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Arto Lanamäki
University of Oulu, arto.lanamaki@oulu.fi

Devinder Thapa
University of Agder, devinder.thapa@uia.no

Karen Stendal
Buskerud and Vestfold University College, Karen.Stendal@hbv.no

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What Does a Chair Afford? A Heideggerian Perspective of Affordances

Arto Lanamäki[1], Devinder Thapa[2], and Karen Stendal[3]

[1] University of Oulu, Department of Information Processing Science, P.O. Box 3000, FI-90014 Oulun yliopisto, Finland
[2] University of Agder, Department of Information Systems, Postboks 422, NO-4604 Kristiansand, Norway
[3] Buskerud and Vestfold University College, School of Business and Faculty of Social Sciences, P.O. Box 235, NO-3603 Kongsberg, Norway

Abstract. The concept 'affordance' has been adopted from ecological psychology into various fields of research. The wide adoption signals for the usefulness of the concept, but may also create confusion. We have become alert towards the ambiguous uses of the term – a feature that originates in J.J. Gibson's ambiguous texts. To contribute to this deliberation, we identified 'affordances of a chair' as the most popular 'affordance example' in research literature. We analyzed a set of examples through a Heideggerian lens to reveal variations in the operationalization of the concept. Our paper does not aim to provide any absolute answer for the right use of the affordance concept. We wish to contribute to the ongoing debate on affordances; particularly in our own IS community. As academic writers, we should be conscious of the exact meanings of the concepts we use. Thus, this essay questions the affordance concept as a one-size-fits-all solution to characterize the relation between artifacts and their users. We suggest future research to address the conceptual specificity dilemma: should we supplement affordance with new concepts, or should we replace affordance with something better?

Keywords: affordance, Heidegger, familiarity, affordances

1 Introduction

Originating from James J. Gibson's work in ecological psychology [e.g. 1], affordance is a relational concept implying certain environment-provided action-opportunities for a person or an animal. Affordance has been widely adopted into human-computer interaction [2, 3], ergonomics [4], neuropsychology [5], and autonomous robotics [6]. It has recently gained importance in our Information Systems (IS) domain [7-11], increasingly after Markus & Silver's [12] paper from 2008.

As the concept has spread into different settings of research and practice, its uses have also varied. While some of the variation may be entitled to "wrong" appropriations of the term, in the line of how Torenvliet [13] is arguing, much of it actually comes from the original source of J.J. Gibson's writings. Gibson never claimed affordance as just one formalization, but insisted that his ideas were constantly in progress, and thus

"subject to revision" [1] (p. 67). Additionally, his writings contradict with each other. Among these contradictions are the claim of affordances being relational yet exist independent of us, the insistence that the relationship is perceptual not agential, and the insistence that affordances in nature are exactly the same as in man-made world [14] (p. 48-49). This has resulted in post-Gibsonian scholars cherry-picking different "facts" to back their own needs. This is visible in the myriad of affordance definitions [6].

Regardless that the term has gained much support in IS field, we are somewhat skeptical towards the use of this concept. Are we speaking of the same thing across different studies and contexts? We suspect that researchers do not attach a consistent meaning to this concept.

Let us therefore propose an instant social experiment. We as the authors of this article will now kindly ask you, the reader, to approach any academic person and ask her this question: "What is an affordance?" Listen carefully to what the academic answers. Now tell us, did the answer include something about chairs and sitting? To our experience, people familiar with the affordance concept tend to use chairs and sitting as their preferred example when trying to make a layman understand what the concept is about. Now ask the same question from the Google search engine, and you will find chairs and sitting in surprisingly many of the links in the search results.

Scholars have attempted to provide conclusive definitions for the affordance concept [6, 15-17]. However, the quest to track its definite meaning is still ongoing. Instead of providing a definition *a priori*, we argue that concepts reveal their nature through their actual uses. In this paper, we use Heidegger's perspective to analyze research texts where chair is provided as an example to demonstrate the affordance concept. Thereafter, we derived some understanding of affordances to IS research. We focus on these concepts from Heidegger's *Being and Time* [18]: familiarity, readiness-to-hand, present-at-hand, referential totality, breakdown, equipment, and referential totality.

