When we observe the behavior of people we notice that what they do is markedly influenced by where they are. They sit and listen in symphony concerts; browse and read in libraries; run and throw balls in ballgames. These behaviors occur in behavior settings and the behaviors elicited and supported by these behavior settings are pretty much the same regardless of who the occupants are.

A school may be regarded as an environment consisting of various behavior settings: reading circles, arithmetic lessons, gymnasiums, instrumental music classes . . . . The behaviors of both pupils and teachers are influenced by the behavior settings they occupy. We might further propose that how a teacher manages a group of pupils is dependent upon the behavior setting. In a previously reported research, Kounin (1976) found that teachers' techniques conducive to a high task involvement and low deviancy were dependent upon whether the teacher was conducting a seatwork or recitation setting. For example, avoiding satiation by having task related variety was important in seatwork but not in recitation settings; focusing upon the group and maintaining activity momentum was important in recitation but not in seatwork settings.

This article will summarize some of the findings relating to the effects of different behavior settings in a preschool environment upon the behavior of children. Videotapes of 37 children were secured for a full preschool day each, and of 596 formal lessons taught to small groups of children by 36 different teachers over a period of two years.

The Impact of Free Play Settings

Rosenthal (1973) analyzed how children in a racially, sexually and chronologically mixed group live in an open, free play milieu. To see whether the children's behavior reflected behavior settings rather than teacher directives and regime constraints, the conditions that caused a child to start or to terminate a unit of free play were examined. On the average, children entered 20 different activities per hour. Teachers (4 per group of 20 children) played some role in initiating action units in but 8.8 percent of these events.

The Fit Between Behavior and Setting

In the absence of adult-imposed structure and curricular constraints (except for the curricular demands of formal lesson time and snack time), the children diligently engaged in behaviors heavily con-
centrated with appropriate pursuits related to the playroom settings. They averaged less than three minutes per hour dawdling in such off-task behaviors as wandering, crying, fighting, and microphone play.

It is apparent that preschoolers behave “schoolish” when in preschool. They are diligent creatures who spend 95 percent of their time actively occupied with the facilities provided and they deal with the facilities appropriately: they color, cut and paint in the art section; pile and construct things with large blocks; excavate and mold in sand; push and ride vehicles. And they do all of these things in a sort of unwritten private contract between themselves and the setting they enter: teachers and peers infrequently exert any pressure to either enter or leave these settings.

The Holding-Power of Different Settings

Because of the frequent use of the concept “attention span” to account for the duration of children’s involvement in activities, we would like to emphasize Rosenthal’s (1973) findings pertaining to the holding-power of different settings. Holding-power refers to a setting’s capacity to sustain participation. Holding-power is to a setting what “attention-span” is to a child, both describing duration of activity involvement. To ascertain the consistency of individuals’ attention-span in different settings, correlations were calculated between each of the children’s mean length of stay in any setting and every other one of the 13 categories of settings they actively penetrated. The few significant and chance correlations between the length of involvement of the same youngster in different preschool settings is quite inconsistent with the concept of a constant attention-span belonging to a person, but entirely plausible if holding-power is attributed to an activity setting. In order to test this latter hypothesis, children’s length of involvement in any one setting was compared with their length of involvement in each of all other settings in which they were actively involved. Art, roleplay, sand, and book section had the highest holding-power and clothing, displays, and vehicles had the lowest.

Given the absence of consistency between the same children’s length of stay in one activity and length of stay in another; the absence of age, sex, or race differences in length of stay in different activity settings; and significant differences between the length of stay in different activity settings one is forced to conclude that children’s length of stay in an activity setting is more reasonably attributable to an activity’s holding-power than to a child’s attention-span.

One might, at this point, speculate about those properties of activity settings that influence their holding-power. The settings with the lowest holding-power (clothing, displays and vehicles) share several dimensions theoretically conducive to rapid satiation. They all have a restricted range of constituent standing behaviors that are typically executed in a repetitive fashion without yielding clear indications of something being accomplished or altered as a result of the child’s action. Activity settings with higher holding-power (art, roleplay, books, sand) possess either a variety of constituent standing behavior patterns or products, or contain clear indications of change or progress resulting from an action of the child upon the materials.

