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AUTHOR Sherman, Lawrence W.
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ABSTRACT

This attempt to explain cooperative goal structures as instances of social affordances begins with a description of Gibson's concept of affordance. "Affordances" are conceptualized as properties of the environment relative to an animal. The concept's parallel theoretic development in Lewin's notion of psychological ecology and the advancement of this notion by Lewin's students are considered. Central to the discussion are the concept of a synomorph, or behavior setting, and the idea that behavior patterns may be either synomorphus with behavior settings or inappropriate. It is suggested that behavior settings may be conceptualized as affordances, which more or less support appropriate and socially competent actions of children, and that Gibson's idea of an affordance might be an excellent way of describing lesson types. It is suggested that each of Kounin and Gump's (1974) six lesson types may afford more or less task appropriate behaviors. Further dimensions of social affordances may be elaborated by descriptions of lessons in terms of Johnson's goal structures and signal system terminology. Also considered are Stodolsky's (1988) ideas on the importance of the complexity and novelty of the information in a signal. A figure categorizes cooperative learning methods according to the variables of incentive and task structures. (RH)

ECOLOGICAL PERSPECTIVES ON COOPERATIVE PEDAGOGY:

A GIBSONIAN INTERPRETATION.

Lawrence W. Sherman

Department of Educational Psychology

School of Education and Allied Professions

Miami University

Oxford, Ohio 45056

BITNET: LS8CEDPF @ MIAMIU

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Author: Lawrence W. Sherman, Miami University, Oxford, Ohio, USA, BITNET: LS8CEDPF @MIAMIU.

ABSTRACT. An Ecological interpretation of cooperative goal structures is presented. This theoritcal discussion is based on the views of James J. and Eleanor J. Gibson. Their ecological concept of an "affordance" will be applied to the social settings of cooperative classroom learning. Specifically, the extension of the "affordance" concept to the domain of socially competent interaction is discussed. Cooperative goal structures will be explained as specific instances of Social Affordances.

INTRODUCTION

It is not uncommon for different scholars to arrive at similar conclusions independant of each other. This is sometimes especially true of scholars who are contemporaries of each other. It is suggested that two reasons for this lack of awareness might be 1) the slow pace at which research is published, and 2) the vast differences between problems and issues upon which each researcher focuses. This is one of the primary theses of this paper. James Gibson's early concern for problems of perception probably may not have directed him toward group dynamics issues which were of primary concern to Kurt Lewin during the 1940's. While Gibson's early research was contemporary with Kurt Lewin's, and certainly he was aware of Lewin's earlier thoughts regarding "life-space" or "dynamic psychology," he does not seem particularly aware of many of Lewin's students during the late including Roger Barker, Ronald Lippitt, Leon Festinger and Jacob S. Kounin, all of whom were strongly influenced by Lewin as well as quite influential to each other and continued to advance Lewin's notion of psychology ecology. Bronfenbrenner (1977; 1979) is another example of a scholar strongly influenced by Lewin's concept, psychological ecology. The notion of "interdependence" is central to any definition of ecology, the science of studying the interactions of organisms and their environments. One cannot come to a complete understanding of the nature of social actions without also considering the contexts (life-space) within which they happen.

It is the primary thesis of this paper that both Gibson and Lewin and the various followers of each subscribe to the central ecological notions of interdependence of organisims and their environments. It might be better to view these different approaches as complimenting rather than opposing each other. Therefore, an early attempt will be made to show the connections between Gibson's conceptualization of "Affordance," and the related Lewinian notion of "psychological ecology." Gibson's concept will be presented, followed by some relevant concepts related to Lewin and his later students, as well as Urie Bronfenbrenner. This will be followed by a description of how these concepts are related to educational settings which are described as "cooperative."

THE THEORISTS.

Gibson and Affordances. Eleanor J. Gibson, wife of the late James Gibson, has described her husbands concept of "affordance" within the context of a "Renascence of Functionalism" (Gibson, 1983, p. 55; also, see Gibson, 1988), stating that "It is a matter of common agreement among scientists that not many ideas are new." She goes on to define affordance (Gibson, 1979):

> The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, but the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the **complementarity** of the animal and the environment. (p. 127)
>
> An important fact about the affordances of the environment is that they are in a sense objective, real, and physical, unlike values and meanings, which are often supposed to be subjective, phenomenal, and mental. But, actually, an affordance is neither an objective property nor a subjective property; or it is both if you like. An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer. (p. 129)

Additional definitions and discussions are also included in Reed & Jones, 1982:

> Not only objects but also substances, places, **events**, other animals, and artifacts have affordances. I assume that affordances are not simply phenomenal qualities of subjective experience (tertiary qualities, dynamic and physiognomic properties, etc.). I also assume that they are not simply the physical properties of things as now conceived by physical science. Instead, they are ecological, in the sense that they are properties of the environment relative to an animal. These assumptions are novel, and need to be discussed. (p. 404).
>
> The meaning or value of a thing consists of what it affords. Note the implications of this proposed definition. What a thing affords a particular observer (or species of observer) points to the organism, the subject. The shape and size and composition and regidity of a thing, however, point to its physical existence, the object. But these determine what it affords the observer. The affordance points both ways. What a thing is and what it means are not separate, the former being physical and the latter mental, as we are accustomed to believe.
>
> The behavior of the animal has to be controled by the affordance (for him) of the substance, object, or place. And this affordance

has to be perceived by the animal if his behavior is to be controled. True, the affordances of substances and surfaces differ for different animals. The ant, the bird, and the primate live in different "niches" as the ecologist puts it, but the reciprocity of the animal and its environment is the same for all. (Reed & Jones, 1982, p. 408)

It should be emphasized that behavior (animal or human) and perception are both involved in the above definitions. Behaviors are in accordance with the affordances of the environment and this depends on the perceptions of these environments. As psychologists, we must be concerned with what one can do as well as with what one perceives. Proper action implies perception of the affordances offered by an environment. Eleanor Gibson (1983, p. 57) goes on to describe the importance of this concept (Affordance) for developmental psychologists stating:

