

## **Crossing Over: The Interdisciplinary Meaning of Behavior Setting Theory**

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### **Abstract**

*Behavior setting theory was developed by Roger Barker to explain small-scale social systems, as well as the study of behavior in its natural environment. It is somewhat unusual in being both a big-T theory (its abstract superstructure) and a grounded theory (its research guiding part). Among its advantages are conceptual integrity and well defined terminology, readily available empirical confirmation and intertheory connections. We trace its historical origins and evaluate behavior setting theory in terms of its breadth and scope, internal consistency, intertheory connections, and empirical support. We emphasize the fact that, although behavior setting theory has not been widely accepted and implemented in mainstream psychology, it has become a cornerstone of a number of research areas and disciplines like ecological psychology, environment and behavior studies, behavioral ecology, environmental psychology, and sociological social psychology.*

**Keywords:** Behavior setting, theory applications, social design, environmental psychology

### **1. Introduction**

It is not very common for a theoretical framework to span different levels of abstraction and run the gamut from a concrete research guide all the way to the highest level of generality, associated with big-T theory. Such examples in the social sciences are extremely rare and prone to generate a lot of criticism and resistance in their main discipline. This is indeed the case with behavior setting theory, developed by Roger Barker (1968). It has positively influenced a number of subareas within psychology and even outside of the discipline but has not been widely accepted within mainstream psychology. One reason is probably the breadth and wide scope of the theory. Another, according to psychologist Richard Price (1990) is the fact that ecological psychology, which behavior setting theory is a part of, does not have a lot to say about motives, personality, or emotion, and these have, after all, been the chief arenas for current theory and research in psychology. The recent tilt towards the study of cognition has rendered the idea of a "behavior setting," which assumes fixed patterns of behaviors, somewhat suspect and out of step (Price, 1990). A third plausible explanation of the tepid welcome of behavior setting theory in psychology could be its inherent interdisciplinary nature—it contains elements and ideas from psychology, ecology, sociology, and design.

Given the lukewarm reception of behavior setting theory in mainstream psychology then, the question arises: Why has it been instrumental in spurring a variety of subfields such as environmental psychology, environment and behavior studies, ecological psychology, community psychology, and even sociological social psychology?

While there is no simple answer to this question, it is our contention that its broad appeal outside of mainstream psychology is primarily due to its being more pragmatically oriented towards the study of human behavior and to its more pronounced applied focus. Such qualities of behavior setting theory appear to be very attractive to comparatively new areas, such as environmental design research, behavior modification, assessment, and counseling, which stress the solution of practical problems in real-life situations instead of exploring behavior responses in tightly controlled and artificially manipulated laboratory experiments that are the mainstay of much of traditional psychology. Thus, behavior setting theory fills the need for conceptualization and streamlining of the promising ideas in these fields, stimulating both theoretical reasoning and empirical research (Schoggen, 1989; Stokols, 2000; Wicker, 1987, 2002). Despite its impact on these emerging subfields, however, the verdict about behavior setting theory's real value and the practical effectiveness it can provide is still out there, mainly because albeit its promise, the concept is still mostly a fascinating label, or at best an inspiration that prepares the state of mind to delve into the intricacies of explaining behavior as it occurs in its natural habitat; however, it does not go far beyond this stage.

We aim in the present paper to evaluate the formal characteristics of behavior setting theory, which will allow a glimpse into some of the reasons for its controversial reputation and the relatively low interest in it in the psychological community.

## ***2. Origin and Basic Tenets of Behavior Setting Theory***

Like any complex theoretical system, behavior setting theory has been influenced by many ideas in the past but we will just focus on the most important ones. Perhaps the most salient precursor of the theory is Kurt Lewin's field theory. He was convinced that in order to explain human behavior we need to look at the environment where this behavior unfolds. Lewin believed that the "stream of activity" that we call human behavior results from the continuing interaction of factors within the person with external factors, coming from the environment. He tried to capture this belief in the concept of "life space," which he defined in terms of behavior, personality and environment and proposed the basic formula of " $B = f(PE)$ ," or behavior (B) being a function (f) of the interaction of personality and other individual factors (P), and the perceived environment of the individual (E) (Ittelson et al., 1974, p. 69). According to Lewin, there are a number of environmental determinants of human behavior and the physical environment is only one group of these environmental factors, although a significant one. Thus, he utilized in his descriptions of the environment concepts such as "locomotion," object "valences," "barriers," and frequently made use of objects and space characteristics in the description of the person's "life space."

