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THE POVERTY OF STIMULI OR NOT LOOKING HARD ENOUGH? SPEAKING OF THE ENVIRONMENT BETWEEN GESTALT AND COGNITIVE PSYCHOLOGY

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ABSTRACT: The discourses about stimuli, environment, and context are traced between the Gestalt theorists and early cognitive psychology. While many of those in this early period were talking about the environment as the determinant of human behavior, they failed to find ways to explain how the environment could account for complex animal and human behavior. Using arguments claiming to show the 'poverty of the stimulus', attention turned to developing abstract cognitive models of how behavior being originated or created 'inside' humans. Three who did not follow this path are traced and lessons learned from what they found. By observing and talking about the environments of humans beyond a 'stimulus', Gibeon, Barker, and Skinner all found ways that the environment could shape complex behavior. The first two also found that in the complex environments they described, the more complex behaviors were not shaped by immediate contingent outcomes as Skinner found in more controlled environments with non-human animals interacting with the physical world. However, all three failed to observe and describe the more complex social, societal, and discursive environments although much was already known from the social sciences.
Key words: environment, context, behavior analysis, affordances, social contexts, discursive contexts

In this paper I wish to explore how the environment has been treated since the 1930s in modern psychology, behavior analysis, and contextual approaches. What is meant by stimulus, environment, or context? Starting in the 1950s to the 1960s there was a strong (at times bullying) assumption taken onboard that the environment *could not* shape all the complexities of human behavior, and anything to the contrary was resisted. The 'evidence' for this 'poverty of the stimulus', however, was just the failure to find such environmental shapers, but this can also be attributed to *not looking hard enough* or not looking in the right way.

The point of tracing how people referred to the environment will be to show that we need to pay more attention to our worlds because they shape what we do and who we are, and that when we do pay attention to the worlds in which we are embedded, we get a greater appreciation and respect for the environment as agentive. If the study of human behavior can treat the environment in a much more detailed way, rather than treat it as just a stimulus to which we respond or as a resource to be exploited, then we can hopefully promote better relationships with our world.

As I will explore below, in the 1930s there were in fact many psychologists trying to show how the environment shapes most or all of human and animal behavior, not just the work of Gibson, Barker, and Skinner, who are the best known. But while these psychologists were on the right track, they all overlooked the complex and nuanced *social, societal, and discursive environments* in which we are embedded, so their explanations in terms of just the physical environments became unwieldy and fueled those resisting such approaches. Our worlds are not just the physical world but also vast and complex sets of social and societal constraints and opportunities, and these shape much of our behavior. We are also immersed in worlds of language not of our making or our choosing, and this shapes how we talk and think.

But in the 1960s, psychology was over-taken by a wishful and convenient assumption, argued by cognitivists and many others, that the environment *could not in principle* explain most human behavior so we *must* not bother looking and that we *must* instead model, simulate, or theorize what active, agentive

processes were going on *inside* the person in order to explain what they are observed to do. Chomsky (1980) labelled this 'the poverty of stimuli' and used this to argue in linguistics that children inherit linguistic processes (but see King, 2016). There was therefore, a complete upsurge in *abstract modelling* of what *might* be going on 'inside' humans when they behave, which continues today in mainstream psychology. But the worse outcome of this was that observations of actual behaviors and the environments which shaped them became sparse and highly indirect. This also continues to the present day in psychology and behavior analysis. Examples will be given below of when and how this slippage occurred in the early 1960s, and what was wrong with these arguments.

I will argue that most of the early cognitivists were (former) stimulus-response behaviorists who had simply given up trying to find environmental explanations, rather than proving anything through observations, and that the main assumptions of the 'new' cognitive psychology were almost identical with those of stimulus-response behaviorisms excepting that it was now okay to stop looking for environmental shapers and instead model, simulate, or theorize fictitious agentive processes hidden on the 'inside' of people. My historical argument will be that since they could not find environmental shapers for complex behaviors, they gave up looking; but they had barely begun to explore the rich complexities of the many worlds in which we are embedded. They gave up too soon.

To do all this, I will first review some of the general findings of those non-behavior analysis explorers in the 1930s to the 1950s. The real split that occurred after this was not between 'behaviorism' and cognitivism, as textbooks tell us, but between those exploring the complexities of the environment which shape the complexities of human behavior, and those who gave up on this and instead spent their time building abstract models of 'internal' processes (most of whom had been stimulus-response behaviorists). I will then show how we can 'rethink' context or environment to research this properly for humans once again. This will show that the environment is not a static space filled with objects but an *active participant* in human behavior, because the environment changes whenever we behave and is always providing us with new complexities. The point of the paper is to show how we can better analyze and research the social, societal, and discursive contexts which shape what we do, and get a better appreciation of the environment in which we are embedded.

The Environment in Psychology from the 1930s to the 1950s

The period in psychology from about the 1930s to the beginning of the 1960s is often treated in textbooks like a 'Dark Age' during which nothing much happened. But just as the mediaeval Dark Ages was really not empty of events, neither was this period in psychology. The narratives in textbooks are usually about Gestalt psychology making some severe criticisms of structuralism and functionalism, which were then followed by several somewhat naïve stimulus-response behaviorisms until the cognitive revolution in the early 1960s which 'disproved' and abolished all behaviorisms. I wish to make a case, however, that what was happening during this period was *not* a conflict between 'behaviorism' and 'cognitivism'. *The real conflict was over one main assumption about the role of the environment in how human behavior is shaped,* and from this, how we should both research and explain human behavior.

Between the 1910s and the 1940s, Gestalt theorists (e. g., Koffka, 1935) made many good criticisms of the mainstream structuralist approaches in psychology, but the real problem for them was *what to do next,* since most psychologists agreed with these criticisms but not how to follow them up. Structuralism tried to explain human behavior (in principle at least) as starting with small units of sensory input (and concurrent experiences), which were built into larger units inside the person by forming associations over time. But it was made clear from the Gestalt theorists that people do not 'see' these smaller units, they 'see' larger units. We do not 'see' pinpoints of light at 620 to 750 nm with a frequency of 430 terahertz, but we 'see' a red box or a red curtain (I will come back later to the ambiguous use of the word '*see'* here, which is really about verbal 'naming'). Humans work with bigger units of life, and *our environments are not those of the physicist*. This applied also to the organization of associations which formed the learning by humans,

the 'organization' of the mind was not associations of small sensory units joined somehow but involved bigger units.

The Gestalt theorists, and most others at the time agreed, suggested that explaining our behavior in the environment needed a new version of thinking about this environment. They talked about a 'molar' conception (a word used often during this period by different theorists) of the human environment to get away from the pinpoint, atomistic environment of the structuralists and the physicists. This was not the geographic world or the 'micro-physical' world, but 'behavior in its psychophysical field', which was one way the Gestaltists described it. They initiated talking about the 'environment' in a new and broader way than previously, albeit abstract and ambiguous. This was accepted by most psychologists, and more new terms were invented to help view 'the environment' differently. "In considering the environment in its relation to perception, one has to analyze its macroscopic structure." (Heider, 1930/1959b, p. 30). Table 1 lists some of these other terms.

Table 1. Some of the terms used around 1930-1960 for a larger and more complex environmental analysis.

