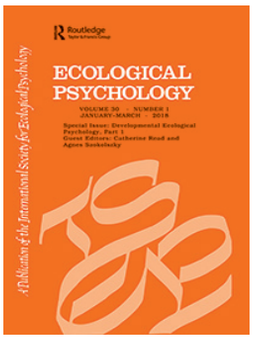

Ecological Psychology

ISSN: 1040-7413 (Print) 1532-6969 (Online) Journal homepage: https://www.tandfonline.com/loi/heco20

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To cite this article: Harry Heft (2018) Places: Widening the Scope of an Ecological Approach to Perception–Action With an Emphasis on Child Development, Ecological Psychology, 30:1, 99-123, DOI: 10.1080/10407413.2018.1410045

To link to this article: https://doi.org/10.1080/10407413.2018.1410045

ECOLOGICAL PSYCHOLOGY
2018, VOL. 30, NO. 1, 99–123
https://doi.org/10.1080/10407413.2018.1410045

Routledge
Taylor & Francis Group

Places: Widening the Scope of an Ecological Approach to Perception–Action With an Emphasis on Child Development

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ABSTRACT

An animal's habitat is filled with places that support activities in daily life. There are places, for example, that afford sleeping, eating, hiding, and gathering with others. Most places reflect the environment's nested structure. Even as perception–action is coupled to structure at the level of affordances, it is also coupled especially in human societies to dynamic structures at the level of places within which affordances are nested. These places have a distinctive complexity arising from the collective actions of individuals. For this reason, place-specific activities in human habitats are nearly always embedded in collective *social practices*. If children are to function adaptively as social beings in the community where they develop and live from day to day, they must learn not only *where* such places are located but also and critically *how to participate in them*. Owing to shared intersubjective intentions that give rise to places as behavior settings, individuals' actions in community settings are normatively constrained in the course of their participating in those settings. Consideration of the place within which perception–action is nested is indispensable if we hope to attain an adequate understanding of human perception–action in community settings as well as in some of the settings where research is conducted.

> What are the concepts needed for a proper study of behavior? I begin with *activity*, activity with a function, of course. Activity within an *environment* to which an organism is *responsive*, and *adaptation* to that environment as organism and environment change in their continual relationship and exchange. (E. J. Gibson, 2003, p. 293)

Ecological psychology takes dynamic organism-environment reciprocity as its core tenet. Concerns about change over time then is intrinsic to all psychological inquiry from the standpoint of an ecological perspective. For this reason, ecological psychology is, by its very nature, a developmental psychology. Still, one might pragmatically designate a certain subset of work from an ecological perspective as developmental when its emphasis is on changes in psychological functioning *within a certain age range* anywhere over the course of the life span. Research to date emphasizing changes in perception–action with age as a marker has been limited mostly to the period between infancy through early childhood.

One way to organize this body of research is with reference to *features of the environment* toward which activity is directed and coordinated. If we do so, the following lines of inquiry

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stand out: the development of locomotion in relation to different *surface properties* and *surface layout* such as brinks, slopes, steps, and gaps (e.g., Adolph, 2000; Adolph, Eppler, & Gibson, 1993; Adolph, Joh, & Eppler, 2010; E. J. Gibson et al., 1987; E. J. Gibson & Walk, 1960; Rader, Bausano, & Richards, 1980); the development of reaching, grasping, and manipulation in relation to stationary and moving *objects* (e.g., Butterworth, Verweij, & Hopkins, 1997; Von Hofsten & Ronnqvist, 1988) and *tools* (e.g., Cox & Smitsman, 2000; Kahrs, Jung, & Lockman, 2013; Lockman, 2000); and the development of actions in relation to *other persons* (e.g., Fogel, 1993; Nomikou, Leonardi, & Rączaszek-Leonardi, 2016; Rączaszek-Leonardi, Nomikou, & Rohlfing, 2013). Such an emphasis to date on surface layout, objects, and other organisms is fitting considering how basic those environmental features are for many species. As for humans, walking on surfaces bipedally, grasping and manipulating detached objects with forelimbs, and sustained social engagement with others are among the actions that are most distinctive of our species' lineage.

It goes without saying that there is much more work to be done as researchers consider the development of perception–action in relation to other features of environments. That said, one feature seems especially in need of examination because of its relative neglect to date in the face of its sheer ubiquity, namely, *place*. Perception–action of any sort always occurs *somewhere* and, as we will see, where it occurs *matters*. Places have significance for the character of activities of animals.

By way of an introduction, let us briefly consider here at the outset three reasons place is in need of greater scrutiny by ecological psychologists than it has received thus far.

- First, as just mentioned, places are ubiquitous in any animal's habitat. A habitat is filled with places that are distinguishable in terms of their functional and psychological significance for an animal. All terrestrial animals regularly locate places that are suitable for activities such as sleeping, feeding, foraging, nesting; typically, they alter those places to make them more suitable for such functions. Much of their daily activities involve such actions-in-place.

  In human communities especially, place-specific activities such as those just mentioned are nearly always embedded in meaningful, collective *social practices*. Some of the consequences of these collective actions can be seen in the wide range of qualitatively different types of places only found in human communities, such as those of a commercial, educational, religious, cultural, and recreational nature. If children are to function adaptively as social beings in the community where they develop and live from day to day, they must learn not only *where* such places are located but also and critically *how to participate in them*.
- Second, an essential goal of ecological psychology is to understand the structure and the regularity of perception–action over time. But as we will see, many of the patterns of action that we observe much of the time as participants in the life of our own communities cannot be adequately understood without an awareness of the places where those actions occur. However, the need to provide an account of the place where an action occurs is rarely seen as pressing because the places within which actions are situated are barely noticeable to us much of the time.[1] The place of place in psychological inquiry about human action, in particular, tends to recede from view because it remains part of

[1] In Western cultures, at least, focus is on the action rather than what frames the action (Nisbett, 2003).

the background of tacit understanding that we bring to bear when making sense of some observed action. In spite of that, place turns out to be a prominent and often indispensable basis for understanding much of human activity.

- Third, an analysis of place as it is manifested in the human econiche will offer ecological psychologists a largely untapped avenue for understanding distinctive dimensions of *human* experience and development. We have made progress in shedding light on patterns of human perception–action in relation to aspects of our habitat that are also found in habitats of other species. But those notable gains should not mask the differences that have emerged as a consequence of the particular evolutionary path taken by our species lineage. One of those differences, if not in kind but in degree, is the appearance of places that exist by virtue of interdependent collective social actions. The latter in conjunction with human possibilities for establishing conventional meanings give rise to open-ended possibilities unique to human ways of life.