Such ideas appealed to Lewin's student Roger Barker who was not happy with the dominant tradition of laboratory research with its focus on artificially controlling and isolating the parameters of behavior. Barker was rather keen on studying behavior "in situ," or in real situations, with all the complexity of factors that shaped it. In some sense Baker superseded Lewin who was mainly interested in studying personality with the "life space" concept being just an instrument to attain this goal. Barker went beyond this understanding in observing that in many cases the behavior outcomes of individuals can be predicted more accurately on the basis of the situation in which they are located, rather than on the grounds of their personality. Furthermore, Barker (although well versed in the Gestalt tradition of German psychology, as was Lewin) was not so much interested in the secrets of the personality but rather embraced the more positivistic and situational postulates of the prevailing American behaviorist tradition.

What are the philosophical assumptions behind behavior setting theory? The short answer is systems view and positivism. At the most basic level, a major implicit assumption of the behavior setting theory is that the world has a systematic and holistic nature and the different parts of each system can be viewed as sub-systems, too. Both Lewin and Barker adopt a kind of a systems or organismic worldview at least according to the terminology used by Altman and Rogoff (1987), Wapner (1987), and Wapner and Kaplan (1983). That entails corresponding systems images of social groups and individuals, as well as their behavior and the social and physical environments in which this behavior unfolds. Barker's theory, and this is valid to a great extent for his followers, views the individual as a purposefully functioning organism, with salient and observable performance outcomes, but with quite fuzzy and hidden feelings, perceptions, and cognitions.

In the later versions of behavior setting theory elaborated by Wicker (1987) and Fuhrer (1990) the internal reality of the individual is taken into account, as much as this is possible in a rationalist framework, using a number of concepts that introduce into the analysis considerations about the experiential world of the individual.

The second major philosophical assumption, this time of epistemological nature, is positivism and rationalism maintaining that phenomena are objective, and observable, they can be measured, often repeatedly, and this replicability of the measurements guarantees the quality of knowledge. The repeated measurements are reliable and valid, since the observers are separate, impartial, and detached from the phenomena. The implicit belief is that the different observers produce equivalent or equifinal observations, and a project can easily be performed jointly by several observers. This assumption explains why Roger Barker and his associates used extensively the observation method, introducing different observers at different places and times. This is also based on a corollary assumption that a more abstract theory is not as useful as an empirically derived one that is grounded in reality and observation. Hence, the more field information is gathered, the better, since sound theoretical concepts by and large emerge as a result of inductive reasoning.

Behavior setting theory underwent several modifications to reach its current form. Initially, there was a considerable emphasis on the emphasis of space and time (Barker, 1963). Barker coined the term "behavior setting" as a standing pattern of behavior-and-milieu, with the milieu circumjacent and synomorphic to the behavior so that he can account for the relationship between the behavior that most people reveal in a particular situation and the structural characteristics of that situation. As far as the behavior settings are concerned, they consist of one or more behavior episodes within ecological units, which are highly visible (Barker, 1963, p. 18). At a fundamental level of analysis, the evolution of Barker's theory begins with a strong emphasis on spatial and temporal elements (Barker, 1963) and gradually shifts to an emphasis on behavior. In the first version of the theory in which the broad theoretical contours are laid out, the behavior setting is an assembly of people, behavior episodes, and objects. Its structure is fairly simple and includes the following features: a space-time locus; a variety of entities and events (highly different components: e.g., people, objects, behavior, other processes); the components form a bounded pattern that is easily differentiated from the patterns that are outside the boundary (the boundary is an important element); the components are not a random arrangement of independent entities; and, the behavior setting components in turn have their own components, so we end up with nested structures; the behavior setting exists independently of subjective perceptions of it.

The initial formulation was subsequently modified and elaborated, so that a later version (Barker, 1968, p. 18) stated that a behavior setting consists of one or more standing patterns of behavior; the setting includes milieu, which exists independently of anyone's perception of the setting; this milieu is circumjacent (surrounding, enclosing) to the behavior; it is also synomorphic (similar in structure) with behavior; the behavior-milieu parts are labeled synomorphs; the synomorphs have a specified degree of interdependence; and, the synomorphs have a greater degree of interdependence among themselves than with parts of other behavioral settings.