This paper is structured as follows. In the following section, we briefly describe our methodology. We then present eight examples of how "chair" is used as an example of the affordance concept in multidisciplinary scholarly literature. Then we present our take on the Heideggerian perspective. Subsequently, we apply the Heideggerian lens to analyze the literature, and discuss the implications of this analysis to guide future research.

2 Research method

This essay aims to provide a Heideggerian interpretation to different variations of how "affordances of a chair" has been offered as an example in extant research literature. Our "Heideggerian" stance is aligned with ideas provided in Martin Heidegger's magnum opus "*Being and Time"* [18].

We conducted Google Scholar searches through which we identified academic literature discussing affordances of a chair. We then chose eight examples. This literature is derived from multiple fields and disciplines, including management [19], philosophy [20], and ergonomics [21]. After we present these examples, we discuss each of these through the Heideggerian perspective.

3 Eight examples of "affordances of a chair"

In this section, we offer eight instance of using "chair" as a means to demonstrate the meaning of the affordance concept. We present these examples in the chronological order.

3.1 Michael & Still (1992)

In an essay published in the *Theory & Society* journal, Michael & Still [22] discuss Gibsonian affordances from the (mainly Foucauldian) view of power-knowledge.

"*Objects and places in the environment, say a city, afford certain behaviors that are usually proscribed. A lampost*[1] *is not for climbing up, and yet it affords climbing up and a better vantage point. There is thus present in the environment a resource for resistance (just as there is also a resource for discipline - a lampost can serve panoptical ends). All around in the physical environment of surfaces are affordances that have been touched by disciplinary power, but which also reflect the ecological forces that relate organism to environment. Disciplinary power tells us that a chair is for sitting on, but ecological perception permits us to see that it affords standing upon, throwing, lying over, scratching against, and so on. There is a latitude, a collection of affordances, that inheres in the ecology of the situation and that outstrips the more or less meagre possibilities demarcated by power-knowledge.*" (p. 881)

3.2 Dreyfus (1996)

Our second example comes from Hubert Dreyfus [20], who has been called one of "the foremost interpreters of the work of Heidegger and Merleau-Ponty in the American continental tradition" [23] (p. 540). In this article [20], Dreyfus refers to "affordances of a chair" as follows:

"(...) to Western human beings a chair affords sitting. Because we have the sort of bodies that get tired and that bend backwards at the knees, chairs can show up to us - but not flamingos, say - as affording sitting. But chairs can only solicit sitting once we have learned to sit. Finally, only because we Western Europeans are brought up in a culture where one sits on chairs do they solicit us to sit on them. Chairs would not solicit sitting in traditional Japan."

3.3 Dainoff & Mark (2001)

Dainoff & Mark [21] discuss the affordance concept in a section in the International Encyclopedia of Ergonomics and Human Factors.

"*Affordance refers to a fundamental relationship in ergonomics – between the user and those elements in the world with which the user interacts during the performance*

[1] In the original text "lamp post" is indeed written as "lampost".

of goal-directed actions. … a conceptual tool for ergonomists to assess goodness to fit" (p. 1080)

"*Consider the simple problem of sitting down to eat a meal. We assume that the user will require both a chair and a table. (This assumption includes an implicit recognition of a broader social/cultural context including the act of eating being accompanied by eye contact and conversation among a group of diners.) These two elements of the environment (chair and table) should afford the possibility of the user being able to attain a reasonable posture while manipulating eating tools (knife, fork, spoon) and food objects. The question is: can a typical dining room chair be considered an affordance for the particular action sequence called sitting down to eat? The answer is yes only if the user in question is an adult. It would not be an affordance if the user in question is a three-year old child. Thus, within the definition of affordance we are required to simultaneously assess the physical characteristics of the chair and table along with the capabilities of the user – in this case, anthropometric attributes such as leg height and seated elbow height.*" (p. 1081)

3.4 Torenvliet (2003)

In the *interactions* issue of July/August 2003, Gerard Torenvliet [13] wrote an article titled *"We Can't Afford It! : The Devaluation of a Usability Term"*. In this article he argued that an emphasis on perception has decreased the value of the affordance concept. Instead, he stressed the need to focus on the *"actual properties of a thing in relation to a user"* (p. 17).