Gestalt: behavioral field; behavior in its psychophysical field
Heider: macroscopic environmental structure, ecological physics
Tolman: purposive behaviorism, goal behaviorism, cognitive maps
Brunswik: probabilistic behaviorism, E-O-E (environment-organism-environment arc), macro behaviorism
Lewin: phenomenological field, life space, field theory, systems
A. F. Bentley: transdermality
Roger Barker: behavior settings, ecological events
Gibson: field analysis, perceptual invariants, affordances
Skinner and behavior analysis: response classes, environment-behaviour contingency relations
Jacob Kantor: setting events

So, around this time (1930s-1950s) we find a lot of psychologists, not just 'behaviorists', arguing that:

- Our 'perceived' world is not built from small units of sensations
- Our behavior stems from the environment alone
- Our worlds are not constructed 'inside' us

Most of those shown in Table 1 were trying *initially* to explain human behaviors completely by the environment. The problem that occurred over the next two decades involved the compatibility of the second and third assumptions, which came into conflict when shaping from the environment *could not be found* for more complex behaviors of both non-human animals (Tolman) and humans. But this was not a conflict specifically between 'behaviorists' and 'cognitivists', because almost all of the other assumptions of stimulus-response behaviorisms remained intact within the new cognitive psychology, such as: research can only proceed by presenting stimuli and measuring overt behaviors as we have no way of knowing what is happening 'inside' a person; a person's talking reveals something internal about their overt behaviors; the *immediate* environment is most important in shaping behavior.

So, the real conflict came when psychologists *could not* see, envisage, theorize, or find ways to research how easily observed but complex human behaviors could arise from the environment. This, however, did not disprove the second assumption above, but was more an acknowledgement that it was too difficult to 'see' any complex environments which could shape such complex behaviors. *Talking about* a 'psychophysical field' was fine, but how do you observe this other than rely on people's language? The outcome was therefore more of a 'giving up' of looking for how the environment might shape complex human behaviors. Because of this, many psychologists, most of whom were 'stimulus-response behaviorists', started to accept in principle that there *must* be agentive actions originating 'inside' the

organism, and cognitive psychology became one way to move along this path. For example, Tolman's (1932) 'purposive behaviorism' probably still kept the environment as the shaper, but his later (1948) 'cognitive maps' moved much more to 'internal' explanations.

Of those who began in the 1930s, the Gestalt theorists, Tolman, Brunswik, and Lewin gradually took this pathway and assumed that agentive actions must be within the person. Brunswik (1952, p. 63, my italics), for example, summarized this view in his major review, and used the Gestaltists as support (it is unclear if Brunswik agreed, however):

> In warning us of projectively ascribing organizational properties of the perceptual response such as figural unity to the stimulus aggregate, Kohler points out that *there is no direct transmission, to the perceiver, of physical gestalt properties* present in fellow-organisms or other objects. All unity *must be* newly *created in the responder in accordance with his intrinsic, 'autochthonous' brain dynamics*. The subject is thus seen as basically *out of contact with the dynamics of the environment*…

Several things are of interest in this quote about how the environment was treated at this point, since it mirrors the very discursive strategies of other cognitivists who followed:

- The use of the words 'must be' merely begs the question (and the alternative answers are: "you have not tried looking hard enough!" and "What about the social, societal and discursive structures that shape us?")
- And again in the phrase "must be newly created in the responder," which is the key new assumption that things can originate or be created fresh 'inside' the organism separated from the environment
- The use of highly abstract words to supposedly spell out what the environment is actually going to be replaced by ("intrinsic, 'autochthonous' brain dynamics")
- A very telling key phrase which gradually came to characterize not just the theory but also the practice and research base of mainstream psychology: "The subject is thus seen as basically out of contact with the dynamics of the environment."

At the same time, however, there were others who tried harder to actually observe and explore the environment to find out what shapes even complex human behaviors—people such as Heider, Barker, Gibson, Bentley, Skinner, and Kantor. Some of these gave theoretical explorations (Heider, Bentley, Kantor, Skinner) on humans, some people explored environmental changes and how these shape behavior but by using restricted environments with non-human animals (Skinner), and two tried to observe more of the real world human environments (unrestricted) to make sense of how complex behavior might be shaped *in situ* (Barker, Gibson). All were useful and had some similar conclusions, but all fell out of mainstream psychology and textbooks.

Consequences of the Shift to 'Internal' Explanations instead of the Environment

There were many important consequences of this assumption shift from environment to 'internal agency' in explaining human behavior, especially when it is remembered that this was not a proven shift with evidence but a case of essentially giving up trying to observe those environments which might shape complex human behaviors and assuming they did not exist. Most of these consequences are still problems within psychological theory, practice, and research to this day.

First, such models and theories did not (could not) rely on direct observations, and so it became acceptable (but not proven) to use highly indirect measures as evidence for their theoretical models. Such an approach previously had some success in sciences such as physics and chemistry, so it was not unknown. But there were differences between these approaches, and even physics had begun having serious trouble with its indirect theoretical models since the 1900s. We will see later that Barker pointed out these problems early on.

Second, psychology was still following the original assumption of most behaviorisms and structuralisms that we can only ever measure external behavior, with the case of language-as-data in question dependent upon further theorizing. So, no new measurements or observations were developed with the change to agentive 'internal' human behavior explanations, but just the continued exploitation of reaction times, simple choice behaviors, and simple verbal responses (yes/no, rating scales, questionnaires). For the most part, the 'work' was on abstract modeling.

Third, another consequence of assuming 'internal' agentive processes was that there was no longer a need or a push to study the environment anymore. All human behavior could be 'explained' through the observation of very simple responses and adjustments of theoretical internal models to figure out what was happening 'inside'. There was no need to pursue the earlier agenda of observing the full environment. This even occurred for social psychology, which had once been full of naturalistic observations of actual people interacting. Even now, for example, in social and community issues, there are many who talk about people being in poverty because of their poor cognitive functioning and cognitive biases and ignoring any observations about the very real societal barriers such people have faced in life through no fault of their own (Adamkovič & Martončik, 2017; Sampson, 1981; Thain, 2023).

Fourth, a related consequence was that by trying to look like a 'science' for reasons of prestige and funding, and by taking advantage of the third consequence above, psychology could now switch to an easier laboratory study of simple human responding with a *denuded* or *decontextualized* environment. It did, in fact, seem a better scientific strategy to run experimental trials in clean environments with no distractions, as do many of the 'hard sciences'. Clinical trials for therapies followed suit and remain so to this day despite the complexities of the behaviors labelled as 'mental health' issues.

It is important to note that the last two assumptions would not have been possible without assuming the agentive, 'internal' causes of human behavior. Both ignoring the environment and purposively removing as much context as possible when doing research only ever make sense with such an 'internal agent' assumption.

Many criticisms were made of these last two consequences, not least from some of those who still looked for environmental shaping of complex behavior (Barker, Gibson). One such criticism for the 'hard sciences', which commonly use denuded experimental testing in laboratories, was that these had already and simultaneously made detailed observations of the relevant real environments. Botany might do denuded experimental studies on the growth of tree cells just using the cells in tubes, but they also have ecologists observing the full ecology of trees in nature and mapping out the nutrients, weather conditions, and other environmental shapers of plant growth which are then brought into the experiments as necessary. This has not happened in psychology:

> As R. Barker (1968) pointed out, psychology may be unique among the sciences in that it began explicitly as an experimental discipline and, unlike other natural sciences, never experienced a descriptive phase. And as an experimental discipline, psychology focused its efforts in attempting to discover "if x, then y" causal laws of explanation... In contrast, other sciences such as astronomy, botany, zoology, and geology all began with active naturalistic description of its basic phenomena, and they continue to pursue this kind of work even in their mature, experimental phases. However, "the descriptive, natural history, ecological phase of investigation has had a minor place in psychology, and this has seriously limited the science" (R. Barker, 1968, p. 1). (Heft, 2001, p. 244)

R. Barker (1968, p. 2) further stated:

> It is different in other sciences. Chemists know the laws governing the interaction of oxygen and hydrogen, and they also know how these elements are distributed in nature. Entomologists know the biological vectors of malaria, and they also know much about the occurrence of these vectors over the earth. In contrast, psychologists know little more than laymen about the distribution and degree of occurrence of their basic phenomena: of punishment, of hostility, of friendliness, of social pressure, of reward, of fear, of frustration.

Such exploration of the real environments of humans was done by both Barker and Gibson, although with only a little of the social contexts explored by Barker and none by Gibson. But with the emphasis within behavior analysis on the very successful laboratory control of behavior by denuded environments, less was ever done on mapping the actual environments of humans (or even wild rats).