Furthermore, behavior settings have many other properties, characteristics, and elements. One is a geographical locus. Another is a temporal locus, including serial occurrence and duration. Other characteristics are population (subgroups), occupancy time, penetration in the behavior settings (six degrees of penetration and corresponding positions of the participants); action patterns (with sub-elements as participation, supply, evaluation, teaching and learning); program (rules and regulations that structure the activity); behavior mechanisms (participation, tempo, intensity); affective behavior, gross motor activity, manipulation, talking, and thinking; richness; degrees of pressure (e.g., required, urged, invited, neutral, tolerated, resisted, and prohibited); welfare; local autonomy; genotype; and authority system (leadership, etc.).

A prominent feature of the new theory formulation is that the behavior-milieu parts (or the synomorphs) have a specific degree of interdependence among themselves, and this is greater than their interdependence with other parts of other behavior settings (Barker, 1968, p. 18). The various settings have specific social and cultural definitions resulting from the intended purposes, the type of people who use them, and the activities taking place and their outcomes.

A crucial element of the theory in this modification is the external goal-definition (a kind of a "transcendental teleologism") of the behavior setting, as well as its expression through the concepts of stability and homeostasis.

The mechanisms for reaching such states are goal circuits, program circuits, deviation countering circuits, and vetoing circuits. Taken together, the above circuits comprise the so-called maintenance circuits, which are complementary to the basic, operational circuit. In essence, these circuits serve to join participants and environment. Barker also referred to the behavior setting as "habitat."

Several additional changes were introduced later on such as a more pronounced emphasis on the social environment. Some of his most prominent followers such as Allan Wicker (1987, 2002), Phil Schoggen (1989), and the German ecological psychologists Gerhard Kaminski (1986) and Urs Fuhrer (1990, 1993) also made significant modifications to the theory. Allan Wicker (1987, 2002), who was one of the proponents of ecological psychology, early on criticized the one-sided considerations of the concepts of stability and homeostasis and introduced the notions of dynamics and life-cycle of the setting. Moreover, Wicker made substantial changes in the conceptual language and the terminology of the theory. He clearly stressed that behavior settings are social constructions—the result of sense-making and interactive behavior of participants (Wicker, 1987, p. 616) and in that sense introduced a more cognitive interpretation of behavior settings. In addition he deemphasized the empirical origin of behavior setting theory and proposed a more abstract version of the grounded component of the theory. Two major aspects characterize his version: setting facets and temporal stages. These are further broken down in the following way. The facets are resources (people, behavior objects, space, information, reserves); internal dynamics (personal cognitions and motives, functional activities, social processes, growth and differentiation, stability and flexibility, and decline); and context (general contextual factors: cultural, economy, legal system, etc.; setting history; and setting network, or the higher-level entity in which the setting niche is embedded). Similarly, the temporal stages break down into preconvergence, convergence, continued existence, and divergence.

From the other contributors the one that stands out is Urs Fuhrer (1990). While agreeing with and reinforcing Wicker's definition of behavior settings as small-scale social systems composed of people and physical objects that are configured in such a way as to carry out a routine program of actions within specifiable time and space boundaries, he elaborates a more abstract conceptual language. Thus, Fuhrer views the behavior setting as consisting of several basic facets like rule-guided action structures of setting programs; social representations as socioculturally shared conventions, norms, and values; social penetration; physical objects and their denotative and connotative meanings; architecture and typography of milieu; and schedule and life cycle of the behavior settings.

To recapitulate the evolution of behavior setting theory, there is a marked shift in conceptual understanding, which starts with the emphasis on simple units derived by convenience sampling everyday behavior of children, then continues with an accent on internal dynamics and evolution, and finally progresses towards the study of subjective experience. This is accompanied by an obvious switch from the emphasis on stability to interest in internal dynamics, development, and evolution. Although there is an apparent increase in the abstractness of the concept, it is hard to establish whether every subsequent version surpasses the previous one in sophistication and development, mostly because each of the versions is a product of some shift in ontological or methodological directions despite the presence of obvious continuity.

