

Affordance

Vlad P. Glaveanu

Webster University Geneva, Switzerland

Abstract

Affordances have been conceptualized by J. J. Gibson as what the environment offers, provides or furnishes the organism, in other words, as possibilities for action. However, this notion is not without controversy, in particular surrounding its nature and properties. This entry will consider the ways in which the concept of affordance can help us build a material theory of the possible, one that is intimately related to both subjective experience and to culture. The entry discusses different definitions of affordance, its types and characteristics, before outlining a model of the possible based on the interplay between materiality, intentionality, and normativity. The implications of this model for our understanding of agency and possibility are discussed in the end.

Keywords: affordance, materiality, intentionality, culture, objects, agency

Introduction

Chairs are typically made to sit on. Glasses and bottles help us store all sorts of liquids. Mobile phones allow us to call or text people. A boat is meant to float on water. In each one of these cases, what I am referring to are key object affordances. Chairs afford sitting, glasses and bottles afford drinking from, mobile phones afford communicating, and boats afford sailing. That is, in principle, what they do. A boat with a hole in it loses its affordance of floating. Similarly, a broken glass cannot carry liquid or can carry much less of it. At the same time, all these objects afford much more to our action than singular possibilities, for as convenient (and conventional) as these possibilities are. One can also stand on a chair to reach something on the top shelf. Or can use a mobile phone to play music or watch videos.

As we can see from the brief discussion above, there is something intrinsically important about the relation between affordances, action, and possibility (as well as **impossibility**). Affordances facilitate, guide, constrain, and sometimes forbid specific courses of action. At the same time, they are multiple, dynamic, and relational. As I will discuss further in this entry, an affordance is not a universal property of an object. Chairs don't afford sitting for everyone at all times; for example, they would be too tall for toddlers to reach and adults in a pitch-dark room would never realize they are even there – either way, affordances represent a *meeting point* between person and environment and reside in neither of them.

The notion of affordance was coined by James J. Gibson, a founding figure of ecological psychology, the branch of psychology focused on the importance of the environment for human perception and action. Of course, the interest in the environment and its objects precedes Gibson and yet it is his notion of affordance that became very popular and started being used in a variety of applied fields (Luyat, 2009). This popularity ignited also many controversies – several of which will be reviewed here – that make the concept difficult to grasp, conceptually shifty, and either too wide or too narrow to be used in practice. It is worth noting here that Gibson himself didn't propose a full theory of affordances and merely got a chance to sketch this notion, often in contradictory ways. His interest was mainly in the study of perception, in particular visual perception (see Gibson, 1986). Gibson believed that, when we perceive objects, we don't merely form a mental representation of

their sensorial properties or qualities but what we perceive are their affordances, i.e., what they afford our action. In this way, he considered perception as an activity.

It is this close connection between affordances and human activity that prompts many scholars to define the former as *possibilities for action* (see Shaw, Kinsella-Shaw & Mace, 2019). This proposition has been studied mainly from the point of view of action but what exactly does “possibility” mean here? And how can affordances, in this way, help us build a material theory of the **possible**? The present entry focuses on these two questions. In order to answer them properly, however, we need to understand better what an affordance is, why it can be hard to theorize, and what its characteristics and types might be.

Definition and controversy

Gibson famously defined affordances in the following terms:

“The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill. The verb to *afford* is found in the dictionary, but the noun *affordance* is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment” (Gibson, 1986, p. 127).

The idea of complementarity between animal and environment, mentioned above, is essential to understand Gibson’s thinking and his overall project of overcoming mind-matter and mind-body dualisms. The study of perception before him often pitched an external, objective reality against the personal and subjective ways of making sense of it. For Gibson, an affordance “points two ways, to the environment and to the observer” (p. 141). It is, as such, a relational notion, one that cannot and should not be attributed to either environment or observer but their interrelation. Greeno (1994) considered this interrelation as the articulation between affordances or attributes of something in the environment and the abilities (or effectivities or aptitudes) of the person. The presence of both is necessary for action or for actualizing an affordance. However, this formulation risks throwing the notion back into old dualisms between person and world. By firmly linking affordances with material attributes, some might be tempted to study them separately from the abilities of the person. We can imagine, for instance, listing material affordances in abstract terms, independent of any individual abilities. This falls short of Gibson’s plea to refer “both” to environment and animal, for affordances to be “equally a fact of the environment and a fact of behavior”, “both physical and psychological, yet neither” (Gibson, 1986, p. 129).