> I need to find out what the environment offers in the way of affordances -- how to describe them, what the appropriate behaviors are -- and also whether and where they are perceived as affordances. As there are appropriate behaviors, I ask in my experiements on perception whether different affordances are differentiated by appropriate behaviors. To what extent must young creatures (human or otherwise) learn to perceive them? And if they must learn, how is it done? ...affordances are not invented or read into events by the perceiver. They are there to be perceived. (Gibson, 1983, p. 57)

> Affordances, we suggest, are at least partially learned. The learning is primarily perceptual - differentiation of informative arrays, both modality-wise and within structure of a given array - and detection of supramodal information over modalities. In addition there is learning through observation of the consequences of one's exploratory activity. Maturation of other subsystgems (e.g., action systems), as suggested in a systems analysis, is another factor in development of perception of affordances. (Gibson & Schmuckler, 1989, p. 23)

Good et al. (1989) and Sherman (1989) have noted similar issues with regard to the relationship between social interactions and "affordances". Gibson (1979) states:

> The richest and most elaborate affordances of the environment are provided by other animals and, for us, other people . . . Behavior affords behavior and the whole subject matter of psychology and of the social sciences can be thought of as an elaboration of this basic fact. Sexual behavior, nurturing behavior, fighting behavior, cooperative behavior, economic behavior, political behavior--all depend on the perceiving of what another person or persons afford, or sometimes on the misperceiving of it. (1979, p. 135)

> What the other animal affords the observer is not only behavior but

also social interaction. As one moves so does the other, the one sequence of action being suited to the other in a kind of behavioral loop. All social interaction is of this sort--sexual, maternal, competitive, **cooperative**--or it may be social grooming, play and even human conversation. (p. 42).

In detailing the historical context of Affordance Theory, James Gibson acknowledges earlier theorists and related concepts including Lewin's term, "Valance" (Aufforderungscharakter), and Koffka's (1935) concept of "demand-character." His major sources for these concepts (valence, demand-character) are somewhat ancient and do not acknowledge later developments within these theoretical schools: eg., in refering to demand-character, he referes to Koffka's Principles of Gestalt Psychology (1935), and when discussing Lewin's term, "valance," he refers to Adams (1931) and Brown (1929). The only relatively modern reference to Lewin is Marrow's (1969) biography. Because of this lack of reference to more contemporary extensions of especially Lewinian dynamic theory, Gibson's (in Reed & Jones, 1982, p. 409) discussion of differences between affordance theory and Lewin's "life-space" theory may be somewhat wrongheaded. Gibson does acknowledge some confusion with regard to the meaning of these two terms," valance and demand-character," but suggests that the earlier Gestalt theorists (he would include Lewin here) were not clear about resolving the

> ...subjective-objective dichotomy. They sometimes talked as if a valence were a fact of the environment but at other times as if it were only a fact of experience. (Reed & Jones, 1982, p. 410).

Gibson goes on to state:

> Now, forty years later, we should know better, for the environment is no longer quite so physical and experience is no longer quite so mental as it was then." (p. 410).

We would definitely agree with this last statement. The earlier ambiguity which Gibson points out, we believe, has been somewhat resolved in the work of Lewin's later students, as well as Bronfenbrenner.

Lewin And The Psychological Ecologists. The principal Lewinian concepts which Gibson addresses are "Valence, Need and Satiation". For Lewin the primary notion of life-space psychology was that it was dynamic and consisted of both a person and an environment. The famous equation, **BH = f(P+E)**, indicates the ecological orientiation of his theory. The main constructs associated with this theory are diveded into two parts, person (**P**) centered contructs and those associated with the environment (**E**), and one cannot completely understand behaviors (**BH**) with out understanding persons and their environments (See **Figure** 1). Existing within the person are two additional interdependent constructs, needs and abilities. The concept of a tension system, or "force" (motivation), which arrouses a "need" to obtain a "goal" (action which is taken upon the environment and determines the "vector" or direction) may be limited by the "abilities" of the person to "differentiate" the life space as well as negotiate (locomote) through the "environment." Outside the person in the "environment" are "goals" towards which or away

from which one moves (locomotes). These goals are described as being either attractive, positive (+), or repulsive, negative (-), with regard to "valence". Environments also consist of "paths" through which one must traverse, encountering "barriers" and "detours" along the way to obtaining "goals" which are made more or less salient by the needs of the person, as well as the proximity of the person to the goal. A goal which has been fulfilled (consumed) is said to be "satiated," and ceases to be a salient feature of the environment for the person. Lewin's earlier studies of frustration examined the behaviors of nursery school children when they could not obtain postively valent goals (frustration). Kounin's early studies examined co-satiation of differentiated regions of the life-spaces of younger and older mentally retarded subjects.

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As research proceeded throughout the 1940's Lewin increasingly became interested in what became known as "Group Dynamics," examining the effects of leadership style and group climate on human social interactions in the classic "democratic, autocratic, laize-faire" studies. (It might be pointed out here that these studies were carried out in school-like classroom environments, not unlike what we will describe later. This is also true of the nursery school frustration studies mentioned above. In this sense, Lewin and his followers had a continuing interest in human behavior and social interactions in educational and institutional environments.) By the time of his passing in 1947, he had influenced many students in a variety of ways. One of his last concepts to evolve in these later years was the term "psychological ecology" and his two students, Roger Barker and Jacob S. Kounin, spent the rest of their professional lives attending to this concept.

