

CRITICAL CULTURAL STUDIES OF CHILDHOOD

# NEW APPROACHES TO EARLY CHILD DEVELOPMENT

Rules, Rituals, and Realities

Edited by  
HILLEL GOELMAN, JAYNE PIVIK,  
AND MARTIN GUHN



## Chapter 7

### **Nurturant Environments for Children's Social, Emotional and Physical Well-being**

**Jayne Pivik, Susan Herrington, Michaela Gummerum**

*Where, after all, do universal human rights begin? In small places, close to home - so close and so small that they cannot be seen on any maps of the world ... Such are the places where every man, woman and child seeks equal justice, equal opportunity, equal dignity without discrimination. Unless these rights have meaning there, they have little meaning anywhere. ~ Eleanor Roosevelt*

This chapter describes the results from *The Outside Criteria Study* mentioned previously and conducted by Susan Herrington and two new studies within the CHILD Project that were conducted by the Postdoctoral Fellows in the third year of the project. Michaela Gummerum, a developmental psychologist interested in social behavior, collaborated with Susan Herrington and Kim Schonert-Reichl of the *Safe Spaces Study*, to explore the influence of playground design on the social behavior of children in her *Playground Study*. Jayne Pivik, a community psychologist with a background in child development and environmental influences, conducted a community evaluation of features important for children and youth in her *Child and Youth Well-being Study*. This chapter will present the theory associated with nurturant environments, briefly describe each study and then present the results of each study that apply to environments that support children's physical, emotional and social development, the importance of play and safety, and the environmental features that children and youth identify as important.

Theories associated with children, development, and the environment cross many disciplines, have different foci and use a multitude of ways to test their ideas. Such a complex subject has caught the attention of developmental psychologists, urban and community planners, environmental and community psychologists, designers, and social and cognitive psychologists.

Most relevant to this discussion of nurturant environments for children are *transactional theories* (Altman, 1987; Altman & Rogoff, 1987). Transactional approaches stress a bi-directional influence; where the child can have an impact on the environment and the environment on the child, with neither agent holding a deterministic role. According to Altman (1987), transactional approaches assume that psychological phenomena are holistic events composed of inseparable and mutually defined psychological processes and physical and social environments. As such, understanding these phenomena requires participant involvement and usually occurs in natural settings.

A broad-based transactional theory that covers many domains of child-environment engagement is Bronfenbrenner's *Ecological Systems Theory* (Bronfenbrenner, 1979) and later, the *Bioecological Theory of Human Development* (Bronfenbrenner & Morris, 1998). As mentioned in Chapter 2, this theory focuses on a series of five nested environmental contexts with bi-directional influences within and between the systems, where any or a combination of them may influence child development. Each system (microsystem, mesosystem, exosystem, macrosystem, and chronosystem) contains roles, norms, and rules that can powerfully shape development. Examples related to nurturant environments may include: how neighbors react to the child; the child's selective sensitivity to the physical and social environment; the desire of the child to re-shape his/her environment; and the child's guiding beliefs about their place within the environment. The beauty and challenge of this theory is its expansive interactional and complex potentialities of proximal and distal influences on development. For example, children living with a single parent on a very limited income in a resource poor and potentially dangerous neighborhood should theoretically be at a disadvantage for school readiness (Hertzman, MacLean, Kohen, Dunn, & Evans, 2002; Kershaw, Irwin, Tafford, & Hertzman, 2005) or

psychosocial adjustment (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Chase-Lansdale & Gordon, 1996; Duncan, Brooks-Gunn, & Klebanov, 1994) but may instead be highly resilient and doing well because of the support of peers, mentors, or supportive social policies and programs (Bradley & Corwyn, 2002). This theoretical model posits that development is transactional and potentially influenced by many factors such as familial, economic, social, institutional, cultural, and political influences.

The work by ecological psychologists, Gibson (1979) and Barker (1968) are also transactional approaches, stressing the importance of jointly studying the person and environment from functional and systemic perspectives. Gibson's use of affordances in his *Theory of Ecological Perception* (1979) links behavior to environmental opportunities for action and movement. Affordances are understood as inter-related to both the child (developmental stage, context, bodily qualities, functional demands of current actions and intentions) and the material, social, and cultural environment (Kytta, 2004). For example, a tree may provide an opportunity for a child to climb, make a tree fort, practice physical skills, sit under and reflect, or challenge themselves. Recent research has compared the presence and absence of child friendly affordances for outdoor environments (Heft, 1988), mobility and independence (Kytta, 2004), and social environments (Gaver, 1996).