The first half of this article briefly addresses issues relating to *place* in psychology considered broadly. We initially consider some of the reasons place has been much neglected in the science of psychology to date and how this circumstance in psychology is anomalous among the natural and life sciences. Then we briefly examine two rare instances in the psychological literature when place has been considered, namely in the work of the ecological psychologists James Gibson and Roger Barker. In the second half of the article, we will focus more specifically on the place of place in relation to study of human development during childhood.[2]

The disciplinary neglect of place

The science of psychology has long had a blind spot when it comes to *place*.[3] Apart from a few noteworthy exceptions, research in ecological psychology is not much different in this respect. For instance, the place where an experiment is conducted typically does not receive the scrutiny that arguably it often needs. The reasons for this blind spot in nearly all of psychological science are not difficult to identify. One need merely recall that psychology was formally established from its very beginnings in the late 19th century as an experimental *laboratory* science. Indeed, psychology would seem to be unique among the sciences for having started out as an experimental science. The first experimental psychologists appropriated the research protocols of experimental physiology, and the systematic application or presentation of a limited number of factors "external" to the organism under controlled conditions soon became the sine qua non of experimental psychology.[4] This methodological paradigm was embraced not only by the first generation of introspectionists but also by the generations of

[2] Although the topic of place attachment has been of concern to environmental psychologists for quite some time, it is not considered in this article. In my view, much of this literature falls short when it comes to offering some systematic way of conceptualizing the environment. One tenet of an ecological approach to psychology is that any adequate account of psychology must include from the outset consideration of the environment in relation to which organisms adapt and develop, as the opening quotation from E. J. Gibson (2003) attests. It is rare that treatments of place attachment do so (see Altman & Low, 1992; Lewicka, 2011).

[3] In this brief prefatory discussion, I use the term "place" in a very broad way to refer to where some psychological phenomenon occurs and the circumstances under which it occurs. Later in the article, "place" is employed in a more precise manner.

[4] Of course, Wundt was partially responsible for taking this initial methodological step, but he unlike most of his successors was insistent that this procedure could be applied only to a limited range of psychological phenomena.

behaviorists and then cognitive psychologists who followed them in succeeding decades to the present day.

Particularly relevant for our considerations here, the laboratory from this standpoint is typically treated as a *neutral* workspace. I mean neutral in two related respects. First, in the sense of a condition that has a negligible effect on what is being studied or what it surrounds, such as a neutral solution or a vacuum. In the case of experimental psychology, the laboratory is typically treated as "the "privileged 'non-context' of experimentation" (Lave, 1988, p. 91).[5] Perhaps nowhere is this dubious assumption more clearly on display in psychology than among the collected chapters in the landmark Rosenthal and Rosnow (1969) volume, which demonstrate that the research laboratory is far from a neutral place for human participants. Although the primary focus of these chapters is on social psychological research, the potential reactive effects of being in a psychology laboratory are not limited to that domain.

Second, "neutral" suggests that the general character of the laboratory is taken to have little significance or meaning for the organisms under study. The laboratory merely functions to "house" the experiment; it is an enclosure and little more. Typically, "where" the research occurs is merely a practical matter for investigators, and it has no significance beyond that. This attitude with respect to the laboratory, and often extended to the equipment used, might be warranted when its targets of study are nonsentient. However, if the target of investigation is a sentient organism then the circumstances of the research—*where* it is conducted and *what materials* are employed—may not necessarily be inconsequential. Whether or not they are is rarely considered.

At a minimum, the psychology laboratory surely has the potential to be experienced by human participants in research as a place in which some kind of assessment is carried out under the aegis of a *psychology* experiment—a field rife with evaluative connotations for the "naïve subject." Cover stories to mask these realities can be used in an effort to mitigate some of these factors, but as the characteristically perceptive Donald Campbell (1969) wrote, "Most of the important artifact hypotheses in laboratory social psychology are made possible by the respondent's awareness that he is participating in an experiment" (p. 378).

Even a cursory examination of papers based on laboratory research published each month in psychology journals will turn up only an occasional instance in which the research setting itself is evaluated as a circumstance that might affect the research outcomes. Although exhaustive attention has been paid to the character of research conditions in the interest of *experimental control*, little more than lip service tends to be given to how the research conditions themselves may contribute to the character of the research findings, irrespective of whether we are talking about experimental or control conditions. In this regard, some light may be shed on recent debates about the replicability of research findings by attending to the contexts of research.

These concerns go well beyond the important question of external validity, going to the matter of *how we conceptualize environment and organism relations*. If we take organism-environment reciprocity as a basic tenet of our approach, then research conditions are not merely considerations to be varied willy-nilly. The sheer coupling and decoupling of research setting and psychological phenomena for the purposes of controlling or varying treatment conditions without some sensitivity about the situation within which action is embedded

[5] I thank Alan Costall for bringing Lave's discussion to my attention.

belies the integrity of organism-environment reciprocity that an ecological perspective assumes (Willems, 1965).[6]

The disciplinary neglect of inquiry in the natural history tradition

Tracing psychology's neglect of place to its roots in experimental laboratory science is relatively straightforward and obvious in hindsight. But there is also a less obvious reason for this state of affairs. By nearly single-mindedly developing psychology as an experimental science, its early practitioners largely abandoned a venerated complementary mode of investigation wherein place is unavoidably brought into focus. I refer here to the research tradition of *natural history*. This methodological orientation in fact predated experimentation and continues to the present day in most of the sciences except for psychology.

Natural history is the term applied to systematic efforts to describe and catalog the variety and distribution of living and nonliving things as they occur in the natural world. Naturalistic observation—that is, observing and recording the phenomena of interest as they occur in nature without researcher intervention—is its most fundamental methodology. Natural history research has been a staple of scientific endeavors for centuries, including observations in astronomy, geology, botany, and zoology. The most significant outgrowth in recent centuries of natural history efforts in the life sciences is, of course, Darwin's theory of natural selection that revolutionized thought in the biological sciences. As Darwin acknowledged, his early travels to study flora and fauna in the Southern Hemisphere were inspired primarily by the groundbreaking natural history writings of Alexander Humboldt (Wulf, 2015). In Darwin's wake, nearly all areas of the biological sciences between the 1860s and the 1920s spawned a natural history research enterprise inspired by him and other 19th-century naturalists. During this period, for example, animal ecology, plant ecology, human ecology, and cultural ethnography all emerged. In contrast, psychology over this same time period initiated few efforts in the natural history tradition, and outside of comparative psychology, the use of observation and other descriptive techniques was rare.[7]

Although the reasons for this omission are numerous, one stands out. In order to legitimize psychology early on as a science while at the same time distancing itself from philosophy, the first generations of psychologists took experimental *laboratory* science as the standard. Pursuing natural history inquiry would not contribute to the most pressing goal of establishing psychology as a science for a variety of practical reasons, such as securing facilities and funding.[8] Now, long after the field of psychology has expanded its stance on what methods are scientifically legitimate, efforts in the tradition of natural history have continued to languish.

[6] For a similar argument from a different theoretical perspective, see Funder (2016).

[7] A partial exception to this statement was the laboratory observational studies on children's motor development by Gesell and Thompson (1934) and McGraw (1935). A half century prior to that work, however, Darwin, ever the pioneering inquirer, produced an observational study of the early development of his son (Darwin, 1877). For a recent example that demonstrates the value of observational research, see Adolph et al. (2012).

[8] It could be argued that Titchener's research program was in the spirit of natural history, albeit a narrowly prescribed one. What he called experimental psychology, in contrast to functional psychology, was an attempt "to describe, first of all, what is there and in what quantity, not what it is there for" (Titchener, 1898, p. 449). Taking the primary goal of psychology to be describing conscious states, Titchener, following Wundt's reasoning here, did not see how Darwin's work contributed to that end.