### ***3. Conceptual Framework***

The articulation of behavior setting theory led to a sophisticated and complex conceptual structure that is somewhat peculiar, namely it is an example of a two-layer conceptual development. The first layer can be described as abstract, similar to Talcott Parsons' theories of society and social action. Inductive reasoning constitutes the second layer whose language emerged from observations and therefore is quite prone to operationalization. In some sense it can be labeled "grounded," although the process of its development differs significantly from the well-known approach proposed by Glaser and Strauss (1969). The philosophical assumptions discussed earlier and upon which the theory is built account for its implicit "inductive-deductive" nature (stemming from the adoption of both systems and empiricists principles). The theory presented here has a hierarchical structure, with a single most important construct at the top (behavior setting) and several levels of constructs that interface with one or two levels of observable features. These constitute the empirical base of the theory.

Barker's version of the theory is selected for conceptual assessment, because of several reasons: it is the original formulation; it is the most structured and not as abstract; and finally, it has also emerged directly from empirical research and was used most extensively in field studies. Barker's formulation of behavior setting theory has several conceptual levels in terms of their degree of abstractness. The top level is comprised of the most abstract concepts that describe the most basic dimensions of the phenomena and are called fundamental constructs. They are explained by a second level of constructs (called just constructs here) that can be viewed both as descriptors of the fundamental constructs and as abstractions that summarize a number of empirical qualities. These constructs are the bridge between abstract theory and empirical meaning, which is revealed when observational terms are designated to them. The observational terms refer to properties that are directly observable through our senses. The group of observational terms includes direct and indirect observable terms. The latter refer to properties that must be inferred (although that process often involves several steps).

The chief fundamental construct of the theory is "behavior setting," while other fundamental concepts include "standing patterns of behavior," "milieu," "behavior-milieu patterns," "interdependence," "synomorphs," "synomorphy," "synomorphic," and "circumjacent." (Barker, 1968, pp. 18-25). The notable feature of the above constructs is that they describe the essential, unvarying structural and dynamic attributes of behavior settings. In addition to these basic features, settings have other salient properties that constitute another level of constructs, such as "temporal locus," "geographical locus," "social occurrence," "duration," "population," "occupancy time," "functional positions of inhabitants," "action patterns," "behavior mechanisms," "pressure," "autonomy," and "welfare" (Barker, 1968, pp. 18-25).

This conceptual layer consists of a set of terms that are specific enough to be labeled as "observational terms." These terms are explicitly operationalized by Barker, which renders them as measurable during behavior observations. Thus, the concept of "occurrence" is specified in terms of number of days. Duration, on the other hand, is measured in hours. Another observational term, population is measured regarding the total number of persons who inhabit the setting for any length of time during a year. The construct "functional position" evolved to "penetration in the behavior settings" with six distinct zones: onlooker, audience or invited guest, member or customer, active functioning, joint leaders, and single leader. Each of these is further defined in observable or indirect observable terms, too. For example, the onlooker is located within the behavior setting, but takes no active part in the standing pattern of behavior. He/she is tolerated, but not welcomed, and has no power.

One important fundamental construct is "standing pattern of behavior," which is an abstraction that stands for the persistent reoccurrence of a behavioral phenomenon. In order to transcend this abstractness, the construct "action pattern" is introduced. The action pattern still represents several phenomena. It is operationalized in terms of particular variables and degrees of occurrence. The variables are aesthetics, business, education, government, nutrition, personal appearance, physical health, professionalism, recreation, religion, and social contact. The degree of occurrence is operationalized in terms of participation, supply, evaluation and appreciation, teaching, and learning. Each of these is additionally operationalized so that a measurement scale is developed. For example, Barker developed a participation scale with six levels, from 0 to 5, where 0 stands for no occurrences of the action pattern and 5 stands for multiple occurrences in the range of 80 to 100 percent of the setting occupancy time.

Since the derivation of the theory is based on inductive reasoning and because of its sound empirical base, behavior setting theory can aptly be described as "grounded." It not only was constructed through empirical observations and research but it is also quite capable of guiding research and evolving through a feedback loop process. Just like any other grounded theory, it emphasizes description rather than explanation and forms a methodological foundation of the behavior setting survey. In that sense it can fittingly be described as a sort of "grounded theory of behavior settings" and as such has an abstract superstructure that Barker lays out in *Ecological Psychology* (1968).