"It is no coincidence that we speak of affordances in the environment with the suffix of "ability"*—sit-ability, stand-ability, or push-ability. Affordances are things the environment has the ability to furnish an animal. They are opportunities for action. So, the chair I am currently sitting on is sit-able for me, an adult male. Two things need to be stressed. First, affordances exist independently of perception. Even in a dark room where I could not see my chair, it would still be sit-able for me. Second, affordances exist only as a relationship between an organism and an object; they are not properties of an object by itself. The chair that has the affordance of sit-ability for me does not have that same affordance for my six-month old daughter. She cannot sit, so the environment cannot have that affordance for her—at least not yet." (p. 14)*

3.5 Jarzabkowski and Pinch (2013)

Jarzabkowski and Pinch [19] also take chairs as an example when discussing affordance. They emphasize human agency for appropriating chair for many purposes:

"(…) problem is that affordances, perhaps because of their association with Gibson's original formulation of the term, give too much power over the types of social interaction permissible to the object doing the 'affording' (…). Often an affordance is simply equated with the 'function' of an object, such as the fact that the function of a chair is for sitting. The function of the object not only delimits the agency of the object but also ascribes a fixed intention or motivation to the person using the object. Thus a

chair is for sitting on and people, when they interact with a chair, have the unambiguous intention of sitting on it." (p. 582)

3.6 Costall & Richards (2013)

In a book section of *The Oxford Handbook of the Archaeology of the Contemporary World*, Costall & Richards [24] discuss "canonical affordances":

"*A chair is for-sitting-on whether or not anyone happens to be using it for that purpose. And it remains a chair even when someone is standing on it to change a light-bulb. Its 'canonical affordance' – the thing it is for (Costall 1995) – is objective, or better, impersonal (Morss 1985): 'one sits on chairs'. Nevertheless, canonical affordances still imply* us*, but in the plurality than the singular.*" (p. 87)

3.7 Costall (2014)

Alan Costall [14] further elaborates on the notion of "canonical affordances" in his chapter in the book *Rethinking Creativity: Contributions from Social and Cultural Psychology*:

"*I coined the term "canonical affordances" to capture the fact that many of the objects surrounding us have a single, definitive meaning …. For example, a chair is for sitting on, whether or not anyone is sitting on it, or using it instead to ward off an attacking lion, or standing on it to change a light bulb. One sits on chairs. And so – it would seem – in the case of man-made affordances most of their uses are not, after all, makers or creators but recipients of already established meanings."* (p. 51)

3.8 Keane (2014)

Our last example comes from an article in the journal *Anthropological Theory*, in which Keane [25] discusses affordances and reflexivity:

"So another crucial point to stress is (mere) potentiality: a chair may invite you to sit but it does not determine that you will sit. *You may instead use it as a stepladder, a desk, a paperweight, a lion tamer's prop, to burn as firewood, to block a door, to hurl at someone. Or you may not use it at all. Affordances are properties of the chair vis-à-vis human activity. As such they are real, and exist in a world of natural causality (they can hold down loose objects or catch fire), but they do not cause people to respond to them in any particular way."* (p. 7)

4 Heideggerian perspective (HP)

The objective of bringing Heidegger's perspective is not to delve into philosophical discussion of 'Being and Time' [18], but to see its relevance in clarifying the concept of affordances. Some useful terms are as follows.

Familiarity: Dasein (being-there) means that our mode of existence is different from other entities because we are immersed in activities. We are social, *"we inhabit a world, we are capably engaged in a meaningful context. Our world is the context in terms we understand ourselves, and within which we become who we are."* [26] (p. 30). Heidegger expressed that *being-in-the-world* means we are thrown into a context where we have a place in a meaningful whole where we deal or encounter with equipment and other Dasein. For example, the society in which the wedding ceremony is conducted have pre-understanding 'familiarity' of the context, at the same time the role of chair in this context.