To be clear, we should distinguish between, on the one hand, methods typical of natural history research and, on the other hand, concepts that are often brought to bear along with these methods, at least within the life sciences. Observational and descriptive methods can be seen in scattered psychological research over the past several decades. They have been utilized most often for applied purposes such as for the assessment of behavior change techniques (e.g., Alevizos et al., 1978; Powell, Martindale, & Kulp, 1977; Sanson-Fisher, Poole, & Dunn, 1980; Mansell, 1985) and in educational settings (e.g., Booren, Downer, & Vitello, 2012). In environmental psychology, behavior mapping has been proposed as a viable methodology (Sommer & Sommer, 2001), if rarely utilized (for an example, see Whyte, 1980). The use of time-sampling techniques has also been employed in therapeutic settings (Mansell, 1985; Mansell & Beadle-Brown, 2011). In recent years, new instrumentation has been developed for the remote sampling of everyday ambient sounds, such as conversation, across a variety of settings (e.g., Hasler, Mehl, Bootzin, & Vazire, 2008; Mehl, 2017; Mehl, Pennebaker, Crow, Dabbs, & Price, 2001; Mehl, Vazire, Holleran, & Clark, 2010). These are needed developments.

And yet although efforts such as these cited demonstrate the potential value of descriptive work, few of them also bring with them the kind of conceptual framework that has typically accompanied a natural history approach in fields such as animal ecology, plant ecology, and human ecology. That conceptual framework is marked by an *ecosystems* perspective, which we have more to say about later. An ecosystems perspective emerged from Darwin's work and from Humboldt before him. In this regard, a natural history approach goes beyond merely methodological considerations to include a conceptual stance that takes as fundamental the functional interdependencies operating in everyday circumstances.[9] Such an ecosystem orientation is rare in psychology because it requires a conceptual break with the standard metatheory that has long been in place (Heft, 2001; Reed, 1996).

There are two notable exceptions, however. One is the research program developed by Roger Barker and his colleagues in the middle decades of the 20th century.[10] This research group initiated a series of investigations in the natural history tradition for the purposes of obtaining descriptive data concerning children's daily activities (Barker & Wright, 1955). Although Barker claimed at the outset that his concerns were primarily descriptive, the work soon revealed its conceptual roots in field-theoretic/ecosystems thinking (see later). Barker's research program (e.g., Barker, 1968; Barker & Schoggen, 1973) remains one of the few instances of natural history research in both a conceptual and methodological vein in all of psychology. Although this research program has typically been treated by mainstream psychologists as an outlier, at best, and more often in recent decades ignored entirely, this enterprise should be seen, in fact, as continuing a long tradition within the life sciences.

The failure on the part of much of the field of experimental psychology to appreciate the conceptual significance of Barker's intentions may, in part, be symptomatic of a somewhat parochial view of what counts as proper scientific inquiry. But as we have seen there may be signs in recent research that this attitude concerning methodology is changing. Still his conceptual framework that draws on ecosystems thinking remains unappreciated. That is ironic because one would be hard-pressed to find any experimental psychologist who does not

[9] By everyday circumstances, I mean those circumstances that are largely unaltered by the investigator.

[10] A consideration of the influence of Lewin's field theory and that of systems theory on Barker's work are beyond the scope of this article.

consider Darwin's contributions foundational to their discipline. The roots for all facets of Darwin's writing and its nascent idea of an ecosystem is research in a natural history tradition that goes beyond merely methodological considerations (Heft, 2013a, 2017a; Pearce, 2014).

The other exception is the ecological psychology developed by J. J. Gibson and his followers, which is also grounded in Darwinian ecosystems thinking, although it has tended to be experimental rather than observational. Because of its conceptual ecosystems stance, Barker's call for a natural history science effort within psychology should resonate among those working in the Gibsonian tradition. With these issues in mind, let us turn to a consideration of how J. J. Gibson and Barker have each treated the concept of place. Here we begin to sharpen our definition of place.

Place in J. J. Gibson's ecological psychology

As is the case with many concepts employed by J. J. Gibson, *place* as he used it can be best understood by recognizing what point of view he was opposing. In that regard, at a minimum place typically refers to a location in the environment, to where something is, and possibly some way to designate that location. It is commonplace to assert matter-of-factly that an object or feature is located in space, with that location being the object's "place" in space. If we wanted to be more precise, we could specify that location or place with reference to a three-dimensional Euclidean coordinate system or GPS coordinates. J. J. Gibson (1979/1986) urged us, however, to bear in mind that Euclidean space is a cultural convention, an abstract geometric-mathematical system. The same is true of GPS coordinates. Although both are undeniably useful conceptual tools for a wide range of purposes, they are decidedly not descriptions of the environment as it is encountered directly through lived experience. They refer to a scale of thinking quite removed from the immediate experience of those who live on the ground. Although these simple points may seem self-evident on reflection, it continues to be the case that philosophers, psychologists, geographers, and designers operate as if it is Euclidean space that we immediately encounter and that objects are located in space. However, abstract space is empty and typically conceptualized like a container within which objects are located. J. J. Gibson (1950a) joins a number of 20th-century phenomenologically inclined philosophers, notably Merleau-Ponty (1962), who have stressed that Euclidean space and the lived environment are far different from each other.

Any psychology in this post-Darwinian age that begins by conceptualizing the environment for terrestrial organisms, as well as the objects in that environment, in Euclidean or GPS spatial terms leaves the very starting point for psychological theory ungrounded. All organisms have evolved in relation to environmental conditions and continue to adapt to their changing character. For terrestrial organisms, no environmental conditions are more fundamental than extended ground surfaces and the objects that rest on them.

What then is place, according to J. J. Gibson? He begins his ecological approach to psychology with the claim that terrestrial animals function in environments that most basically consist of ground surfaces—after all, that is what is meant by "terrestrial animal." With that starting point, J. J. Gibson describes *place* most broadly as "a more or less extended surface, or layout" (J. J. Gibson, 1979/1986, p. 240). The *extent* of surface layout that is designated as a place is specified relative to an animal, such that "a place at one level is what you can see from here or hereabouts …" (p. 240). Likewise, what makes any place *distinctive*—what gives

it significance and meaning—is its affordances for the life activities of an animal. It has psychological significance in that respect. For example, there can be "sleeping places, eating places, meeting places, hiding places, and falling-off places" (J. J. Gibson, 1979/1986, pp. 240–241). What is important then "for animals and children is place-learning—learning the affordances of places *and* learning to distinguish among them" (p. 240, emphasis added). We will return to that latter point. In short, unlike a position in Euclidean space that is devoid of any psychological character, place ecologically is taken relative to a perceiver. It is a region of the surface layout that can be perceived and that affords particular actions.

As for its *location*, a place can be located both in terms of its inclusion (nested) within more encompassing places and in terms of its adjacency to an environmental feature or to another place. A sleeping place, for example, can be located within a burrow, den, or a house and adjacent to a riverbank, another burrow, or a neighboring house. The overall habitat for a terrestrial animal is collectively "made up of places" (J. J. Gibson, 1979/1986, p. 34). Terrestrial animals travel between places ("locomotion consists of going from place to place" [J. J. Gibson, 1979/1986, p. 240]), and learning one's way minimally calls for an awareness of the adjacent order of places. Learning a path from place to place is different from other kinds of learning because, unlike detached objects, "the adjacent order of places cannot be permuted; they cannot be shuffled" (p. 240; also see Heft, 1996, 2012). Place learning in the process of way finding results in knowing where something of interest or value is located in the habitat, and knowing one's way among places leads to "the state of being oriented to the whole habitat and knowing where one is in the environment" (J. J. Gibson, 1979/1986, p. 240).