Social Effects of Activity Settings

There are also what might be called secondary or derivative consequences of different settings. Do either the physical properties of the milieu and its props or the standing behavior pattern fitting this milieu produce effects that go beyond the behaviors related to the activity itself? For example, do different activity settings evoke differences in the amount and quality of social interactions?

The findings reveal that the various settings in the playroom environment differed significantly in their potential for social interactions. Solitary habitation was of primary prominence in the puzzle, clothing and vehicle arenas where children worked alone more than 50 percent of the time. Large group living (six or more) was more prevalent in the art, large blocks, and music centers than in the others. (It should be noted that even in these settings, subgroups of this size were found less than 25 percent of the time.) Sand, science props, climber, and book settings displayed inflated proportions of occupancy by small groups of from two to three children.

The Rosenthal study dealt with the social interaction potential of preschool settings insofar as this related to population density and heterogeneity. Doyle (1975) was concerned with the amount and quality of social behavior taking place in various activity settings. He categorized each social interaction occurring in the children’s free play records. Each event was categorized as anti-social or “pro-social”. The latter he called “PAL” behaviors which he postulated would tend to foster positive attitudes toward others: create “pals” and liking for. Ten types of such behaviors were identified such as affection (hugs, kisses); altruism; friendliness (greets, expresses interest in welfare); comforts; cooperates; defends; helps;
shares; values (praises, compliments); and good times (having fun with).

Doyle also subdivided large muscle activities into two categories: multiple niche activities and single niche activities. Both involve much the same pattern of behavior: use of large muscles and gross motor activity. However, multiple niche activities contain provisions for more than one concurrent participant such as: teeter-totter, climber, two-seater pedal motorcycle, long jump rope, go-kart, and the like. Large muscle single niche activities have provisions for only one person at a time, such as short jump rope, tricycle, ride-on truck, rocking horse, slide.

He found that activity settings had a significant effect upon both the amount and kind of sociality. Children participating in preparation-cleanup were in social interaction an average of 70 percent of the total time in the activity; children in puzzle settings averaged but 9 percent of the total time in social interaction. The highest density of sociality occurred in prepare-cleanup, role play, and large muscle multiple niche settings; the lowest density in puzzles, audio-visual displays, small model props, and large muscle single niche activities.

The quality of sociality was also dependent upon the setting. Pro-social or Pal behavior occurred most in role play, multiple niche, prepare-cleanup and water play settings; it was least prevalent in science props (where it occurred 0 percent of the time), displays, art, and puzzles.

Conflict is another form of social interaction. Houseman (1972) analyzed the videotapes of free play for the purpose of studying conflict. Hers was a very generous definition of conflict and included all incidents in which one child interfered with the goal of another. These could be conflicts over ideals, such as: “You should share things;” conflicts over facts, such as: “That’s not a cake, it’s a block of wood;” as well as the more usual concept of aggression towards another. She found that activity settings significantly affected the frequency and type of conflict. Climber, kitchen play and large blocks were conflict-prone activities, occasioning more than the expected frequency of conflict. Art, clothing, and snacks-lunch were relatively conflict-free.

Among his other findings, Fisk (1975) found that the rate at which children imitate other children is significantly affected by the activity setting that they occupy. High imitation rates occur in pathways (these are equivalent to sidewalks to a community), large muscle multiple niche, and role play settings. Low imitation rates occur in art, puzzle, science props, and snack-lunch settings. Evidently activity settings engender conditions that influence the degree to which children take their cues for behavior from the behavior of other children or from the props and standing behavior pattern of the activity itself.

It is quite evident that by unitizing a school environment as a set of activity settings, one can predict the behavior of the occupants. This generalization applies to behaviors directly related to the activity setting (what is being done, holding-power) as well as to behaviors of a less direct consequence (amount and kind of sociality, intensity and rate of conflict, rate of imitation).

The Impact of Formal Lesson Settings

As one observes children in a prescribed lesson it becomes clear that their actions are prodded, oriented and supported by the external provisions of the lesson. These provisions include the communications of the teacher (“Let’s see what sticks and what doesn’t stick to a magnet.”) and the props that go with the lesson (magnet, paper clips, pieces of paper and cloth, nails). A lesson also includes the standing behavior pattern that goes with the lesson (making piles of objects that stick or don’t stick to the magnet; listening to a story being read).