Present-at-hand and ready-to-hand: According to Heidegger, "*the present-at-hand way of being in which entities are encountered as objects with properties is a derivative way that humans can relate to the world (for example to reflect mindfully) that is grounded ultimately in our practical understanding of the work (for example through using equipment).*" [27] (p. 277). However, we have to be careful that present-at-hand and ready-to-hand are not two different types of entities. "*Instead, all entities oscillate between these two separate modes: the cryptic withdrawal of readiness-to-hand and the explicit accessibility of present-at-hand.*" [28] (p. 19). For example, we can deal with chair as present-at-hand entity. This is a reflective observation of any object. For example, we make observation of the properties of chairs from distance rather than its use in practice. But, the affordances of chair is revealed when we use it in a particular context, let's say in wedding ceremony in this context. (See also the related discussion of "object/tool shift" [29-31]) [2]

Breakdown can refer to a permanent breakdown (obstructive) e.g. unable to find a chair. It also refers to temporary breakdown (obstinate) e.g. some part of the chair is missing, or malfunction (conspicuous) e.g. the chair is not appropriate in a particular context. The chair transform from the ready-to-hand mode to the present-at-hand object when its leg cracks. Once it becomes obtrusive, no longer functioning effectively, then we pay attention to its properties. Inability to identify affordances triggers a breakdown. We may also appropriate the chair for other affordances such as using the chair as firewood. However, based on our familiarity or in other terms because of the historicity of the chair, using chair as firewood is not a primary way of dealing with chairs. (See also Koschmann et al.'s [32] comparative analysis of the breakdown concept between Heidegger, Leont'ev, and Dewey.)

Equipment is not just a specific piece of tool, but a system of tool(s) that are in use in a particular context. The encounter with the equipment can be in a ready-to-hand mode means when we understand something not primarily by observation but by use. In other terms, we use the equipment *"in-order-to"* gets something done for the sake of *"towards-which"* someone. For example, chair as equipment in relation to other chairs, tables, knife and forks, foods, dining hall, etc., in-order-to have dinner, for the sake of a wedding ceremony.

Referential totality is a "*web of meaning, a significant whole. It is the arena in which things make sense to us and fit into our lives. It is the overall scheme in which we can act, produce, think and be.*" [26] (p. 52). In order to reveal affordances of some

[2] We thank Sampsa Hyysalo for bringing to our attention that the difference between the 'present-at-hand' and 'ready-to-hand' modes is known as the 'object/tool shift', and is a central topic in both activity theory and category theory.

entities more clearly, we have to place it within a particular context (or referential totality). The meaning of affordances does not mean enquiring about entities and its properties instead, we have to pay attention to equipment as it reveals itself in use. In ready-to-hand mode, all entities involved form the 'referential totality' and do not remain as individual items of equipment, but a referential whole without parts [28]. For example, affordances of chair in the context of wedding ceremony.

5 Analysis through the Heideggerian perspective

We provide a discussion of the various views presented in our eight examples through the lens of Heidegger.

From the Heideggerian perspective there are two ways of understanding the being of entities, for example when we say a chair is in the dark room [13]. It means the chair with properties exist in the dark room but it is in present-at-hand mode. But the affordances always perceived and actualized when we really involved in some activities with the chair in relation to some particular context or 'referential totality'.

The other important concept in this regard is 'familiarity'. The term familiarity suggests that we all are thrown into the world where we are conditioned by certain cultural and social norms. Therefore, we have primordial understanding of affordances of entities around us. For example, why do the authors think that if we put the chair into the dark room the affordances still exist because he has primordial understanding of the chair and it makes sense to see affordances of chair in author's referential totality? However, if we throw that chair to some location where the tribes have never seen the chair then they might either not see the affordances or appropriate it for some other purpose. The idea of familiarity is visible in the example by Dreyfus [20], and in discussion about 'canonical affordances' [14, 24].

Looking at the properties of chair and then actualizing the affordances in Heideggerian term is to go from present-at-hand mode to ready-to-hand mode. However, Heidegger said in everydayness we do not observe properties, but just use it (e.g., we just sit on the chair and do not care about the properties of the chair). Having said that the properties of chair are important to provide functional affordances, but in everyday practice we never reflect on the properties, but put the chair into referential totality, for example in an office or in a dining room or in a theatre. Heidegger, however, mentioned that whenever we get into breakdown situation, for example if the chairs leg is removed or size of the chair is smaller than dining table then we get back to present-at-hand (i.e. "unreadiness-to-hand" [27]) mode and appropriate the chair according to the context. Therefore, that it become ready-to-hand equipment and make sense in referential totality.

