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ABSTRACT

Through a selective review of the research literature this paper explores the relationship between teacher behaviors and children's behaviors. Both direct and indirect teacher effects on children's behaviors are reviewed. First, studies of verbal behavior, instructional role, management techniques, classroom structure and teacher behavior, participatory teacher role, and adult effects on antisocial behavior as well as comprehensive studies of teacher behavior are reviewed in the section focusing on direct teacher effects. Studies of indirect teacher effects related to classroom organization and space, initiation of contacts with children, activity settings and scheduling, access to materials and toys, and closed versus open structure settings are reviewed in the second section. The concluding section of the paper indicates in summary form the types of teacher behaviors which appear to be associated with specific child outcomes. (Author/RH)

EFFECTS OF TEACHER BEHAVIOR ON PRESCHOOL CHILDREN: A REVIEW OF RESEARCH

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CONTENTS

The role of the teacher in early childhood settings is a complex one involving direct interactions with children as well as indirect influences on children through arrangement of the learning environment.* In an effort to categorize the influence of adults in classrooms, Jersild and Fite (1939) define direct teacher effects as "the personal contact which [teachers] have with the children and the techniques they use in handling (or leaving alone) the various difficulties which arise." Indirect teacher effects include scheduling the progression and content of activities, arranging the physical environment, setting the tone of the classroom, and determining the size of groups and degree of choice available to children. It is often difficult to separate one kind of teacher effect from the other. As Prescott, Jones, and Kritchevsky (1967) have noted, friendly encouraging teachers tend to have high-quality space and interested children.

The relationship between adult behaviors and the child's behaviors has been examined in many studies. The findings are sometimes contradictory, but in general they support the concept that effective preschool teachers are encouraging (Anderson, 1943; Prescott et al., 1967; Reichenberg-

*This paper was originally presented at the annual meeting of the American Educational Research Association in Boston, Massachusetts, April 1980.

Hackett, 1962), use positive types of instruction (Johnson, 1938; McClure, 1936; Moore, 1938; Rosen, 1974; Smilansky, 1971; Wylie, 1930), are involved with children's activities (Salisbury & Ivey, 1949; Swift, 1964; Stallings, 1975; Thompson, 1944) rather than using direct leadership of groups (Anderson, 1943; Fagot, 1973; Huston-Stein, Friedrich-Coffer, & Susnan, 1977; Muste & Sharpe, 1947; Prescott et al., 1967), and are child-centered in their approach (Anderson, 1943; Landreth, Gardner, Eckhardt, & Prugh, 1943; Prescott Jones, Kritchevsky, Milich, & Haselhoef, 1975; Reichenberg-Hackett, 1962).

It is the purpose of this paper to explore the relationship of teacher behavior--the human environment in early childhood classrooms--to the dependent variable of children's behavior. This criterion, rather than gains in intelligence or achievement, was selected because of a belief in the importance of the child's interaction with the world as the major means of child growth and development (Hunt, 1969). The paper is intended to support the position that at least some of the variability in children's behavior in the preschool is linked to the classroom environment. Adopting such a point of view may encourage teachers and administrators to look for sources of desired and undesired child behavior in an area they can affect, namely teacher behavior and the educational setting.

DIRECT TEACHER EFFECTS

Among the aspects of direct teacher effects investigated in the literature are the type and amount of adult verbalization, quality of adult-child interaction, instructional mode, management techniques, and curriculum models.

Verbal Behavior

Teacher verbal behavior has been studied in naturalistic and laboratory settings. Johnson (1935) concluded that positive, unhurried, specific, and encouraging types of instructions are more often carried out by children. Wylie (1930) found that a majority of preschool children (74%) resisted negative commands but complied with positive ones. McClure (1936) concluded that encouragement and emphasis on success are more effective but that a child's response to instructions may be determined less by the type of command than by the ease and desirability of the task. Moore (1938) looked at the distribution of commands, suggestions, and requests in a nursery and kindergarten. She found that the number of commands decreased but that teacher suggestions and requests increased with the age of the children. Children's response to suggestions was faster than to commands, but the author does not describe the type of situation in which teachers resorted to commands, a factor that could easily influence children's response time. It would be inter-

esting to know what percentage of all teacher utterances were instructions, as opposed to conversations, and what situations were associated with what types of instruction. Meyers (1940) looked at the effect of adult conflict in giving commands on the level of children's constructive play. When two adults gave contradictory commands forbidding a child to play with a certain toy, significant decreases resulted in the constructive aspects of the child's play with other toys.

Stallings (1975), in a complex study of four early childhood education models, found that children's task persistence was positively correlated with individual instructions by adults. In addition, she found that cooperative activity between two children was positively related to the incidence of adult involvement with the children. Individual attention of adults to children and higher ratings of adult friendliness and responsiveness toward children were both positively related to more independent activity by children. However, the less adults praised or acknowledged the children's work, the more independent the children were. The author suggests that

> if teachers want to help children become independent, they should use praise sparingly and specifically; that is, they should help the child find reward in the work itself rather than in their adult approval. (p. 57)

Children's verbal initiative and observed self-esteem were positively correlated, respectively. with the presence of responsive adults who asked few direct academic questions and with the presence of adults who addressed children in small groups and asked them lots of open-ended questions. Although the Stallings study confounds program content with teacher verbal behavior, the results indicate that verbally responsive, non-didactic teachers who ask open-ended questions and interact frequently with one or two children (as opposed to addressing the entire group) are associated with task persistence, independence, verbalizations, cooperation, and self-esteem on the part of the children.