Those external provisions which signal these standard actions can be labelled signal systems. One of the principal ways in which lessons differ is in the pattern of their signal systems. (Kounin & Gump, 1974).

We may hypothesize that the more continuous and unlagging the provisions of a lesson, the greater the task involvement of a group of children. We may assume that all lessons are planned to produce such continuity and related task involvement. The problem then becomes one of seeing whether certain types of lesson formats are more likely to produce a continuous flow of appropriate signals than are others. A reciprocal problem is to ascertain whether certain formats increase the likelihood of lags that may reduce task involvement and make the lesson more vulnerable to inappropriate or deviant behavior.

Let us illustrate the concept of continuity. Common lessons showed teachers reading books or playing records to encircling children. In terms of the signal system concept, this format calls for a single, continuous source of signal emission. This format can be manned by one central occupant as a signal source. Providing this central occupant is adequate this format produces a continuing signal flow to child participants. This format should yield high involvement.

A single, continuous emitter is also the signal system when a teacher conducts a demonstration, i.e., shows how popcorn is made. This latter format also
contains persisting external props which invite continuous watching. This signal system should also produce high task involvement.

In contrast to the single continuous source is a signal system which relies upon multiple shifting signal sources manned by other children. Such multiple shifting sources are present in formats calling for group discussions (general talk about community helpers), group projects (making a group mural on a felt board) or unrehearsed role play (playing passengers and driver in bus play). In these formats, a common element is that children provide signals for one another. When these signals are inadequate (as is likely for the performances of unrehearsed children) such a format is vulnerable to lags and faltering continuity. Relatively low task involvement should result.

In line with this theory, the more familiar recitation format is similar to the above formats in that this also calls for multiple shifting signal sources.

The success of a formal lesson with a group of children is related to two issues; one has to do with the delivery of signals which support appropriate behavior; the other has to do with the prevention of inputs that may engender inappropriate behavior. We now turn to the discussion of two lesson formats which relate to the latter issue.

Let us consider the case of an individual construction lesson. The teacher provides each child with scissors, paste, a sheet of paper and magazine pages showing pictures of food and suggests that each child make a collage of desserts. After a child begins such an activity, the major and persisting external signals come from the changing conditions of his materials. He selects a picture but it must be cut from the page. Once cut, the picture requires paste. When paste is applied it needs to be pressed onto the paper; the remaining space on the paper and the pages of pictures signal selecting another dessert, and so on. A continuous signal system occurs as one action and its immediate result provides impetus and guidance for the next action. This signal system, and all individual construction lessons, thus provide continuous signals and should induce high involvement providing each child has appropriate materials and is capable of grasping the goal and carrying out the necessary participatory actions. It occurred to us, however, that these individual construction lessons contain a dimension other than continuity that makes it different from the other types of high continuity lessons. The signal source here, resting as it does on the results of each child’s own actions on his own materials produces a tight, closed behavior-environment circuit. This closed circuit insulates the lesson and shields each child from foreign inputs (distractions, other children’s deviances) that may serve as stimuli to inappropriate behavior. This type of lesson format should produce high task involvement and little inappropriate or deviant behavior.

Another lesson type requiring special consideration is the rather common music and movement format. These lessons provide continuous signals from a single source—records or teachers. However, these also contain props (drums, bells) or constituent actions (dancing, jumping, singing) that produce intense stimuli. Since the children are not in a closed circuit system (such as in individual construction) these stimuli are likely to intrude into participants’ attention: that is, children begin to key off one another as well as off the central signal. This makes these lessons vulnerable to the spread of inappropriate or deviant behavior, thus increasing the likelihood of off-task behaviors.

The results confirmed the theoretical derivations. In terms of success in inducing and supporting appropriate task involvement, the most successful lessons were the individual construction lessons. These consist of a signal system coming from the effects of one’s own behavior on continuously present materials as well as having a protective, insulated circuitry.

The lessons with average success were those with a postulated high degree of continuity and freedom from gaps. This included books and records as one type, in which there are sequenced signals from a single continuous source. The other type consists of teacher-led demonstrations in which there is a single emitter as well as continuously present central props supporting a continuous focus.