Roger Barker. With his colleague, Herbert Wright, Roger Barker in the early 1950's established the Midwest Field Station (Oskalousa, Kansas), a small town near Lawrence, Kansas and the University of Kansas, where both Barker and Wright held academic positions in the Psychology Department. Their research contributed a variety of concepts, theories and naturalistic research strategies, including the idea of surveying the "behavioral episodes" which people participate in throughout their ongoing daily lives. These studies have been described in his books, **The Stream of Behavior** and **Ecological Psychology**, as well as, **Big School Small School**, co-authored with Paul Gump. The concept of a "Behavioral Setting" evolved throughout this period of time. A behavior setting consists of a milieu (a physical place, at a specific time, in which an activity takes place) requiring specific standing behavior patterns of the people who populate it. Barker (1968) has provided the generic name of "synomorphs" for such ecological units. This concept of Barker's (behavior settings) produced a rich agenda of research for himself and those who he influenced, including Paul Gump, Phil Schoggens, as well as Jacob S. Kounin. Children's as well as Adults' "life-spaces," both in the home and community at large, as well as institutional school settings were the environments in which behavior settings and their associated standing behavior patterns were examined.

Following the original Lewinian concern for a "dynamic" theory, Barker and his associates focused their research on each part of the original formula, **BH=f(P+E)**. Dependent variables associated with standing behavior patterns (BH) were related to the environments (E) in which persons (P) were examined. The abilities and needs of the person were shown to be interdependent with the environments which they inhabited. They developed a rich lexicon of terminology to describe these three elements. One of those terms, an "environmental force unit," or EFU was studied by Schoggens (in Barker's (1963) **Stream of Behavior**) appears quite similar to the term "demand character" mentioned by James Gibson, in his discussion of Kaffka's theories (in Reed & Jones, 1982, p. 409). In **Big School Small School**, the effects of under- and over-populated behavior settings are shown to affect who participates, as well as the level of participation of those how inhabit the settings. They were also concerned with generically classifying the variety and number of behavior settings which are available to and which people encounter throughout their daily lives: eg., Paul Gump (1968) demonstrated the variety of behavior settings available within the same third-grade classroom. This is admittedly only a superficial recounting of Barker's influence. However, in all instances it should be emphasized, Barker and associates assumed an interdependence between the person and the environment, an ecological perspective. The vast majority of these studies demonstrate the reliable regularities (Gibson might say "invariances") of human behavior within and between different environments. As will be suggested later, Gibson's notion of "affordance" may provide a similar but less specific explanation for these predictable regularities.

Jacob Kounin and Paul Gump. Throughout nearly 40 years, Kounin maintained contact with his fellow classmate, Roger Barker. As was stated earlier, both were graduate students of Kurt Lewin in Iowa where they received their PhD's. While Barker went to Kansas, Kounin eventually took a position in Detroit at Wayne State University's Department of Educational Psychology, in a College of Education. His research agenda was focused upon issues of classroom management and discipline and he is probably best known for his pioneering research with video-taped classroom interactions. He describes his research as "Exploratory Ecological Research," and positively stresses the "ex-post-facto" and naturalistic approach to examining social interactions in naturally occuring school settings. Most of this work is sumerized in his classic book, **Discipline and Group Management in Classrooms** (Kounin, 1970), which is refered to in nearly every introductory educational psychological text book printed after 1970.

Paul Gump was one of the primary consultants and collaborators on many of Kounin's exploratory ecological studies, as well as the last series of Nursery School studies begun in the late 1960's (eg., Ambinder, 1973; Kounin & Gump, 1974; Kounin & Sherman, 1979). Gump's continuing association with Barker provides a direct link between Kounin and Barker. At this point it might be important to point out that these studies used a particularly exploratory ecological strategy. The primary dependent variables in these studies were categorical levels of children's task-related behaviors. First, nearly 596 lessons were reliably categorized into six generic types of lesson structures. Then, children's standing behavior patterns which were synomorphous (that is, appropriate or congruent with and supporting of the

activities that teachers presented to the children) were determined. Inappropriate behaviors and deviant behaviors, those which were not synomorphous, were also reliably categorized. This was done every six seconds for all children inhabiting all lesson behavior settings. The children were categoriezed as being "appropriately involved, partially involved, not involved (dormant), inappropriatly involved or deviant". (See Kounin & Gump, 1974, for further details of these codes.) The children's behaviors could then be aggregated to represent proportions of involvement (or the lack thereof) in any particular lesson - an individual lesson eventually became the primary unit of analysis (n = 596). Thus, one could investigate proportions of specific behaviors associated with a variety of generic lesson types and determine which of the behavior settings obtained the highest or lowest levels of appropriate and inappropriate involvement. As Kounin & Gump (1974) state:

> The research asks whether certain qualities or dimensions of lessons can be delineated, whether these qualities can predict to the task-related behavior of children in these lessons, and whether these predictions can be made independently of the differences of the teachers and children who inhabit these lessons. (p. 555)

This last statement ("...independently of the differences of the teachers...") suggests a Gibsonian concern for the **affordances** which a behavior setting might provide.' If one obtains certain reliable behavioral regularities within similar settings, one might conclude that the behavior settings themselves are "affordances". The terminology of "Affordance Theory" was not available when these studies were initially reported. On the one hand, all though "Affordance Theory" is not necessary to explain these earlier studies, on the other hand their results do provide evidence for the support of Affordance Theory. This will be the primary position of this paper.

Bronfenbrenner and Oppenheimer. Before proceeding further, the additional issues of social competence and social conformism and their relationship to the ecology of human development should be introduced. Urie Bronfenbrenner is the principal scholar associated with this discussion. Bronfenbrenner acknowledges his Lewinian influence in both of his major writings concerning "human ecology" (Bronfrenbrenner, 1977 & 1979). Oppenheimer (1989) in his discussions of the nature of social action and social competence has recently stated:

> On the basis of a discussion of literature dealing with theory, models, and assessment of social competence as well as empirical research with regard to social competence, it is argued that the terminology used and the interpretation of the empirical findings do not characterize the development of children but rather the environment in which they must function socially. Hence, many of the abilities that have been assessed and that are thought to involve "social skills" merely reflect children's abilities to conform to the demands and expectations of the social environment. Consequently, the development of socially desirable behavior has been studied, not the development of competence. To understand the

latter development, a dynamic interactional model of development (i.e., an activity-levels model of development) should be attended to. The interaction between the needs of the organism, the perceived expectations and demands made upon the developing child by the social environment should be addressed. (p. 2)