It is true that a chair can have multiple affordances. However, people share historical understanding about chairs. According to Pynt & Higgs [33], history of seating starts from about 3000 BC. The understanding of chairs is so deeply related to the activity of sitting, that sitting is almost inseparable from the idea of a chair. Additionally, while using chair's affordances we pay attention to social norms. For example, a chair placed in a palace cannot be used to stand on, even though it might have that affordance. The familiarity for a majority of people is to use chair primarily for sitting. The affordance

of sitting is what largely defines the chair according to social norms. Therefore, affordances are always cultural-historical understanding among people in a particular context and delimited by social norms. If we start to use chair as a staircase instead of sitting, this according to Heidegger it is not proper use of equipment [1]. Alternatively, to change the traditional identity of a chair as staircase, we have to change the social norms, educate the people and re-define its meaning considering referential totality. For example, Heidegger's terminology in 'Being and Time', used in this paper, are examples of overcoming traditional language barriers in Western philosophy.

Certainly, we have a very long history of chairs, and chairs have usually served the purpose of sitting. Most of the people are used to chairs and take the idea of a chair for granted. The idea of chair is extremely well established in our Western culture [20]. This is in line with Heidegger's concept of familiarity: a chair is for sitting because we have learned that it is for sitting. Alternatively, our distant ancestors have had a need to sit and they have created some sit-able objects that they have called chairs. We present-day Western people have come to that cultural-historical understanding since our birth. That is a very strong version of Heideggerian familiarity on the object class level.

Nevertheless, how about objects with graded membership to chairs? For example, the affordances of a bench, a stool, a footstool, a sofa, a throne, a rocking chair, or a sgabello[3], may not be as obvious as the master-class of 'chair'. More specifically, far from obvious are the affordance-boundaries between each of these classes.

The way of understanding affordances in present-at-hand mode is to stand in front of chair, and subconsciously analyze properties and identify the affordances of it. However, if we think in a day-to-day human activity than we do not pay much attention to the particular properties of the chair. Another example is entering our office, we just go, sit, and start talking to people, or check email. Even the chair may be "invisible" to us when we are engaged in our activities. What we experience is affordances, not properties.

Heidegger stated that when we are absorbed in day-to-day activities, the goal and purpose also disappear [1]. Even if we get tired, it is not as if we contemplate that we are tired, and that chair has those affordances of sit-ability and rest-ability, and then sit. What we do in reality is just sit and start doing other activities like talking to friends, listening to music, reading books, etc.

Chairs and sitting go so tightly together that un-sit-ability takes away from the 'chairness' of a chair.[4] In general, chairs provide the affordance of sitting – that is to what we are accustomed. Because "*one* sits on chairs" [14, 20, 24], we do not even need a physical chair – or a user – to prove sit-ability. Sitting is already embedded in the *idea* of a chair. Of course, a designer can build a chair that is only sit-able in a particular

[3] Sgabello is an Italian Renaissance era back-stool. This example underlines the notion of Heideggerian familiarity. What a sgabello affords is far from obvious to a contemporary man. In the 16th century *House of Medici* that had probably been common knowledge.

[4] This claim raised much discussion in the IRIS working group. Fellow discussants listed several examples of chairs that are made purposely un-sittable. For example, Tone Bratteteig mentioned some public benches in Oslo, where a spiky surface had been added. The spiky surface was interpreted as a designed feature signalling that the benches were not for sitting. The spikes were removed after a public debate as the bench owners did not want to be interpreted as hostile towards potential "sitters". Our point is that the benches were perceived as "benchy", while they did not afford sitting – at least not comfortably and for a long time.

context by particular people, while not in other contexts by other people. However, a chair that is across all contexts un-sit-able raises a doubt of its chair-ness. In a sense, an object that claims the identity of an established category (e.g. chair) needs to live according to certain expectations. Implicit and explicit social norms exist for a chair to be accepted as a chair.

Familiarity is also linked to perception; an unconventionally designed chair may not be perceivable as sit-able immediately during the first encounter. In more careful investigation an artifact can be found to be perfectly sit-able, and then properly understood as a chair.[5]

This brings us into another big question: what is sitting, then? Sitting on a toilet seat, on a recliner, and on a throne, are not the same activity – yet they are variations of sitting. Should we then open the black box – not only of "sitting" – but also of all the activities we attach to the affordance concept?