Two other types of signal systems constituted the least successful lessons. One type consisted of those with lags due to the absence of continuous sequencing and/or their dependence upon potentially faltering inputs from other children: recitation-discussion formats, and role play. The other type consisted of lessons containing movement and music performance or singing. These lessons are vulnerable to high off-task behavior because the intense props or actions are potentially intrusive.

Further support for the fruitfulness of the signal system theory comes from Davenport’s (1976) analysis of deviancy in the lessons. Davenport examined each incident of deviant behavior occurring in the lessons and scored each for a variety of properties. He also coded the momentary signal system context of each deviant act in the same manner as the total lesson formats were categorized including moments when the signal system was simply inoperative—when the lesson was “off.” Of pertinence to this discussion are
his findings pertaining to the contagious spread of deviant acts. One finding was that deviant incidents which occurred when no lesson signal system was operative (when system was momentarily off) were of longer duration and more likely to spread to other children in the group than those which occurred when a signal system was operative. In terms of contagion of deviancies, signal system theory would predict that these would spread least in individual construction lessons where there is high insulation. The theory would also predict the greatest prevalence of behavior contagion in the lessons containing intense props or actions where there is high intrusiveness. Davenport found that of the operative lesson signal systems, deviancy contagion was least in the individual construction category and greatest in the singing-movement formats.

The Impact of Behavior Settings Upon Glee

Sherman (1971) used the videotapes of the formal lessons to analyzed phenomenon he called group glee. This was characterized by half or more of the group manifesting glee by joyful screaming, by loud laughing, by intense physical “jumping with joy,” or by any combination of these behaviors. In addition to some demographic associations with prevalence (group glee occurred more frequently in groups of 5-9 occupants than in groups of 3-4 occupants and was more frequent in mixed sex groups than in groups of one sex), glee was also found to be associated with lesson types.

Group glee provides an indication of the amount of child-child interdependence in a lesson. In our theoretical analysis, we postulated that the individual construction format is a closed-circuit system in which a child is relatively insulated from other children’s inputs. We also theorized that the music-movement formats possess a high degree of potential intrusiveness. The prevalence of group glee provides an indication of whether intrusion does in fact happen—whether the behavior of one child influences the behavior of others. The rate of group glee in the individual construction lessons was significantly lower than in all other lessons, supporting the theory that they have the highest insulation. The rate of glee in the music-movement formats was significantly higher than in all other lesson types, supporting the theory that they have the highest intrusiveness.

As to the comparison of the rate of glee in prescribed lesson settings and free play settings, we might note two general theories. One point of view holds that lessons are prescribed and participation is mandatory while the choice of activities in the free play environment is unrestricted and quite open to the whim and fancy of the child (which Rosenthal found to be so). One might theorize that since the free play settings are less coercive than the lesson activities, the children would be less frustrated, happier, and thus more gleeful. The other point of view, and the one held by Sherman’s (1975) study of glee in formal lessons, is that social interdependence is a necessary condition for glee. This theory would predict a greater prevalence of glee in the formal lessons where children are more likely to receive cues from other children. This theory was supported within the formal lesson settings by showing the least glee in the lessons with the greatest degree of insulation (individual construction) and the most glee in the lessons with the highest intrusiveness (music and movement, role play). It was further supported by the finding of more glee in large than in small groups, and by more glee in mixed sex groups than in groups of the same sex (which would indicate that, even at this young age, persons of the opposite sex induce more attention than persons of the same sex).

The rate of glee in the prescribed lesson setting was three times that of the rate of glee in the free play setting. What is more, there was only one incident of “solo” glee occurring in the free play setting and this occurred with a child interacting with a puppet as an imaginary playmate.

The Teacher and the Behavior Setting Environment

A major job of the teacher in this ecological model of classrooms is to provide, to conduct, and to protect behavior settings. This is not a simple matter of curricular content. Content is only one aspect of a setting. An arithmetic lesson when teacher explains a problem in recitation is different from an arithmetic lesson in seatwork. And “art” when constructing an individual collage is different from art when constructing a group mural. And “gross motor activity” is different when jumping rope with a multiple niche long rope than when jumping with a single niche short rope. And since settings vary with respect to their physical milieu and props, their standing behavior patterns, and their signal systems, a teacher’s techniques must vary to adapt to these properties.