This last concern is remarkably Lewinian. It is also quite similar to Good et al's (1989) concern with the connection between "culture" and human affordances. And, it is not unrelated to Gibson's (1983) concern with understanding the development and possibly learned perceptions with regard to affordances. Oppenheimer continues his discussion drawing on Bronfenbrenner's (1977, 1979) ecological concepts of micro-, meso-, exo- and macro-systems, of which the micro- and meso-sytems are of greatest importance to this paper. The macro-system consists of the culture or subculture of belief systems or ideologies and encompasses the exo- and meso-systems. The **exo-system** represents those settings "..that do not involve the person as an active participant, but in which events occur that affect, or are affected by, what happens in the settings containing the person..." (Bronfenbrenner, 1977, p. 25). The **meso-system** is described as the different social contexts in which a child actively participates (eg., a cooperative learning lesson). The meso-system would also include the family, peers, and school systems. The **micro-system** might be described as follows:

> The link between the organism and the environment is the micro-system ... the child him/herself (ie., the phenotype). The child is the final system representing the interaction or dialectics between the major systems (i.e., the organism and the environment) and refers to the product of this dialectic. It is characterized by development of normative age-graded influences as the result of changing interaction patterns and changes in the nature of the dialectic over time (i.e., maturation and history-graded influences. (Oppenheimer, 1989, p. 19)

While the present paper is not directly concerned with the "development" of social competence, it is concerned with the transactions of organisms with their environments; ie., the **micro-** and especially the **meso-system**. If one could interprete standing behavior patterns which are "synomorphous" with their behavior settings (that is approriate) as "socially competent," then the opposite might be true as well; ie., inappropriate behaviors are socially incompetent. Both appropriate and inappropriate behaviors may also be reflecting the child's ability or inability to conform to certain expectations and demands of th environment. If certain environments promote appropriate behaviors among the same children more frequently than others, then we might interpret these environments as evidence of specific affordances. Obtaining knowledge of the positive affordances of particular behavior settings might enlighten us about the environments which children inhabit (that is, what we teachers ordain or 'inflict' upon children in classroom settings).

Summary. The preceeding discussion has first presented a description of Gibson's concept of "Affordance." It was then shown that a parallel but perhaps earlier development stemming from the work of Kurt Lewin emphasized

and defined the term "psychological ecology." The continuing development and advancement of Lewin's psychological ecology by his students was briefly described. The concept of a synomorph (behavior setting) was discussed, suggesting that it is a major interdependent influence upon human behavior. It was also suggested that because each theorist had their own narrow focus of interest (Gibson and perception, Lewin and group dynamics, Barker and behavior setting surveys, Kounin and classroom management), they may not have been as aware of each other's similar concerns and conclusions. If one could return to the primal Lewinian formula, BH = f(P+E), each theorist may have been more or less interested in one of the elements, but, all of them subscribe to the interdependent and dynamic nature of this formula. Gibson's concerns for perception may have focused his research more on the person (P) while eventually acknowledging the influence of the environment (E). Because of his interest in perception, nuero-physiologists and developmental psychologists might have been more interested in his earlier research (See Gibson, 1982 for further details of the developmental psychology implications). Gibson was also more experimentally oriented, accomplishing much of his research under laboratory conditions. Barker and Kounin both seem to be more focused on environments (E) and their influence on behavior (BH), with minor interest in person-centered constructs. They were also more interested in natural everyday as well as school and classroom environments of interest to educational psychologists. **Figure 2** displays a flow chart of the major persons directly influenced by Lewin's notion of "psychological ecology" (I would include my self here). Social actions of human's occupying behavior settings was introduced by describing Bronfrenbrenner's ecological concepts, which were also shown to be indirectly influenced by Lewinian theory. The idea that behavior patterns may be synomorphus with behavior settings (socially competent) or inappropriate (socially incompetent) was then discussed. Finally, it is suggested that behavior settings may be conceptualized as "affordances," which more or less support appropriate and socially competent actions of children.

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In an earlier presentation Sherman (1990) described a similar connection between Lewin's principal students who were later directly connected to the interests of "cooperative learning" pedagogy (See Figure 3). He expressed a particular irony that the social-psychological and group dynamics researchers and instructors who generated a great variety of cooperative strategies are not often using these vary techniques to instruct this body of knowledge at the college level.

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David Johnson (1979, chapter 5) has used the concept of a "goal structure" to describe the patterns of "...interdependence among students as they strive to achieve the instructional objectives (p. 145)." His cooperative,

competitive and individualistic goal structures appear to be strongly influenced by his mentor, Morton Deutch (1949), who was also a student of Kurt Lewin. The manner in which he describes the relationship between interpersonal processes and goal structures (Johnson, 1979, Table 5.1, p. 150) is not unrelated to Gibson's notion of a "social affordance." Kohn's (1986) recent book strongly relies n Johnson's descriptions of these three goal structures, and, also raises issues regarding the cultures within which children **develope** their abilities to function competently in these different behavior settings.

Just as Johnson (1979) has related differences in interpersonal processes that are associated with different goal structures, Robert Slavin (1983) has suggested that differences in achievement behaviors may be connected with a variety of cooperative goal structures. Slavin (1983) has further differentiated the cooperative goal structure based on two levels of "task structure" and three levels of "incentive structure" (See Figure 4). His six categories were used as a rationale for why children demonstrate relatively high or low achievement in each type of cooperative condition. One possible interpretation of these categories might be based on Gibson's concept of a social affordance. Each category might functionally "afford" different achievement behaviors for the individuals who occupy these behavior settings. The "meta-analyses" of Johnson et al. (1981) and Slavin (1983) offer different explanations for children's achievement behaviors under cooperative learning conditions. However, both researchers continue to find relatively higher rates of achievement for cooperative learning, as contrasted with competive and individualistic conditions. Perhaps a more comprehensive "ecological" explanation for these affects might flow from the Gibsonian perspective of "social affordance" theory.