Another well-known reinterpretation of the notion of affordance comes from Donald A. Norman who made them highly popular in design studies. For him, “the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used” (Norman, 1988, p. 9). From a designer’s perspective, it makes perfect sense to focus on perceived affordances and how easy or hard it is for users, for example, to pick up the fact that a possibility for action exists and can be acted upon. “When affordances are taken advantage of, the user knows what to do just by looking: no picture, label or instruction is required” (p. 9). But here, once again, we enter the same old problem of dualism. By distinguishing between “real” and

“perceived” affordances, Norman as well accepts that an affordance can exist in objective terms without an observer to “meet” it and, in “meeting” it, to make it possible. Gibson himself was tempted by the idea of affordances as objective features before rejecting it based on his anti-dualistic stance: “the affordances of the environment (...) are in a sense objective, real, and physical, unlike values and meanings, which are often supposed to be subjective, phenomenal, and mental. But actually, an affordance is neither an objective property nor a subjective property; or it is both if you like” (Gibson, 1986, p. 129).

The difficulty of studying affordance as a truly relational phenomenon has plagued this area of research for more than four decades and it continues to do so today (see, for instance, the recent distinction between physical and neurocognitive levels in Osiurak, Rossetti & Badets, 2017). This has made many scholars highly critical of the term and its use (e.g., Oliver, 2005). And, in fact, the roots of this discontent can be found in Gibson’s own writing and his own failure to overcome dualism. Consider the following passage:

“The concept of affordance is derived from these concepts of valence, invitation, and demand but with a crucial difference. The affordance of something does not change as the need of the observer changes. The observer may or may not perceive or attend to the affordance, according to his needs, but the affordance, being invariant, is always there to be perceived. An affordance is not bestowed upon an object by a need of an observer and his act of perceiving it. The object offers what it does because it is what it is” (Gibson, 1986, pp. 138-139).

Here Gibson lays the ground for the hypothesis of *direct perception* of affordances, in other words their objective reality, outside the observer, and their immediate grasp whenever “information is available in ambient light for perceiving them” (p. 140). Not only does this claim betray anti-dualism, but it also ignores the basic fact that our interaction with the material world is thoroughly cultural and grounded in acts of learning with and from others. In the words of Dant (1999), the “material environment is not natural or given” (p. 12) and our “interactions with things – touching, making, looking at, talking and reading about, using, storing, maintaining, remaking and so on – are social in that they are learnt and shared within the culture” (p. 14). To come back to the initial example of the mobile phone affording making calls and listening to music, these affordances would never be spotted through direct, culturally unmediated perception. One needs to have learnt about phones in order to perceive these affordances even “in ambient light”.

Gibson was well aware of this critique and, at different points in his writing, formulated it himself (see, for example, his discussion of mailboxes). As he noted, direct perception often reveals affordances but not always. “We must, of course, learn to see what things really are – for example, that the innocent-looking leaf is really a nettle or that the helpful-sounding politician is really a demagogue. And this can be really difficult” (Gibson, 1986, p. 142). Once more, affordances do not “belong” to material reality alone; they are emerging from the co-evolution of person and environment that is culture. Costall (1995, p. 472) added to this discussion when he rightfully claimed that learning affordances doesn’t simply concern what they happen to afford but what they are *meant* to afford. Culture doesn’t only make certain affordances obvious to us – like sitting on chairs and drinking from glasses –, it creates conventional or canonical uses that are hard to think beyond. Could chairs be glued to the

wall and be called art? Yes, their material structure affords this action, but we need some special person attributes to enact it. And this has major consequences for what is possible.

Last but not least, there are some other controversies associated with the definition and description of affordances. For instance, it is debatable whether they are stable and permanent or fleeting and highly situational. Gibson's writing seems to suggest both even if he often argued for the former. Chemero and Turvey (2007, p. 33) disagree: "affordances are exquisitely context-dependent and 'quicksilvery': they emerge and dissolve very rapidly, due to small changes in the animal, environment or both". Once more, we are coming back to the objective (and thus invariant) versus relational (and thus situational) nature of affordances. In this entry, I will strongly argue for the latter, in agreement with the spirit of Gibson's anti-dualistic stance, even if not always in line with his actual statements about affordances. The fact that an affordance is, indeed, relational, plays an important role in how we theorize the possibilities associated with acting on affordances. Before outlining this in more detail, let's consider the characteristics and types of affordances, a discussion that prepares the ground for the framework of the possible proposed at the end.

Characterization and types

Following Gibson, there are three main characteristics of an affordance:

1. "An affordance exists relative to the action capabilities of a particular actor.
 2. The existence of an affordance is independent of the actor's ability to perceive it.
 3. An affordance does not change as the needs and goals of the actor change"
- (McGrenere & Ho, 2000, 1).

