New Ideas in Psychology 51 (2018) 21–26

Contents lists available at ScienceDirect

New Ideas in Psychology

journal homepage: www.elsevier.com/locate/newideapsych

Towards an ecological approach to emotions and the individual differences therein

Rob Withagen

Center for Human Movement Sciences, University Medical Center Groningen, University of Groningen, P.O. Box 196, 9700 AD Groningen, The Netherlands

ARTICLE INFO

Keywords:
Affordances
Dewey
Ecological psychology
Emotions
Information
Gibson

ABSTRACT

In the present paper, I aim to develop a Gibsonian approach to our emotional responses to the environment. To that end, the relationships between affordances, emotions, and information will be explored. After laying out Gibson's original concept of affordances as possibilities for action, I sketch a recent view that holds that affordances often invite or solicit actions. It is argued that Dewey's theory of emotions is a natural ally of this concept of inviting affordances. Focusing on the emotions of fear and anger, I will discuss the individual differences in our emotional reactions. To explain these phenomena, a user-based account of information is needed. Drawing upon both developmental systems thinking and the insights of the clinical psychologist Miller, a conception of information is developed that can account for our emotional reactions and the individuals differences therein.

> Behavior affords behavior, and the whole subject matter of psychology and of the social sciences can be thought of as an elaboration of this basic fact. Sexual behavior, nurturing behavior, fighting behavior, cooperative behavior, economic behavior, political behavior—all depend on the perceiving of what another person or other persons afford, or sometimes on the misperceiving of it.
>
> Gibson, 1979/1986, p. 135.

1. Introduction

The American psychologist Gibson, though mainly known for his work on (visual) perception, aimed to formulate a new foundation of psychology (e.g. Reed, 1988). Arguing against the mechanistic metaphors that plagued psychology since the 17th century, he made room for a more biologically plausible psychology that takes the autonomous activity of an animal in its meaningful environment to be central. Although Gibson introduced some new concepts to capture this activity, he did not succeed in developing a whole new psychology. However, he believed that his suggested ecological turn can induce a radical change of arguably the whole social sciences. The motto of this paper, which comes from Gibson's final book *The ecological approach to visual perception* (1979/1986), is indicative of that.

Ever since Gibson's death (in 1979), several authors have elaborated on his concepts and core ideas, and developed ecological approaches capable of dealing with social, cognitive, and affective phenomena (e.g., Chemero, 2016; Costall, 1995; Dent-Read & Zukow-Goldring, 1997; van Dijk & Rietveld, 2017; Heft, 2001; Reed, 1996; Rietveld & Kiverstein, 2014; Withagen & van der Kamp, 2018). Heft (2001), for instance, combined Gibson's conceptual framework with Barker's theory of behavior setting to account for social behavior. And Rietveld and colleagues used Gibson's concepts to come to grips with the changes in the affective experiences of patients after a deep brain stimulation (e.g., de Haan, Rietveld, Stokhof, & Denys, 2013; Rietveld & Kiverstein, 2014).

In the present paper, I aim to further the Gibsonian approach by exploring the relationships between affordances, emotions, and information. I will start with some recent ideas on affordances. Although Gibson originally defined affordances as *possibilities* for action, several recent authors have suggested that affordances often *invite* or *solicit* action (e.g., Bruineberg & Rietveld, 2014; Dings, in press; Dreyfus & Kelly, 2007; Heft, 2010; Käufer & Chemero, 2015; Rietveld, 2008; Rietveld & Kiverstein, 2014; Withagen, Araújo, & de Poel, 2017; Withagen, de Poel, Araújo, & Pepping, 2012). It is argued that a somatic theory of emotions, initiated by James and furthered by Dewey, nicely complements this concept of inviting affordances. After laying out a brief sketch of this theory, I will focus specifically on the emotions of fear and anger, and discuss the individual differences in our emotional reactions to certain situations. To come to grips with these phenomena, and thus to get a better understanding of "the daily life of the mind" (Reed, 1996, p. 140), a user-based theory of information is needed (e.g., Withagen & van der Kamp, 2010). Drawing upon developmental systems thinking and the insights from the clinical psychologist Miller, I aim to sketch the outlines of a user-based account of information capable of dealing with the variation in our emotional reactions to situations.

E-mail address: R.G.Withagen@umcg.nl.

https://doi.org/10.1016/j.newideapsych.2018.04.004
Received 24 November 2017; Received in revised form 8 March 2018; Accepted 15 April 2018

2. Affordances

Gibson developed the concept of affordances as an alternative to the mechanistic conception of the environment. In the 17th century, several founders of modern science had argued that the world consists exclusively of matter in motion (e.g., Dijksterhuis, 1950). Although this ontological commitment was very fruitful for the study of the inanimate world, it was problematic for the study of human behavior. After all, it implies that the environment we live in is meaningless. Thus, the meaningful world that we experience, full of color, taste, smell and so on, is a sheer illusion—the meaning is attached to the world by psychological processes and is not to be found "out there" in the world. In other words, the world as portrayed by the founders of the mechanization of the worldview was an environment at which humans were not at home (e.g., Costall, 1995, 2004; Koyré, 1965; Reed, 1996).