In a previous study of self-contained elementary school classrooms Kounin (1976) delineated specific techniques of classroom management. Some techniques promoted task-involvement in seatwork only; some pertained to recitation settings only; and a few related to child behavior in both settings. The signal system concept that evolved from the preschool study enables us to further specify how and why
different techniques are relevant to the management of different behavior settings within a classroom.

We have learned that formal lessons with high continuity of task signals produce more task involvement and less deviancy than lesson formats with low continuity. A further check of this theory should obtain by measuring the degree of continuity within any one type of lesson format. This was accomplished by Kounin and Doyle (1975) for teacher-reading, teacher-demonstrating, and individual construction formats. Their aim was to compare the actual degree of continuity in lessons producing high task involvement of pupils with lessons producing low task involvement when taught by the same teachers and of the same format. We were able to find 15 teachers who had both a high and low task involvement teacher-reading lesson; 10 who had a high and low teacher-demonstration lesson; and 10 who had both a high and low individual construction lesson.

The results of comparisons for pairs of high- versus low-task involvement reading and demonstration lessons taught by the same teachers were significant and in the expected direction. The low task involvement lessons slip into a signal system of multiple child emitters for a greater amount of time. It should be noted that the sheer amount of child recitation and the prevalence of short recitations (shorter than 10 seconds), which supposedly produce no "off the book" format, did not differentiate high from low reading or demonstration lessons. In other words, it's O.K. for a teacher to allow or to initiate child recitations in reading or demonstration formats so long as these are short and do not shift into a child-discussion signal system.

The measurement of the degree of continuity within individual construction formats was more complicated. The postulated high continuity in individual construction lessons contains two requirements: a) that the child has the necessary props which he is able to manipulate appropriately, and b) that his actions produce a visible effect which signals further action. Briefly then, the code for construction continuity consisted of two parts: a) the measurement of lags, and b) the measurement of built-in pros that signal the child that there is more to do. Hiatures, for example, are produced when children have to wait for paste, when a pair of scissors is too dull to cut burlap, when a child runs out of objects to paste, and the like. Enhancers of continuity are times when the constituent prop-behavior unit provides automatic and visible signs of progress (cutting, painting sides of a milk carton) and when the task makes it clear that there is more to do (if a child is to paste furniture in a room or make a collage of desserts it is clear that it requires more than one piece, whereas "paste circles" does not continuously signal more to do—one might, in Mondrian fashion, finish with one or two circles). The lags and continuity pros were measured each minute. The degree of continuity differentiated between the high and low lessons. The high involvement lessons had more continuity pros and fewer interferences with continuity than did the lessons producing low task involvement.

Individual construction lessons and reading or demonstration lessons were postulated to differ with respect to the dimension of insulation. Individual construction lessons were described as closed-circuit signal systems which shield each child from inputs from other children.

If this view is correct, we should also expect differences between these lesson formats regarding the effects of teachers' methods of conducting the lessons. As one example, and unlike the finding in teacher-reading and teacher-demonstration formats where the occurrence of child recitation units makes a difference, the occurrence of child recitation units in an individual construction format should make no difference.

This prediction was checked. The prevalence and duration of child recitations in the individual construction formats did not differentiate the pairs of high- and low-task involvement lessons. In these insulated signal systems, unlike teacher-reading and teacher-demonstrating formats, a teacher carrying on extended discussions with a child or subgroup of children did not infringe on other children to the extent of producing a measurable change in their task involvement.

There is no overall teacher style that is equally effective for all signal systems. Rather, different formats not only evoke different pupil and teacher behaviors but necessitate different techniques of management to maximize their effectiveness.

The classroom is not a homogenized glob. It contains many behavior settings in its environment. These different settings vary in the kinds of behaviors they elicit from both teachers and pupils. No one bundle of teacher techniques or teacher attributes can be prescribed to plan and to manage this complex classroom. Rather, the teacher must have various bundles of techniques and must appropriately apply these techniques differentially to the different activity niches.

NOTES
2. Doyle, P. H. "The Efficacy of the Ecological Model: A Study of the Impact of Activity Settings on the Social Behav-