So, the change of assumption from environment to 'internal agent' led to a multitude of restrictive changes in psychology (although seen as successes) which has affected all its subsequent research, practices and discourses. Again, this has not occurred through any arguments or evidence that these practices are better, but rests on the social and professional acquiescence to 'We cannot find any environments which might shape complex human behavior so we will assume that it is all decided inside the person'.

One of the ironies of these maneuvers is that the Gestalt theorists were the first to argue as one of their criticisms that it is not just the 'up front' objects which are important in the environment but also the background and the full context. This is ironic because they were some of the first to use denuded experimental demonstrations which had almost all the context removed. I will come back to this point with illustrations since it includes the later (mis)use of verbal ambiguities to claim internal agencies as the discursive environments of humans was ignored.

The Early Contextualists

The term 'contextualist' is the term I use which includes a small group of early psychologists who kept working on the assumption that the complexities of human and animal behavior will be explained by the complexities of their life contexts. [I do not normally use the term 'environment' because in English this usually refers only to the physical environment.] As we will see, contextual analyses for humans need to include all contexts: social relationship, societal, economic, cultural, community, patriarchal, colonizing, historical, discursive, etc. (Guerin, 2004).

The three researchers I will single out here (Barker, Gibson, and Skinner) did both observational and analytical research, although Skinner restricted the former to non-human animals, and Barker was the only one to explicitly observe the *social environments* of his participants. The main conclusions found were these, which I will discuss under three headings:

- A static description of an environment is not useful.
- Context and 'texture' are important for all human behavior to occur.
- Environments are embedded and complex.
- 'Chaining' is too simplistic as an explanation of complex behaviors.
- There are complexities in how the world is structured and this is what we learn through repeated differentiation, discrimination, or 'telescoping' (Guerin, 2020a), not through forming associations between stimulus elements.
- Observations and research in denuded environments tell us little of value (visual and verbal illusions tell us nothing; they are constructed to be contextually ambiguous).
- Identifiable 'reinforcing events' are *not* the most common outcome of behaving.
- The environment changes when there is behavior.
- We can only see and act in the environment if there is motion and change.
- New environments open up more environments when there is any behavior, and this is the main consequence of behaving.

Again ironically, many of these were first argued by Gestaltists who then did the opposite in their own demonstrations, as I will analyze below.

Complex Worlds in which we are Embedded

We have already seen that from the Gestaltists onwards, psychology tried to make clear that the physical environment, or the environment measured by physics, was not what was important for humans. We also saw that this was then ignored on the whole, or difficulties were found in measuring or observing these 'other' environments, so it was replaced by using abstract internal models instead. This latter thread can be seen starkly through the works of Lewin in particular, who suggested that the only way to measure 'life spaces' or 'behavioral fields' was by asking people. Because it was then assumed that people's talk and uses of language were determined or decided 'inside' them, the 'behavioral fields' and their measurement became an 'internal' thing accessible only by having people talk.

Roger Barker instead tried to look at naturalistic environments, mainly studying children and their behaviors-in-context in the natural field (Barker, 1968; Heft, 2001). He found that behavior varied enormously in any environment but that within bigger units, or 'behavioral settings', there was a lot of consistency. That is, in the immediate environments there was a lot of variation, but larger units of environment could predict behavior better. He called these patterns the 'streams of behavior'.

> Recall what led to the discovery of behavior settings in the first place. When Barker and his colleagues tried to account for the actions of the children observed in Midwest, they found that the congruence between discrete ecological events and discrete actions was relatively low. However, when they "finally looked beyond immediate, discrete ecological inputs to the behavior streams of individual persons, it was not difficult to identify larger environmental units" (R. Barker, 1968, p. 152). One of these larger environmental units, an "environmental force unit" (EFU…), was a reasonably good predictor of individuals' extended "behavior episodes." (Heft, 2001, p. 303)

The work of Barker, therefore, begins our description of the environment for humans in a better way. We begin to see how we can treat the environment as having layers of complexity going way beyond a mere 'stimulus' in the immediate field, and by showing how the environment enables, engenders or affords us behavior [cf. Baum (2018) and Rachlin's (2013) nested models]. For example, some of the patterns they found were:

> 1. "The characteristics of the behavior of a child often changed dramatically when he [sic] moved from one region to another, e.g., from classroom, to hall, to playground, from drugstore to street, from baseball game to shower room."
> 2. "The behavior of different children within the same region was often more similar than the behavior of any one of them in different regions."3. "There was often more congruence between the whole course of a child's behavior and the particular locale in which it occurred than between parts of his behavior and particular [proximal] inputs from the locale." (R. Barker, 1968, p. 152)

So, the real sense from Barker and colleagues' work is that our behaviors are shaped by context but not in specific and immediate ways. Immediate outcomes of behavior were not predictive from the environmental responses but were over bigger units of time and place. So, searching for immediate reinforcers or punishers may be fruitless in real life situations. As mentioned earlier, what is missing here in Barker's account are the discursive and societal contexts. Specifically, what even shapes the behavior of children to behave in those predictable ways when in those environments? Just being there in those environments is obviously not enough of an analysis, so we still have not explored the full agentive capacity of the environment.

James J. Gibson focused his research on perception and made several spectacular changes into the way of thinking about such events by examining the environment in much more detail than anyone before. For him, the problems facing perception research because of internalization included not only the mis-interpretation of visual illusion behaviors, but also the paradox of seeing in three dimensions. The argument at that time (and currently) was that there is a two-dimensional image on the retina so to see three dimensions, we *must* process this 'inside' somewhere ("intrinsic, 'autochthonous' brain dynamics"), and build three-dimensional representations of the world since they are not given to us by the scant environmental image on our retinas.

Gibson made several major criticisms of this way of thinking. In a very early exchange, James and Eleanor Gibson (1955) argued with nascent cognitivists Postman and Bruner ("The New Look" cognition) that the action of 'perception' was not about building 'enrichments' of the paltry image on the retina but of learning to respond directly to the *differentiation* of how the environment presents over time. That is, we learn through more and more differentiation or discrimination of environmental features or textures rather than by enriching or processing what is on the retina inside the body into an internal representation.

Second, Gibson (1979) went on to argue that we *can* see three dimensions directly once you (1) get rid of the idea that 'seeing' means building an internal representation but means acting or doing, (2) include both the rich textures and the contexts of the environment and (3) analyze how all these change when there is movement, including all of the natural movements within the eye itself. If you consider standing on one side of a carpeted room looking to the other side, the texture of the carpet (the reflected light or 'optic arrays') is larger where it is closer to you than where it is far away. When you move, the optic arrays (the environment) also change all this textual carpet detail *as you behave, in real time*. So, if you treat the environment properly in all its complexity, it can directly provide three-dimensional guidance. The environment changes when we move. So, Gibson followed a strong position that psychologists had only considered 'internal' processing because they had not looked hard enough for the details and complexities of the environment, in this case, the physical environment and light. We can behave directly in a three-dimensional world without representations when there is movement of a two-dimensional image.

Third, the environments for both Gibson and Barker were complex and layered and all this detail is actively used to navigate our lives and move around and behave. Remove the textural details and movements from the world, and the functional human disappears. This was why the idea of denuded experimental settings and visual illusions did not appeal to either of them, since nothing could be established in the absence of environmental complexities even though the organism might keep responding. There are complexities in how the world changes when we behave that have not yet been explored, especially the social and discursive worlds, and both Barker and Gibson assumed that researching must be done over time, in real environments, and allow for movement and change to take place.

A fourth point to learn from these pioneers of documenting our real environments, is that they pointed out that their contemporaries in psychology resorted to abstract 'internal' explanations *precisely because* they did not think about and observe the environment properly. Especially for Gibson, when you fully involve the complex environment *as part of behavior*, then even complex behaviors (such as correctly navigating in 3-dimensions) can be explained by environmental changes and there is no need for things to be processed 'inside' somewhere. This is why he called what he documented 'direct perception'.

