

# 1

## Children on the Playground at Recess: What's So Important?\*

### Introduction

The topic of this book—what children do on playgrounds during their recess periods—may seem an unlikely one for an academic work. After all, what children do on playgrounds is typically not considered important by most teachers and parents, and certainly not by scholars. This disregard for the playground, as we will see throughout this volume, is reflected in the paucity of empirical research on the topic. A notable exception to this statement is the recent volume edited by Craig Hart (1993a). While disregard for recess may typify most of those in the social science community, recess is important to a number of people, especially children, and of increasing importance to teachers, administrators, and parents.

As I see it, as a parent, a former primary school teacher, and a researcher, the recess period represents an almost unique part of the school day. By this I mean it is one of the few times when children can interact with their peers on their own terms with minimal adult intervention. Consequently, the playground represents one of the few places in primary and middle schools to observe spontaneous peer interaction. Classrooms, generally, do not have much spontaneous peer interaction! So, from a scientific perspective, recess represents a unique opportunity to study children's social interaction.

Recess and playground behavior is also interesting from an educational policy perspective. While recess exists in some form in most primary schools, its role in the school curriculum, is currently being questioned. Thus, research in this area, beside being very interesting, also has real policy implications. In the remainder of this chapter I will outline what I see as the important issues in this area.

---

\*This chapter is an expanded version of a paper written with P. K. Smith.

### What Is Recess?

School recess, or play time, is a break period, typically held outdoors, for children. Generally, children in schools from preschool through the elementary school level have recess as a scheduled part of their day. Recess periods tend not to exist in schools for adolescents, such as junior high and middle schools.

Although some form of recess is almost always present in elementary schools, the number of recess periods per day, the duration of the period(s), and the supervisory policy for recess periods typically varies greatly from one school to another. For example, in some British primary schools children have three outdoor play periods per day: morning and afternoon periods of about 15 minutes each and a dinner play period of about 80 to 90 minutes. In American elementary schools the length of the period and its placement in the school day also varies by individual school.

Additionally, the nature of supervision of children while they are on the playground varies widely. In some schools teachers are expected to supervise children during recess periods, while in other schools—even schools within the same city/school district—this task is often relegated to paraprofessionals, or to other adults who have little or no special training for the task. In short, recess is ubiquitous to the extent that most preschool and primary school children experience it as part of their school day. What they experience, however, varies widely from school to school. Generally, there is no explicit school policy, either at the school or local levels, regarding recess. The closest thing that resembles such a policy might be school or local rules regarding aggression and bullying that may take place on the playground (see Ladd & Price, 1993, and Olweus, 1993, for extended discussions of this issue). This general lack of policy for such a common and sometimes lengthy period is puzzling. In the next section the results of a national survey on recess periods conducted by the National Association of Elementary School Principals (NAESP) will be presented.

### A National Survey of Recess

In 1989 the NAESP conducted a national survey on recess practices in America. (I am extremely grateful to Christine Edwards of Tarpon Springs, FL, who compiled, summarized, and provided these data.) This survey was conducted because no such data existed! The survey was sent to 51 state superintendents of school (including the

superintendent for Washington, D.C.) and responses were received from 47 states. The ubiquity of recess was substantiated by the survey: 90 percent of the school districts had some form of recess. In 96 percent of the cases recess occurred once or twice per day. Recess lasted 15 to 20 minutes in 75 percent of the cases. Data regarding supervisory practices for recess periods indicates that teachers were supervisors in 50 percent of the cases, while teacher aides supervised children in 36 percent of the cases. Of the aides, 86 percent received no formal training for supervising recess. The locus for recess policy decisions in 87 percent of the cases was within the specific school. Relatedly, recess policy was about evenly divided regarding structured versus unstructured recess periods.

In short, recess is a staple in schools. Schools themselves (that is, teachers and principals) make recess policy and the policy is equally divided between structured and unstructured periods. The structured recess periods must be very interesting when they are supervised by aides, who typically are untrained in matters pertaining to recess!

### The Recess Controversy

The role of recess in schools has been recently questioned (see Hart, 1993a, 1993b, and Sutton-Smith, 1990). Embedded in the larger context of the "effective education" debate teachers and parents have been questioning the role of recess in the school day (see the *New York Times*, 8 January 1989). Sides in a pro-recess and anti-recess debate have been drawn. Two main reasons are normally addressed by those opposed to recess (see Blatchford, 1988). First, it is argued by the antis that recess detracts from needed instructional time in an already crowded and long school day. Further, antis argue that recess periods, often arbitrarily placed in the school schedule, disrupt children's sustained work patterns. The second anti-recess argument commonly advanced is that recess encourages aggression and antisocial behavior on the playground. This point will be given extensive treatment in the present volume, though it has been reviewed elsewhere (see Blatchford, 1988; Evans, 1989; Smith & Thompson, 1991). Suffice it to say for the time being that aggression on elementary and middle school playgrounds is very uncommon, accounting for less than 2 or 3 percent of children's total behavior.