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DISCUSSION

Ecological psychology has maintained that to truly understand human behavior, we must understand the interdependencies between organisms and their environments. This would be true of traditionally Lewinian oriented or Gibsonian psychological ecologists. In the beginning of this essay, it is suggested that Gibson was probably ignorant of the research activities of Lewin's students. While Gibson might have been aware of Roger Barker's activities, he makes no citations to Barker's work. Thus, this author would conclude that Gibson did not see relevant connections between these Lewinian-oriented researchers, if he even knew of their work? Kounin made no mention of James Gibson's work, and this author believes that Kounin actually did not know of Gibson's research activities. As explained earlier, this state of affairs is not unusual. After all Gibson is much more known for his work in "perception" and Kounin for his work in "classroom management".

Nevertheless, it is believed that both of these men might have benefited from each other's thoughts. Gibson's idea of an **Affordance**, as described in the beginning of this paper, might be an excellent way of describing lesson

types. Each of Kounin & Gump's (1974) six lesson types may afford more or less task appropriate behaviors, behaviors which are synomorphous with the activities which teachers try to direct. In other words, there may be some behavioral affordances associated with different lesson structures, be they cooperative, competitive or individualistic. Describing the lessons in **signal system** terminology (Kounin & Gump, 1974)--eg., using the ideas of **continuity , insulation**, and **intrusiveness**, may be a way of elaborating further dimensions of social affordances. As Eleanor Gibson (1983) has quoted James Gibson as saying: "I need to find out what the environment offers in the way of affordances -- how to describe them, what the appropriate behaviors are -- and also whether and where they are perceived as affordances." (p. 57) One way of describing social affordances may be through Kounin & Gump's (1974) signal system terminology as well as Johnson's goal structures. Since children behave appropriately and with some regularity within these systems, it would appear that they are "perceiving" the systems uniformly. This in itself might be evidence for the proposition that the lesson types are affordances.

Bronfenbrenner (1977; 1979) has described human ecology using four basic systems including the micro-, meso, exo- and macro-systems. All are presumed to be interdependent influences upon each other. The meso-system, as described earlier, is the different **social contexts** in which a child actively participates (eg., a cooperative school lesson). One might use Gibson's concept of a social affordance to describe a meso-system as well. However, this does not give us much more information than the term "meso-system." If we begin to describe a meso-system using signal system and goal structure terminology, it becomes further differentiated. Our knowledge of children's actions within meso-systems becomes greatly expanded. Synomorphous behaviors of the same children, that is task appropriate behaviors, appear to be more likely in some lesson formats then in other formats. This might be interpreted as evidence for a **social affordance**: that is, the social interactions of the children are influenced by the behavior setting. This in itself might be an indication of not simply the children's social competence (ie., compliance to a learned set of rules), but rather a natural response to the **social affordance** of the lesson. Oppenheimer (1989) has cautioned that social competence may be merely a matter of social conformism. It may also be a natural response to what the environment **affords**. While the present studies described above can not rule out basic social incompetences of children as an explanation of off-task and deviant behaviors, it is believed that these behaviors may actually be more or less "natural" responses to certain behavior settings which are more prone, or likely to invite, off-task and deviant behaviors. The regularity with which certain lesson types appear to "produce" achievement and off-task and deviant behaviors, might suggest that this is so.

When a lesson type that normally yields relatively high percentages of task-appropriate behaviors is found to be abnormally low in proper behaviors, what might be the cause? To answer this question Kounin & Doyle (1975) examined the continuity of signal systems in lessons of the same type. The results of their study showed that the degree of signal input continuity differentiated significantly between high task involvement and low task involvement of children within the same lesson type. When a normally

preprogrammed and sequenced single signal system such as a teacher reading a book had low task involvement rates, it tended to have many more lags and breakdowns in the signal quality. When signal output ceased, creating a lag longer than 10 seconds, off-task and deviant behaviors were likely to ensue. Thus a lesson structure which might normally **afford** task-appropriate passive listening behaviors can yield relatively high rates of off-task and deviant actions when the signal system loses its continuous quality.

Stodolsky (1988) has acknowledged the importance of Kounin & Gump's (1974) signal system theory, and also added the importance of the quality of information within a segment of a signal. She stresses two important additional features: "...the complexity of the information, and the necessity of novelty of the information" (p. 16). In Stodolsky's (1988) recent book, **The Subject Matters**, she presents evidence indicating that classroom activities are coherent actions shaped by the instructional context. One of her conclusions is that students respond to instruction very differently, depending on the structure and demands of the lesson. This might be especially true of cooperative learning settings. Slavin's distinction of six types of cooperation might be another useful differentiation. One might ask the question of how "development" is related to these findings. Kounin & Gump's study focused on a preschool sample from Detroit. Stodolsky's (1988) studies used samples of fifth grade children from the Chicago Public Schools. Stodolsky's conclusions about task involvement are quite similar to Kounin & Gump's (1974). Therefore, we might conclude that these structures have certain inherent properties (**affordances**) which "invite" task appropriate behaviors. Learning and development might influence children's ability to recognize and engage in proper social interactions in the classroom. However, children's behaviors may be more influenced by their interactions with specific environments.