The final point to make about these pioneers is that, except in a small way for Barker, neither incorporated social, societal, or discursive contexts as part of the environments being explored. The same applies to the 'social behavior' studies in behavior analysis and similar approaches (reviewed in Guerin, 1994). This is something that needs to be explored and even helps make sense of both visual illusions and ambiguous sentences ("They are flying planes") as I will demonstrate below. And we are lucky that we already have large amount of contextual research into social, societal, and discursive relationships in the social sciences, which can be synthesized rather than reinvented (Guerin, 2004, 2016, 2020a, b). I will give three examples below of how a '*psychological'* or *perceptual* paradox for cognitivists is solved when the *social* environments are considered.

The Use of Denuded Environments in Research

James Gibson heavily criticized the use of denuded research in his (environmentally-based) research on perception, arguing that, for example, visual illusions tell us little or nothing because all the contexts had been removed. This is true for both artificial illusions in the laboratory, and natural illusions in the world. Illusions occur from impoverished environments, but psychologists have over-interpreted the resulting behaviors.

As a demonstration of this, Figure 1 is a common visual illusion like those used in Gestalt demonstrations. When looking at this, people 'report seeing' either a vase or two human face profiles, or more usually, both of these alternating. The argument from cognitivists and others was that because the environment is not changing (it is the same picture exactly) then something *must* be changing 'inside' the observing person when they switch from faces to vase. Again, the environment was treated as having no agency but as a simple static form, and so the changing 'perceptions' (actually verbal reports!) therefore *must* be due to something 'inside' a person. This was the quintessential cognitive argument for the necessity of internal processing (also King, 2016).

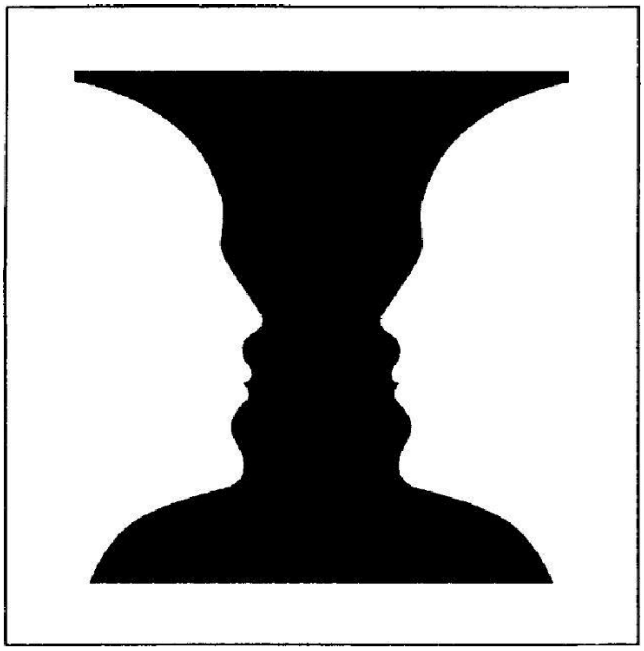

Figure 1. A common visual illusion

Gibson pointed out, however, that such illusions had all the context and texture removed, and since the whole perceptual system for him was predicated upon using the effects or consequences of environmental details and contexts alongside movement (as Gestaltists had ironically also argued), the responses to a visual illusion tell us nothing about normal perception (which for Gibson is just 'doing').

To show this, in Figure 2 I have taken the same illusion and added only a tiny amount of context in two different ways. In both cases, this leads to little or no wavering between faces and vases, even though only a small detail is added in each case. This is even more pronounced when looking at real faces and vases, of course. Because there is so much detail in real faces, we never confuse them for vases. For Gibson, we 'see' using context, textures, and movement, so any responding when there were none of these tiny additions is irrelevant.

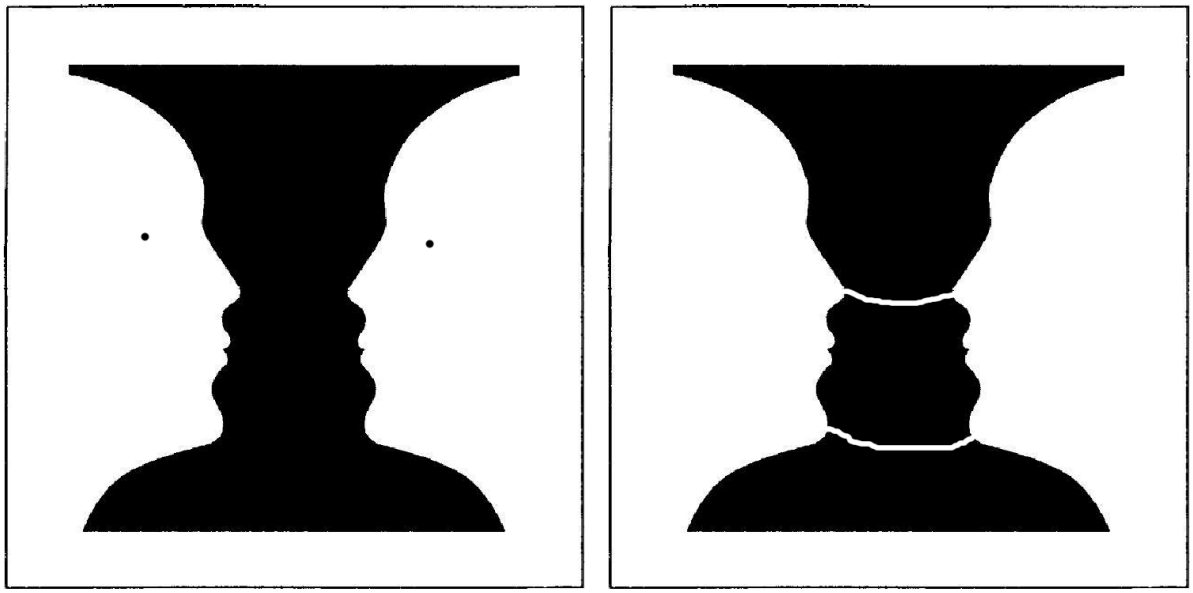

Figure 2. The same visual illusion with two tiny bits of extra context added.

A point I will come back to is that even those who focused on exploring the environment in detail at this stage did not explore the social, societal, or discursive contexts. This includes Barker and Gibson. Bentley, Skinner, and Kantor were the only ones to do this, but they only explored in their theorizing and not very thoroughly, and mostly by introducing new terminologies rather than by observations. None of them made extensive research studies with humans, and none had a thorough knowledge of sociology, social anthropology or sociolinguistics.

If we do include all the verbal-social contexts in 'the environment', then the same solution can be found for another illusion 'paradox' from the 1960s, in this case one championed by Noam Chomsky (see King, 2016 for more). Just as for the Gestalt demonstrations of visual illusions, the verbal-social demonstration was used as a 'strong' argument for why the environment *could not* explain complex human behavior, an argument for the 'poverty of the stimulus', and therefore why we *must* include 'internal' decision making, cognitive processes, and the like. In this case, a sentence was given rather than a visual illusion:

"They are flying planes"

Just like the Gestalt demonstrations, the argument was made that the sequence of phonemes and morphemes remain completely unchanged, but people switch between two analyses which were two very different utterances. People reported switching between:

(They) (are flying) (planes)
(They) (are) (flying planes)

These are two different sentences with different 'meanings' (another ambiguous word used as a disguise) but with an identical sequence of phonemes and morphemes, so it was concluded that there *must be* processing or decision making occurring 'inside' the person since 'the environment' is the same in both cases.