In a laboratory study of the effects of teacher praise on 5-year-old children's task persistence, Wolf (1938) found that adult praise increased children's engagement with a novel toy. However, competition among children kept them involved the longest.

Type of teacher verbalization proved to be important in a study by Tizzard, Philps, and Plewis (1976), who looked for differences among three types of nursery programs in England: traditional nurseries, language-emphasis nurseries, and preschools staffed with untrained personnel. They found that the cognitive content of teacher talk was greater in language-emphasis preschools than in either traditional nurseries employing trained staff or in nurseries with no professed educational aims staffed by untrained personnel. The chil-

dren's Reynell Verbal Comprehension Scale scores revealed that working-class children benefited most from the language-emphasis programs. The teachers in these schools gave the most information to children, while exhibiting little use of negative control and supervision. In the nurseries which had no stated educational goals, the staff talked to and interacted with the children less.

Bemis and Luft (1970) looked at kindergarten and first grade pupils' behavior and achievement gain scores in relationship to teacher behaviors. They found that excessively talkative teachers have significantly more shy pupils; that nurturant teachers have significantly more affiliative students; and that uncooperative teachers (those who do not help pupils) have significantly more disruptive, bored, or hyperactive pupils. The authors argue that the children may have already learned to accommodate their behavior to cues given out by the teacher. Unexplained by the authors was the fact that significant cognitive gains occurred in classrooms with "uncooperative" teachers and hyperactive students.

Instructional Role

Several studies have looked at larger categories of teacher behavior. Anderson (1943) investigated the notion of dominative and integrative behavior of adults in relation to the same set of behaviors in children. Domination involves a rigidity of reponses and the attempt to impose one's

will on another. Integrative behavior is defined to include flexibility, the ability to find the commonality among different views and the inclination to consider the wishes of another in working toward a goal. The results of this complex study generally support the idea that higher levels of dominative behavior in adults are associated with high domination in preschool children. Similarly, they suggest that the more a teacher works with a child in an integrative manner, the more the child will seek help, answer spontaneously, and volunteer social contributions.

Thompson (1944) compared two matched groups of children who were taught by the same teachers. The teachers adopted different instructional roles, but the groups of children used the same equipment, room, and basic curriculum. With one group, the teachers were asked to maintain a restrictive attitude: being impersonal and becoming involved with children only when necessary or when specifically requested. In the other group, the teachers were instructed to operate in an "extensive" fashion: to develop a personal friendship with each child and to become involved in the child's use of equipment and relationships with other children in a manner appropriate to each child's individual needs. Observations of the children's behavior indicated significant differences between the two groups, favoring the greater involvement of the teacher. Increases in children's behavior were noted for the following variables: social participation, leadership, and con-

structiveness. Differences in intellectual growth or in the incidence of nervous habits were not found.

Utilizing Thompson's (1944) differentiation between teacher styles as an index of teacher-child interaction, Schuckert and Touchton (1968) observed day care children ages 2 to 5 for signs of fatigue. One set of preschool teachers was instructed to adopt a child-centered, warm approach, referred to as the "guided" condition. The "non-guided," more impersonal, condition was interpreted as being representative of a custodial level of group child care. The authors found a significant effect for younger girls, who evidenced fewer symptoms of fatigue in the "guided" condition. A similar trend of less fatigue was found for all children in this condition. Thus, the degree of teacher involvement with children in day care appears to be an important factor in the children's day-to-day behavior.

These studies of Reichenberg-Hackett (1956), Anderson (1943), and Thompson (1944) are important because they use observational techniques in order to relate observable independent variables in the preschool to observable behaviors in children. It is interesting to note that Thompson found no significant intellectual test differences, although he did find differences in observable behaviors. A similar situation was reported by Shapiro (1973) in a comparison of Bank Street Follow Through classes and traditional

classes. Although the children were clearly receiving different treatments and were exhibiting very dissimilar patterns of classroom behavior, there were minimal differences found in the test scores of the two groups. Shapiro hypothesized that the traditional teacher-directed curriculum fostering convergent thinking may even have favored the control group in the test-taking situation.

Management Techniques

Several recent studies (Fagot, 1973; Kounin, 1977; LeLaurin & Risley, 1972) have looked at specific teaching strategies and child outcomes. Kounin observed children in first, second, third, and fourth grade classrooms, assessing two dependent variables: the degree of involvement in assigned work and the occurrence of misbehavior (e.g., deviancy). He found four categories of teacher management behavior that correlated with high pupil-task involvement and low deviancy rates. One behavior, which he termed "withitness," he applied to teachers who demonstrated that they knew what was going on throughout the classroom. The second, "overlapping," occurred when the teacher attended to two events simultaneously without losing the flow of either one. Transition smoothness and planning for learning variety in assigned seat work were other indicators of effective management. Withitness, overlapping, and transition smoothness are probably the most relevant to studies of early

childhood education, especially since Berk (1976) found that preschool children spent from 20 to 35% of their time in transitions.