There he explains the processes taking place in the behavior setting by translating his ideas into the language of the grounded behavior setting theory, which contains a number of new concepts: molar achievements, distal objects, ecological sector, organism sector, proximal stimuli, actions, central processes, ecological net within environment, total eco-behavioral circuit, eco-behavioral circuit with ecological environment, eco-behavioral circuit with E-O-E arc, environment-organism-environment (E-O-E) arc, environmental input, behavioral output, environmental force units, force behavior episode, preperceptual environment, entity and environment, boundary, thing-units, medium, thing-characteristics of behavior setting, medium-properties of people, circuits (that join behavior settings and inhabitants via the E-O-E arc), goal circuits, program circuits, deviation countering circuits, vetoing circuits, regulation of circuits (that join behavior settings and inhabitants via the E-O-E arc), maintenance circuits, and mechanisms corresponding to all these circuits (e.g., E-mech., V-mech., etc.). This long inventory speaks to Barker's painstaking efforts to bring the abstract concepts to empirically testable ideas and propositions as a part of a "grounded theory" of behavior settings.

#### **4. Evaluation and Assessment**

The overall performance of the behavior setting is more than the sum of its parts, or in other words, there is a synergistic effect due to the interactions among the parts. For example, a bar is more than a number of people drinking in proximity. It is an informally institutionalized recreational, interactional, socializing setting. Each one of the elements (people, behaviors, space, and so forth) participate only with a part of their qualities; furthermore, these are the qualities "needed" by the other elements. There is some kind of complementarity that produces a holistic entity of a specific type. Thus, analyzing the multitude of relevant aspects of this social setting, as well as the synergies produced or possible becomes quite complicated. Because of lack of space and time for development, the multitude of evaluative criteria is reduced to several basic topics and the rest are just mentioned. While there are many ways to assess a theory, we have decided to confine ourselves to the following general scientific criteria: breadth and scope; internal consistency; intertheory support; and empirical support. We briefly mention several others like explanatory power, predictive accuracy, heuristic power, explicitness, and significance. In addition, there are domain-specific criteria (Moore, Tuttle, & Howel, 1985) such as: whether the theory is problem-centered and research-orientated; whether it is value-explicit; whether it involves users in real settings/ecological validity; whether it addresses issues of quality of life; whether it links the person and the environment; whether it addresses different levels of human behavior; and so on. We decided to narrow down the scope of evaluation and focused mainly on general scientific criteria, while the application of domain-specific criteria will be tackled in a subsequent project.

##### **4.1. Breadth and Scope**

Assessing the scope of the behavior setting theory is carried out within the distinction between "Big T" theories, "little t" theories, and middle-range theories. "Big T" theories also known as Grand Theories are coherent, explicit, and account for a wide range of data across several substantive areas (Moore, 1987). In contrast, "little t" theories account for a limited body of data and cover a narrower substantive area. Middle-range theories "lie between minor but necessary working hypotheses that evolve in abundance in day-to-day research activities and the all-inclusive systematic efforts to develop a unified theory that will explain all the observed uniformities of social behavior, organization and social change" (Merton, 1968, p. 39). Finally, we consider the concept of grounded theory in the sense of evolving a theory out of empirical data or grounding a theory in empirical data. This does not necessarily imply a connection with the Grounded Theory methodology of Glaser and Strauss (1967). Typically, a theoretical framework fits just one of the above levels.

Behavior setting theory is somewhat unusual in that it covers all three types of theory and also has a clear grounded component as well. Its abstract superstructure is closer to a Grand Theory or a "Big T" theory (Barker, 1968, ch. 6). The manner of conceptualization and the high degree of abstraction are similar to those in *Toward a General Theory of Action* (Parsons & Shils, 1951). A strong claim can be made that it is a kind of a Grand Theory of the small-scale social settings. Furthermore, it incorporates the theory of "understaffed (formerly undermanned)" setting and so can potentially become a starting point for a number of other middle-range theories, including some environment and behavior theories. Turning to "grounded" part of the behavior setting theory, we notice that it covers the same range of social reality as the "Big T" part. At the same time, however, it displays a number of qualities peculiar to the theories of the middle range and "little t" theories.

Its concepts are easily operationalized and can be measured with observable data; its propositions easily lend themselves to empirical testing; and the theory can effectively guide empirical research without using intermediate conceptualizations. Therefore, behavior setting theory is quite different from Parsons' "Grand Theory" of the social system, which can hardly be operationalized and its application in research is not very common. On the contrary, behavior setting theory can readily be applied in research and its fundamental propositions can serve as a starting point for theory-building in environment and behavior studies, as well as in social psychology. In that sense it both transcends the standard typology of theories and crosses over into a more interdisciplinary realm of theoretical development and application.