The issue of loss of instructional time is related to a specific dimension of recess behavior—children's physical activity—to the extent that recess is seen by educators as either providing opportu-

nity to vent "excess energy" or exciting children to such high levels that they become inattentive, making effective class work difficult. While systematic data on this issue, as on most aspects of recess, are limited, Blatchford (1988) provides anecdotal evidence from British teachers that *both* supports and undermines this argument. Some teachers suggest that recess gives children a much needed break from their work, while other teachers complain that it is disruptive. According to recess critics, task-oriented children are forced to leave their work to take recess and return distracted. Clearly, the variation in recess forms discussed above may be responsible for this state of confusion. This issue will be addressed specifically in a later chapter.

The pro-recess arguments are almost mirror images of the antis arguments (see Sutton-Smith, 1990, for an alternative view). Generally, proponents of recess offer some folk variant of surplus energy theory whereby children need recess to "blow off steam"; this reasoning is used by parents and educators in Australia (Evans, 1989), Britain (Blatchford, 1988), and America (Parrott, 1975; Pellegrini, 1989). The argument goes something like this: when children sit still for prolonged periods of time they accumulate surplus energy; therefore physical activity in recess is necessary to "blow off," or use up, this surplus energy so that the children can then concentrate on the more sedentary tasks of the classroom. The evidence given for this surplus energy theory is scientifically questionable, and typically involves examples of children fidgeting in their seats and generally showing lower levels of attention as a function of confinement time.

The empirical record for these issues is sparse indeed. In what follows, empirical research that bears on the role of recess in schools will be briefly reviewed. This topic will be given more thorough treatment in subsequent chapters. It should be stressed here that much of this research was *not* designed to address these specific questions; instead, it was designed to address other, related issues.

An important school-level variable, playground design, will be briefly reviewed here and discussed in greater depth in Chapter 2. Next, I will review research that has examined variables that affect children's behavior on the playground at recess; I will consider both child-level variables (i.e., gender and preference for outdoors, temperament, and age) and school-level variables (i.e., recess timing). While I recognize that such a dichotomy between the child-level and school-level variables is artificial, I will present them separately for reasons of clarity.

### Playground Design Effects

The relation between playground design and children's behavior has been studied at both the community (Naylor, 1985) and the school level (Frost, 1986; Hart & Sheehan, 1986). The school-level studies, with the exception of Hart and Sheehan, examine the extent to which children choose to play in certain play areas and the types of behavior exhibited while there. That children self-selected themselves into those play areas prevents a discussion of "effects" of playground design.

Frost (1986) and colleagues compared primary school children's behaviors on traditional, contemporary, and adventure playgrounds. They found that children were equally cooperative on all types of playscapes but exhibited more fantasy play on adventure playgrounds and more functional play on traditional playgrounds. These results are not consistent with studies in which children's exposure to specific playground designs was experimentally manipulated (Hart & Sheenan, 1986). *Within* contemporary playscapes, there is also significant variation. In short, children act very differently on different types on playscapes. As I will illustrate below, other variables also affect children's recess behavior.

### Child Variables Affecting Recess Behavior

#### Gender and Indoor or Outdoor Preference

That boys are more physically active than girls is well documented (Eaton & Enns, 1986). These differences, often discussed in terms of temperament, are observed from infancy through childhood, though a decrement of activity as a function of age is observed in later childhood (Eaton & Yu, 1989). Further, higher levels of physical activity are elicited in low, as compared to high, spatial density environments (Smith & Connolly, 1980). That is, children are more active in spacious, as compared to restricted, environments. These two findings could be responsible for the fact that, given free choice, boys, more often than girls, prefer to go outdoors for recess. Where free choice does not exist, girls, when asked, would rather stay in than go out; boys, on the other hand, prefer to go out (Blatchford, 1988; Boulton & Smith, 1993; Lever, 1976; Serbin, Marchessault, McAffer, Peters, & Schwartzmann, 1993). This gender-related preference for outdoor play has been documented by means of behavioral observations during the preschool period (Harper & Sander,

1975) and during early adolescence (See Chapter 8 below; also see Serbin et al., 1993) and by means of questionnaires during the elementary school years (Blatchford, 1988).

Boys' preference for outdoor play is often explained in terms of their biological predisposition, or temperament, for high levels of activity (Harper & Sanders, 1975). This line of reasoning would lead to the hypothesis that boys, more than girls, should be more active both on the playground and in the classroom. Boys' activity level, according to this hypothesis, should be of higher intensity and longer duration than the activity levels of girls. Behavioral observations of boys' playground behavior are consistent with this hypothesis; for example, boys from the preschool through early adolescence periods engage in more vigorous physical activity, such as rough-and-tumble play and other forms of vigorous play, than do girls (Boulton & Smith, 1993; Humphreys & Smith, 1984; Ladd & Price, 1993; Maccoby & Jacklin, 1987; also see Chapters 6, 7, and 8 in this volume). Regarding physical activity in classrooms, boys are considered by their teachers to be more destructive and less attentive than girls (Serbin, Zelkowitz, Doyle, & Gold, 1990).