In sum, an ecological approach considers place as an extended surface layout that is nested within a more inclusive region of the habitat and adjacent to other places. Each place is distinctive in terms of what it affords for an animal, and collectively, places make up the animal's habitat.

Place in Barker's ecological psychology

J. J. Gibson and Barker would agree that what makes any place distinctive is what it affords for an individual. Where their work diverges is *what is to count* as making a place significant. In my view, this divergence is more a matter of emphasis than disagreement.[11] We saw that J. J. Gibson's concept of *place* arises initially out of developing a conceptual framework for understanding the environment from the standpoint of a terrestrial animal. The importance of place came to Barker's attention only after it was forced upon him by data he had been gathering about predictors of children's activities in their community.

Barker began his groundbreaking research program with two straightforward questions: (a) what do children do over the course of the day in their community? and (b) what, if any, environmental factors can be identified as correlates of a child's actions at any given time? When Barker began these inquiries he was already a well-established experimental child psychologist (e.g., Barker, Dembo, & Lewin, 1941). It wasn't until midcareer when Barker realized that in spite of his extensive laboratory research with children, he had little knowledge of what their lives were like beyond the laboratory. The lack of basic knowledge about the

[11] Barker drew on Brunswik's probabilistic account of perception, whereas J. J. Gibson was a sympathetic but stern critic of Brunswik's formulation. I have argued elsewhere that J. J. Gibson's approach can be substituted for Brunswik's in Barker's framework without doing harm to the latter's intentions or to the integrity of his framework (Heft, 2001).

types, frequency, and distribution of children's actions in their communities struck Barker as a glaring omission in developmental psychology and the kind of omission about its basic data not to be found in other sciences, as we have already seen.

In an effort to address these two questions, Barker established a field research station in a small Midwestern town, and from there he set up an ambitious research program. His goal at the outset was to observe and record the activities of individual children over the course of a day, from the time they awakened in the morning to the time when they went to bed at night. In this initial phase of research, Barker and his colleagues obtained a day record for nearly 20 different children living in the town of Midwest (a pseudonym), population approximately 700.[12] The observations were then examined to gain a picture of the activities of this sample of children. The data were sorted to reveal the kinds of activities they engaged in and the frequency that they did so, all the while keeping track of when and where the activities occurred. In this way, a picture emerged of how the children of Midwest spent their time over the course of a typical day.

In addition, in an effort to identify the possible environmental correlates of their observed actions, Barker and his research team attempted to specify what types of antecedent occurrences regularly preceded each action. At the outset, Barker assumed—as one might reasonably do in the atmosphere of S-R psychology of the 1950s—that most of the time an action by a child would be elicited in response to an antecedent event, such as something someone else said or did close in time to the action (i.e., by "social inputs"). When Barker tested this possibility by examining his data set, he found at best a weak relationship of this nature. Social actions directed toward a particular child were relatively poor predictors of that child's subsequent actions.

This finding initially disappointed and puzzled Barker. Even in the apparent absence of a reliable predictor, children's actions did not appear to be random or chaotic. Their actions generally seemed orderly, were often appropriate to their circumstances, and were even predictable from the point of view of an observer. But orderly, appropriate, and predictable in relation to what?

It became evident to Barker that a child's actions tended to be congruent with the locale in the habitat *where* the child was observed. With that insight, he shifted his analysis of the environment to a more molar level of analysis than is typical for most psychologists. Rather than focusing on the immediate social inputs directed at each child individually (or even the dispositional tendencies, such as temperament, of individual children), Barker recognized the need to consider their actions in relation to *where* in their community the children were *at the time observed*. And critically, "where" involved more than the mere location and time of the activities but referred to some set of interdependent actions among individuals somewhere at some time. Abandoning a comparatively molecular search for environmental antecedents of an individual's actions, he discovered that the range of individual actions observed tended to be congruent with respect to some *higher order dynamic units of the environment* constituted by the joint actions of the individuals and the material features ("milieu") at some locale.

Consider, for example, a primary school classroom session, such as a language lesson. A particular language lesson is realized when a group of students and a teacher

[12] If this work, including a relatively small sample of children, seems like a minor effort, consider that the one published day record for a single child, with little additional commentary, resulted in a 400-page book (Barker & Wright, 1951).

come together in a specific location at a specific time, where supportive materials (e.g., books, chairs) are present, for the express purpose of conducting/participating in a lesson. While the teacher conducts the lesson, the children need to be compliant participants or this event will not occur. (The sense of compliance here is examined later.) Although it is not possible to predict precisely what an individual child is doing at a particular instant, it is not difficult to delineate the range of behaviors that are most probable in that setting over a more extended duration. Conversely, it is not too difficult to rule out a wide range of actions that are exceedingly unlikely when the children are participants in a class lesson. Children in a language lesson most probably would be sitting, reading, listening, writing, speaking when called on to do so, and so on, with these actions supported by the affordances of the classroom. At the same time, the possibility that any individual child would be running, shouting, or tossing a ball is vanishingly small. In short, they would likely be exhibiting what we might colloquially call "classroom" behavior. It is in this respect that an individual's actions are congruent with the locale in the habitat where he or she was observed at a particular time. Participating in the language lesson in some manner establishes a range of action possibilities for each individual child as well as for the teacher.

Further evidence in the data set along these lines came to the foreground after Barker examined the variability of children's actions over time both individually and collectively. He found that the variability of an *individual* child's actions over the course of a day, and thus across different locales of the community, was greater than the variability of actions among *different* children located in the same locale of the community. In other words, the types of behaviors observed in the case of a particular child varied to a greater degree as he or she moved from one locale to another over the course of the day than did the behaviors of different children when they were in the same locale of the environment at a particular time. How are we to explain these broadly predictable patterns of action that are bracketed by where they occur, even while innumerable moment-to-moment actions by an individual in this locale cannot be predicted with a high degree of precision?

The sheer location of an action—its locale—cannot possibly be construed as a discrete effective stimulus. Take, for example, the school classroom session just noted. The class session is not a discrete "stimulus" but needs to be described with reference to a considerably more molar and dynamic point of view. Does the researcher merely need to supplement his molecular view of the environment with a more wholistic account of "the stimulus," along the lines of Gestalt patterns (e.g., "structure from motion"; see Heft, Hoch, Edmunds, & Weeks, 2014) in the field of view? There is some value in doing so. But considerably more conceptual work than that is required because such a view arguably retains the view of separate environment and individual units while only bumping up the degree of complexity of the "stimulus." We must look more closely at the particular character of the environmental structures that Barker uncovered.

Behavior settings

Barker accounted for findings such as those just described by recognizing that these regions in the community could be characterized as emergent, dynamic structures constituted by interdependent, joint actions among individuals and features of the material environment

(milieu) considered over some extended period of time. He called these higher order dynamic structures "behavior settings."[13]

To best explain the type of ecological structure a behavior setting is, and in that way to head off common misunderstandings, it is useful to return to the earlier critique of the notion of space as an empty container. It is quite wrong to view a behavior setting as a "space" *within which* some activities occur. In the preceding example of a language lesson, the classroom as such might initially be viewed in that way. But the classroom itself—the four walls, desks, chairs, and so on—is not a behavior setting. The language lesson is an occurrence or event that emerges from the joint actions of the children and the teacher over some period of time and with the support of material features of the room and the building within which it occurs. That is, a behavior setting is an emergent property of interdependent patterns of action over time among individuals and "milieu," using Barker's terminology. From this vantage point, it can be seen that a particular child does not *enter* into the behavior setting, as an individual might enter an enclosure, but rather that the child *joins a behavior setting as a participant* and in doing so contributes to its ongoing functioning.