In some ways, Barker's behavior settings in his theory of *Ecological Psychology* (1968) are much like a cluster of affordances that provide a social context for collective human-environment interactions. Behavior settings describe the functional rules associated with a context. For example, a school playground as a behavior setting forms systems of physical or social activity according to certain norms, rules, and practices. For students, recess at the playground might mean playing whereas for teachers it might mean supervising students. A

defining feature of this theory is the collective shared understanding of behavior settings by groups based on common experiences within those settings. Both Barker's and Gibson's theories are grounded in human-environment interactions that are studied in real world settings.

Another group of theories applicable to nurturant environments for children are associated with person-environment congruence. Person-environment congruence is generally defined as the degree of fit between an individual's needs, capabilities and aspirations and the resources, demands and opportunities provided by the environment (Coulton, 1979; Kaplan, 1983; Lewin, 1951; Stokols, 1977). Stephen Kaplan (1983) proposed *The Model of Person-Environment Compatibility* that featured purposive action as an integral component. In his study of preferences for natural environments, he found that certain environmental characteristics (e.g., distractibility or noise) negatively influenced an individual's perception and potential ability for carrying out their goals and/or plans. Rachael Kaplan extended the theory to include one's beliefs, values, needs, and desires, which in turn influenced feelings of control, mastery, and an understanding of the world (Kaplan, 1991).

The last decade has seen a world-wide movement to research, build, and evaluate environments that promote child-environment congruence. (UNICEF Innocenti Research Centre, 2004, 2007). This movement was launched in 1996 based on the resolution passed during the second UN Conference on Human Settlements (see [www.unhabit.org](http://www.unhabit.org)) to make cities livable places for all, particularly children. Three defining features intrinsic to this movement and associated research are: 1) that children and youth are involved in planning and decision-making in compliance with the United Nation's Convention on the Rights of the Child (1989); 2) a focus on positive environmental features; and 3) consideration of sociocultural differences of children in the natural and built environment (Chawla & Heft, 2002).

*Environmental Child-friendliness* is the term given by leading researchers studying child-environment congruence (Björklid & Nordström, 2007; Chawla, 2002; Horelli, 2007; Kytä, 2004; Haikkola, Pacilli, Horelli & Prezza, 2007). According to Horelli (1998),

Environmental child-friendliness is a community product developed from local structures beyond the individual level. It comprises a network of places with meaningful activities, where young and old can experience a sense of belonging whether individually or collectively. The participation of children and youth in the shaping of their settings plays a central role in the creation of child friendly environments (p. 225).

Horelli (2007) provides a framework for environmental child friendliness that includes 10 normative dimensions complimented by both person-environment fit and collective-environment fit criteria. Based on a content analysis of research on child involvement with their environments and studies exploring youth feedback, she identified the following dimensions as critical for good environments for children and youth: 1) housing and dwellings that are flexible and secure; 2) the availability of basic services, e.g., health, education, and transport, that facilitate everyday life; 3) opportunities for children to participate in planning and development within their environments; 4) feelings of physical and psychological safety and security; 5) opportunities for close social relationships with family, kin, peers and community; 6) environments which are functional, aesthetic, and cultural that provide a variety of interesting affordances and arenas for activities; 7) resource provision and distribution and poverty reduction; 8) elements of nature and sustainable development; 9) a sense of belonging and continuity; and, 10) good governance that includes and acts on youth decision-making about their environments.

Added to these dimensions are the need to ensure that the environment provides support or perceived support for one's goals and needs (person-environment fit; see Kaplan, 1983; Lewin,

1948; Stokols, 1979) and community supports (collective environment fit) such as social networks (Rissotto & Tonucci, 2002) and supportive collective infrastructures (Barker, 1968; Horelli, 2002). Tied to all of these criteria are the need to ensure that children and youth are legitimately involved in the planning and evaluation of these environments in a culturally-sensitive manner.

The following chapter explores the characteristics of community and neighborhood environments which support children and families. Results of research from *The Outside Criteria Study*, *The Playground Study* and *The Child and Youth Well-being Study* provide insight into the programmatic and environmental contexts that promote children's positive physical, social, and emotional development. Specifically, we present: features that promote social-emotional development; features that promote physical development; and features that promote a sense of safety. As well, we discuss the importance of play in development and how children and youth define good communities. This chapter is a summative review of these three studies. After describing each study, the goals above are addressed with a brief description of the current literature and our results.