Once again, however, notice how the (discursive) environment has been completely denuded and then shown to not be able to explain anything. In this case, however, responding to language use such as the

sentence above is always part of our *social contexts*, but here all the social context has been removed. For example, if this sentence had been part of a social conversation about pilots, there would be no puzzle. "What are the pilots doing? They are flying planes." Or if there was social context about what those big machines in the sky were, the sentence would again lose all ambiguity, "They are flying planes." Some world languages, in fact, omit much common grammar on the assumption that the social and environmental contexts will make this clear (even gender in Mandarin).

So, there is a clear link between the visual illusion given earlier and this verbal-social illusion in terms of how the environment is treated. All context is removed, and then people are found to have difficulty giving a single response to the denuded context. From this it was claimed in both cases that the environment *could not* explain complex human behavior so 'internal' decision making *must be* real. But with further exploration and provision of the appropriate environments there is no difficulty for people to respond in terms of the environment. [Interestingly, when people switch responding between both vases and faces, or the two sentence interpretations, they have no sense of controlling this switching, suggesting that 'internal decision making' is not really a good answer anyway.]

While this might seem a trivial point, these two examples were very persuasive during the change of assumptions about the environment in the early 1960s and are still repeated in textbooks. The long-term damage was that they furthered both the push towards both using denuded environments for research and relying just on simple stimuli, and using responses backed only by theoretical models without bothering to actually observe the broader environments.

The Main Consequence of Behaving is that New Environments Open up: Our Environments are Active and Agentive

The third point to glean from the earlier list is that the environment is not a static pile of objects and backgrounds although it has been treated this way in psychology. An animal was said to respond to a 'stimulus' and then get a 'reward' or 'reinforcement', but talking this way failed to explain complex human behavior (as might be expected of course). When we treat the environment in a better way, then these problems are avoided, and the environment once again is seen to be shaping all human behavior.

The point is that not only are our worlds or environments complex and layered, but that they *change* directly and immediately when we move or behave in other ways (a pre-requisite to three-dimensional perception said Gibson). So, a major effect or consequence of any behavior is that the environment then changes. Even for language, when we talk, our social, societal, and discursive environments change. Try interrupting a social conversation and say, "I think everyone in this group is a total idiot." Your social environment immediately changes, as it does when you interrupt and say, "I love all you guys!"

This means that far from being a group of static objects, our environments actively provide us with new environments *as consequences* every time we behave. This can be called differentiation, discrimination, or 'telescoping' (Guerin, 2020a).

> The information in ambient light, along with sound, odor, touches, and natural chemicals, is inexhaustible. A perceiver can keep on noticing facts about the world she lives in to the end of her life without ever reaching a limit.'' (Gibson, 1979, p. 243)

So, there are three complexities in our environments that we have not yet really explored: how the environment (and not just objects) is actually detailed and layered; how the social and discursive environments shape all our behaviors; and how we are given new environments as consequences every time we behave. This is what can explain complex human behaviors without resorting to explanations involving 'inner' agentive activities. Gibson explored how the light (optic arrays) in the environment changed directly as a human behaved. Skinner used a more limited environment but showed how even in such limited cases, when the environment changes as an organism behaves, this changes the future behavior of the organism in complex ways. Barker showed that when children were put in new (macro) environments, new behaviors were observed.

The idea that we need to analyze and observe how behaviors lead to new environments was talked about in this period and went by a lot of names, even though only a few carried out direct research on this. Such names included 'distal' behavioral settings, affordances, occasion setting, behavioral cusps, setting events, changing optic arrays, and chaining. The term 'telescoping' gives the same idea (Guerin, 2020a).

Gibson's later work gave even more agency to the environment by considering perception in terms of 'what the environment *affords* us' in the way of doing new things. Thus, he talked about chairs affording us sitting and that this was directly provided through new textual details by the environment as we moved about.

In this way, Gibson may be the only person ever who has argued that there are no separate 'stages' of 'sensation' followed by 'perception', followed by action, as assumed by all other models of 'perception' in history and ever since the 'reflex arc' in psychology. Rather, light on the retina and other sensory organs does not *input into* our systems, but instead allows us to act differentially depending on our history and the environmental details, along with the changes but only when *we and our eyes move*.

This position of Gibson was an unprecedented and radical idea that nothing has to go *into* our systems, we just learn to respond differentially to the vast and changing optic arrays, responding directly to *changes* on the retina rather than the images on the retina being processed somewhere inside. It had been assumed by all those from Wundt onwards (and the philosophers before) that how we behave arises from *taking in* sensations and then processing or associating them until we respond appropriately. But for Gibson, perceiving is just doing or acting, and the environment is a direct partner in this by changing details and textures in direct response to our behaviors. This joint action allows us to do all the things we do. For Gibson, then, the environment was both rich and active. The missing agency in human behavior, which had been attributed to an 'internal' agent for 200 years, can be seen as the environment itself.

If we now consider the major advances of Barker and Gibson in pushing to describe the environment in nuanced ways and giving us a better appreciation of what the environment does for us, there are some common themes. First, both did *not* find that their study of the environment as behavior-shaper had a focus on environmental events, which increased or decreased later probability of a class of responses (what was primarily studied by Skinner). That is, the streams of behavior (Barker) and the changes in light array (Gibson) did not require thinking about or analyzing what would be called 'reinforcing' environmental responses or 'punishing' environmental responses by behavior analysis and others. Barker, in fact, comments in the quote given earlier that the immediate environmental responses did not seem as important in shaping complex human behavior as the longer term and broader context changes. This same feature earlier led Tolman into thinking that rats must have longer term 'purposes' or 'goals' because he could not see how the environment structured what they did (Tolman, 1948).

This feature of not finding reinforcers and punishers everywhere might have unfortunately stopped some behavior analysts from extensively reading Barker and Gibson. Behavior analysis has always had a strong focus on finding out what changes occur in the immediate environment when an organism behaves that can be said to be immediately 'reinforcing' or 'punishing', and which change that class of same behaviors in the future. This is merely the same ideas but studied in a limited and partially denuded environment, and I think there are a few other reasons which make all these three much more compatible.

First, the biggest change found by both Gibson and Barker is that the main environmental response to any animal behavior is to make further environments or environmental details and textures *available* to the behaver. This focus on the effects (consequences) of behavior *as producing new environments* is not unknown elsewhere, of course, even within behavior analysis (settings events, behavioral cusps, 'automatic reinforcement'). It is just that most research in behavior analysis is focused only on the immediate effects that behavior has on the environment, which go on to change the rates of responding. I will come back to this. [Note that even those studying socially relevant social and community behaviors have followed a similar pattern (Guerin, 1994)].

So, the main things we can learn from this are that environments require that we move and change, that environments are complex and layered, and that the most common effect of behaving is that the environment provides new environments or new details and complexities. The environment changes when

we behave and is always responding to our behaviors although not always in ways that can be called reinforcing of punishing. The environment must be treated as the active agent in all our behavior, rather than some internal process, once the full environment is studied (which will include social, societal, and discursive contexts). With these approaches we can begin to see *the environment as agentive* in matching its responses to our behaviors.

The Special Case of B. F. Skinner and Behavior Analysis

Behavior analysis, stemming from the work of Skinner and others, has obviously been key in exploring the environment as a shaper of behavior, rather than giving up. In its very conception (unlike most of the earlier s-r behaviorisms), behavior alone is never really the focus of this research but always *the contingent relations between behavior and the environment*, so the environment plays a big role. Failure to understand this point about Skinner's behaviorism has led to many mistaken criticisms.

While this is good, in practice there has been less attention paid to analyzing the environment itself. For example, in behavior analysis detailed analyses are made of *behaviors* into components, usually called "task component analysis" in Applied Behavior Analysis (e. g., Cooper, Heron & Heward, 2014), but there is no equivalent which analyses the components of our normal human environments so we can understand the shaping of complexities in human behavior—an *environment component analysis*. This should have been started in the 1930s to 1940s but psychologists were not skilled in social, societal, and discursive analyses and it was easier to go along with explanations that something 'inside' the person decided upon or controlled the behaviors seen. In fact, this fictional 'inside' became a territory marker for the discipline of 'psychology' and so was also powerful politically and economically.