As Barker put it, a behavior setting is a dynamic, quasi-stable "standing pattern of behavior and milieu." The phrase "standing pattern" refers to joint activities of two or more individuals that endure for some length of time. Examples include a class session, a particular chess game, a coffee shop during operating hours, a soccer game that is ongoing, a restaurant during preparation times and mealtimes, and a book club meeting on a particular occasion. "Milieu" refers to the features of the environment that support these patterns of action and, for the most part, are synonymous with affordances in a Gibsonian sense. The language lesson would be supported by chairs, desks, books, and a room. The property of being "quasi-stable" points to the fact that participants who generate the operations of a behavior setting tend to operate in a manner that preserves the integrity of the setting.

Operating to preserve the integrity of the behavior setting can be seen in a variety of ways, perhaps most commonly when individuals in the setting adjust to circumstances that threaten its functioning in order to restore the setting's functional integrity. For example, if on any occasion the number of participants in the setting is less than optimal for its functioning, those participants who are present may redistribute the essential setting functions among themselves. Instances of this type are most evident in workplaces or in team sports where individuals have assigned responsibilities. For example, the cashier in a store may also be called upon to stock the shelves in the stock boy's absence on a given day, or a fielder in an informal baseball game may be responsible for more of the field than usual when the team is playing with less than an optimal number. Such adjustments are needed to keep the behavior setting operating at such times. Behavior setting dynamics are self-regulatory in the manner of a dynamical system, and these dynamics are distributed across the setting (Kelso, 1995).[14] This quality of behavior settings stems from the interdependence among their constituents who have a more or less shared understanding of how the setting should function.

[13] Barker's findings push psychologists to relinquish a commitment to analysis of the environment solely at the level of the individual at discrete moments in time. The heightened attention in recent years to phenomena that stem from dialogical processes is a move in the right direction, but because this work is usually limited to dyads, it does not go far enough.

[14] The concept of a behavior setting begs for an analysis from the point of view of dynamical systems theory.

Behavior settings literally *come into existence* in a specifiable location and for some duration of time through the joint actions of their participants supported by affordances. For example, a chess board and chess pieces resting on a table are no more a behavior setting than is an empty classroom. However, when two individuals sit at the table and manipulate the chess pieces in a manner constrained by the rules of chess, the behavior setting of a chess game is realized. This behavior setting has specifiable attributes, which include having a particular location in the environment; transpiring over a specifiable duration; and critically, observable reciprocal, interdependent actions between individuals. Interdependent relations are the hallmark of a behavior setting, just as they are for an ecosystem. Further, actions of behavior setting participants are constrained *as a matter of course* as they engage in generating and sustaining the setting. Stated in another way, the degrees of freedom of action of individuals are constrained by virtue of the fact that those actions generate the very setting that those actions constitute.

It would also be a distortion of the concept of behavior setting to suggest these higher order structures operate as determinants of behavior, in the manner of a stimulus producing a response. The behavior setting does not exist apart from the actions, as a stimulus would, but is generated by those actions.[15] Participants are constituents of the higher order structure that they generate through interdependent actions. (See Chemero & Turvey [2008]; Rosen [2000] on impredicativity in biological systems.) As individuals in a community come to understand how to participate in its behavior settings, they reproduce and reconstitute those settings over time. Bourdieu (1977), Giddens (1984), Pettit (1993), and others have written in this vein about how collective individual actions reproduce social structures in a community over time.

In a recent paper, Funder (2016) raised the following crucial question for evaluating new approaches and methods in psychology: "For empirically minded psychologists, when *any* new research method is developed, the next question should be, what empirical findings and psychological insights can it provide that would not have been possible without it?" (p. 205). In the case of Barker's now no longer new and yet overlooked research program, the answer is clear even based on our very limited examination of his work here: the discovery of behavior settings and their significance for developing and living in communities would not have come about without Barker's ecological approach to the study of children's everyday activities. Let us explore these ideas further.

Behavior settings as naturally occurring phenomena in community life

Behavior settings emerge and are sustained over the course of daily life among individuals in a community. If we were to imagine the collective actions of members of the community over some period of time, then particular behavior settings come into existence like eddies in a stream as individuals come together for a common purpose.[16] Behavior settings are realized as a result of a shared commitment (at best, tacitly held) by some set of individuals to appear at a certain location at a certain time and to engage in a particular range of socially

[15] In this way, behavior settings are relational properties, as are phenomena familiar to ecological psychologists such as affordances, optic flow, occluding edge effects, and a path of navigation (Heft, 2001).

[16] Others have also invoked this metaphor when discussing dynamic structures that are formed in the flow of events (e.g., Kelso, 1995; Thelen & Smith, 1994).

normative actions. Some behavior settings continue in existence for an indefinite period, such as the 24-hr convenience store in the neighborhood. Others operate for limited hours each day—that is, they have specifiable temporal boundaries—such as a pharmacy, the post office, or various government offices. Others occur once a week, such as the Tuesday evening poker game at the local pub, whereas others may appear only once year, such as the annual school bake sale and fund-raiser.

Barker and his colleagues twice cataloged the behavior settings that occurred over the course of an entire year in the town of Midwest. Doing so presupposes the use of some methodological criterion to designate when any gathering of individuals is to count as a behavior setting or not. The primary criterion for designating some pattern of joint action as a behavior setting is when its participants maintain a particular level of *interdependence*. The underlying idea motivating this approach is an ecosystem that can be roughly delineated with regard to a set of ongoing interrelationships among its constituents. A behavior setting as a unit of analysis was operationalized with regard to several criteria that revealed a sufficient degree of interdependence among its participants. The rationale for designating a certain degree of interdependence as the criterion for a behavior setting is delineated in Barker (1968, pp. 20–26, 40–46).

Briefly, let us consider the following hypothetical case to illustrate how interdependence criteria can be employed to establish the presence of a behavior setting. Within the structure of a business known in the United States as a drugstore, commonly there is a portion of its operations that functions as a pharmacy and a portion that operates as a store selling merchandise. Is a particular instance of such a drugstore, then, one behavior setting or two? This question is an empirical one that hinges on the degree of interdependence that operates between the pharmacy and the store. If operations in each portion of the business have relatively little bearing on each other (as assessed by Barker's interdependence criteria) and yet a high level of interdependence within each, then they would be distinct behavior settings. In other words, it is not the fact that the operations are housed within the same building that makes them a common behavior setting but rather the degree of interdependence among their operations. Or consider a case where a group of individuals is located in a public plaza. Is there a behavior setting operating here? Whether there is or not depends on the degree on interdependence among actions of the individuals. If the actions of these individuals qua individuals have little consequence for one another, there is not a behavior setting operating in this case. Conversely, if ongoing actions across the group meet Barker's interdependence threshold (see Barker, 1968, p. 45), then on empirical grounds it could be considered a dynamic, collective interindividual unit—a behavior setting.