Given such a statistic, it is important to note a study by LeLaurin and Risley (1972) which examined adult and child behavior during planned transitions in a day care center. These authors found that "zone" staffing (in which an adult supervises an area) as opposed to "man-to-man" staffing (in which an adult is responsible for several children) increased the children's level of engagement with planned activities.

Reichenberg-Hackett (1956) found that differences in children's happiness (as measured by levels of cooperation, sociability, spontaneity, self-expression, creativity, mood, and enjoyment of achievement) were related to differences in teacher behavior, especially management techniques. In 1962, the same author reported another study in which teachers in 10 nursery groups were observed and their behavior categorized according to levels of encouragement-discouragement, type of activity that the teacher joined or watched, type of teacher approach to child, content of lessons taught, and values communicated either formally or informally. Reichenberg-Hackett found a wide variation in all the variables among the 10 teachers. The ratio of teacher encouraging to discouraging behavior ranged from 9:1 to less than 2:1. Children in the classes ranking high in encouragement versus discouragement car-

ried through on activities longer and demonstrated more independent behavior than lower-ranking classes. The author reported that the high-encouragement classes had a higher level of adult-child verbal interaction on a wide range of topics and that children were presented with more alternative activities. The ratio of hostile to sympathetic behaviors of children varied inversely with the encouragement-discouragement ratio of the teacher's behavior, echoing the finding of Anderson (1943). In brief, the author concluded that the teacher is the most potent force in determining the nature of the preschool experience for children.

Comprehensive Studies of Teacher Behavior

Following some of the ideas of Reichenberg-Hackett (1956), Prescott et al. (1967) carried out a descriptive study of teacher behavior in relationship to center facilities, administrative philosophy, and program goals. They found that teachers who ranked high in encouragement and low in guidance and restriction were also rated as sensitive and friendly. In these teachers' centers free-choice format was common, the environment offered a range of appropriate opportunities, and the administration permitted the staff flexibility in programming. Children enrolled in these centers were rated higher in interest in and involvement with the curriculum than were children in other centers.

Tizzard, Cooperman, Joseph, and Tizzard (1972) and Tizzard et al. (1976) mounted a complex study of residential nurseries similar to the one by Prescott et al. (1967). The authors found relationships among restrictive administrative structures, the role of adults, the quality of staff-child interaction, and children's activity and verbal comprehension scores. In brief, they found that in relatively nonhierarchical child care institutions which allowed staff to be more flexible and to make more programmatic decisions, adults conversed with children on more diverse topics; displayed higher mean sentence lengths ($p < .02$); engaged in significantly more social activities, such as reading, playing, and talking with children; made more informative remarks ($p < .01$); gave more explanations with commands ($p < .05$); used fewer negative commands ($p < .05$); and answered more remarks made by the children ($p < .05$). Finally, the children in these centers were assigned more active roles during adult-child social interactions ($p < .05$), and they answered more remarks made by staff ($p < .05$). In terms of the Reynell Verbal Comprehension Scale, which assesses the child's understanding of language without requiring production, the authors found significant positive correlations between the group score and the frequency of staff's informative talk, social activity with children, and answering of children's remarks, as well as with the amount of time the child was in active rather than passive play. Individual comprehension scores

showed a positive correlation at the .001 level with the amount of adult informative talk directed to children. Other results included the facts that the amounts of adult informative talk, all talk, and adult-child social interactions were highest when only one adult (as opposed to two) was present and that these interactions were not affected by increases in child-staff ratio. The authors found that the addition of another adult lowered the incidence of these positive staff behaviors because the staff tended to talk to each other instead of interacting with the children. Trained child care staff talked to children significantly more than untrained adults ($p < .001$), and regardless of training, whoever was in charge for the day talked more, used more informative talk, and played more with the children (all $p < .001$) than other staff present.

The work of Tizzard et al. (1972, 1976) supports the conclusion that institutionalization of children, per se, does not result in intellectual retardation (Kagan, Kearsley, & Zelago, 1978). However, these authors make a strong case for asserting that the level of language development is dependent on the quality of staff talk and the quality of staff-child interaction. These factors, in turn, tend to be high in autonomous child care centers. The fact that this study was carried out in residential day nurseries, where home effects could not be expected to interact with caregiver effects, has perhaps isolated or highlighted the potency of the adult role. If the study

were replicated in a range of day care programs, it is uncertain whether such clear-cut effects would be obtained.

Another study that compared teacher-child interaction was an investigation of compensatory preschoolers' tendencies to regress cognitively in public school. McKinney (1978) looked at differences in teacher-child interaction in the preschools and in the receiving kindergartens. He found that the nature of adult-child relations was very different in the two settings. Preschool children were more likely than kindergarteners to initiate interaction and to receive individual attention from adults, and black children received much more individual attention in preschool than in kindergarten. Adults gave significantly fewer "positive strokes" to low-achieving children in preschool than to those in kindergarten. Kindergarten teachers spent more time in formal, teacher-led activities than did preschool personnel, whereas preschool teachers were more likely to do things for the children and spend more time in physical contact with children. Teacher-child interaction was most likely to be mediated by materials in preschools and by words in kindergarten. This study illustrated differences in children's educational experiences that are directly the result of adult behavior rather than of grade level or curriculum materials.

