1

A sound reaches you without looking. It helps when your eyes are on something else.

2

The auditory icon resembles the cause, like a knock, a scrape or something breaking.

3

The earcon works like a code, with families of notes that share a timbre or rhythm.

Applications in design

Use it like this

Use auditory icons for actions with a physical equivalent, and earcons for families of alerts that don't sound like anything real.

Avoid

Earcons that differ only in pitch: they are hard to recognize. Change the rhythm or timbre too.

Don't fall for it

Check whether people remember what each sound means a few days later, not just right after learning it.

49.1% → 86.6%



What the research says

Correct answers when recognizing, by its rhythm, whether an earcon was an application, a folder or a file, before and after making the rhythms more distinct (Brewster, Wright and Edwards, 1993).

●●○ **Debated evidence.** Groups of 12 people, in a lab. The authors cite another study in which people preferred earcons but were more accurate with auditory icons.

Connections

Used in

- Interaction design

Related to

- Icon, index and symbol
- Microinteractions

Authors and works

1986	**William W. Gaver**	Proposed auditory icons: caricatures of everyday sounds that represent what happens in the computer.
1989	**M. M. Blattner, D. A. Sumikawa and R. M. Greenberg**	Called earcons the non-verbal audio messages made of musical motifs that combine into families.
1993	**S. A. Brewster, P. C. Wright and A. D. N. Edwards**	Tested earcons with people and proposed guidelines: instrument timbres, very different rhythms and not relying on pitch alone.

Sources

Original sources

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- Brewster, S. A., Wright, P. C., & Edwards, A. D. N. (1993). An evaluation of earcons for use in auditory human-computer interfaces. In Proceedings of the INTERACT '93 and CHI '93 Conference on Human Factors in Computing Systems (pp. 222–227). ACM. View source (https://doi.org/10.1145/169059.169179)

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