After compiling[17] a list of the behavior settings appearing in 1964–1965, Barker and his team clustered individual behavior settings (tokens) into behavior setting types in order to reduce the sheer number of behavior settings cataloged to a manageable size. For example, during that year there were two barbershops (tokens) that offered services in the community at certain times, and these two shops were combined for the purposes of the analysis as one type.[18] The survey of behavior setting types for the year 1963–1964 revealed the operation of 220 behavior setting types that came into existence over the course of daily life in Midwest

[17] The list of behavior settings was initially compiled through consultation public records, public announcements, and information obtained from community organizations.
[18] Barker referred to these as behavior setting genotypes.

over that period. They varied in frequency, duration, and other measurable properties (Barker, 1968, pp. 110–116).

Collectively, the behavior settings of a community over any specified time make up the *eco-psychological resources* of the community that are available to any individual living there.[19] To employ J. J. Gibson's phrase, they are parts of "the environment to be perceived" (J. J. Gibson, 1979/1986). Each setting becomes available when the minimum number of individuals that is needed to sustain it come together, and its supporting affordances are available. If, for example, an individual in the 1963–1964 year had been interested in participating in a baseball game, there were 16 occasions when a game was played at a ball field in Midwest. In contrast, if an individual during that same time period had been interested in joining a game of cricket, doing so would not have been possible because none occurred. It is in that sense that we can conceptualize behavior settings as potential ecological resources at a psychological level—as offering particular experiences—for individuals as members of a community.

Developing in a community: Behavior settings

A distinguishing characteristic of hominin evolution, beginning at least with *Homo erectus*, is the establishment of semipermanent settlements in a particular location. Of course, very many species live in groups and establish a home base by fashioning their habitat to support a way of life. What then is different about patterns of collective living among recent hominins? Considering what we know about patterns of collective living in human societies over recent millennia, it seems quite likely that places within human habitats have long had a dimension of conventional social significance yet to be found among other animal species. Reed (1996) wrote, "Perhaps the most obvious fact about modern human life is the alteration of places in the environment, and especially the creation of homes and villages with *functionally differentiated places* (p. 144, emphasis added). Whereas places for all terrestrial animals might be locations where particular affordances are regularly found, and even are the result of alterations of surfaces (e.g., digging burrows), in human societies places are *meaningful as well in the context of social practices*.

Place and social practices

J. J. Gibson's (1979/1986) considerations of place are foundational to any discussion of the topic. In his view, as we have seen, a place is (a) an extended layout of surfaces that is (b) nested within a more inclusive place considered at a higher level of analysis, (c) located adjacent to other places, and (d) significant for an organism because of the affordances present there. Consider, for example, a place where an animal can regularly find food. This place might be a region of the surface layout where, for example, bushes bearing berries grow. This place might be nested within a broader landscape region such as a forest area and adjacent to another place such a stream bank where water can be accessed. Animals need to learn to locate where such places are.

[19] Of course, this point must be qualified in the case of behavior settings that have some restrictions on admittances, such as the prohibition of children being admitted into bars.

When we turn to consider places that are distinctive of human habitats, those same characteristics are to be found but also quite a bit more, as already suggested. Places that are found only in human habitats grow out of a complex set of conventional social practices. This claim can be illustrated by reverting to the prior example of locating food. If we limit our focus here only to public sites where food is available in a community, some places only exist through collective efforts that have the effect of making food available, usually based on social exchange among community members. Such public sites include markets, groceries, and establishments such as taverns, cafes, and restaurants. What individuals (patrons) must know to make use of these community structures involves a great deal more than knowing *where* they are located. Because they are also parts of extensive social and economic systems, individuals in modern communities must understand how to manage their actions in a socially meaningful and appropriate manner within those systems. Individuals must know what is required of them, for example, as patrons in these community settings in order to procure the desired resources to be found there.

Although individuals may have varying degrees of understanding about the operations of these settings, what they must know in order to access their resources is how to *participate* in them at some minimal level of understanding. For example, young children most likely have only a little understanding about the workings of most settings, but that does not preclude the possibility that they know the rudiments of acting in normatively appropriate ways in them. Recall that a behavior setting is not an enclosure that an individual enters, such as a shelter from the rain. Nor is it an "object" that one contemplates in a detached manner. Rather an individual joins a behavior setting as a participant. He or she must have sufficient "know-how" for functioning in those settings, with "know-how" best characterized as *situated skilled action*.

To describe participation in a behavior setting as a situated skill is to highlight several of its qualities. First, it is by necessity embedded in some action-environment relation rather than standing separately as an isolated action. Just as the skilled action of hammering entails a hammer, participating in a behavior setting entails the presence of a behavior setting. The action is not realized apart from the tool or the setting, respectively. In their studies of stone knapping, Parry, Dietrich, and Bril (2014) aptly described the skills involved in such instances as requiring sensitivity to the functional dynamics that arise in the joint action-tool system. Likewise, it is proposed here that participating in a behavior setting rests on attunement to the functional dynamics that arise across the individual–behavior setting system. This system entails an individual embedded in a pattern of joint actions to which he or she contributes. It is like dancing with a partner but on a wider scale in that it encompasses multiple individuals. Participation in a behavior setting may typically be less tightly coordinated than when dancing in a pair but coordinated nonetheless along the lines, for example, of team play.

Participation in a behavior setting is also aptly described as a skill because it is neither scripted nor requiring much in the way of conscious reflection, instead it being a bodily practice. As for the former, participating in a behavior setting cannot possibly be "scripted"—that is, based on a set of explicit rules that exist *prior to* the individual entering the setting—for two reasons. First, there is far too much variation across different behavior settings of a common type (e.g., restaurants) for a fixed set of prescribed, a priori steps to guide action in any one instance. Although the "know-how" required to participate in the workings of a restaurant is somewhat generalizable across

specific instances, there are sufficient peculiarities within specific instances of that type of setting such that only the broadest set of guidelines is workable (Heft, 2001, pp. 269–271). As Schank (1999), who co-developed the idea of cognitive scripts, noted, "One disadvantage of the script-based method is its lack of usability in similar but non-identical situations" (p. 12).

Second, and even more critical, the notion of following a script is not workable because the actions of each individual at any particular moment are contingent on ever-changing conditions in the setting. Changing conditions are particularly characteristic of behavior settings because each participant has some freedom (agency) within constraints to function and also because affordance conditions in a setting are subject to change as participants carry out their actions. Any individual participant in a behavior setting must be flexible, adjusting to changing contingencies. It is not too far off the mark to describe an individual's actions in a setting as being "regulated improvisation" (Bourdieu, 1977, p. 79). Adjustment, ad hoc choices, and fine-tuning of actions are not the exceptions but the rule for a participant in a behavior setting. In this respect, participating in a behavior setting has the character of flexibly adjusting within action constraints.

In addition, participating in the activity of a setting, after having some experience in doing so, is not likely to entail much in the way of conscious reflection. Acting as a participant in the flow of events that constitutes the setting is liable to involve more in the way of "knowing how" rather "knowing that" (James, 1890; Polanyi, 1962). In the manner that individuals unreflectively engage in a practiced, complex motor act, such as playing a musical composition on a piano or even weaving a path as a pedestrian along a crowded sidewalk, so it is proposed that individuals unreflectively comport themselves as actors in the flow of a familiar setting. The individual can reflect on the functioning of the setting, of course, but when doing so he or she is no longer, at that moment, participating in its operations (Dewey, 1935; Rietveld, 2008).