Classroom Structure and Teacher Behavior

Huston-Stein et al. (1977) looked at the relationship between classroom structure and the naturally occurring behaviors of children in 13 Head Start classrooms. The index of classroom structure was an observation instrument that measured the incidence of child participation in teacher-led instruction. The following child behaviors were found to be significantly correlated with a low level of direct instruction: prosocial behavior to peers ($p < .10$), helping of peers ($p < .05$), imaginative play ($p < .05$), total aggression ($p < .05$), and attention at circle time and responsibility for cleanup time (both $p < .05$). This study echoes that of Muste and Sharpe (1947), in which the authors found more prosocial and aggressive behavior in the less-structured university laboratory school than in a highly regimented day care situation. It seems that allowing children the freedom to interact and to make choices can increase some positive behaviors but can also leave children open to more conflicts over materials and with each other.

Jackson and Wolfson (1968), in a study of conflict in the nursery school, found that 25% of such problem incidents involved conflicts between children's desires and teachers' expectations and that 13% occurred when teachers overlooked a child who was seeking assistance. The authors noted that conflict situations such as these foster compliance on the child's part, whereas conflicts between a child's desire and his or

her inability result in persistence on the child's part.

Returning to the issue of teacher direction, Stallings (1975) found that high levels of direct instruction and asking direct questions regarding academic subjects were negatively correlated with observed levels of children's cooperativeness, independence, and verbal initiation. In addition, the number of days children were absent correlated highly with the incidence of adults holding large-group activities, asking direct academic questions, and being less involved with the children.

Fagot (1973) used task-involvement as a dependent measure and found that high task-involvement occurred in the preschool in which the teacher offered more praise, gave less criticism, and directed children's behavior less often. In two related studies, Fagot found that high task-involvement occurred in the classes in which the teacher criticized less, gave fewer directions, showed less physical affection, and responded more to children's questions. In addition, the involvement-promoting teachers set up a program in which there was a new activity introduced every day.

Miller and Dyer (1975), in a comparison of four preschool education models, explored the ability of teacher behavior to differentiate among program types. The following dimensions of teacher behavior emerged from the analysis: (1) a teacher-directed, fast-paced versus child-centered,

slow-paced format; (2) the relative proportion of large group to individual activities conducted by teachers; and (3) the relative proportion of teachers asking for, rather than giving, information.

The classrooms characterized by a teacher-directed, fast-paced format, with large-group activities predominating and teachers asking for (rather than giving) information, had children who engaged in large amounts of verbal recitation and few incidents of fantasy play. An interesting outcome of the study was the fact that traditional Head Start teachers (without a program model to follow) exerted more controlling behavior than did preschool teachers who implemented specific curricular models. This echoed the finding of Soar and Soar (1972) that teachers in programs with a low degree of structure tend to utilize more controlling behaviors than do their colleagues.

In a comprehensive study including the measurement of classroom structure, Berk (1976) compared teachers' expectations for their own and children's behavior with the observed frequencies of certain behaviors in five different kinds of preschool programs. Adult behavior was coded as being the following: not in the activity, watcher-helper, participator, or active leader. Berk found a wide range of discrepancies between actual classroom practices and teacher expectations. In addition, she related aspects of the educational program to the variables of passive and active child

behavior, teacher leadership pattern, and child-initiated activity.

The Montessori program was the only one in which child-initiated activities predominated over teacher-initiated ones. Children were often manipulating (28%), readying (16.6%), exploring-wandering (15%), and working-listening (12.7%). The predominant Montessori teacher-role was coded as not in activity (54%). The characteristic behavior of adults in the franchise day care program was found to be active leadership (35%), while the children engaged mainly in the passive behavior of watching-listening (33.2%).

In all five centers the role of the teacher as participator was extremely low, from 0 to 1.5% of all teacher activity. In the classroom with the highest profile of adult active leadership, children were observed in large-group activities more than 80% of the time and were engaged in readying (28%) or eating (28%) behaviors for more than half the day.

Given the high percentage of active adult leadership behavior found in the majority of Berk's classrooms, one needs to consider the influence of a predominantly directive style on children in early childhood programs. Several studies point to the negative aspects of directive behavior. Fagot (1973) and Stallings (1975), as mentioned elsewhere in this review, have found directive teacher behavior linked with less desirable child outcomes. Doke and Risley

(1975) compared day care students' involvement in planned activities during 15 minutes of "formal" teacher-directed activities in which all children were required to participate and in 15 minutes of "informal" free-choice periods. The authors found that children were consistently more involved in "informal" activities. They suggest that aspects of "formal" activities which discourage task involvement include waiting while the teacher talks to one child or while the teacher distributes the same materials to all students. In contrast, informal activities allow the children to choose among available materials and to proceed at their own pace, and permit adults to interact with children individually according to need. Unfortunately, Doke and Risley's findings were confounded by differences in the inherent attractiveness of the content of the two types of activity segments.