There are alternate explanations for these gender-related differences. Specifically, boys and girls may differentially prefer outdoor play because of socialization issues (Serbin et al., 1993). For example, girls may prefer indoor to outdoor play spaces because they are less likely to be disturbed indoors. That is, when boys and girls are on the playground together boys, because of their high levels of activity and their games, may intrude into girls' play spaces. Indeed, Maccoby and Jacklin (1987) proffer this as a reason for preschoolers' gender segregation. Anecdotal evidence presented by Blatchford (1988) suggests that girls and young children dislike outdoor play because boys, particularly older boys, invade their space with balls and charging bodies. Rather than reducing preference for outdoor play to a biological or social origin, it probably makes sense to consider these aspects of gender as being due to the interaction between socialization and hormonal events.

An interesting test of this hypothesis would be to examine outdoor preference at an all-girls school with age-segregated recess periods, where such intrusions do not exist; I would predict that girls' choice of outdoor play would increase. Restrictions on boys' vigorous games, like football, should also have this effect. Regarding alternate explanations for gender differences in classroom behavior, such differences are typically confounded by the gender of the teachers, who are often female. It is quite possible that female teachers

react differently to active behavior in boys versus girls.

We thus have reasonably good data that boys, more than girls, prefer outdoor play because of their propensity for physical activity. Preference for physical activity often varies also as a function of children's temperament and age.

### The Roles of Temperament and Age in Children's Recess Behavior

Temperament is a construct used to describe relatively stable individual differences in children that have an early origin and a biological component. Children's physical activity, as I noted above, has often been treated as a dimension of temperament and can be measured behavioral, using direct observations or mechanical recorders, or by parent- or teacher-completed checklists. Behavioral observations, of course, are both expensive and time consuming. Eaton and Yu (1989) have found that teachers' rank orderings of children in terms of their motoric activity correlates very well ( $r = .69$ ) with motion recorder measures.

To my knowledge, no empirical research has been conducted on the relation between children's temperament and their recess behavior, per se. Clearly, such research is needed. For example, it may be that children who are temperamentally very active have a greater "need" for recess than less active children. We do know that negative associations exist between children's activity level and self-direction in classrooms (see Martin, 1988, for a summary of temperament and classroom research). Further, we know that the longer children sit in classrooms the less attentive they become; these same inattentive children tend to be active on the playground at recess (see Chapter 5). It may be that making a provision for recess after specific periods of seat work would increase the attention of active children.

Age is another related, child-level moderator variable to the extent that physical activity seems to decline during the elementary school years (Eaton & Yu, 1989). Consequently, children's "need" for outdoor recess may decline with age. The research finding that children, as they move through adolescence, less frequently choose to play outdoors (see Chapters 9 and 10) supports this proposition. Further, gender and age seem to have interactive effects on physical activity observed on the playground at recess. Gender differences for preschool children's vigorous behavior on the playground were not observed by Smith and Hagan (1980) whereas there were significant gender differences observed by Pellegrini and Davis (see Chapter 5) in a sample of 9-year-old school children. Multiage stud-

ies, preferably longitudinal studies, where moderator variables like temperament and gender can be tracked across childhood will be necessary to address this age and gender interaction more thoroughly.

Thus, children's behavior on the playground at recess is moderated by a number of child-level variables. These child-level variables, however, interact with aspects of the larger school environment.

### School-Level Variables Affecting Playground Behavior

If a poll were conducted with a large sample of professional educators and parents, asking them why recess should be included in the school curriculum, the most commonly voiced rationale would probably relate to some aspect of "surplus energy theory," such as children needing recess to "blow off steam." The validity of surplus energy theory is questionable (Smith & Hagan, 1980), for it is based on outmoded concepts linking energy and motivation. However, the idea that children may "need" or benefit from periodic changes from sedentary class work is both reasonable and rooted in other, more current, psychological theories, such as Fagen's (1981) deprivation theory of play and Berlyne's (1966) novelty theory of play. The effect of recess timing, or the amount of time that children are expected to work at their seats before going out to recess, on children's behavior has been addressed in two experimental field studies using within subjects research designs. Both these studies assumed that children's physical activity would vary as a function of their previous confinement to a sedentary environment.

Smith and Hagan (1980) studied three and four year olds in two English nursery classes. The children stayed in the classroom for shorter (45 mins.) or longer (90 mins.) periods before going outdoors for recess. Smith and Hagan based their hypotheses on the idea that the motivation for active physical play could increase as a function of deprivation. The indoor-classroom conditions were organized such that active play was almost entirely prevented. The hypotheses were supported: children were more active (level of intensity) for a longer period (duration) after the longer, compared to the shorter, confinement periods. Further, a decrement of activity on the playground was observed as a function of time spent outdoors. No gender differences were observed. The study suggested that confinement resulted in increased physical activity; physical activity, in turn, decreased as a function of time exercising.