### **The Outside Criteria Study**

The outdoor play environment can contribute in incommensurable ways to children's cognitive, social, physical, and emotional development (Moore & Young, 1978; Moore, 1986; Moore, Goltsman, & Iacofano, 1992; Moore, 1993; Moore & Wong, 1997; Rivkin, 1995; Herrington, 1997; Herrington & Studtmann, 1998; Herrington & Lesmeister, 2006; Olds, 2000; Kylin, 2003). Building upon this research, *The Outside Criteria Study* was a five-year investigation that examined the developmental contributions and shortcomings of outdoor play environments in 17 licensed child care centers in the city of Vancouver, British Columbia,

Canada. Approximately 216 children aged three to five years old were studied in relationship to their center's outdoor plays space. Additionally, researchers interviewed 78 early childhood educators (ECE) working at these child care centers.

Seventeen centers were selected from 11 different neighborhoods. These neighborhoods exhibited varying degrees of social and economic support as indicated by a Human Early Learning Partnership (HELP) map analysis of Vancouver in comparison with rates of children's vulnerability (Kershaw, Irwin, Trafford, & Hertzman, 2005). Centers were also selected for their architectural configuration (at grade, below grade, roof top), and the center's willingness to participate. Children three to five years old were selected as subjects because this age group is increasingly involved with the physical environment as a medium for play and development (Moore, 1986). At this age, they also experience important developmental milestones such as increased physical ability, curiosity, imagination, memory, language, imitative play, and more complex cooperative play. Moreover, three to five years old is also the age when parents are most likely to register their children in licensed child care (Goelman, Doherty, Lero, LaGrange, & Tougas, 2000).

*The Outside Criteria Study* was based on an action research model. This methodology combines different ways of undertaking a research problem and involves collaboration between different groups of individuals for the purpose of bringing about change in concrete situations (Stringer, 1996). Specifically, a review of the literature, field observations, focused group interviews, center-wide workshops, and video-taping of children using the play spaces were used (Herrington, 2008).

The review of the literature helped identify other studies that have linked the design of outdoor play spaces with child development and provided a set of criteria for the field



observations. These criteria are called Seven Cs (Herrington & Lesmeister, 2006; Herrington, Lesmeister, Nicholls, & Stefiuk, 2007) and include the following: 1) **Character** indicates the overall feel of outdoor play spaces; 2) **Context** involves how the play space interacts with its surroundings; 3) **Connectivity** indicates the physical and visual connectedness of the play space through a hierarchy of paths and the link between indoors and outdoors; 4) **Change** refers to the range of differently sized spaces and how these spaces change over time. Living things can signal change in the seasons and growth and elements for play; 5) **Chance** provides an opportunity for children to create, manipulate, and leave an impression on their outdoor play space; 6) **Clarity** integrates physical and perceptual legibility. Play spaces should promote spontaneous exploration, but not confusion; and, 7) **Challenge** refers to the available challenges (physical and cognitive) that a play space provides.

Field observations and scaled plan-view drawings of each outdoor play space were conducted. Drawings identified materials and equipment in the play space. Photographs were also taken of these spaces at an adult's height and a child's height. Play spaces were evaluated with regard to the Seven Cs using these drawings and photographs. Videotaping of the children playing in the spaces at different times of the year allowed researchers to gain further insight into the life of the outdoor play spaces. Computerized random sampling of all tapes of all centers revealed how these play spaces were being used by the children; thus how the detailed aspects of the physical environment were helping or hindering children's development and play.

Focused interviews with the participating centers' early childhood educators (ECEs) and two center-wide workshops with ECEs filled in gaps not captured on video. Interview notes were analyzed by comparing the responses of ECEs at different centers. Positive and negative comments were counted and compared with: 1) the location of the center; 2) the layout of the

play space; and, 3) the presence of plant material in their center's play space. Positive versus negative observations were identified by the adjectives and phrasing used. The presence of material in or near the play space was accounted for as well. Specifically, plant material included trees, shrubs, grass, and ground cover, but did not include empty boxes, empty pots, or temporary displays of flowers. Large shade trees that bordered the play space and brought in dappled light and mediated the play environment were also counted as plant material.