Gibson took aim at this physicalist conception of the environment. As he put it in his last book *The ecological approach to visual perception* (Gibon, 1979/1986),

> According to classical physics, the universe consists of bodies in space. We are tempted to assume, therefore, that we live in a physical world consisting of bodies in space and that what we *perceive* consists of objects in space. But this is very dubious. (p. 16; emphasis in original)

In Gibson's view, the environment we live in does not consist of matter in motion; rather, it consists of possibilities for action. He coined these possibilities affordances and defined them as follows: "The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill" (Gibson, 1979/1986, p. 127; emphases in original). Note that an affordance exists by virtue of the relationship between the physical properties of the environment and the action capabilities of the animal. Whether a cup affords grasping for me depends on the size of the cup relative to the span and flexibility of my hand. According to its founder, this relational character of affordances made it a revolutionary concept. Indeed, the concept of affordances "cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy" (Gibson, 1979/1986, p. 129). Moreover, and relatedly, an environment consisting of affordances is a meaningful environment. The affordances determine what an animal can do in its environment, and, thus, what the environment means to the animal (e.g., Gibson, 1982).

Importantly, Gibson's conception of the environment allows for a theory of perception that does not hold that meaning is attached to a neutral stimulus via psychological processes, but one that states that meaning is directly perceived. Hence, such a theory of perception is more in line with our phenomenological experience of the environment (e.g., Heft, 2003). According to Gibson's (1966, 1979/1986) theory of direct perception there are patterns in the ambient arrays that inform about the meaningful affordances in the animal's environment. Gibson asserted that animals directly perceive the affordances by picking up these patterns. That is, in his view, animals do not perceive the environment via a representation, as the cognitive view entails, but are in direct perceptual contact with it.

Although Gibson aimed at an animal-relative conception of the environment that overcomes the subject-object framework, he nevertheless "objectified" the environment. His critique on the Gestalt psychologists provides an apt illustration of that. In developing the concept of affordances, Gibson was clearly inspired by the concept of demand character that was introduced by the Gestalt psychologists (Gibson, 1979/1986, pp. 138–140). Koffka (1935), for example, asserted that objects can be "endowed with a demand character" (p. 354), depending on the intentions and concerns of the agent. When an animal is hungry, for example, the available food in his surroundings has such a character. Gibson, however, did not want the affordances of the environment to be dependent on the needs and desires of the animal—they are mere possibilities for action that exist independently of the animal's experiences. As Gibson (1982) put it in a critique on the Gestalt psychologists,

> The *affordances* of the environment are permanent, although they do refer to animals and are species-specific. The positive and negative *valences* of things that change when the internal state of the observer changes are temporary. The perception of what something affords should not be confused with the 'coloring' of experience by needs and motives. Tastes and preferences fluctuate. Something that looks good today may look bad tomorrow but what it actually *offers* the observer will be the same. (p. 410; emphases in original)

Hence, although Gibson (1979/1986) stressed that the environment that animals live in is meaningful and provides action possibilities "either for good or ill" (p. 127), his concept of affordances did not leave much room for how we relate to or experience the environment (see e.g. Costall, 1995; Ratcliffe, 2015, p. 61). Indeed, Gibson's concept of affordances nicely captures what we *can* do in the environment, but it is limited in describing what the environment does to us.

2.1. Inviting affordances

Over the last decades, several authors have criticized Gibson's conception of affordances. They argued that affordances are not mere possibilities for action, but often *invite* or *solicit* action (e.g., Dings, in press; Heft, 2010; Käufer & Chemero, 2015; Rietveld, 2008; Rietveld & Kiverstein, 2014; Withagen et al., 2012; Withagen et al., 2017). These authors drew upon diverse disciplines to make this claim, including art, architecture, and phenomenology. Arguably the first authors who emphasized the soliciting character of affordances were Dreyfus and Kelly (2007). Although these phenomenologists were aware of Gibson's critique on the Gestalt psychologists, they believed that the idea of demand character does justice to the way we experience (and act in) the world.

> We use the Gestaltist's term 'solicits' to refer to a datum of phenomenology. To say that the world solicits a certain activity is to say that the agent *feels immediately drawn* to act a certain way. This is different from *deciding* to perform the activity, since in *feeling immediately drawn* to do something the subject experiences no act of the will (Dreyfus & Kelly, 2007, p. 52, emphases in original)

Hence, according to this phenomenological analysis, the environment does not appear as a manifold of possibilities the agent has to choose from, rather the environment is "*calling for* a certain way of acting" (Dreyfus & Kelly, 2007, p. 52; emphasis in original) with the agent responding to these callings.

Interestingly, especially for the present purposes, the concept of inviting affordances has been proven useful, and is actually partly developed, to understand emotional responses, particularly those of psychiatric patients. In their work on deep brain stimulation, Rietveld and colleagues developed the concept of the field of affordances (e.g., de Haan et al., 2013; Rietveld & Kiverstein, 2014). They distinguished this field from the landscape of affordances (see also Bruineberg & Rietveld, 2014). Whereas the landscape describes all the action possibilities for a certain animal in a particular environment, the field captures the lived experience of them, that is, their solicitations. Rietveld and colleagues depicted the field of affordances in a four dimensional graph that captures the number of perceived affordances, their degree of solicitation, their affective allure, and the temporal dimension. Each bar in Fig. 1 represents a perceived affordance, the height of the bar indicates its degree of solicitation, and its color represents the affective allure (e.g., being dangerous or very attractive). In addition, the depth of the graph depicts the temporal dimension—the solicitations can change over time. Based on the reports of patients, Rietveld and colleagues (e.g., de Haan et al., 2013; Rietveld & Kiverstein, 2014) sketched possible fields of affordances (see Fig. 1). For a normal person, there are always multiple affordances soliciting to varying degrees, each with