#### **4.2. Internal Consistency**

Behavior setting theory exhibits a high degree of internal consistency, since it is based on a kind of a systems world view, and that makes it explicitly logical and clear. There is a salient hierarchical structure of both its concepts and its core propositions. The concepts of the behavior setting theory are explicitly and clearly defined, and higher-order concepts are followed by less abstract empirical indicators. The levels are fairly well interconnected and consistency is a hallmark particularly for the grounded part of the theory. The two major factors that contribute to that consistency are the system framework of thinking of the authors and the empirical "embeddedness" of the resulting research.

Nevertheless, some minor hitches and discrepancies can be pinpointed after careful examination, but these are due to the continuous development of the theory and the difficulties stemming from the dynamics of an evolving language. One example is the almost synonymous use of the terms "behavior setting" and "habitat," but this is pretty rare. The reason for this might be the intention of the author to introduce different connotations and switch from a highly technical language to a more layman's one. Another source of minor discrepancies is that the theory underwent several iterations in the first decade after its initial formulation. For instance, the shift in focus in the Wicker's and Fuhrer's versions of the theory is followed by a limited modification of the language. There are some new concepts added, and some of the original concepts are not used. Wicker, and particularly Fuhrer, developed somewhat more abstract versions of the grounded theory, although they did not consciously attempt to revise the abstract superstructure. This part of the theory obviously remained overlooked after the decline of the quest for Grand Theories in the late 1970's and 1980's.

#### **4.3. Interttheory Support**

This criterion is often used to assess how a theory fits in the existing accepted set of other theories. Thus, intertheory support is defined as the "communication" of the theory with other theories, its noncontradictory relations and exchanges with them, and the degree to which it can import explanatory concepts from them. We can determine solid intertheory support if a theory can "borrow" from another theory or if it is equifinal with some other theory from a different domain that is structurally and functionally similar to the domain of the evaluated one. It can also satisfy this test if the theory is capable of importing and assimilating concepts and explanatory structures from other theories.

Some comparison with other theories to establish intertheory support was done by Wicker (1987) who compared the term "cognitions of the setting program" with several other terms: script (Schank & Abelson, 1977), social episode (Forgas, 1979; 1982), social maps (Van Maanen, 1977), cause maps (Weick, 1979), schemata (Weick, 1979), plans (Miller, Galanter, & Pribram, 1969), and frames (Goffman, 1974). Insofar as he is interested in bringing a cognitive and experiential stance to his version of the behavior setting theory, it is not accidental that Wicker chooses these concepts, since they all emphasize more or less the individual perception of events and action, or the perspective of a single person.

One interesting comparison here is the similarity between behavior setting and the concept of social situation (Argyle, Furnham, & Graham, 1981; Furnham & Argyle, 1981; Harre, 1977) of the ethogenic approach. Their domains are similar in scale. There is also a similarity in the emphasis on the context, although the social situation theory neglects the physical environment, and although the ingredient concepts are perhaps somewhat different, they still display a similar situation-scale focus of description. The difference is in the transactional, experiential, and interpretative stance of the "social situations" (or ethogenic) approach.

Another intriguing comparison is with the conceptual structure of the dramaturgical analogy of Burke (1972) and its major concepts: agent, purpose, act, stage, and agency. We must conclude, however, that Burke's approach is different because of its strong interpretative philosophical stance. On the other hand, we can find similar conceptual structures to behavior setting theory in the symbolic interactionism version of T. Shibutani (1969): act, meaning, role, personality, and group.

With respect to some philosophical assumptions, there is little doubt that the idea of Person-Environment System is quite similar to the concept of behavior setting, although there are some subtle differences as well: it implies a more abstract and all-inclusive conceptualization, it is not developed into a theory, and it is subjected to quite loose interpretation. Ergonomics provides another concept with system background: the Human-Machine system (formerly Man-Machine System). In this case the systems stance leads to a more mechanistic interpretation of the system. In a nutshell, we can classify all these analogous theories into two categories that occupy polar ends of the theoretical spectrum: the social situation and the dramaturgical sociology will be located at the humanist end, and human-machine systems concepts will drift towards the systems-positivist end.