In order to ascertain what future changes the ECEs thought were needed in their outdoor play spaces, we analyzed key words and phrases from the interview notes. After matching, coding, and counting words and phrases across centers, we categorized them in terms of themes and specific suggestions. Remarks made within focus group sessions that directly contradicted each other were not counted nor were random remarks that were not duplicated elsewhere. Few contradicting remarks were made, so this was not an important facet of the study.

### **The Playground Study**

The question of how the physical environment influences humans' perceptions, cognitions and actions has been a re-occurring topic in the history of psychology (e.g. Bronfenbrenner, 2005; Gibson, 1977; Skinner, 1971). However, as Evans (2006) points out, psychological developmental studies have mainly focused on the features of a child's psychosocial environment (e.g. family context, peer relations, types of schools, cultural context) and have mostly ignored the physical contexts of development. *The Playground Study* examined how the design of preschool children's play spaces in their day care centers affects their social play and other social behaviors with peers. The study was based on the theory that the physical environment presents action possibilities or affordances to an actor, as suggested by Gibson (1977, 1979). That is, affordances represent certain qualities of an environment that allow an individual to perform an

action, depending on their capabilities. In relation to playground design and children's play, Pellegrini (1995) stated that certain features of the playground can facilitate or constrain strategies children use in their play. For example, playgrounds with zones for individual, small-group and large-group activities provide opportunities for different kinds of interactions between children, their peers, and teachers, thus assisting the development of competencies necessary for those different relationships.

In *The Playground Study*, the analysis of the physical playground environment was based on Susan Herrington and colleagues' Seven Cs, mentioned above (Herrington & Lesmeister, 2006; Herrington et al., 2007). Previous research suggests that four of the Seven Cs might be particularly influential for the development of children's social play. Hart and Sheehan (1986) proposed that the *character* of a playground, that is, the overall feel and design intent of the play space might affect preschool children's social play. In their study, two- to three-year-old children showed more unoccupied behavior on a contemporary versus a traditional playground. The traditional playground was less structured and contained more movable equipments, more open spaces, and features, such as a sandbox, swings, and slides. In contrast, the contemporary playground featured less open spaces and less equipment that could be re-arranged.

Previous studies have also found higher levels of play in outdoor play spaces that present children with flexible materials, graduated challenges, and enclosed areas that foster small group play (Brown & Burger, 1984; Campbell & Frost, 1985; Johnson, Christie & Yawkey, 1999; Weilbacher, 1981). These features correspond to the Cs *change*, *chance*, and *challenge* in Herrington and colleagues' system. Trancik and Evans (1995) point out that these features are important for promoting competency in preschool children, that is, the ability to interact effectively with one's physical and social environment. Specifically, the creation of differently

sized subspaces (change) allows children to experience interactions in dyadic or small groups and to get away from large groups. Being able to manipulate one's physical environment (chance) gives children the opportunity to gain control of the physical environment and be active in their development. Different levels of challenge prevent frustration in children as they might either be too overwhelmed by the difficulty of a new task or lose interest in it if it is not challenging enough.

To investigate how preschool children's social play styles and behaviors differ in relation to the design of the outdoor play space in their day care center, the videotapes collected in *The Outdoor Criteria Study* were re-analyzed. The videos of three of the original 17 day care centers were excluded from the present analysis as they mainly served toddlers whose social play has been shown to differ from older preschool children (e.g., Parten, 1932). To obtain a comparable age range in each of the day care centers, we limited the analysis to centers serving children from three to five years of age. In each of the day care centers, children's play activities were videotaped on two rainy and two sunny days for about one hour each. Two types of coding were conducted: 1) coding of the design elements of the outdoor play space (7Cs); and, 2) coding children's social (play) behavior following a manual by Ladd, Price, and Hart (1988) using an event-coding technique (Hoch, Pellegrini, & Symons, 2004).

**Social behavior coding.** In classifying a particular action, the coder has to determine whether behavior was interactive (i.e. with other people) or non-interactive. Non-interactive behaviors were coded into the following categories: unoccupied, on-looking, solitary play, parallel play, or aggressive. If a behavior was classified as interactive, then the person the child was interacting with and the type of interaction was recorded. Interactive behaviors between children and teachers were coded as either a teacher-initiated or child-initiated interaction.

Interactions between children were coded as: social conversation, argue, unilateral bids, cooperative play, rough and tumble play, object possessiveness, aggression, or friendly touch. Interactive behavior towards other persons (e.g. parents, non-teaching staff) was coded in a separate category. Two independent raters coded seven entire videos using the program ProCoderDV (Tapp, 2003). Agreement between coders was defined as giving the same code to the same behavioral event in the videos. Inter-rater agreement was 83%.