Two somewhat specialized cases of teacher direction are important to note because they demonstrate the importance of the context of adult leadership. Shores, Hester, and Strain (1976) found that teacher-structured dramatic play significantly increased child-child interaction in a group of handicapped youngsters, as opposed to the teacher's adopting a role and interacting with the children or remaining uninvolved during dramatic play time. In the teacher-structured condition the adult assigned dramatic play roles to children, who then carried out their play without adult involvement. Featherstone (1974)

found that certain children sought out small-group activities (such as group cooking or reading) in which the adult directed their contributions and remained stationary. These children appeared to need the security of such settings.

Participatory Teacher Role

The work of Smilansky (1971) on adult intervention for the purpose of teaching role-play skills to disadvantaged preschoolers supports the concept of the participatory adult. Smilansky distinguished between didactic teaching and facilitating. (An adult facilitated dramatic play by assuming an attitude of "realness," as opposed to self-conscious or fake role playing, and employed empathic listening so that the children initiated their own growth and learning.) She reported that children whose sociodramatic play was facilitated in this manner improved their ability to take interactive roles in fantasy play. In a follow-up study, Rosen (1974) had teachers act as role models and ask leading questions of youngsters engaged in sociodramatic play. After 40 days, these experimental children exceeded the controls on measures of group problem-solving behavior, on effective cooperation in solving problems as a group, and on an index of role-taking skills. The literature appears to support positive outcomes for children when adults interact with them in a child-centered, non-directive manner.

In an ecological study of two separate day care environments, Perkins (1980) found that the classroom in which adults participated more often with children and were less directive had children who exhibited significantly higher levels of cognitive play, task involvement, and verbal interaction, and who showed lower levels of passive negative behavior. This study did not isolate adult behavior from environmental variables and thus, to some extent, replicated the findings of Prescott et al. (1967) that friendly, involved teachers had high-quality space and involved children.

Adult Effect on Antisocial Behavior

Another aspect of the direct influence of teachers involves their effect on such child behaviors as aggression and attention-seeking. It seems that the behavior of an attending adult is significant in determining the amount of aggression in a group of young children (Siegel & Kohn, 1959). In an experimental play situation, children engaged in more aggressive acts in the presence of a permissive adult than they did when no adult was present. It seemed that lack of intervention on the part of the adult was not seen as neutral behavior but rather was interpreted as permission to engage in such aggression. When the adult does mediate in an aggressive situation, certain behaviors appear to be more successful than others; Appel (1942) found that directing and separating children,

interpreting the feelings of one child to another, explaining property rights, and suggesting solutions were among the most successful. Another aspect of the Appel study was that, in the absence of adult intervention in an aggressive encounter, the initiator was likely to be successful 64% of the time. When the adult intervened, however, the percentage fell to 26%. Thus, adult intervention had a highly significant impact on the outcome of aggressive encounters in nursery schools ($p < .001$), and in day nurseries and play groups (both $p < .01$). A laboratory study by Hartup and Himeno (1959) found that preschool children left alone in a room with toys exhibited more aggression in subsequent doll play than did children with whom an adult remained and interacted.

Perkins (1980) found that the antisocial behavior of children was significantly higher in the day care center characterized by predominantly uninvolved and directive adults. Gewirtz, Baer, and Roth (1958) contrasted preschool children's behavior during easel painting in the presence of an adult. When the adult sat nearby, passively watching the child (a high-availability condition), the children emitted a mean frequency of attention-seeking behavior that was lower than when the adult was engrossed in paper work, athough seated nearby (a low-availability condition). All of these studies point to the negative aspects of the isolation of children from adult contact.

Reuter and Yunik (1973) found that children in a nursery school with a high adult-child ratio (1:12) scored higher on sociability with peers and duration of social contacts; but the researchers did not investigate the adults' behavior. Thus, we do not know whether or not the high adult-child ratio represented a lack of involvement of adults.

Overview

A review of studies discussed in this section presents a picture of the successful teacher--one who encourages independent activity, plans a variety of activities, and is involved with the children, but who does not need to direct their behavior. He or she uses criticism and negative commands sparingly, is aware of several activities at once, can maintain two activities simultaneously, and effects smooth transitions. In addition, such a teacher tends to arrange classroom space well and maintain a relatively high level of teacher-child verbal interaction.

INDIRECT TEACHER EFFECTS

Evidence of the effects of behavior settings on children's behavior has been offered by Emmerich (1977), Gump (1964, 1969), Gump and Sutton-Smith (1955), Kounin and Gump (1974), Morrison and Oxford (1978), and Kounin and Doyle

(1975), as well as by many of the studies mentioned earlier. These indirect teacher effects are related to the teacher's preference for directive versus free play periods, the mediating effect of the activity setting on teacher and child behavior, the arrangement of space, and the scheduling of activity segments.