While applauding the behavior analytic treatment of the environment in conception, since the early experimental research showing environmental control over behavior (e. g., Ferster & Skinner, 1957), behavior analysis and its applications have only considered simple conceptions of the environment and how it responds to the behavior of organisms. A review of behavior analyses of social behaviors found superficial and weak analyses (Guerin, 1994). There are a few reasons for this which show how we can improve research within more complex human environments including social and community settings.

The lack of behavior analysts describing the human environments stems perhaps from the *successes* of the early research with non-human animals in denuded environments. Unlike most psychology (Wiggins & Christopherson, 2019), the experimental research in behavior analysis is highly replicable and is routinely replicated in teaching demonstrations. While this is important, we must look more closely at how the environments are treated in such experimental setups. Here are several points to consider when accepting the usefulness of such highly replicable results but wanting to extend the environmental analyses, especially with humans:

- Behavior analysis has focused on (not unreasonably) only those responses by the environment to our behavior which directly change the probability of the *same* responses occurring, although the environment responds in many other important ways whenever we behave, as we saw when discussing Barker and Gibson earlier.
- In the experimental situation, the environment is simplified and partially decontextualized and the animal is an individual in a bare cage (almost context free, with no immediate social context), with little or no learning history of environments.
- There are only limited responses available in the environment so there is no exploring of new environments (except that the animals try to do this 'informally' if you watch them).
- The contingencies between animal responses and environmental responses are usually simple and fully controlled by the experimenter.
- Any discriminatory stimuli presented as 'environment' are also simple (usually just one or two colored lights) and static, and most importantly here, cannot be explored further into textures or telescoping new details by the animals.

But perhaps the most important overlooked feature of these environments, thinking especially back to Gibson's 'affordances as consequences', is that when the environment does respond to the animal's response (reinforcing event of food pellet delivery to a hungry organism), *the whole environment is then re-set to exactly what it was before*. This is unlike real life environments and even more precludes the animal from exploring any new environments afforded as a *consequence* of behaving and precludes finding the sorts of environment responses to animal responses seen in the work of Barker and Gibson since only the directly reinforcing effects will be found because the environment is re-set every time to what it was before.

These points are not meant to argue for stopping such research, but to rethink how far we can extrapolate any of the results to other environmental conditions, especially those social and community events of humans. The common life situation of behaving with the response of the environment being to provide more environments and changes in texture and features, cannot be studied in such experimental conditions. It is also likely (Guerin, 2020b) that some of the 'basic' patterns found in animal experimental research of this nature, while highly replicable, are not basic in any sense but a by-product or artifact of this specific condition of re-setting the environment after 'reinforcing responses' from the environment (VI, VR, FI, VI, etc.). These patterns might be produced only because a single type of response by the environment to the animal's behavior is allowed, and because after each occurrence the environment (the equipment) re-sets to exactly what it was before.

What this means is that despite the important work along these experimental lines, we should not extrapolate the findings beyond such very specific forms of how the environment responds to an organism behaving. This applies especially in the case of humans, since humans do not go into such experiments 'alone' (*contra* Guerin, 1993), but already hugely shaped by social, societal, and discursive environments (Guerin, 2001). But unfortunately, a lot of the conceptual work on human behavior by Skinner (1953) and other behavior analysts since, has been based on extrapolating from these narrow ways of treating the environment and how it responds to our behaviors. This includes the research on social and community issues (Guerin, 1994). But we can improve this if we treat the environment better.

Summarizing what has been Shown

What does this all mean for those wishing to research and understand social and community issues that are urgent and important? We have seen that psychology in general has not taken the environment seriously as the shaper of human behaviors. Apart from several main psychologists in the 1930s and only about three since then, most others have used weak arguments to ignore the environment and work with 'explanations' of human behavior that focus on outcomes abstractly originating inside the organisms—in a brain, in cognitive processes, or in a mind. The real conflict has always been between looking for those parts of the environment which shape human behavior or giving up and theorizing internally instead, claiming 'the poverty of the stimulus'. The reply to the latter should have been, "You have not looked hard enough!"

It has been further shown that the demonstrations that the environment cannot control human behavior—because with the same environment different behaviors occur, were flawed (perceptual illusions, ambiguous sentences). More importantly, these demonstrations were flawed precisely because the 'environment' used was almost entirely denuded and contextual ambiguities were already constructed into the very demonstrations. With even small amounts of contexts, the ambiguities disappear, and clear responses are made.

The final point of importance for what follows is that all but one of the three main attempts beyond the 1960s to keep looking for the environment as the main shaper of human behavior ignored the social, societal, and discursive contexts in which most of our human lives are embedded, except the very simple (Barker). We will see that these contexts were important even when analyzing the Gestalt example of ambiguous closure of a triangle shape which was presumed to be purely perceptual.

The (Hidden) Importance of Social, Societal, and Discursive Environments

I have emphasized a number of times that of all the environments, the social, societal, and discursive environments are the least researched in all of psychology and behavior analysis. But whatever we do as humans has consequences from these environments, which can be far more important than food and the exploration of physical environments. Whatever we do not only has direct effects but can also be talked about by ourselves and others and have consequences from our discursive environments, which is partly what the social sciences sometimes call the 'socially constructed' nature of much of our world (Guerin, 1992). This is important since almost all the puzzles and mysteries of human behavior that have been pointed out before and after Wundt (consciousness, for example), can be resolved once we consider what the social, societal, and discursive environments do or provide whenever we behave.

To point out the subtlety of these social and discursive environments, I want to consider another Gestalt demonstration, which they again used to argue that there *must* be internally originating processes instead of the environment (cf. Guerin, 2020a). This will also go back to the beginning and the misleading uses of the words 'see', 'perceive', and 'decide' for wrongly establishing the shift from environmental agency to internal agency. The point here will be that the Gestaltists only considered this as a *perceptual* demonstration of seeing things and ignored that this whole demonstration was also embedded in social, societal, and discursive environments (despite their own pleas that all background was vital). They again explained what they took to be a paradox as only explicable by assuming 'inner' agentive processes.

Figure 3 shows a typical example from Gestalt theory of what they called 'closure'. When people are asked "What do you see?" they invariably respond with "A triangle." The Gestalt reasoning was that since there is *not* a complete triangle and yet people report 'seeing' a triangle, there must be an internal agentive process ("intrinsic, 'autochthonous,' brain dynamics") by which 'closure' is made and the person sees a triangle. In more recent cognitive psychology, this would involve stored representations or schema of triangles, sometimes called 'prototypes', with which the internal processes 'construct' a triangle. In both cases, it is concluded that the scanty 'triangle' on a white background in Figure 3 (the environment) cannot give us an answer of "Triangle" by itself, and the retinal image *must be enriched* inside the person.

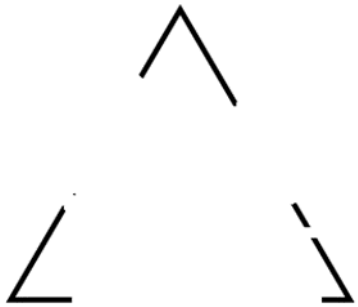

Figure 3. Gestalt demonstration of closure.

If, on the other hand, unlike Gestaltists, you ask someone to *draw* Figure 3, they typically draw an exact copy of what is in Figure 3. [I have only come across one person who has drawn a complete triangle when asked to draw Figure 3 and they were playing a joke on me, another aspect of the social environment.] So, what is the puzzle here?

The point of this paper has been that we should treat the 'environment' in a more complex and agentive way, with many different layers which can be explored, and as an active agent in shaping our responses whenever we behave. Gestaltists, as I have mentioned, proposed this but then seemed to forget it in their denuded demonstrations, and were therefore led to invent internal processes originating in the person. Once again, they present what seems to be a minimal stable environment (Figure 3) with a plain background and no texture.