Implications. The ecological structure invoked by a teacher to impart information in a classroom should be a basic pedagogical consideration in planning a lesson. Knowledge of behaviors afforded by particular behavior settings might influence teachers' choices of lesson structures as well as the preparations which they must make to effectively manage any particular lesson structure. Further research focused on learning more about the variety and effectiveness of lesson structures is needed, especially within the great variety of cooperative lesson structures which are presently being used. The knowledge which we already have needs to be related to preservice and inservice teachers. Educational psychology as a discipline needs to pay more attention to developments in the field of psychology in general. For example, it is surprising that few if any educational psychology text books pay any attention to the ideas associated with psychological ecology, James Gibson, Affordance Theory, or social affordances. When they do, it is usually in the context of classroom ecology, management and discipline, rather then a section concerned with the pedagogy of lesson planning and construction. Good & Brophy's (1986) **Educational Psychology** is a notable exception and good example of a text book which attempts to relate several dimensions of classroom psychological ecology, however, they fail to see the implications for teaching methodology, but rather focus on classroom management and discipline. A good example of a practical application of Kounin's signal system research is reported by Arlin (1979) who has trained

preservice teachers in the management of activities, transitions, and time flow. While this later consideration is traditionally addressed in a "methods" class, it is in the educational psychology class were the theory and foundations of such issues should be presented.

REFERENCES

Arlin, M. (1979). Teacher transitions can disrupt time flow in classrooms. **American Journal of Educationj**, 90, 334-352.

Barker, R. G. (196?). **The Stream of Behavior**. New York: Appleton Century Croft.

Barker, R. G. (1968). **Ecological psychology: Concepts and methods for studying the environments of human behavior**. Stanford, CA: Stanford University Press.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. **American Psychologist**, 32, 513-531.

Bronfenbrenner, U. (1979). **The ecology of human development**. Cambridge, MA: Harvard University Press.

Deutch, M. (1949). A theory of cooperation and competition. **Human Relations**, 2, 129-152.

Good, J. M., Still, A. W. & Valenti, S. S. (1989). **Culture and the mediation of human affordances**. A paper presentation to the Fifth International Conference on Event Perception and Action, Social Affordances and Interactions Symposium. Miami University, Oxford, Ohio, July 24-28, 1989.

Good, T. L. & Brophy, J. E. (1986). **Educational Psychology** New York: Longman.

Gibson, J. J. (1979). **The ecological approach to visual perception**. Boston: Houghton-Mifflin, 1979.

Gibson, E. J. (1983). The concept of affordances in development: The renascence of functionalism. In W. A. Collins (Ed.), Minnesota symposia on child psychology, Vol. 15: **The concept of development**. Hillsdale, NJ: Erlbaum. 55-81.

Gibson, E. J. (1988). Exploratory behavior in the development of perceiving, acting, and the acquiring of knowledge. **Annual Review of Psychology, 39, 1-41.**

Gibson, E. J., & Schmuckler, M. A. (1989). Going somewhere: An ecological and experimental approach to development of mobility. **Ecological Psychology**, 1, 1, 3-25.

Gump, P. V. (1980). The school as a social situation. In M. R. Rosensweig and L. W. Porter (Eds.), **Annual Review of Psychology**, Palo Alto, CA: Annual Reviews, Inc.

Gump, P. V. (1968). Intra-setting analysis: The third grade classroom as a special but instructive case. In E. P. Willems and H. L. Raush (Eds.), **Naturalistic viewpoints in psychological research**. New York: Hold, Rinehart & Winston.

Houseman, J. A. (1972). **An ecological study of interpersonal conflicts among preschool children**. Unpublished doctoral dissertation. Wayne State University.

Kohn, A. (1986). **No contest: The case against competion**. Boston: Houghton Mifflin.

Kounin, J. S. (1970). **Discipline and group management in classrooms**. New York: Holt, Rinehart & Winston.

Kounin, J. S, & Gump, P. V. (1974). Signal systems of lesson settings and the task-related behavior of preschool children. **Journal of Educational Psychology**, 66, 4, 554-562.
Kounin, J. S., & Sherman, L. W. (1979). School environments as behavior settings. **Theory Into Practice**, 18, 3, 145-151.
Johnson, D. W. (1979). **Educational Psychology**. Englewood Cliffs, NJ: Prentice-Hall.
Lewin, K. (1945). **Resolving social conflicts: Selected papers on group dynamics**. New York, NY: Harper & Row.
Lewin, K. (1951). **Field theory in social science: Selected theoretical papers of Kurt Lewin**. New York: Harper & Row.
Marrow, A. J. (1969). **The practical theorist: The life and work of Kurt Lewin**. New York, NY: Basic Books, Inc.
Oppenheimer L. (1989). The nature of social action: Social competence versus social conformism. In B. H. Schneider, G. Attili, J. Nadel, and R. P. Wessberg (Eds.), **Social competence in developmental perspective**. Dordrecht, NL: Kluwer.
Phyfe-Perkins, E. (1980). Children's behavior in preschool settings: A review of research concerning the influence of the physical environment. In L. G. Katz (Ed.), **Current topics in early childhood education**, Vol. 111. Norwood, NJ: Ablex.
Reed, E. (1988). **James J. Gibson and the psychology of Perception**. New Haven: Yale University Press. 105-113.
Reed, E. & Jones, R. (1982). **Reasons for realism: Selected essays of James J. Gibson**. Hillsdale, NJ: Lawrence Erlbaum, 401-416.
Rosental, B. L. (1973). **An ecological study of free-play in the nursery school**. Unpublished doctoral dissertation. Wayne State University.
Sherman, L. W. (1975). An ecological study of glee in small groups of preschool children. **Child Development**, 46, 53-61.
Sherman, L. W. (1977). Ecological determinants of gleeful behaviors in two nursery school environments. In A. J. Chapman and H. C. Foot (Editors), **It's a funny thing, humour**. London: Pergamon Press, 357-360.
Sherman, L. W. (1988). **Cooperative classroom pedagogies in undergraduate education**. Paper presentation to the Fourth Convention of the International Association for the Study of Cooperation in Education. Kibbutz Shefayim, Israzel, July 5-8, 1988. **ERIC DOCUMENT ED 299-873.**
Sherman, L. W. (1990). **Cooperative pedagogics in psychology: Implications from social psychology for active learning experiences.** A paper presentation to the 4th Annual Conference on Undergraduate Teaching of Psychology, Springfield, MA, 15-16 March, 1990.
Sherman, L. W., & Oppenheimer, L. **(1989). Affordances in preschool lesson structures and socially competent task-related behaviors: A Gibsonian ecological re-interpretation.** A paper presentation to the Fifth International Conference on Event Perception and Action, Social Affordances and Interactions Symposium. Miami University, Oxford, Ohio, July 24-28, 1989. ERIC Document PS 018314.