Classroom Organization and Space

Other studies have related positive aspects of teacher behavior to environmental variables. Pollowy (1974) found that the supervisory involvement of adults increased wherever equipment distribution restricted the child's activity or access. Zifferblatt (1972), in a comparison of a successful and an unsuccessful integrated-day third grade classroom, found that task attention span was longer, that the number of correct problems was larger, and that non-task talking and non-task movement were lower in the successful room. The corresponding teacher remained at her desk only one-fifth of the time, emitted considerably fewer behavior restrictions than her less successful counterpart, had arranged desks in small clusters screened by dividers, had set up an informal conversation area, and had provided a private, cozy nook where children could spend time alone. Not only was the teacher behavior different, but another aspect of the teacher role, that of designing the environment to promote program goals, was a factor in this study. In addition, Landreth et al. (1943) looked at

variations in teacher behavior in relation to location and age of the child. The study confirmed the author's expectation that teachers would vary the type of contact (physical versus verbal, negative versus positive) depending on whether children were younger or older and whether they were in the play yard, the patio, or the bathroom locker area.

An unusual study by Perry (1977) looked at the effect of usable space on preschool teachers' behavior. She found that Head Start classrooms with less than 30 square feet per child, as compared with classrooms characterized by more than 49 square feet per child, had teachers who exhibited significantly more controlling behaviors, both verbal and nonverbal. In addition, the teachers in the smaller spaces restricted free play to the manipulation of table-top toys.

Teacher Initiation

Foster (1930) measured the distribution of teacher time among children in a nursery and two kindergarten classes. The incidence of physical-care, play-related, social-emotional, and conversation behaviors of teachers was recorded for both groups. As could be expected, younger children took more of the teacher's time, including more of both child- and teacher-initiated time. In kindergarten, children without previous preschool experience took up more time than

those who had already had preschool experience. And as children grew older they experienced a steady growth in child-initiated teacher time and a decrease in teacher-initiated time. There were clear ecological effects on teacher behavior. During naptime, practically all attention was teacher-initiated. Settling children down for naps required more time for boys than it did for girls, but girls attracted the teacher's attention more during lunch. During free play, girls occupied more child-initiated teacher time and boys more teacher-initiated time. Foster concluded that as children matured teachers needed to initiate fewer contacts because the children were better able to ask for help and that, overall, boys required more teacher-initiated time than girls.

Preschool Activity Segments

Taking a careful look at the creation of educational activity settings by preschool teachers, Kounin and Gump (1974) studied 596 videotaped lessons taught by 36 teachers. The lesson was conceived of as a signal system that varied in terms of continuity, intrusiveness, and insulation. Children's on-task behavior constituted the dependent variable. The most successful lessons had a single continuous signal system that was "insulated" from distractions (for example, a fast-paced, teacher-led exercise or recitation activity, or a well-planned collage activity). The lessons

with the highest off-task scores included teacher-led recitation; role play, group construction, and group discussion (characterized by multiple and shifting signals from children); and singing and body movement (characterized by high intrusiveness of props). Although some teachers can handle activities like group discussions or singing better than others, Kounin and Gump's research begins to analyze why these activities are difficult for teachers to manage if the goal is on-task behavior.

Following upon this inquiry, Kounin and Doyle (1975) looked at pairs of high and low task-involvement lessons in the Kounin and Gump videotapes; segments were taught by the same school teachers within the same signal system format (e.g., teacher reading, teacher demonstration, and individual construction). In the analysis, the degree of signal continuity discriminated significantly between high and low task-involvement of children in the same type of lesson taught by the same teacher. However, teacher reading and teacher demonstration formats involved a different signal system from that of individual construction. In the former, the continuity of the teacher's signal emission was paramount, and the amount of child recitation allowed significantly discriminated high and low task-involvement lessons. This study concluded that teachers must attend to different aspects of their roles in order to enhance various activities. In individual construction, teachers need to provide sufficient

materials and be sure each step calls forth the next step in the project. In teacher-led formats, teachers must employ a fast-paced signal emission system in order to avoid the situation in which children become bored during repeated or lengthy interruptions by other children.

Morrison and Oxford (1978) looked at a kindergarten class in order to see if continuous central signal emission (such as a teacher reading or explaining a game to a few children) and individual projects would produce more task-oriented behavior than whole-class recitation. They found that students were significantly more passive, distractible and non-task involved in class recitation than in the other two conditions. This finding was interpreted as supporting Kounin and Gump's theory that continuous signal emission, whether from teachers or well-organized materials in individual projects, produces more on-task behavior.

Sherman (1975), in an examination of the Kounin and Gump videotaped lessons, analyzed the unexpected occurrence of group glee in different preschool activities. Such outbursts involving three or more children were most often precipitated by teacher requests for volunteers, unstructured lags in teacher-directed lessons, gross motor activities, and cognitive incongruities. The rate of glee was three times higher in formal lessons than in free play. Teachers tended to ignore glee episodes except when they lasted more than 10

seconds or threatened to disrupt the lesson.