Extending this approach to older children, Pellegrini and Davis (reported in full in Chapter 5) examined the effects of confinement on 9-year-old boys' and girls' classroom *and* playground behavior in an American elementary school. As in the Smith and Hagan study, children were confined for shorter and longer periods and the duration and intensity of their playground behavior was observed. Pellegrini and Davis also found the confinement increased the intensity of children's playground activity. They found significant gender effects at this older age: boys were more active on the playground than were girls, particularly after the longer confinement period. Further, frequency and levels of active behavior of the boys decreased as a function of time on the playground. These results support the general model outlined above: boys are more active on the playground than are girls, and their levels of activity can be increased by previously limiting their opportunity for vigorous physical activity.

This line of inquiry, though preliminary, has important implications for future research and educational policy. One pressing question for educators is determining the optimal length for recess periods. We have very little information on this topic. This information would be valuable in terms of theory (play deprivation theory and arousal theory would predict a decrement of activity in recess as a function of time) and certainly valuable for educational policy. The findings of Pellegrini and Davis suggest that children's active play at recess does not last very long; there are marked decreases after the first six or seven minutes. Future work should document the specific duration of active play and how it varies as a function of the age and gender of children, their previous confinement, and the length of the recess period.

From a policy perspective, it seems important to answer these questions in order to design recess periods that maximize benefits, in terms of subsequent attention in class, and minimize children's boredom on the playground. The anecdotal evidence provided by Blatchford (1989), from both educators and children in Britain, suggests that dinner/lunch play of over one hour is too long, to the extent that children become bored and sometimes aggressive toward the end of these periods.

However, duration of play periods and play bouts alone does not address the whole issue of possible benefits of physical activity exhibited at recess, especially if one is concerned with the physical exercise dimensions of recess. It is probably true that high-intensity physical play bouts are characterized by short durations. Some of the literature on training of muscle strength and cardiac capacity suggests

that short but intense periods are more effective than longer, less-intensive periods (Bekoff, 1988). Relatedly, it may be that children's attention can be maximized by encouraging short, but frequent, physically active bouts. This is clearly an area in which more work is needed.

### Measurement Issues

The measurement of duration and intensity of physical activity has attracted much attention. Of course, behavioral observation of these aspects of activity is the most accurate, yet also the most time-consuming, method. While there are many objective measures of activity intensity, like actometers (Eaton, Enns, & Presse, 1987) and heart rate (Dauncey & James, 1979), they are both obtrusive and time consuming to use. Recently, researchers have developed observational checklists that correlate highly with these more direct measures, and that are more economical to use as well as yielding duration measures. These schemes generally code body posture—for example, lying, sitting, or standing (Eaton, Enns, & Presse, 1987) or the part of the body engaged in activity (upper or lower; Hovell, Bursick, Sharkey, & McClure, 1978); intensity is then coded along three dimensions (high, medium, and low). Maccoby and Jacklin (1987) used a 7-point scale to code intensity; the 3-point scale yields less information but may be more reliable for observers to use. Martin and Bateson (1988) suggest that agreement on intensity ratings, while difficult, can be maximized if ratings correspond to the number of features present; for example, a low intensity rating would have 2 features and a high rating would have 8. Similar intensity ratings have been applied to children's level of fidgeting and concentration in classroom tasks (see Chapter 5). Duration of activity is derived by multiplying these codes by the number of intervals in which they are observed.

In short, there are reliable and valid measures of children's physically active play that can easily be applied to their recess behavior. Their use should be expanded in our studies of recess, for children's activity level is certainly an important aspect of recess.

### The Educational Implications of Recess

Because recess is embedded in school, the question of its educational role is sometimes voiced (see Hart, 1993b). "Educational role" typically refers to the cognitive implications of recess. We can

also include a broader definition of educational implications, touching on issues of social competence, such as popularity with peers. To adapt successfully to schools, children must function in both social and cognitive spheres; indeed, the two are intercorrelated (see Chapter 5). I will consider children's cognitive and social outcomes as an appropriate measure for the educational impact of recess.

### Cognitive Outcomes

Researchers interested in relations between recess behavior and traditional cognitive outcome measures, such as school achievement, can generally be put into two categories. The first category includes researchers, typically adherents of arousal theory, who suggest that the physical activity exhibited during recess has important cognitive consequences; for example, the physical activity of adults has been shown to relate to immediate increases in attention (Tomprowski & Ellis, 1986). Research with schoolage children, on the other hand, is not consistent with the adult results. We (see Chapter 5) found that vigorous play at recess was negatively related to attention on a postrecess achievement task, while sedentary playground behavior was positively correlated with attention and negatively correlated with fidgeting. These results suggest that vigorous activity can actually interfere with the subsequent attention of some children. While more research and replication is needed, these results suggest that opportunities for vigorous play actually exacerbate active children's classroom inattention.