The examples from Dreyfus [20] and Jarzabkowski & Pinch [19] bring social norms, power, and human ability into the picture. Bodily abilities indeed affect the perception and actualization of affordances. Heidegger does not explicitly mention this, however, one of his followers, Merleau Ponty, in his 'phenomenology of perception' argued that human body plays an important role in perceiving and actualizing affordances.

Even though an artifact may afford a sphere of unintended actions, those actions may not be socially appropriate. Some actions may be against the law or against the social conventions. When you notice these boundaries of social acceptance, we may raise questions of where do the boundaries come from? How were these norms established in the first place? How can we change these norms?

A chair in a dark room [13] may afford sit-ability, but under the condition that the person is able to locate the chair in the first place. In other words, the dark room example emphasizes potentiality and takes actualization for granted. In reality, the low visibility in the dark room may create a situation in which that potentiality is difficult to actualize. Instead of the person being able to sit, he may stumble on objects, fall down, and get hurt.

Connection to the IS field

The affordance concept has gained strong ground among researchers who study *use* of technology in accomplishing tasks in organizing. These researchers who work mostly in the fields of information systems and organizational studies, have appropriated the concept differently, as is visible in the text by Jarzabkowski and Pinch [19]. IT-organizing scholars view an affordance to "emerge in relation to the activities of those using the objects" [19] (p. 582). In this thinking promoted particularly by the students of *sociomateriality*, affordance comes to reality in a performed relationship, i.e. in practice [19, 34].

This IT-organizing view brings context in the picture, as actual people in a particular place and time establish relationships. Affordances are established through interaction, and may involve learning, creativity such as repurposing, and explorations of trial and error. Mutual relationality does not privilege the designer's role, as the user also

[5] Of course, many objects that are not chairs are still sitable. In other words, the affordance of sitting is not exclusively associated with chairs.

"designs" the assemblage of objects and negotiates within her social configuration in a particular time and space. This view lacks any determinism. Jarzabkowski and Pinch [19] (p. 582) formulate that:

"(..) any object may afford multiple possibilities that are beyond those purposes for which it was designed (...). That is; an object may be repurposed in situated human interactions (...). For example, a chair affords more activities than the designed purpose of sitting, such as being repurposed as a step for reaching a high object, as a lock under a door handle, as firewood when broken, or even, imaginatively, as a shield for modesty, as so aptly illustrated in Lewis Morley's iconic 1963 photo of Christine Keeler in the aftermath of the Profumo affair. Yet, such repurposing, while enabled by the many creative impulses of human action, is not infinite."

The idea here from IS perspective is when we design an artifact, we have to have understanding of referential totality. At the same time, we need to have understanding of users everyday activities, how they experience the artifact based on their familiarity. If the artifact does not make sense in their totality and everyday familiarity then they will always find herself in breakdown situation.

The example of chair, with its "canonical affordance" for sitting, also provides us the reminder to focus on situated cultural-historical meanings. It is not just designers who give meanings, or users who construct meanings. Certain meanings are already given prior to the existence of any particular artifact is designed or put into use.

Familiarity has implications for designers as well. Designers need to be familiar with the referential totality and understanding of the everyday use. This does not guarantee designing the perfect artifact, but provide an idea to design suitable artifact that can be appropriated with use. We need to first observe the day-to-day activities, and then we derive the properties of the artifact.

A final aspect is that of socially appropriate behavior and affordances. Extant research has either incorporated social designation inside the affordance concept, as Fayard & Weeks did in their 2007 paper [35]. Another way is to address social designation and normativity through another concept such as *habitus*, in the way of Fayard & Weeks in their 2014 paper [34].

6 Conclusion

We have not engaged deep into theoretical acrobatics in the present article concerning the plethora of affordance definitions [e.g. 6]. Instead of arguing for the one correct definition, we have provide an encouragement for researchers to embrace the different perspectives from which affordance can be viewed.