Effect of Restriction and Activity Settings

Wright (1943) looked at the effect on children's behavior of interrupting a free play session which included many desirable toys by interposing a wire fence and letting the children play only with a standard set of toys. He found that the level of constructive play decreased significantly when children were in the restricted situation. Although teachers do not roll out wire fences in normal day care centers, they do end activities and begin others. Some of these transitions may appear as frustrating to the children as Wright's manipulation seems to have been. The timing and nature of a shift from one activity to another is an important aspect of the indirect influence of the early childhood teacher. In analyzing the difference in children's behaviors in various summer camp activities, Gump, Schoggen, and Redl (1957) assert the following:

> Certain features of the activity-setting which support or provoke the behaviors and experiences that occur within it are clear. When props and performances are so organized that the valued actions are delayed or in short supply, an activity setting is likely to produce competitiveness

> whether it is in cookouts or boating. And a setting which requires performances directed at individual tasks is likely to produce lowered interaction whether it is crafts or library reading time. (p. 43)

Not only do settings channel children's behavior but they elicit certain behaviors from teachers as well (Gump & Sutton-Smith, 1955). Adults are characteristically called upon to give individual assistance with materials during collage and art time, yet group recitation requires a different set of adult behaviors (Kounin & Gump, 1974), and outdoor free play may have children eliciting praise or conflict mediation from adults.

Emmerich (1977) compared teacher-directed small group time (similar to Doke & Risley's [1975] "formal" activities) and free play (similar to the "informal" condition). He found initial differences and changes over time in children's personal-social behavior associated with each condition. Free play elicited significantly more cooperation, compliance, and affiliation with peers than did small-group time. In addition, there was significant growth during a 16-week period in the free play condition for the following measures: autonomous achievement. gross motor activity, and fantasy activity. These same measures decreased over time in the small-group formal activity period. The author sug-

gested that the small-group setting may actually encourage affiliation among children at the same time that the format severely restricts child-child interactions, thus setting up a conflict that results in reduced cooperation and compliance.

Recentiy, Kounin and Sherman (1979) speculated about the qualities of preschool activity settings that influence the length of time children remain involved. Settings with the lowest indices of holding power (clothing, displays, and vehicles) "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" (pp. 3, 4). However, other settings with higher holding power (art, role play, blocks, and sand) seem either to offer a variety of expected behaviors or to result in a clear sense of progress or an actual product. Thus, teachers need to be aware of the cues for behavior in the learning environment which they create by their selection of equipment and arrangement of space (Phyfe-Perkins, 1980). The teacher's choice of activity settings can become a major influence on the behavior of children. Teachers can attend to the availability of materials and the sequencing of activities. By being aware of the effect of the setting on behavior, they can intervene to prevent problems, reduce the density of children, or otherwise arrange the environment to support the behaviors desired.

Access to Materials and Toys

The Learning Environments Group headed by Risley in Kansas has looked at some specific variables directly under the control of preschool teachers. Montes and Risely (1975) varied the accessibility of toys in a day care setting. In the limited access condition, when children had to request the use of material from a teacher and could use only one item at a time, children engaged in more complex sociodramatic play episodes. Except in sociodramatic play, toy availability had little effect on such variables as the amount of time spent playing, selecting activities, or interacting with the teacher. Pollowy (1974) found that the supervisory involvement of adults increased wherever equipment distribution restricted the child's activity or access.

According to Hart and Risley (1975), child requests for toys can be used to stimulate language and achieve cognitive goals in an informal, child-centered manner. Thus, limited access to toys can be utilized to increase the instances of incidental teaching. Another study carried out by the Kansas group investigated the effects of scheduling activities in different sequences. Krantz and Risley (1972) found that the involvement level of children was higher during group story time and that transition into story time was shorter when the story had been preceded by naptime as opposed to outdoor play.

A study that demonstrated the need for adults to become aware of their own tendencies to avoid or concentrate in certain activity areas was carried out by Shapiro (1975). Observing the free play behavior of 274 four-year-old preschool children, she noted a striking disparity between children's and teachers' preferences for activity areas. She speculated that the difference perhaps results in a loss of spontaneous teaching-learning interactions. Children populated the block and doll corner areas 37% of the time, but only 17% of teacher-child interactions occurred in those areas. The art areas, where children spent 21% of the time, averaged 35% of all teacher-child contacts. The author suggested that teachers might set up more independent art activities so that they would be available for interaction and observation in the active block and housekeeping areas.

"Closed" Versus "Open" Structure Settings

Prescott et al. (1975), in an ecological study of day care environments, analyzed teacher behavior in an unusual way. The authors proposed two major categories of early childhood classrooms based on the locus of decision-making about the majority of children's activities. "Closed structure" centers are those in which teachers, for the most part, determine what children shall do. In "open structure" centers the children make more of these decisions.

Prescott et al. contend that high-quality open structure centers, as opposed to closed structure preschools, are characterized specifically by more adult-child interaction in activity segments, more frequent incidences of children receiving help from adults, a low proportion of unfinished activities, play areas with a wider variety and greater abundance of things to do, and teachers who more frequently open up the alternatives inherent in an activity segment. According to Prescott et al., the major characteristic in closed structure settings is the imposition of restrictions on children's movement and activity, which cannot be counterbalanced by the positive aspects of the curriculum. Thus, the authors advocate that "closed structure" teachers be somewhat "open" by relaxing some of their requirements for conformity to rigid behavioral expectations.

