

Affordance

A property in which the physical characteristics of an object or environment influence its function.

Objects and environments are better suited for some functions than others. Round wheels are better suited than square wheels for rolling; therefore, round wheels are said to better afford rolling. Stairs are better suited than fences for climbing; therefore, stairs are said to better afford climbing. This is not to say that square wheels cannot be rolled or fences climbed, rather that the physical characteristics of round wheels and fences influence the way they function and are likely to be used.¹

When the affordance of an object or environment corresponds with its intended function, the design will perform more efficiently and will be easier to use. Conversely, when the affordance of an object or environment conflicts with its intended function, the design will perform less efficiently and be more difficult to use. For example, a door with a handle affords pulling. Sometimes, doors with handles are designed to open only by pushing—the affordance of the handle conflicts with the door's function. Replace the handle with a flat plate, and it now affords pushing—the affordance of the flat plate corresponds to the way in which the door can be used. The design is improved.

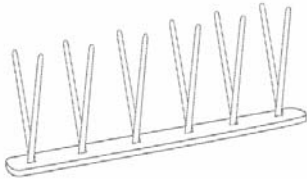
Images of common physical objects and environments can enhance the usability of a design. For example, a drawing of a three-dimensional button on a computer screen leverages our knowledge of the physical characteristics of buttons and, therefore, appears to afford pressing. The popular “desktop” metaphor used by computer operating systems is based on this idea—images of common items like trash cans and folders leverage our knowledge of how those items function in the real world and, thus, suggest their function in the software environment.²

Whenever possible, you should design objects and environments to afford their intended function, and negatively afford improper use. For example, stackable chairs should only stack one way. Mimic familiar objects and environments in abstract contexts (e.g., software interfaces) to imply the way in which new systems can be used. When affordances are successfully employed in a design, it will seem inconceivable that the design could function or be used otherwise.

See also Constraint, Mapping, Mimicry, and Wayfinding.

¹ The seminal work on affordances is “The Theory of Affordances” by James Gibson, in *Perceiving, Acting, and Knowing* by R. E. Shaw & J. Bransford (Eds), Lawrence Erlbaum Associates, 1977; and *The Ecological Approach to Visual Perception* by James Gibson, Houghton Mifflin, 1979. A popular treatment of affordances can be found in *The Design of Everyday Things* by Donald Norman, Doubleday, 1990.

² Note that the term *affordance* refers to the properties of a physical object or environment only. When images of physical objects or environments are used (e.g., image of a button), the images, themselves, do not afford anything. The knowledge of button affordances exists in the mind of the perceiver based on experience with physical buttons—it is not a property of the image. Therefore, the affordance is said to be *perceived*. See, for example, “Affordances and Design” by Donald Norman, www.jnd.org.

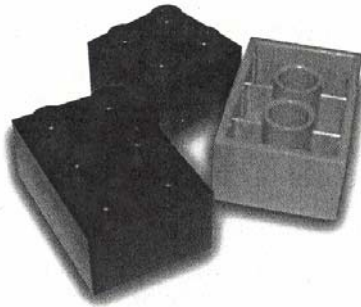


Outdoor lighting structures often afford landing and perching for birds. Where birds perch, birds poop. This anti-perch fixture is designed to attach to such structures and reduce the perching affordance.

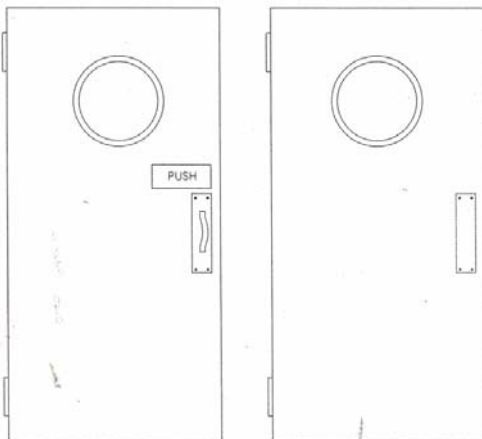


OXO is well known for the handle designs of their products; shape, color, and texture combine to create irresistible gripping affordances.

With opposing male and female surfaces and featureless sides, Legos naturally afford plugging into one another.



Door affordances frequently conflict, as shown in the door on the left. The "push" affordance of the door is knowable only because of the sign, which conflicts with the powerful "pull" affordance of the handle. By replacing the handle with a flat plate, the conflict is eliminated and the sign is superfluous.



The recessed footplates and handlebar orientation of the Segway Human Transporter afford one mounting position for the user—the correct one.