In summary, in our everyday existence we are always engaged with other Dasein and equipment (ready-to-hand entities) and construct or reconstruct our 'World'. We are already thrown into the world 'being-in-the-world' and have pre-understanding (familiarity) of the context through our involvement in everyday practice; the understanding can be vague though. Therefore, any entity we encounter makes some meaning to us based on the familiarity to our existing practice. However, if we encounter entities that are unfamiliar to us (or defined by context-independent properties) then the entities are just a present-at-hand entity and not equipment for us,

consequently we cannot comprehend the practical meaning or another term we cannot actualize the affordances.

The implications of Heidegger's perspective to the IS researchers and practitioners is that the entity that we deal with is not defined by its properties (present-at-hand) mode, but to understand its place in a practice (ready-to-hand), in our terms to understand its affordances in referential totality.

We can never know all potentiality that is hidden in technologies. Context and rationality matter a lot for affordances, and thus should not be neglected. Good design needs to support the actualization of object-embedded potentiality in its context. If a chair is mostly used in dark rooms [13], the actualization of potentiality may be supported using fluorescent paint, for instance.

Through this 'Heideggerian lens', we have attempted to bring forth the confusion that we have identified with the affordance concept. Even with a simple example of 'chair', the affordance concept gets rather ambiguous and multifaceted. Now, as information systems researchers, we are studying much more complex phenomena than chairs – for example: enterprise systems, social media, and information infrastructures. The trouble with the affordance concept is enormous (see also our related analysis in IS [36], and Kaptelinin's analysis in HCI [37]).

In sum, this article has provided more questions than answers. Luckily, this is a fruitful starting point for future research to address the conceptual specificity dilemma. Maybe we should supplement the affordance concept with new concepts to increase granularity and specificity. Another possibility is that we get rid of the concept, and replace it with a better vocabulary.[6]

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References

1. Gibson, J.J.: The ecological approach to visual perception. Houghton-Mifflin, Boston (1979)
2. Norman, D.A.: Affordance, conventions, and design. interactions 6, 38-43 (1999)
3. Gaver, W.W.: Technology affordances. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 79-84. ACM, New Orleans, Louisiana, USA (1991)

[6] For instance, Victor Kaptelinin [37] weighs some alternative concepts such as *signifiers*, *feedforward*, and *skeuomorphism,* in his book chapter in *The Encyclopedia of Human-Computer Interaction*.

4. Gielo-Perczak, K., Karwowski, W.: Ecological models of human performance based on affordance, emotion and intuition. Ergonomics 46, 310-326 (2003)
5. Cardellicchio, P., Sinigaglia, C., Costantini, M.: The space of affordances: A TMS study. Neuropsychologia 49, 1369-1372 (2011)
6. Şahin, E., Çakmak, M., Doğar, M.R., Uğur, E., Üçoluk, G.: To Afford or Not to Afford: A New Formalization of Affordances Toward Affordance-Based Robot Control. Adapt. Behav. 15, 447-472 (2007)
7. Strong, D.M., Johnson, S.A., Tulu, B., Trudel, J., Volkoff, O., Pelletier, L.R., Bar-On, I., Garber, L.: A Theory of Organization-EHR Affordance Actualization. J. Assoc. Inf. Syst. 15, 53-85 (2014)
8. Pozzi, G., Pigni, F., Vitari, C.: Affordance Theory in the IS Discipline: a Review and Synthesis of the Literature. Twentieth Americas Conference on Information Systems, pp. 1-12, Savannah (2014)
9. Volkoff, O., Strong, D.M.: Critical Realism and Affordances: Theorizing IT-Associated Organizational Change Processes. MIS Q. 37, 819-834 (2013)
10. Faraj, S., Azad, B.: The Materiality of Technology: An Affordance Perspective. In: Leonardi, P.M., Nardi, B.A., Kallinikos, J. (eds.) Materiality and Organizing : Social Interaction in a Technological World, pp. 237-257. Oxford University Press, Oxford (2012)
11. Leonardi, P.M.: When Flexible Routines meet Flexible Technologies: Affordance, Constraint, and the Imbrication of Human and Material Agencies. MIS Q. 35, 147-167 (2011)
12. Markus, M.L., Silver, M.S.: A Foundation for the Study of IT Effects : A New Look at DeSanctis and Poole's Concepts of Structural Features and Spirit. J. Assoc. Inf. Syst. 9, 609-632 (2008)
13. Torenvliet, G.: We can't afford it!: the devaluation of a usability term. interactions 10, 12-17 (2003)
14. Costall, A.: Canonical affordances and creative agency. In: Glăveanu, V.P., Gillespie, A., Valsiner, J. (eds.) Rethinking Creativity: Contributions from Social and Cultural Psychology, pp. 45-57. Routledge (2014)
15. Stoffregen, T.A.: Affordances as Properties of the Animal-Environment System. Ecol. Psychol. 15, 115-134 (2003)
16. Chemero, A.: An Outline of a Theory of Affordances. Ecol. Psychol. 15, 181-195 (2003)
17. Jones, K.S.: What Is an Affordance? Ecol. Psychol. 15, 107-114 (2003)
18. Heidegger, M.: Being and time. Harper & Row, New York (1927/1962)
19. Jarzabkowski, P., Pinch, T.: Sociomateriality is 'the New Black': accomplishing repurposing, reinscripting and repairing in context. M@n@gement 16, 579-592 (2013)
20. Dreyfus, H.L.: The Current Relevance of Merleau-Ponty's Phenomenology of Embodiment. The Electronic Journal of Analytic Philosophy 4, (1996)
21. Dainoff, M.J., Mark, L.S.: Affordances. In: Karwowski, W. (ed.) International Encyclopedia of Ergonomics and Human Factors, pp. 1080-1083. Taylor & Francis, London (2001)
22. Michael, M., Still, A.: A resource for resistance: Power-knowledge and affordance. Theor. Soc. 21, 869-888 (1992)