It may be that these children need changes from seat work, but changes that are settling rather than exciting. Drawing on adult findings, it may also be the case that specific types of vigorous activity interact statistically with type of cognitive task. Another possibility is that children need some form of "cool-down" time after recess. A Taiwanese student of mine, Juimien Ku Chang, informs me that in Taiwan where there are numerous recess periods per day, children are given five to six minutes of transition time between entering the room after recess until they are expected to sit down and engage in their academic tasks. While I know of no more general empirical support for this claim, it makes intuitive sense and certainly merits study.

Another possibility is that physical activity per se at recess is not the most important variable relating to subsequent improved attention in the classroom. Following novelty theory (Berlyne, 1966), children may habituate to stimuli, like school tasks and indeed recess time, as a function of familiarity and time; physical activity

might then be just one of many ways in which children seek novelty. For example, sedentary social interaction provides a change from typical classrooms regimens to the extent that children can choose a peer with whom to interact on their own terms. Recess provides opportunities for this form of behavior. I found that nonsocial sedentary behavior decreased as a function of recess time but social sedentary behavior increased across time (see Chapter 5). Thus, optimal length of recess period may vary, depending on our desired behavior. Shorter periods may be better for physical activity, but longer periods may be necessary before children habituate to social sedentary activities.

Another interesting, and potentially important, aspect of this research relates to the type of tasks on which children are observed before and after recess. Classrooms vary in terms of requirements for concentration, social interaction, and sedentary activity; these factors may interact with corresponding dimensions of recess experience. Other task-specific measures, like motivation to work on specific tasks, may also affect attention. For example, there may be reliable task attention differences as a function of gender preference for specific tasks. It may be that boys attend to and participate in male preferred tasks, like mathematics and block play, while girls are more attentive in linguistic and dramatic play contexts (Pellegrini & Perlmutter, 1989). Of course, these gender-related differences interact, in turn, with age as children's behavior becomes more sex-role stereotyped. Future research investigating these interactive effects is clearly necessary. For example, experimental studies that examine age  $\times$  gender  $\times$  task effects in relation to recess variables would help clarify these issues.

The cognitive implications of children's recess behavior have also been studied from the point of view that children's cognition is facilitated by social interaction with peers. The theoretical orientations in this area can be traced to Humphrey's (1976) idea of the social origins of intelligence and to Piaget's (1970) equilibration theory whereby peer interaction facilitates cognitive conflict and subsequent re-equilibration. Following Piagetian theory, I examined the extent to which the social behavior of kindergarten children on the school playground during recess predicted their achievement in first grade (see Chapter 6). Of specific interest was the relative roles of peer and adult interaction for children's cognitive development. The results were consistent with the Piagetian model in that a facilitative role of peers and an inhibitive role of adults were found. Specifically, interactions with adults and with peers on the play-

ground at recess were, respectively, negative and positive predictors of first grade achievement. These measures of kindergarten playground behavior accounted for a significant amount of the variance in first grade achievement, even when kindergarten achievement was controlled. In short, what children do on the playground does have cognitive implications. Further, these behaviors seem to provide significantly more insight into children's functioning than do traditional measures of cognition.

While these results are consistent with theory, they should be interpreted cautiously as they are based on a few studies with limited sample sizes. Further, the measures of social interaction were rather gross. I coded children's social behavior as peer-directed or adult-directed and whether children were talking or not talking. Clearly these variables are "packaged" variables to the extent that they include numerous subvariables that probably relate differentially to cognition. Future research should use specific theoretically relevant measures of social interaction as predictors of cognitive status. For example, Humphrey's (1976) theory suggests that diversity of social experience is important for intellectual growth; the variety of roles and behaviors that children exhibit with various partners could be used as predictors in future research. From a Piagetian perspective, children's conflicts and conflict resolutions could be coded.

Additionally, it is probably important to consider the extent to which interactions with peers and adults are reciprocal (i.e., where roles are changes and power is shared) or complementary (i.e., where expert-novice power relationships are maintained) (Hinde, 1987). Clearly, children can and do engage in reciprocal and complementary interactions with adults (when they play and are taught, respectively) and with peers. Thus, equilibration theory would predict reciprocal interactions to be important in children's social cognitive development. In short, the extant data tells us that social interaction has important cognitive implications. The time has come to test more specific theories of the ways in which this operates.

### Social Outcomes

The notion that recess behavior is important for children's socialization has a long history (See Sutton-Smith, 1981, 1990, for summaries). While much of this work concerns children on playgrounds, *not* in school settings specifically, a number of school playground studies do exist and they will be the focus of this section. The studies reviewed vary in terms of specificity of the outcomes

measures considered, from the global consideration of "social skills necessary for adult life" (Sluckin, 1981, p. 2) and adult roles and occupational choice (Finan, 1982; Lever, 1976), to specific measures of peer cooperation (Pellegrini, 1992) and popularity (Ladd, 1983; Ladd & Price, 1993). We will begin with the global and move toward the specific.