Because behavior settings arise from coordinated social practices, they have a normative character. Actions in a behavior setting must be appropriate in relation to the social practices that maintain it. As such, action in a behavior setting has an intersubjective nature, involving an understanding of how one operates as part of a "we" in concert with other setting participants.[20] It is from the standpoint of a "we" that actions have an appropriateness or correctness (Heras-Escribano & Pinedo, 2016), conforming "to a sense of what is fitting and right" (Taylor, 1993, p. 51). It is a bodily understanding about how one comports oneself, not as an isolated individual, but as a part of a community with shared practices. Bourdieu (1977) has written insightfully about this type of knowing—which he calls *habitus*—that is reflected even in very mundane everyday awareness such as how far one stands from another, the amount of eye contact that is appropriate, and posture, each of which conveys intersubjective meaning in community life. These examples indeed vary cross-culturally, and yet within any particular culture what is correct is not understood as being discretionary but rather as "just the way things are done." Practices are structured, having taken shape in exchanges with others, and once established the individual operates "like a train bringing along its own rails" (Bourdieu, 1977, p. 79). They are, in Bourdieu's phrasing, structuring structures, "the incorporated products of historical practice" (Bourdieu, 1980, p. 52).

[20]It is in this respect among several others that behavior settings differ from situations in the sense used recently by Funder (2016) and by Reis (2008).

In this way, to participate in social practices—such as participation in a behavior setting—reproduces those practices over time and even across generations. It is a "history [of learning] turned into nature" (Bourdieu, 1977, p. 79) in the sense that these structures are already there in the everyday environment that the individual finds himself or herself in.

Expedient action and proper action

J. J. Gibson (1950b) anticipated some of these ideas in his early distinction between expedient action and proper action. To explain this distinction, in interaction with others young children learn not only how certain things *can be done* with things—that, for example, utensils such as spoons and forks can be used for feeding oneself—but they also learn the ways certain things *should be done*—such as proper ways to handle such implements (J. J. Gibson, 1950b). These proper ways are not only driven by functional considerations such as efficiency and effectiveness but also by custom and tradition. Certain ways of engaging objects may be more efficient than others, it is true, but oftentimes, within particular cultural or subcultural groups, efficiency becomes a subordinate consideration after custom, fashion, and style. They reflect membership and identity with a social group. Expedient actions are transformed into normative practices in social context.

In this vein, J. J. Gibson (1950b) criticized learning psychologists of the 1940s who applied their ideas to the social domain for failing to distinguish between what he called "expedient behavior" and "proper behavior" (see Heft, 2017b). In this minimal sense, human action has a *moral dimension*—"what ought to be done" under certain circumstances or from a certain standpoint. Considerations of what is "proper" function to frame most actions in human communities.

What is especially relevant to our considerations here is that a moral dimension pervades our differentiation of places in a human community. Places differ with respect to their affordances (e.g., what can be found there), and *they also differ with respect to the manner in which participants are expected to conduct themselves* as participants in those places. Here matters concerning *how* actions ought to be enacted intersect with *where and when* particular actions are possible. Actions are situated not only with respect to affordances of objects but also with regard to affordances of place.

The developing child as a participant in community practices

Children discover the affordances in their immediate surroundings through actions, sometimes carried out on their own, but frequently through the early years with the guidance of others (Reed, 1996; Rogoff, 2004). Even in those instances when children are seemingly solo actors, the environment that they explore is one that typically has been structured by others. Children in modern societies grow up in a world of material features and social structures that have been prearranged, intentionally or not, by their immediate families and community members, and by extension, the generations that have preceded those individuals.

Among those features that are already in place in a child's experience of the everyday world are places differentiated with respect to the actions and affordances that are typically found there. As we have seen, particular actions are among the constituents of a behavior setting. It is likely for this reason that a developing sensitivity to places may as a matter of

course facilitate the recognition of particular actions, as recent studies appear to show (Wurm, Artemenko, Giulani, & Schubotz, 2017; Wurm & Schubotz, 2012, 2017).

Further, it is important to recognize that others function in ways that go beyond solely making objects available to the developing child, introducing him or her to social structures, and directly guiding action. During periods of reciprocal exchange with the child, other individuals are partners in establishing an "interaction frame" (Fogel, 1993; Reed, 1996), and critically, by means of that joint frame possibilities arise for the child to engage the world intersubjectively as a collaborator in a "we." By engaging the world as a partner in an interaction frame—that is, as one participant in, for example, a triangular relation that includes the two individuals and the object of their focus—the child is afforded opportunities to develop embodied ways of engaging objects that realizes the *social significance* of those objects. The more experienced individuals in the interaction frame bring with them ways of acting and engaging the world—that is, styles of comportment—that they have taken on from their own previous years of immersion as co-actors in social interactions. Like the manner in which their guiding, steadying hand can help shape the child's grasp of an object, socially normative *ways of acting* can be shared between guide and learner within the frame of a "we." In this way, social practices are reproduced.

The mediating processes provided by a joint interaction frame are necessary in order for the child to shift from experiencing and engaging the environment idiosyncratically to doing so in a socially normative manner. Guided actions within an interaction frame, in effect, reveal such things as "this is what this object is used for" and "this is the proper way to use this object." For example, acting on his or her own, the toddler often discovers that a spoon can be utilized to produce sounds by banging on surfaces and can be readily grasped in a variety of ways. But over time within frames of adult-child-tool transaction, the child comes to learn by adjusting forms of acting that there is a proper use for a spoon (i.e., feeding oneself) and a proper way to grasp and manipulate it. Employing the distinction introduced earlier, the young child shifts from idiosyncratic, expedient learning acquired on one's own to learning proper behavior.[21] And proper behavior can only be acquired when action takes shape within a shared, sociocultural sphere because an action is proper, or not, only with reference to a particular domain of social practices.

This is somewhat familiar ground in discussions of the development of children in social contexts (e.g., Shotter, 1984; Wertsch, 1985). What is rarely recognized in these discussions, however, is that what is proper action in human communities is itself often framed by—nested within—*where* the joint action occurs. Actions deemed appropriate in one setting may not be so in another. For example, whereas there may be a range of acceptable actions by a child during mealtimes in the home, his or her actions during meals in public settings or at a stodgy relative's home are often more tightly circumscribed. What the child has come to learn is more than the proper manner to act during meals but rather the proper manner to act when taking a meal in this place or that one. Actions are situated relative to place. Although there are obviously common practices that cut across settings, having-a-meal-at-home and having-a-meal-in-a-restaurant are not necessarily identical normative practices. These proprieties are learned within the intersubjective context of interaction frames

[21] Sometimes proper behavior turns out to be the most expedient as well. Learning proper conventions of typing on a keyboard is an example.

through the guidance of others, and in such cases, it is important to note that *the interaction frame includes the place where action occurs*. In that way, the child learns that "this is the way 'we' behave in this place or that place."