23. Reynolds, J.: Dreyfus and Deleuze on L'habitude, Coping, and Trauma in Skill Acquisition. Int. J Phil. Stud. 14, 539-559 (2006)
24. Costall, A., Richards, A.: Canonical Affordances: The Psychology of Everyday Things. In: Graves-Brown, P., Harrison, R., Piccini, A. (eds.) The Oxford Handbook of the Archaeology of the Contemporary World, pp. 82-93. Oxford University Press, Oxford (2013)
25. Keane, W.: Affordances and reflexivity in ethical life: An ethnographic stance. Anthropol. Theor. 14, 3-26 (2014)
26. Polt, R.: Heidegger: An Introduction. Cornell University Press, Ithaca (1999)
27. Riemer, K., Johnston, R.B.: Rethinking the place of the artefact in IS using Heidegger's analysis of equipment. Eur. J. Inf. Syst. 23, 273-288 (2014)
28. Harman, G.: Technology, objects and things in Heidegger. Cambridge J. Econ. 34, 17-25 (2010)
29. Engeström, Y.: When is a tool? multiple meanings of artifacts in human activity. In: Engeström, Y. (ed.) Learning, Working and Imagining : Twelve Studies in Activity Theory, pp. 171-195. Orienta-Konsultit Oy, Helsinki (1990)
30. Krömer, R.: Tool and object: a history and philosophy of category theory. Birkhäuser, Basel, Switzerland (2007)
31. Kuutti, K.: Activity Theory as a potential framework for human-computer interaction research. In: Nardi, B. (ed.) Context and Consciousness: Activity Theory and Human-Computer Interaction, pp. 17-44. MIT Press, Cambridge (1996)
32. Koschmann, T., Kuutti, K., Hickman, L.: The Concept of Breakdown in Heidegger, Leont'ev, and Dewey and Its Implications for Education. Mind, Culture, and Activity 5, 25-41 (1998)
33. Pynt, J., Higgs, J.: A History of Seating, 3000 BC to 2000 Ad: Function Versus Aesthetics. Cambria Press (2010)
34. Fayard, A.-L., Weeks, J.: Affordances for practice. Information and Organization 24, 236-249 (2014)
35. Fayard, A.-L., Weeks, J.: Photocopiers and Water-coolers: The Affordances of Informal Interaction. Organ. Stud. 28, 605-634 (2007)
36. Stendal, K., Thapa, D., Lanamäki, A.: Analyzing the Concept of Affordances in Information Systems. 49th Hawaii International Conference on System Sciences (HICSS-49). IEEE, Kauai, Hawaii, USA (2016)
37. Kaptelinin, V.: Affordances. In: Soegaard, M., Dam, R.F. (eds.) The Encyclopedia of Human-Computer Interaction. The Interaction Design Foundation (2014)