Sluckin (1981) spent two years observing children in British primary, and middle schools. He concluded that there were similarities between the strategies and roles used and taken by children and adults. He noted that the facial gestures used by children to exhibit dominance are similar to those used by adults. Relatedly, Sluckin spent considerable effort explicating the ways in which children used ritual as a way in which to resolve conflict without violence. While adults do not face the likelihood of violence frequently, they too resort to ritual as a way in which to exhibit dominance. Sluckin, like Sutton-Smith (1971) before him, considers the social skills learned on the playground as important for later development. Indeed, they both argue that the context of play with peers is a unique one for learning social skills to the extent that the playful and nonserious tenor allows children to experiment with new and novel social strategies. Children also learn skills of presentation management (e.g., keeping their status even after losing a game) and manipulation (e.g., ways of excluding unwanted children from a game). These social strategies are certainly not taught in most classrooms.

The notion of recess play as preparation for adulthood is extended to the development of sex roles. Sluckin, for example, notes that the family-oriented and competitive games that girls and boys played, respectively, may prepare them for their corresponding adult gender roles. Similarly, Lever (1976), in her observational study of fifth graders on the playground at recess, suggests that the play and games of children on the school playground contribute to traditional sex role divisions. Lever found, like Harper and Sanders and Pellegrini (see Chapter 8), that boys, more than girls, preferred outdoor, public play, while girls preferred indoor, more private play. Second, boys, more than girls, played in larger and more age-heterogeneous groups. Their play often involved coordinating the different types of children around a competitive, team theme. These games, Lever argued, prepare boys for adult leadership roles. Girls' play was more often cooperative than competitive and occurred in smaller, less diverse groups. When girls played with younger children, the older girls typically accommodated to the play of the

younger children. Also, girls engaged in more close and intimate relationships in their small groups. Thus, argues Lever, girls are learning to nurture in the playground; this, in turn, prepares them for latter childcare duties.

In the work of Sluckin and Lever the socialization model is prevalent. They believe that children's roles are the product of adult roles and suggest that children's play reflects these roles, generally. Thus, as the role of women in American society changes, so too should the sex-role play of children. While this theory seems reasonable, so too is the notion that children's play is not only imitative but also creative, and that in turn, it affects their later development. Indeed, a long-standing criticism of socialization models is that the effect of society on children's social development is conceptualized as unidirectional, whereas individual differences in children, such as temperament and sociometric status, and the resources available to them actually mediate societal demands on children (Bronfenbrenner, 1979; MacDonald, 1993).

A study by Ladd (1983) of the recess behavior of third and fourth grade boys and girls clearly illustrates these "child effects." I noted above that boys' play groups are larger, or more extensive, than girls' groups. Ladd (1983) found that boys' and girls' social networks varied according to their sociometric status such that rejected children, regardless of gender, played in smaller groups than popular or average children; gender differences in the expected direction were observed for popular and average children. Further, the diversity of children played with at recess is affected by both gender and sociometric status; for example, while girls spent more time, compared to boys, interacting with same-gender playmates, rejected boys, compared to other types of boys, spent a significant portion of their time playing with girls (Ladd, 1983). Thus, the way in which boys and girls interact on the playground is influenced by both gender and individual difference variables. That boys and girls merely reproduce dominant cultural values on the playground seems too simplistic; individual differences interact with broader societal norms to effect the ways in which they play at recess.

In both the Sluckin and Lever studies the social implications, or functions, of children's behavior on the school playground was supported by implicit argument-from-design features. That is, similarities between the behavioral and structural features of the playground and adult roles were described. While this is an interesting, and indeed a necessary first step, en route to establishing the functional significance of a behavior, hypothesized associations between

recess behavior and social outcomes measures must be tested more directly. Indeed, the Ladd (1983) study illustrated the ways in which such an empirical study can add to our understanding of the meaning of children's recess behavior. There are a few other studies of this kind, some of which also consider the ways in which individual differences in children mediate social development.

I will review studies using both contemporaneous and longitudinal correlations relevant to the implications of recess. Contemporaneous analyses, obviously, prohibit one from making functional, or causal, statements. Longitudinal correlational and experimental studies are necessary for getting at causation. Simple correlational studies are interesting, however, to the extent that they inform us that something important *may* be going on. That is, statistically significant correlation coefficients suggest that one behavior results in learning or developing another behavior. More conservatively, it may also mean that one has already attained a certain skill and that the occurrence of a correlated behavior indicates that one is practicing that skill. In either case, whether learning or practice, the correlation has educational meaning.