Sherman, L. W. & Woy-Hazelton, S. (1988). **The student team project: A long-term cooperative strategy in graduate environmental studies.** Paper presentation to the Fourth Convention of the International Association for the Study of Cooperation in Education. Kibbutz Shefayim, Israzel, July 5-8, 1988. **ERIC DOCUMENT ED 299-872.**

Slavin, R. E. (1983). When does cooperative learning increase student achievement. **Psychological Bulletin, 93,** 429-445.

Stodolsky, S. S. (1983). An ecological perspective on classroom instruction: Implications for teacher education. In P. Tamir, A. Hofstein & M. Ben-Peretz (editors), **Preservice and Inservice Training of Teachers.** Philadelphia: Balaban International Science Services, 503-517.

Stodolsky, S. S. (1988). **The subject matters: Classroom activity in math and social studies.** Chicago: The University ofChicago Press.

Turvey, M. T., & Carello, C. (1981) Cognition: The view from ecological realism. **Cognition,** 10, 313-321.

Wilcox, S. & Katz, S. (1984). Can indirect realism be demonstrated in the psychological laboratory? **Philosophy of Social Science,** 14, 149-157.

Figure 1.
Lewinian Life Space.

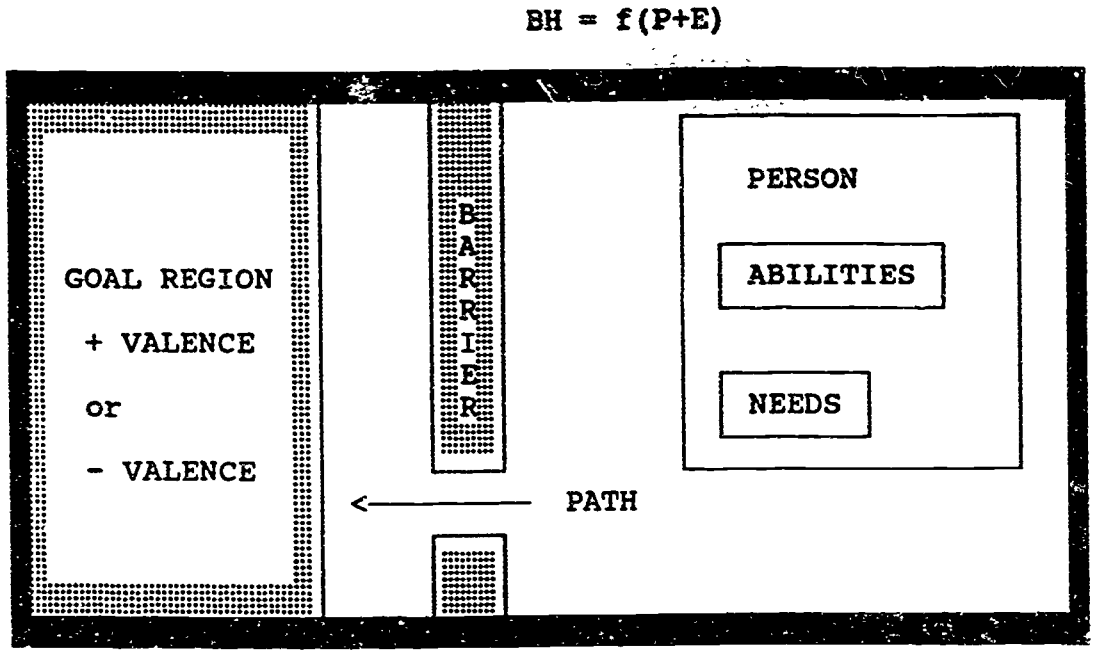

Figure 2.
The Generations of Lewinian Influence, I.