#### 4.4. Empirical Support

Empirical support involves the testing of the theory in either applications to particular problems or as a stimulus to other studies and theories. One area in which behavior setting theory is extensively analyzed, applied, evaluated, and tested is in research situations by environment and behavior researchers. A large number of papers have been published in the Proceedings of the Environmental Design Research Association (EDRA) over a period of forty years. Some of the early papers are similar to the meta-studies by Petty (1974) and Perkins (1982) on experimental investigation of staffing theory—two of the most obvious early applications. These authors review several experimental studies based on that theory and make a statement about its appropriateness. Ledbetter (1974) offers an interesting application of behavior setting theory in a paper on “undermanning” and architectural accessibility. In his seminal book, *Enclosing Behavior*, Bechtel (1977) extensively uses the behavior setting concept as a research tool. Specifically, Bechtel shows application of the K-21 test for setting identity and boundaries, and proposes ways to collect design information with the help of a “setting” framework. This successful application of the theory is indicative of its adequacy. We will also mention here the work of Tisot and Thurman (2002) who used behavior setting theory to study children's habitat and the research of Cotterell (1998) on children behavior in urban environment.

As already mentioned, one line of corroboration is offered by staffing theory (Barker, 1968), which is a derivative of behavior setting theory. Staffing theory emphasizes the study of the effect of staffing level on the behavior setting integrity and the quality of the individual performance. One example for such research is the book *Big School, Small School* (Barker & Gump, 1964). The “undermanning” (or understaffing) theory is used extensively in research on organizations, tackling problems such as the relations among staffing levels and workload (Mentes, 1982), utilization of personnel (Dean et al., 1979), and members' participation.

#### 4.5. Additional Criteria

Several remaining criteria for evaluation are sketched in brief. One well-known criterion is the explanatory power of a theory. According to this standard, behavior setting theory could be judged by the performance of the “understaffing” theory, which is derived on the bases of the behavior setting concepts. The understaffing concept is quite efficient in explaining variations in human behavior that are due to the number of participants in the setting. The “grounded layer” of behavior setting theory is a predominantly descriptive one. “Explanatory power” in this case can be narrowed down to “descriptive power,” which turns out to be substantial in facilitating the description of various settings. Similarly, an indirect proof for behavior setting theory's explanatory power is its use by many authors in descriptive tasks both in environment and behavior studies and environmental design.

Finally, in terms of another criterion—predictive accuracy, behavior setting theory fares extremely well and its heuristic power can be judged by the application of this theory in the field of environment and behavior studies. Many new developments and ideas about sociospatial interactions were inspired by the theory because of its explicitness and the communicability of the theoretical language, as well as the fact that in a number of cases the concepts can be readily operationalized, and reliable scales for measurement can be provided.

## 5. Concluding Remarks

This discussion brings us to the last evaluation criterion—significance. It has a somewhat different nature than the criteria mentioned above because it focuses on how the theory relates to social and scientific practices. In that sense it is paratheoretical and parascientific, bridging the world of science and the world of practice. As stated at the beginning, the behavior setting theory has not had the impact it warrants on mainstream psychology. Instead, it has become a cornerstone of several recent or new fields and disciplines: ecological psychology, environment and behavior studies, behavioral ecology, and, to some degree, environmental psychology, and sociological social psychology. While some of these fields are already institutionalized as disciplines, others are still struggling for recognition. One thing is for certain, however. No matter whether Barker's eco-behavior science will become well-institutionalized, it already has provided substantial input in a variety of environmental fields.

To sum up the argument so far, behavior setting theory tends to stress small-scale social situations, particularly on their integrative mechanisms and the molar behaviors. Although the behavior setting concept is conceived as a tool for studying behavior in real context, with the exception of the understaffing domain, it was seldom utilized as intended for the study of human behavior. Nonetheless, due to its interdisciplinary nature and applied focus the theory has become influential and widely accepted in the field of environment and behavior studies and by scientists in many disciplines that adopt the eco-systems approach. Thus, behavior setting theory stands as a good example of a theory that is elaborate and well developed at all levels of abstraction, from basic theoretical concepts to its observation language. It exhibits a complex genesis, originating both from some very abstract philosophical principles (Lewin, 1951) and from meticulous field research observations and proves how philosophy can influence research design and how field data may lead to highly abstract theories.

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