The concept of a teacher ability labelled "double structuring" of the environment is also presented by Prescott. This ability facilitates choicemaking by children:

> The teacher constantly structures both (1) by her input, and (2) by providing an environment which facilitates getting started behavior and regulates intrusion by the use of insulated play areas with clear cut boundaries. (Prescott et al., 1975, p. 65)

These authors not only consider the direct influence of teachers as evidenced by their

interaction, direction, mediation, assistance, or observance of children, but they also evaluate the indirect influence of the activity settings that the teacher makes available to the children.

CONCLUSIONS

Interpretation of research results in this area cannot be free of values and assumptions. One's philosophy of education dictates the significance one attaches to various adult and child behaviors. This author subscribes to a Piagetian and developmental interactionist view of early childhood, in which behaviors that reveal the child as an active learner, both mentally and physically, are valued. Franklin and Biber (1977) describe this view:

> Since learning is an active process, and knowledge is constructed rather than "acquired," the child must be provided with an environment which furthers his own natural tendency to act on and with objects, to explore, manipulate and experiment. He must be allowed, indeed encouraged, to take initiative, to pose problems, and to generate solutions for himself, even when the problems may seem trivial to an adult and/or the solutions may be "wrong" from an adult point of view. (p. 11)

Teachers in a developmental interactionist curriculum take on the role of guide and stimulant, asking questions that may lead the children to their own solutions. In such a preschool, the teacher is a helper, a source of useful information, and a person to be trusted (Franklin & Biber, 1977). Since development itself is conceived of as a function of organism-environment interaction, adults can enhance learning by facilitating such interaction. In the preschool, this means a predominance of watching-helping, participating, and mediating teacher behaviors rather than direct leadership or lack of involvement. In order to stimulate and guide children's autonomous learning, adults must participate with the children.

Adults' interactions with children, together with their management of child-child and child-environment interactions, constitute the human aspect of the environment. All of the studies reviewed in this paper support the notion that the behavior of adults in early childhood education does have an impact on the children. Some of the crucial aspects of the immediate behavior of successful teachers include their ability to be encouraging, warm and friendly, involved with individuals and small groups, and attentive to two issues simultaneously. Adults need to keep the momentum going, effect smooth transitions, use positively worded instructions, minimize direct leadership of large groups, and maximize a child-centered approach as

opposed to one in which adults make most of the decisions. Children who are taught by adults who possess some of these traits have been found to be, variously, high on measures of task involvement, language comprehension, social participation, constructive use of materials, spontaneity, creativity, sympathy, and independence, and low in dominative and hostile behavior. Although some of the prescriptions sound contradictory, the confusion lies in the matter of context. Direct leadership as a major mode of classroom organization seems to have negative effects, such as low task-involvement and little child-child interaction. However, if a teacher decides to have a group story or circle time, for example, she or he should become a vigorous leader during that activity, emitting continuous stimuli for attention and restricting frequent or lengthy child recitation. Another seeming contradiction in the review of the literature is the finding that closed structure classes (in which adults make most of the decisions) are often associated with low levels of antisocial behavior, whereas open structure (child decision-making) classes tend to have higher levels of interpersonal conflict. This polarity can be explained by the fact that when children are allowed to interact freely and choose their own activities, more conflicts, as well as higher incidences of positive social, emotional, and cognitive behaviors, are observed. In contrast, adult-dominated centers have low frequencies of many behaviors, including aggressive ones.

Taken as a whole, the studies reviewed support the hypothesis that adult behavior influences the behavior of children in preschool settings. In addition, a smaller, more recent group of studies have explored the contribution of the scheduling, organization, and placement of equipment and activity segments. Adults' arrangement of the environment, as well as their attention to children, is clearly important. When planning activities, adults need to consider the cues in the setting that will be salient to children. For example, if task involvement is to be fostered, independent construction activities should be organized so that the steps are self-reinforcing and sufficient materials are available. Play centers with many and varied materials encourage social play among children. (Further discussion of the effects of physical environments on children's behavior can be found in Phyfe-Perkins, 1980.)

Elardo (1973), looking at the ecology of day care, stresses the pre-eminence of high quality adult-child interactions. He states that one of the most harmful early educational philosophies

> calls for minimum interference in the child's activities. The adult's role becomes that of an observer, with a teaching style for the larger part that involves being passive, watchful, and retiring, while allowing the child to interact with various materials or

> toys. The feeling is that if an adult simply guards the child against emotional damage, some kind of natural growth force will take over and assure the child's maximum development. (p. 7)

If we are concerned with the quality of children's interaction with a stimulating environment, then much work needs to be done to delineate the teaching skills and behaviors of adults that facilitate such interaction. Hunt (1969) has conceptualized the problem of the correct "match," that is, providing the child with experiences that are neither too strange nor too familiar, so that an optimum level of child-environment interaction occurs. The early childhood teacher can be the key to creating such "matches" for children by interpreting confusing events, suggesting further connections, modeling more advanced social and play behaviors, comforting, mediating, scheduling activities, and arranging environments that encourage many and varied child-child, child-adult, and child-environment interactions.

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