These are all derived from his definition of affordances as relational, person-environment phenomena, but also reflect Gibson's belief in the somewhat "objective" nature of an affordance. On the other hand, as we have also seen before, authors like Norman would argue that the most important characteristic of an affordance rests in how easy it is perceived, and this depends on the person's knowledge, experience, and culture (p. 3).

How can affordances be both relatively stable and "objective" as well as highly flexible and situational? This point of debate, raised in the previous section, is addressed by a simple typology proposed by Shaw, Kinsella-Shaw and Mace (2019) who distinguished between *affordance-types* and *affordance-tokens*. The main distinction here concerns the level of generality or abstraction. For instance, in general terms, all chairs afford sitting. This is an affordance-type. But any particular chair might not afford sitting for a particular person either because of the stability of the chair, weight of the person, or maybe because someone else is already sitting on it. In these cases, the affordance-token is missing. There is, of course, a deep connection between the two. In the words of the authors, "epistemologically speaking, types can be known only through their tokens, and the collective resemblance the tokens share is the type" (p. 5). In the end, it is a matter of scale dependency – for affordance-tokens – and independency – for affordance-types.

This distinction helps us rethink the issue of generality and specificity, but it tells us little about the "content" of an affordance and its exact relation to action. Given that human

action is different from simple behavior and it has a deeply social and cultural dynamic, affordances can once more be read at different levels depending on aspects of action we are focusing on. Pols (2012) differentiated in this regard between *basic actions* (e.g., sitting on a chair), *the consequences of these actions* (e.g., the fact that another person cannot sit there at the same time), *the coordination of actions into a plan* (e.g., coming early to make sure you have a seat), and their *broader social impact* (e.g., sometimes the simple act of sitting has political implications, for instance Rosa Parks' refusal to give up her seat to a white passenger and its role in the civil rights movement). Hence, the act of sitting affords many more things, individually and socially, than resting on a chair and this needs to be recognized. Affordances can thus be understood hierarchically as affording basic actions, affording the effects of those actions, affording the execution of plans and, at times, affording social action as well. The higher we go up this "ladder", the more the hypothesis of direct perception fades and leaves room for a cultural view of what an affordance is.

Another typology, proposed by Gaver (1991), focuses on the relation between the presence or absence of an affordance and the presence or absence of the perceptual information that exposes it. This distinction between "real" and "perceived" resonates widely with Norman's understanding of the term and, when put together into a two by two table, generates four possibilities: *perceptible affordances* (present and perceived as such), *hidden affordances* (present but not perceived or perceived as absent), *false affordances* (absent but perceived as present) and *correctly rejected* ones (absent and perceived as such). Putting aside the dualistic underpinning of this framework and the fact that it undermines the relational nature of affordances, it does raise the interesting practical question – for designers and not only – of how people can be helped to discover more of the hidden affordances of things and avoid the false ones. Added to this is the question of how ready a person is to actualize or enact an affordance once it is perceived. Because we can easily imagine situations, for instance, in which the affordance of making calls with a mobile phone is clearly perceived but, given that the phone belongs to some else, this affordance cannot really be acted upon. In this regard, Anderson and Robey (2017) introduced the notion of *affordance potency* designating "the strength of the relationship between the abilities of the individual and the features of the system at the time of actualization, conditioned by the characteristics of the work environment" (p. 103). We return here to the original Gibsonian idea that affordances will depend equally on the "match" between animal and environment.

But we also return to the role of culture and the fact that canonical uses of objects always have a higher affordance potency, i.e., they are much easier to actualize. Thus, chairs are perfectly made for sitting but make it difficult for someone to sleep in them comfortably. There is, as such, a normative aspect to the perception and use of affordances, just as there is a personal element of goals and needs motivating human action. Based on all these three elements – intentional, norms, and affordances – our action in the world can be either more conventional or more creative / surprising. How do we use affordances for creative action? I proposed in the past a small typology (see Glăveanu, 2012) distinguishing between *unperceived affordances*, *uninvented affordances*, and *unexploited affordances*. Creative people tap into one or more of these categories in order to go beyond the conventional of their and others' existence. They do so by becoming aware of new affordances in their environment (e.g., a glass can be used to hold down paper on a windy day), inventing objects with new properties whenever needed (e.g., glasses can be piled up together to

create a building in children's play) and, sometimes, going against cultural norms in order to expand the possible (e.g., glasses can be broken to generate pieces with new affordances).