However, if we consider the complete environment in the case of Figure 3, *the lines on the page are not the only environment*. Of interest here is that there are also social, societal, and discursive environments present, and these most actively appear in the *posing of the question* rather than in the figure *per se*. Asking the perceiver a question is a real part of this demonstration's environment. So, when asked to *draw* Figure 3 there is a verbal/social request with a whole environment present, such as: who is the speaker; what is the social context at the time (in front of a class of students or while reading a published paper?); and how will the different environments respond depending upon what response is made. In most cases, the human response to this social context when asked to *draw* Figure 3 is to accurately draw only the 4 lines and angles seen in Figure 3.

But the original *social* context of being asked, "*What do you see?*" was a very different social context. This is requesting a verbal/social response (not a drawing) to a verbal/social question, and this therefore (sociolinguistic research summarized in Guerin, 1997) will depend on many social, societal, and discursive environments. The person might even explore these ambiguous contexts by asking questions back, although this is always discouraged in such demonstrations ("What do you mean by 'see'?" "Who wants to know?" "What is this being used for?").

This demonstration is usually done in an informal way, and so it resembles the common life question, "How are you?" when meeting someone. This verbal/social response will crucially depend upon the social context and the requester. If you meet a casual acquaintance or stranger, the answer shaped socially is something like, "Oh, I'm good thanks, how are you?" *even if you are not well*. If you are meeting with your doctor, on the other hand, more specific and accurate details would be expected, not "Oh, I'm good thanks doctor, how are you?" The appropriate answers will allow or afford further exploration of the conversation.

So, an everyday and informal question for Figure 3, "What do you see?" is understandably going to give a socially appropriate answer such as, "I see a triangle." But the word "see' is not functioning in any sense of perception or observation, and the Gestaltists confused this. "I see a triangle" does not here mean "I am perceiving or observing a triangle shape." The words 'perceive' and 'see' are highly ambiguous between perception and language and have been utilized as such throughout the history of psychology.

Even with this informal question, "What do you see?" we could have varied the social and societal contexts and gotten a different answer. If you were doing a final oral examination to pass an architecture course and your Professor of Technical Drawing asked a question of Figure 3, "What do you see?" you would or should respond "I see four black lines on a white background, most with angles." The point here is that all these social, societal, and discursive environments were already present in the case of the Gestalt demonstrations, but they were ignored in interpreting the responses made. Only this, and the ambiguous and cunning use of the words "see" and "perceive," allowed psychology to reach a conclusion that there must be agentive processes inside the person, similar to the ambiguous interpretations of "They are flying planes" and visual illusions given earlier.

The importance of social, societal, and discursive environments goes well beyond their simple forms (Guerin, 1994, 2020b) and there are vast complexities yet to be explored. But we have the long research examples of sociology, social anthropology, and sociolinguistics to guide us, although there are often more specific contexts under which their research was done (e. g., social anthropology focused originally on small community groups that were extremely isolated).

How to Include Social, Societal and Discursive Contexts into Analysis and Observations

If we are to treat the world, environment, or context better then clearly the social, societal, and discursive contexts need more research, observation, and analysis. The problem is that these have been the trickiest contexts to observe and analyze, and I have tried to show that they even form the basis of the problems which 'forced' early psychologists to assume that there must be internal processes which could decide or originate responses. They are more difficult to observe but this can be done if we look in the right place, and there is no need to go all 'cognitive' with frustration.

To show this we can consider the early work of Jean Piaget, who was also working at the same time I have been discussing, starting in the 1930s, and who also ended up making assumptions of an internal cognitive model although in a different way to those in the USA. In Piaget's work, which was heavily based on observations of children in a broader contextual setting, he found that the earliest behaviors came from sensory and motor effects of interacting with the environment. At a later stage of development, however, the child started behaving in ways clearly not controlled or shaped by sensory motor interactions with the physical environment, but Piaget could not observe where these came from—what was shaping them (Piaget & Inhelder, 1969/1966). Rather than looking closer at the social, societal and discursive worlds in which the child would have been embedded for 1-2 years, Piaget concluded that there was a (genetic) 'semiotic' or 'symbolic' function occurring.

So, the same explanatory pattern we have seen for cognitive and Gestalt psychologists appears again with Piaget: new behaviors are seen with no easily observable parts of the physical environment shaping them, so we invent internal abstract terms to 'explain' what was happening and relegate this to a genetic propensity. This pattern, in fact, goes right through the history of psychology and the philosophers before, and exactly as Gestalt and Chomsky had done. There are some seemingly inexplicable behaviors of humans with no discernable 'causes', so invent an abstract term for this: mind, cognition, psyche, consciousness, etc. Piaget's problem, of course, was that he was not observing the social and discursive contexts of the children, just their behaviors in set tasks. Most of their 'errors', "Which jar has the most water?" for example, arose in the same way that informal conversations shaped "I see a triangle" (see below). We do not just learn to look at things in front of us but to say what other people will say.

Language as the Problem and the Solution

As has been commented on in different ways by many people, language and discursive communities are both the source of these difficulties and the way out, but only if the discursive environments are observed and treated better than has been done (Bahktin, 1984; Rorty, 1982; Skinner, 1957; Vološinov, 1973; Vygotsky, 1978). We have seen that although the physical environment has been treated poorly in psychology, as a bunch of static objects with not very important backgrounds, the social, societal, and discursive environments have been ignored or else had abstract words as substitutes.

The problem seems to have at least three bases, which have been touched on throughout this paper: first, that *specific* shaping by social, societal, and discursive contexts cannot easily be observed or measured; second, that the social, societal, and discursive interactions only ever occur with other humans and not the physical environments; and third, that the effects coming from the social, societal, and discursive contexts do not occur in discrete bundles like food pellets or a changing environment, they most often appear as either *barriers* to further behaviors or *opportunities* for further discursive or other behaviors.
I will say a little more about the last two.

Social, Societal, and Discursive Contexts are only Human Environments

The social, societal, and discursive environments of humans are shaped purely from responses made by other people, so they behave differently to other environments like the perceptual (Gibson) or direct resource environments (Skinner). The responses by the environment to humans behaving are in this case always responses by people, not by other physical objects. The sentence "The cat is grey" cannot get an effect from a cat, only from a human trained in that language. And the response given by the agentive environment (in this case a person), is nothing like the typically studied reinforcing or punishing events.

Because human talk was lumped together with other human behaviors, *psychologists could simply not see* (and still do not see) how complex human behaviors, such as talking, could be shaped by the environment, because they were only looking at the non-social world. But they are not shaped that way. Those human behaviors are shaped by our audiences and discursive communities in ways that are unique in the animal world. But because psychologists were not observing and analyzing the social, societal, and

discursive environments at all, it seemed like humans were doing things that could never be explained by just the physical environment. Piaget, for example, could not see how what he called 'symbolic behaviors' could ever be shaped by the physical environment; but the symbolic behaviors were shaped in a very different way by social, societal and discursive environments. Chomsky could not see how grammar could ever be shaped by the physical environment; but again, it was actually being shaped all along in a different-looking way by social, societal, and discursive environments (Guerin, 2022a).

Our Behaviors are Shaped in Social, Societal, and Discursive Contexts by Opportunities and Barriers rather than Discrete Events Occurring

Stemming primarily from the observational work of Barker, our environmental interactions with social, societal, and discursive contexts do not look like the environmental interactions with the other physical worlds such as Skinner observed with rats and pigeons. As Kantor had earlier suggested for his 'cultural behaviors', there are ways our behaviors can get shaped other than by reinforcing and punishing consequences from the physical environment (Kantor, 1982). Put simplistically here, we might consider that behavior can be shaped either through reinforcing and punishing consequences from the physical environment or else by removing or adding resources to the environment itself (especially with social, societal, and discursive interactions).