The implications of these considerations for scientific investigations of children's behavior should be apparent, and here we arrive at perhaps the central point of this essay. For the same reason that ecological psychologists would consider an analysis of action inadequate when the action is taken in isolation of the affordance with which the action is engaged, they should likewise consider action-affordance reciprocity taken in isolation from the place where action occurs incomplete in most instances. As E. J. Gibson (2003) pointed out (see quotation at the beginning of the article), an ecological approach considers "activity within an *environment* to which an organism is *responsive*" (p. 293). The environment in human communities to which children are responsive includes the places within which activity is nested. In other words, for researchers to have a clearer understanding of the character of a child's actions at a particular time, they need to adopt a more molar stance than is customary by considering the place that frames the action. Awareness of the framing of action with respect to place comes about as children *participate* in the setting and in that way contribute to its ongoing functioning. As developing members of a community that is composed of behavior settings, children learn with the guidance of others the moral dimensions of places—that is, the normatively proper ways of acting-in-places.

Part of this process involves learning to differentiate among different types of places. To be morally responsible agents in their community, children must become attuned to the differentiated character of places with respect to their social significance and normative practices. In many contemporary societies, for example, differentiation among settings comes early in the form of exposure to public settings, including educational settings, where children are introduced to places that are distinctly different from their home. They discover, for instance, that a preschool class is distinct in terms of its constitutive social practices, that is, in terms of how one should act as a participant in that setting. Such early learning establishes a path for participation in educational settings in the years ahead.

As children's range of activities expands to a wider variety of places, and they learn a more varied repertoire of setting-specific actions, they must be able to discriminate perceptually among these settings. But on what basis can different places or behavior setting types be perceptually differentiated? In a study with young adults, we tested the hypothesis that different setting types give rise to distinctive perceivable patterns of action over time among setting participants (Heft, Hoch, Edmunds, & Weeks, 2014). Using a variation of the point light display method, computer animations displaying only actions by participants (affordances were excluded) in five different settings were generated based on direct observation. The results indicated that setting types are identifiable based on those dynamic patterns alone, although the degree of accuracy varied across setting type. Settings where actions were more tightly constrained and coordinated, such as a basketball game versus a bank lobby, were most readily identified. These findings suggest that coming to differentiate among settings is a process of perceptual learning that involves perceptual attunement to common dynamic patterns (e.g., structure from motion) across setting types and relative differences among dynamic patterns between settings. This approach to place perception offers a potentially fruitful research program that might trace a course of perceptual learning in children with respect to the places that make up their community. More generally, studies of the ways in which

children learn about proper place-specific actions are rare.[22] These are lines of research that beg for careful study.

Finally, as children are initiated into the ways of the places that make up their community, those places collectively begin to take shape as the sociocultural *background* for their daily lives. The individual is operating in a social sphere rather than a solo one, and knowing how to participate in community settings "constitutes a way of grasping the world which surrounds us" (Taylor, 2016, p. 149).

Conclusions

Why should developmental psychologists be sensitive to *place* when investigating human development? An argument for doing so has been made on both empirical and theoretical grounds. Empirically, knowing *where* a child is at a particular time was found to be the best predictor of what he or she is doing. Knowing that alone can establish the range of likely actions that investigators will observe at any specific time. Although researchers might customarily hope for a more precise prediction, such an expectation reveals a failure to understand that children, like all animate things, operate as agents in the environment. Although their actions are constrained as a matter of course as they participate in the normative patterns of activity characteristic of any given setting, in all places except those with the narrowest normative constraints, there are degrees of freedom available for action. Knowing the range of possible actions may not seem like much, but to date our research has rarely taken even this information into account when assessing research findings.

Typically, considerations of place do not come up in research on human development, or in most psychological investigations for that matter. Instead, the setting in which research is conducted tends to be taken for granted. That setting, of course, is usually a research laboratory setting, which from the point of view of the child, to paraphrase Bronfenbrenner (1979), is "an unfamiliar place with unfamiliar adults and experienced for brief periods of time." Indeed, in those rare cases when findings in a particular laboratory arrangement have been reexamined under other circumstances, research outcomes have needed to be reevaluated (e.g., Acredolo, 1979; Learmonth, Newcombe, & Huttenlocher, 2001). In this regard, one of the first questions Barker considered after having collected his initial panel of observational data was whether a laboratory finding that he and his colleagues had uncovered years earlier (Barker, Dembo, & Lewin, 1941) would be observed in the field. Barker learned that this finding could be seen in the course of observing children's daily activities, but only very rarely. That laboratory finding taken on its own had been assumed to carry far more weight in the daily lives of children than turned out to be warranted. The question is not whether laboratory-based findings are valid or not but rather how representative they are in any particular case in relation to children's everyday experience (Brunswik, 1956).

As for theoretical grounds, a justification for giving *place* greater consideration in psychological research than is typical should be seen as being inherent in the ecological approach to psychology itself. After all, ecological psychology's unit of analysis is the organism-environment relationship. But a question that has been rarely considered is "what is the appropriate *scope*" for such a relational analysis (Heft, 2011; Van Djik & Withagen, 2014)? Where does

[22] For an exception, see Valsiner (1984).

one look in the "environment to be perceived" for the correlates of action in any particular case? How "far" into the environment should one's analysis extend? Holt (1915) argued more than a century ago that as the complexity of any activity increases, the environmental factors that must be considered in one's account of that activity become more remote from the body boundary (Heft, 2011, 2013a). Complexity in this case refers to the nature of the psychological processes (e.g., from simple actions to those driven by social concerns) that are brought to bear on a given occasion. To take a simple case, a child may reach for a cookie on a table at home, but not so when it is sitting on a shelf in a bakery. How are such *different* actions in relation to the *same* object to be explained? The answer is nearly too obvious to be stated. The scope of the child-environment analysis in this case must be expanded to include the setting. But how can we begin to understand the rationale for this claim?

From an ecological point of view, the environment has a nested structure, and any action-environment transaction needs to be assessed in relation the environmental structures that are relevant to the action. Actions in human habitats are coupled to structure not only at the level of affordances but also at the level of structures within which affordances are nested. Here we have limited our attention to *place* as a higher order structure (there are others), and we have argued that place is particularly relevant in the case of human activity in community settings. Barker's conceptualization of behavior settings makes it clear why this is so. Communities are composed of behavior settings that come into existence because of collective actions at particular times and in particular locales. Owing to shared intentions that serve to maintain setting stability, individuals' actions in community settings are normatively constrained in the course of their participating in the setting. Considerations of place then are unavoidable if we hope to reach an adequate understanding of an individual's actions in community settings.

The environment in which children live their lives is filled with a diversity of places qua behavior settings. The range of settings that they encounter typically grows over time. Only through their participation in behavior settings will children gain access to possibilities afforded by collective action in communities. Many of the highly valued experiences in human life only come into existence through collective action of individuals with the support of affordances. We can count among these places that emerge out of collective action a culture's eco-psychological resources in education, the sciences, letters, the arts, and possibilities for spiritual experience (Heft, 2013b) as well as in athletics, commerce, recreation, and entertainment. In this regard, the possible dimensions of human development are far wider than are those for the development of other organisms. These resources of human habitats are novel developments among species, to be sure, but nonetheless developments continuous with the basic ecological tenet of environment-organism reciprocity.

Acknowledgments

I acknowledge with gratitude the helpful comments by Alan Costall and by an anonymous reviewer on an earlier draft of this article.

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