Towards a material theory of the possible

It is no coincidence to mention **creativity** in a discussion of affordances. In fact, as Gibson noted from early on:

"The fact that a stone is a missile does not imply that it cannot be other things as well. It can be a paperweight, a bookend, a hammer, or a pendulum bob. It can be piled on another rock to make a cairn or a stone wall. These affordances are all consistent with one another. The differences between them are not clear-cut, and the arbitrary names by which they are called do not count for perception" (Gibson, 1986, p. 134).

With this statement, he demonstrates the use of divergent thinking when it comes to a stone, an exercise that strongly reminds us of the Unusual Uses task developed by Guilford (see Goldman, 1965), asking respondents how many things they could do with a brick. If affordances designate action possibilities or action potentials, as I called them in the past (see Glăveanu, 2018), then the creative process can be defined as an active exploration of more of these possibilities than what is conventional or canonical (Glăveanu, 2012). In the end, **change** is ubiquitous when it comes to affordances, something aptly captured by Heft who said that, "from the perspective of sociocultural change, new entities with novel affordances are introduced into the culture, new affordances of familiar objects are realized, familiar affordances are sustained over time through continued use, and affordances fade from the scene through disuse" (Heft, 2003, pp. 175-176).

What does this have to do with the possible? Not only is creativity one of the key processes involved in engaging with the possible, but my argument here is that a closer consideration of affordances can hold the key to developing a material theory of human possibility. I call it "material" in order to emphasize the close link between affordances and the material properties of objects without conflating the two. Indeed, as stated before, in a non-dualist, sociocultural framework, affordances *cannot* be separated from the person and located strictly within the environment. Nonetheless, this notion highlights the fact that physical properties do exist and they do matter, enormously in fact, for what we perceive as possible and what we enact of it. Affordances bridge material properties and the person's intentions and abilities seen as an inseparable whole. They are at once material, psychological, and cultural, helping us overcome the historical difficulty of considering culture in non-reductionist ways (as either material only or primarily non-material; Reckwitz, 2002).

The seeds of the possible can be found in the interest to understand how exactly affordances become actualized. More specifically, how we move from "possibility-for-action to actuality" (Shaw, Kinsella-Shaw & Mace, 2019, p. 12) and, I would add, the other way around: how actualized action opens up a new horizon of possibilities. My argument, building on a model I proposed a few years ago (see Glăveanu, 2016), is that a reflection on affordances and their relation to materiality necessarily invites a closer consideration of intentions or **perspective**, on the one hand, and norms and culture, on the other.

To take a concrete example, let's go back to the idea of sitting on a chair. As we have established, there are many things that are possible in terms of our action with chairs or, using the vocabulary here, many affordances that could be actualized. What we often actualize from them though is the rather conventional option of taking a seat. This is what we typically intend to do when looking around for a chair in a crowded room, and also how we are culturally encouraged to behave (in other words, nobody in the room would be shocked if we take a seat, unless perhaps if we bypass an elderly person or a pregnant woman). Still, there is more – much more – to the horizon of the possible in using chairs. To explore the possible further we would need to examine the gaps or tensions between what we *could do* with a chair (the material aspect captured by affordances), what we *would do* with it (the psychological aspect captured by intentions or perspectives), and what we *should do* with it (the cultural aspect captured by norms and normativity). What might be possible if we change the material properties of a chair by modifying its shape, size, color, etc.? What about if we were approach it with another intention than sitting, what else could we want from it? Finally, what kind of cultural norms are there around the use of chairs and how do they vary? What would it mean to violate them?

All of these questions test the limits of what is possible and invite us to consider different “categories” of affordances. Those that expand our perspective on the world and tap into previously unperceived possibilities. Those that modify the material support and its attributes, resulting in new, “invented” artifacts. And those that contradict one or more cultural norms in order to enlarge the space of what is possible in a given situation, thus enacting unexploited alternatives. And then there are uses that perform more than one of these possibility-expanding actions at once.

Reading the possible in terms of the dynamic between *materiality (could)* – *intentionality (would)* – *normativity (should)* relies thus heavily on a series of relational concepts such as affordance (the meeting point between “could” and “would”, shaped by culture’s “should”) and perspective (the “would” of our actions that meets the “could” and the “should” of the material and the social world, respectively). If affordances are action potentials, perspectives are action orientations that come to discover and use these potentials (see Glăveanu, 2018). But affordances themselves can shape perspectives, something nicely emphasized by Withagen, De Poel, Araújo & Pepping (2012) when they argued that affordances also invite behavior. Going back to the chair example, sometimes the mere sight of it and its affordances makes us aware of how tired we are and in need of a seat.