In separate studies Pellegrini (see Chapters 6 and 7) found that the recess behavior of elementary school children related to their ability to solve hypothetical social problems and to their teachers' judgments regarding their antisocial personality. Again, these relations varied in terms of both the gender and sociometric status of the children. Girls who engaged in physically vigorous behaviors, such as running, swinging, and rough play, like play fighting (see Chapter 7), were considered to be antisocial by their teachers; the same was not true for boys. It may be, following Lever and Sluckin, that teachers too considered the playground as a place for children to learn sex-role stereotyped behaviors. Those violating these norms were considered deviant. Relatedly, the rough play of rejected, but not popular, children (both boys and girls) related positively and significantly to their antisocial rating by teachers. In this case, the correspondence between the two measures may reflect the fact that rejected children actually are antisocial (as evidenced by behavioral observations). Certainly, future studies should separate gender and sociometric effects.

Longitudinal work on rough play and antisocial personality ratings clarifies, to some degree, issues related to directionality, but gender and sociometric status are still confounded. I (see Chapter 6) found that kindergarten children's aggression on the playground was a significant predictor of their being considered antisocial by



their first grade teacher; children's kindergarten antisocial status was controlled so that the unique contribution of aggression, independent of a stable antisocial personality, could be assessed. This finding, while limited to the extent that children's gender and sociometric status were not considered, has important implications to the extent that the playground at recess is used as a venue by some children to be aggressive and antisocial. This is consistent with Whitney and Smith's (in press) work on bullying, which suggests that when bullying does occur, the most likely venue, especially in primary schools, is the school playground. This illustrates the darker side to recess. Some children do use recess as a place to be aggressive and to bully their classmates, even though this may be infrequent in absolute terms. Further research on the role of various antibullying programs in schools is needed (e.g., Olweus, 1993; Smith & Thompson, 1991).

We have similar results and problems with the next set of findings for correlations between playground behavior and social problem-solving ability. Significant and positive correlations between rough play and social problem solving are reported for boys, but not for girls (see Chapter 7), and for popular, but not for rejected, children. These sociometric status results were replicated in a longitudinal study whereby the rough play of popular, not rejected, elementary school students predicted social problem solving one year later, while controlling for year 1 social problem-solving status (Pellegrini, 1991).

To summarize, children's recess does have educational implications. In both correlational and longitudinal research, children's recess behavior is related, in theoretically predictable ways, to both cognitive and social outcome measures. Children's gender and sociometric status seem particularly important as mediators for recess effects. However, much more research, preferably longitudinal, needs to be carried out to clarify the causal relations and to put the findings obtained so far on a firm basis.

### Conclusion

Given the importance of the topic, there is a relative paucity of empirical research on children's recess. This lack of descriptive and predictive work is indeed surprising in light of the ubiquity of recess in school curricula. The research that does exist, however, tells a rather consistent story. Timing and duration of recess relates to playground activity, and possibly to subsequent classroom behav-

ior, in ways that interact with age, gender, and temperament. Recess behavior is also a generally positive predictor of children's, and especially boys', social cognitive development. Thus, it seems to have educational value and certainly has considerable educational relevance. There are clear lines of future research which could be both theoretically interesting and practically important.

### References

- Bekoff, M. (1988). Social play and physical training: When "Not enough" may be plenty. *Ethology*, 20, 1-4.
- Berlyne, D. (1966). Curiosity and exploration. *Science*, 153, 25-33.
- Blatchford, P. (1988). *Playtime in the primary school*. Windsor, U.K.: NFER-Nelson.
- Boulton, M., & Smith, P. K. (1993). Ethnic, gender partner, and activity preferences in mixed-race playgrounds in the UK. In C. Hart (ed.), *Children on playgrounds* (pp. 210-238). Albany, NY: SUNY Press.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Dauncey, M., & James, W. (1979). Assessment of heart rate method for determining energy expenditure in man, using a whole body calimeter. *British Journal of Nutrition*, 42, 1-13.
- Eaton, W., & Enns, L. (1986). Sex differences in human motor activity level. *Psychological Bulletin*, 100, 19-28.
- Eaton, W., Enns, L., & Presse, M. (1987). Scheme for observing activity. *Journal of Psychoeducational Assessment*, 3, 273-280.
- Eaton, W., & Yu, A. (1989). Are sex differences in child motor activity level a function of sex differences in maturational status? *Child Development*, 60, 1005-1011.
- Evans, J. (1989). *Children at play: Life in the school playground*. Geelong, Australia: Deakin University Press.
- Fagen, R. (1981). *Animal play behavior*. New York: Oxford University Press.
- Finnan, C. (1982). The ethnography of children's spontaneous play. In G. Spindler (ed.), *Doing the ethnography of schooling* (pp. 355-381). New York: Holt, Rinehart, and Winston.