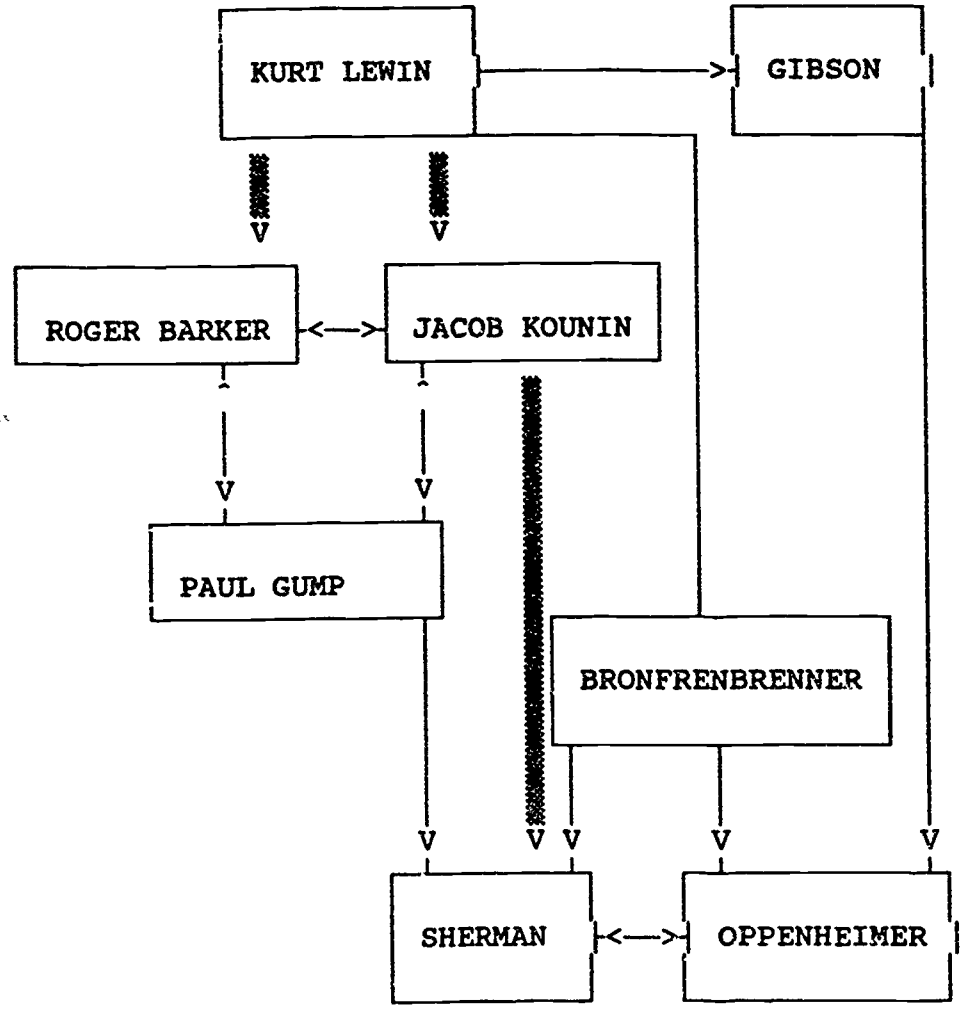

Figure 3.
The Generations of Lewinian Influence, II.

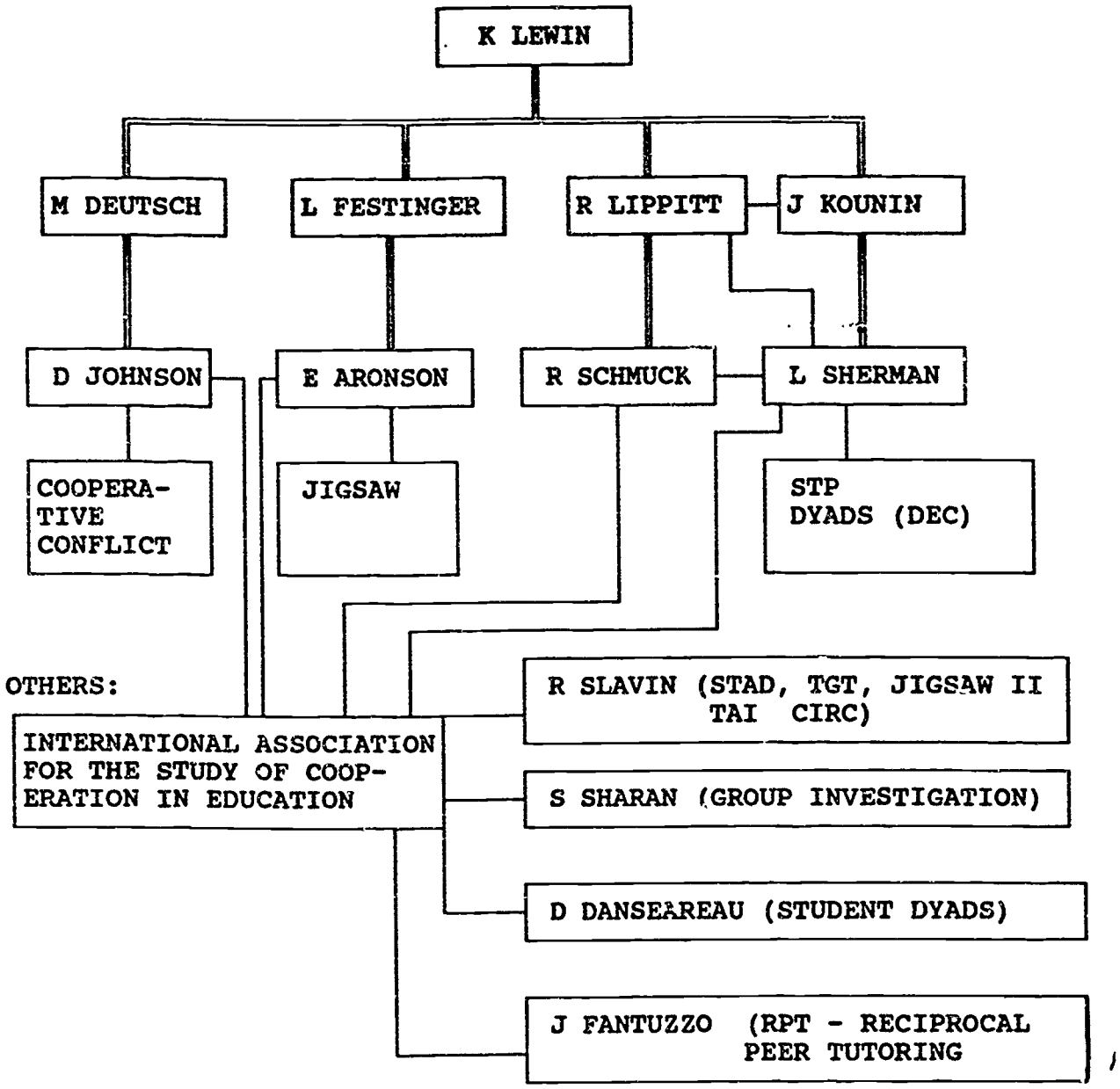

Figure 4.
Categorization of Cooperative Learning Methods by Incentive and Task Structures.

	Incentive Structure		
Task Structure	**Group Reward for Individual Learning**	**Group Reward for Group Product**	**Individual Reward**
Group Study (No task specialization	STAD, TGT, Humphreys, et al, (1982) methods Hamblin, et al, (1971) methods Sherman (1986)	Learning Together, Wheeler & Ryan (1973) methods	Peterson & Janicki (1979) Webb & Kenderski, (198?) Starr & Schuermann, (1974) Sherman (1986)
Task specialization	Jigsaw II	Group investigation Sharan (1980) Sherman & Hazleton, (1988). Sherman (1988)	Aronson's (1978) Jigsaw.