Concluding thoughts

This entry defined affordances from multiple perspectives and covered some of the main controversies around this old concept. It reviewed different typologies of affordances that complexify the notion and make it a better fit for the study of complex human action. The possible represents such a highly complex phenomenon and, in its exploration, we need to consider affordances and materiality in their relation to personal attributes and with culture. The interdependence between materiality – intentionality – normativity and the ways in which affordances both enable and constrain our possibilities for action are at the heart of the possible and of human **agency**. Agency itself, when it comes to exploring what is possible, doesn't reside in the person or in the environment alone, but in their

interrelation. It is thus best defined as *co-agency* (see Glăveanu, 2015) and studied in the interplay between action orientations (perspectives) and action potentials (affordances), both within a sociocultural frame. Gibson wrote that “the possibilities of the environment and the way of life of the animal go together inseparably” and that, “within limits, the human animal can alter the affordances of the environment but is still the creature of his or her situation” (Gibson, 1986, p. 143). Expanding these limits is the province of the possible and a direct consequence of the state of co-agency that defines human existence.

References

- Anderson, C., & Robey, D. (2017). Affordance potency: Explaining the actualization of technology affordances. *Information and Organization*, 27(2), 100-115.
- Chemero, A., & Turvey, M. T. (2007). Complexity, hypersets, and the ecological perspective on perception-action. *Biological Theory*, 2(1), 23–36.
- Costall, A. (1995). Socializing affordances. *Theory & Psychology*, 5(4), 467-481.
- Dant, T. (1999). *Material culture in the social world: Values, activities, lifestyles*. Buckingham: Open University Press.
- Gaver, W.W. (1991). Technology affordances. *CHI'91 Conference Proceedings*, pp. 79-84.
- Gibson, J. J. (1986). *The ecological approach to visual perception*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Glăveanu, V. P. (2012). What can be done with an egg? Creativity, material objects, and the theory of affordances. *The Journal of Creative Behavior*, 46(3), 192-208.
- Glăveanu, V. P. (2015). From individual to co-agency. In C. W. Gruber, M. G. Clark, S. Hroar Klempe & J. Valsiner, J. (Eds.), *Constraints of agency: Explorations of theory in everyday life* (pp. 245-266). London: Springer.
- Glăveanu, V. P. (2016). Affordance. In V. P. Glăveanu, L. Tanggaard & C. Wegener (Eds.), *Creativity: A new vocabulary* (pp. 10-17). London: Palgrave.
- Glăveanu, V. P. (2018). The sociocultural study of creative action. In A. Rosa & J. Valsiner (Eds.), *The Cambridge Handbook of Sociocultural Psychology*, 2nd edition (pp. 163-177). Cambridge: Cambridge University Press.
- Goldman, R. J. (1965). The Minnesota tests of creative thinking. *Educational Research*, 7(1), 3-14.
- Greeno, J.G. (1994). Gibson's affordances. *Psychological Review*, 101(2), 336-342.
- Heft, H. (2003). Affordances, dynamic experience, and the challenge of reification. *Ecological Psychology*, 15(2), 149-180.
- Luyat, M. (2009). Les affordances: De James Jerome Gibson aux formalisations récentes du concept. *L'année psychologique*, 109(2), 297-332.
- McGrenere, J., & Ho, W. (2000, May). Affordances: Clarifying and evolving a concept. In *Graphics interface*, Vol. 2000, pp. 179-186.
- Norman, D. (1999) Affordances, conventions and design, *Interactions*, May, 38-43.
- Oliver, M. (2005). The problem with affordance. *E-Learning and Digital Media*, 2(4), 402-413.
- Osiurak, F., Rossetti, Y., & Badets, A. (2017). What is an affordance? 40 years later. *Neuroscience & Biobehavioral Reviews*, 77, 403-417.
- Pols, A. J. K. (2012). Characterising affordances: the descriptions-of-affordances-model. *Design Studies*, 33(2), 125-133.
- Reckwitz, A. (2002). The status of the “material” in theories of culture: From “social structure” to “artefacts”. *Journal for the Theory of Social Behaviour*, 32(2), 195-217.
- Shaw, R. E., Kinsella-Shaw, J. M., & Mace, W. M. (2019). Affordance types and affordance tokens: Are Gibson's affordances trustworthy? *Ecological Psychology*, 31(1), 49-75.
- Withagen, R., De Poel, H. J., Araújo, D., & Pepping, G. J. (2012). Affordances can invite behavior: Reconsidering the relationship between affordances and agency. *New Ideas in Psychology*, 30(2), 250-258.