- Harper, L., & Sanders, K. (1975). Preschool children's use of space: Sex differences in outdoor play. *Developmental Psychology*, 11, 119.
- Hart, C. (Ed.). (1993a). *Children on playgrounds*. Albany, NY: SUNY Press.
- . (1993b). Children on playgrounds: Applying current knowledge to future practice and inquiry. In C. Hart (ed.), *Children on playgrounds* (pp. 418-432). Albany, NY: SUNY Press.
- . (1993c). Introduction: Toward a further understanding of children's development on playgrounds. In C. Hart (ed.), *Children on playgrounds* (pp. 1-12). Albany, NY: SUNY Press.
- Hinde, R. (1987). *Individuals, relationships and culture*. London: Cambridge University Press.
- Hovell, M., Bursick, J., Sharkey, R., & McClure, J. (1978). An evaluation of elementary students' voluntary physical activity during recess. *Research Quarterly for Exercise and Sport*, 69, 460-474.
- Humphreys, A., & Smith, P. K. (1984). Rough-and-tumble play in preschool and playground. In P. K. Smith (ed.), *Play in animals and humans* (pp. 241-270). Oxford: Blackwell.
- Ladd, G. (1983). Social networks of popular, average, and rejected children in school settings. *Merrill-Palmer Quarterly*, 29, 283-307.
- Ladd, G., & Price, J. (1993). Playstyles of peer-accepted and peer-rejected children on the playground. In C. Hart (ed.), *Children on playgrounds* (pp. 130-161). Albany, NY: SUNY Press.
- Lever, J. (1976). Sex differences in the games children play. *Social Problems*, 23, 478-487.
- Maccoby, E., & Jacklin, C. (1987). Gender segregation in childhood. In H. Reese (ed.), *Advances in child development and behavior* (pp. 239-287). New York: Academic Press.
- MacDonald, K. (1993). Introduction. In K. MacDonald (ed.), *Parents and children playing*. Albany, NY: SUNY Press.
- Martin, P., & Bateson, P. (1988). *Measuring behaviour*. London: Cambridge University Press.
- Martin, R. (1988). Child temperament and educational outcomes. In A. D. Pellegrini (ed.), *Psychological bases for early education* (pp. 185-206). Chichester, U.K.: Wiley.
- Olweus, D. (1993). Bullies on the playground. In C. Hart (ed.), *Children on playgrounds* (pp. 85-128). Albany, NY: SUNY Press.

- Parrott, S. (1975). Games children play: Ethnography of a second grade recess. In J. Spradley & D. McCurdy (eds.), *The cultural experience* (pp. 207-219). Palo Alto, CA: SRA.
- Pellegrini, A. D. (1988). Elementary school children's rough-and-tumble play and social competence. *Developmental Psychology*, 24, 802-806.
- . (1989). Elementary school children's rough-and-tumble play. *Early Childhood Research Quarterly*, 4, 245-260.
- . (1991). A longitudinal study of popular and rejected children's rough-and-tumble play. *Early Education and Development*, 3, 205-213.
- . (1992). Kindergarten children's social cognitive status as a predictor of first grade achievement. *Early Childhood Research Quarterly*, 7, 565-577.
- Pellegrini, A. D., & Davis, P. (1993). Confinement effects on playground and classroom behavior. *British Journal of Educational Psychology*, 33, 88-95.
- Pellegrini, A., & Perlmutter, J. (1989). Classroom contextual effects on children's play. *Developmental Psychology*, 25, 289-296.
- Serbin, L., Marchessault, K. McAffer, V., Peters, P., & Schwartzman, A. (1993). Patterns of behavior on the playground in 9- to 11-year-old girls and boys. In C. Hart (ed.), *Children on playgrounds* (pp. 162-183). Albany, NY: SUNY Press.
- Serbin, L., Zerkowitz, P., Doyle, A., & Gold, D. (1990). The socialization of sex-differentiated skills and academic performance. *Sex Roles*, 23, 613-628.
- Smith, P. K., & Connolly, K. (1980). *The ecology of preschool behavior*. New York: Cambridge University Press.
- Smith, P. K., & Hagan, T. (1980). Effects of deprivation on exercise of nursery school children. *Animal Behaviour*, 28, 922-928.
- Smith, P. K., & Thompson, D. (Eds.). (1991). *Practical approaches to bullying*. London: Fulton.
- Sutton-Smith, B. (1971). A syntax for play and games. In R. Herron & B. Sutton-Smith (eds.), *Child's play* (pp. 298-310). New York: Wiley.
- . (1981). *A history of children's play*. Philadelphia: University of Pennsylvania Press.
- . (1990). School playground as festival. *Children's Environment Quarterly*, 7, 3-7.

- Tomporowski, P., & Ellis, N. (1986). Effects of exercise on cognitive processes: A review. *Psychological Bulletin*, 99, 338-346.
- Whitney, I., & Smith, P. K. (in press). A survey of the nature and extent of bully/victim problems in junior/middle and secondary schools, *Educational Research*.