We can better think of our interactions with social, societal, and discursive environments as providing either opportunities for further interactions or else barriers to further interactions, rather than leading directly to reinforcing or punishing events (Guerin, 2004). This follows from both Barker and Gibson, that the agentive environment provides us (as consequences) with more to explore rather than discrete outcomes: 'distal' behavioral settings, affordances, occasion setting, behavioral cusps, setting events, changing optic arrays, and 'telescoping'. This is better encompassed for social, societal, and discursive environments as opportunities or barriers to further social, societal, and discursive environments.

[One way to sometimes tell the difference between these two forms of shaping, for example, is to keep repeating the behavior and see what happens. If I tap on a drum and get a rhythmic sound, this effect keeps happening the same (roughly) if I keep repeating on the drum, but if my behavior is to *ask* someone the same request over and over again or tell them the same story over and over again, I get very different responses occurring over time.]

So, when working with social and community issues, for example, rather than asking "What are the material outcomes of believing right-wing views," instead ask more along the lines of "What new social, societal, and discursive environments does saying right-wing views afford me?" The point is really that when taken in this way, the social, societal, and discursive environments actually become much *more* observable, because we begin to focus our observations on social relationships, audiences, community and societal discourses, media of all sorts, etc. These are quite observable, and the social sciences have a long history of measuring these. Guerin (1997), for example, reviewed a large part of the sociolinguistic literatures on the types of audiences which shape language behaviors.

Observing and Analyzing Social, Societal and Discursive Contexts: The Example of Patriarchy

I now wish to give an example of how these broader ideas affect social and community research (also Guerin, 2005; Guerin & Ortolan, 2017). There are many social, societal, and discursive contexts for which it is difficult to observe specific interactions, especially as an individual reinforcing or punishing event. The main points coming from this paper are that, first, *these environments 'shape' behavior by allowing access or opportunities for further environments, or by putting barriers on accessing or having opportunities for further environments*. Second, these are not shaped by any one individual or person interacting with another individual. Because they are societal, the 'shaping' is done by many people over many situations. Third, our discourses (stated beliefs, stories, jokes, self-statements, opinions, etc.) are

shaped by many societal discourses in addition to the interactions we have with friends, family, colleagues, etc. For example, we all know the racist slurs even if we do not say them; they have been learned through our lifetimes, even if we never say them out loud.

More specifically for modern society (Guerin, 2004, 2016), our behavior is always shaped by:

- the form of the economic system and its properties,
- the effects of patriarchy which shape many behaviors of both men and women,
- the effects of having bureaucracy allow or disallow what we do, mostly along with the outcomes of neoliberalism,
- the effects of class, caste, race, etc., in how we are all shaped to behave whether privileged or not within these systems,
- public media whose authors cannot be responded to directly.

These all have a powerful influence to shape 'individual' human behaviors but are difficult to observe, document, and talk about without a lot of intensive time spent. Just like 'task analysis' in applied behavior analysis, we need to do 'environment analysis' as well (Guerin, 2023). This is also the state of much language learning—whether grammar, beliefs, or jokes—that we learn through multiple others over a long time and there is no specific outcome every time that shapes as a consequence. The discourses we are exposed to from childhood are also learned heavily through public media for which we have no way of responding to the 'speaker'. Such community discourses are faceless and cannot be talked back to in any way. We end up talking to our local groups and social relationships about such public discourses.

As an extended example, *patriarchy* is a term given to broad social structuring that differentially shapes the behavior of both 'men' and 'women' but in different ways (these are defined by the particular patriarchal system itself, of course). This differs from society to society and changes over time. But the effects are very real and have powerful effects on peoples' lives (e. g., Connell & Pearse, 2015).

The main thing to notice for patriarchy is that it allows certain behaviors to be shaped for men and others for women, because of its very nature. How these are specifically shaped as individual responses will never be known, but the main pattens are well known within different times and societies (e. g., Bitel, 2002; Connell & Pearse, 2015; Herlihy, 1990; Hurst & Rodgers, 2018; Jablonka, 2019; Lefkowitz & Fant, 1992; McCloskey & Sitaker, 2009; Panayi, 2009; Thorne, 1993). Just because we will never know the exact responses that were reinforced or punished is no reason to give up or become abstract. We still know a lot about the patterns that are common.

For example, a simple behavioral practice, such as whether to wear facial make-up or not has been shaped in both men and women in various ways, and currently in most western societies for any group, you see more women with make-up applied than men (it may be changing). But this is not brought about from a single person's influence at a particular point in time. There is not a person assigned to each woman who encourages her to wear make-up and a person assigned to each man discouraging them. Such shaping occurs through many others, mostly unknown others (generalized others), over a long time. But the differential behaviors are real and strong nonetheless even if they are different for different groups in society.

Much of this is already known in the social science literature and we do not need to reinvent the wheel, nor waste time trying to find every reinforcing event in a person's life which shaped the wearing or the not wearing of make-up. We can observe the main societal influences that encourage such shaping, the main sources, and the good and bad effects of this for both men and women (although men have generally been privileged or helped with life opportunities through patriarchy).

The point of this for changing social and community issues is that interventions on individuals to reinforce non-patriarchal behaviors are not likely to succeed since there will still be forces within society acting on them, all around them, all the time. The interventions need to change the way society works in the first place, through social action most likely, and through making individuals aware that their behavior

is being shaped so they can resist this through all the different domains of their life. These approaches are both used, for example, by most feminist and Indigenous therapies (Guerin, 2017).

Conclusions

What I hope can be taken from this paper is that psychology has not treated the 'environment' very well in its history. It has treated the environment as a bunch of static unchanging 'stimuli' and assumed that humans do all the active events. This assumption has led to many other false assumptions, such as denuding an environment and assuming that humans will behave in the same way to a static object (or a flashing light) as they do in complex real environments. The approach also implies that any variations in behavior must therefore have been decided or processed within the human as the agency since the environment was thought to be static. It has also meant, like the triangle example showed, that any social, societal, and discursive environments are ignored and only the immediate physical environment needs to be taken into account (vase illusions and 'flying planes').

We now need to almost begin again from Wundt, except that there have been pioneers we can follow (Gibson, Barker, and Skinner for example), and a lot of the social, societal, and discursive environments have been explored by other social sciences so we can use this work. The histories of psychology have been written complacently, as if the final product has now been decided. However, there is a whole new way of understanding and changing human behavior available, and this even occurred briefly between the Gestalt theorists and the 'cognitive revolution'. We need to go back and start this part again.

Once this change in thinking about the environment is made fully, and we search for the social, societal, and discursive contexts, we also need to change our methods. Luckily, the other social sciences have been doing this for over a century, and especially social anthropology adapted its methods to observe and analyze all the contexts of human life. Examples of methodological changes from the social sciences have been synthesized for general research (Guerin, et al., 2018; Guerin, et al., 2024) and behavior analytic research (Guerin, 2018).

We can also now get a better respect for our environments. The world is not made up of 'objects remaining immobile', that is only how we *talk* about the world, a collateral effect of using nouns. The environment becomes an active and changing *partner* in everything we do and we need to begin *describing* the environment as active: study how it changes as we behave. As we behave in this world, the 'world' opens up with more details, or telescoping, and following these new details gives us what could be called 'goals' or 'purpose', but in a different way to how we use these terms in everyday life.

What I hope this paper really gets across is a *new respect for our world*, for our many and varied environments which shape what we do in life, and how those environments actively change as we change what we do, as a partner in behavior rather than a recipient or resource. We need to begin *experiencing* the environment as like an active agent (rather than the brain doing everything): both humans and the environment actively interact and do things to each other with consequences for both.

This respect hopefully will then also extend to how humans as a society treat their environments. Our worlds are not passive piles of things that can be exploited, but a rich and actively varying partner trying to survive on this planet with us.

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