### **The Child and Youth Well-being Study**

The evidence linking child health in relation to the environment is mounting rapidly (Beauvais & Jensen, 2003; Connor, 2001; Stroick & Jensen, 1999). Health, defined by the World Health Organization is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 2007). Different constructs have been promoted for explaining neighborhood effects on children. For example, Ellen and Turner (1997) suggest that the quality of social services, socialization by adults, peer influences, social networks, exposure to crime and violence, and physical distance and isolation influence child development. Jencks and Mayer (1990) suggest that the availability of, and competition for neighborhood resources, peers, familial, and outside adults can have an impact on child and youth outcomes. Connor and Brink (1999) also suggest social contagion, collective socialization, resources—and add competition influences—whereas Shonkoff and Phillips (2000) add environmental conditions, such as toxins and safety. The goal of the *Child and Youth Well-being Study* was to determine which aspects of a community are important to children and youth from their perspective and why.

The community under study was a coastal island, 20 minutes away by ferry from West Vancouver, British Columbia, Canada. This semi-isolated rural island has the largest population

of children under 5 years per capita adult in British Columbia according to the 2001 Canadian Census, 3500 permanent residents and is surrounded by forest and ocean. About 500 workers and over 200 students commute to offices and schools on the mainland each day. There are 65 km of hiking/walking trails, shops, four churches, a thriving arts community, four schools, and a parks and recreational program that runs mainly out of the community school. The size, location, and rural aspect of the island provided an ideal opportunity to examine those features of the environment that might influence children and youth, such as: how the physical environment promotes or hinders well-being; physical activity; play and recreation; the effect of fewer services; the impact of social capital and community cohesion; the effect of parents working off island; and the influence of commuting by ferry.

An information letter and consent form was distributed by the principals of the four schools on the island (a public elementary school, a Montessori school, an Independent Middle school and a Supported Learning Centre for part-time home-schoolers). As well as having parental consent to participate, all children provided verbal assent. The data collection took place at the children's school. The total sample included 82 children/youth (4 - 15 years). Data were analyzed by 3 epoch groups: young (4-8 years, n=20); middle (9-11 years, n=25); and older (12-15 years, n=37). The primary author scored all of the data, with 30% scored by a second rater. Inter-rater agreement was 87%, with disagreements resolved through discussion.

A community mapping approach (Berkowitz & Wadud, 2003; Kretzmann & McKnight, 1993) was utilized which focused on identifying the important elements of the community, in this case, from the perspective of children and youth. Using multiple methods, children were asked to participate in each of the following activities: cognitive mapping, an individual interview, community asset mapping, and a group discussion, in this order. Having each child

complete all of these activities provided the opportunity to conduct a comparative analysis of the different methods and the opportunity to determine those aspects of the community that are important to children and youth at different stages of their development. All the activities were video-taped and audio-taped for educational training purposes and to ensure accuracy of the feedback. In addition to the researcher, three research assistants were required at the various stations, as the children cycled through the activities at their own pace. The following describes each method employed:

**Cognitive mapping.** Cognitive maps reflect mental processing of relative locations and attributes of phenomena in one's everyday or spatial environment. The maps provide a way of identifying how the child sees their environment and what is important to them. Children were asked to "draw a map of where they live." They were provided with a variety of pencils, pens, markers, and a sheet of plain paper. The cognitive maps along with the child's description of it (during the individual interview), were examined in relation to the presence, absence and number of: natural elements, built structures, housing/street congestion, proximity to neighbors, level of neighborhood depicted (house, street, neighborhood, town/city, world) and the sites associated with recreation (e.g., parks), programs (e.g., dance class) or resources (e.g., school, library). The number of occurrences in each category was identified along with the individual's age and gender.

**Individual interviews.** Individual interviews were then conducted where the child verbally described their cognitive map and answered the following questions: 1) Why is this community good for kids? 2) Why is it not good for kids? and, 3) Can you think of any solutions? Content and thematic analyses were conducted using NVivo 7.0. The data was unitized (i.e., units of data such as words, sentences, or multi-sentence chunks that can be analyzed for meaning were

selected). The units were then coded into categories, which represented common ideas or themes. Along with the qualitative analyses, the frequency of each theme was recorded.

**Asset mapping.** A large map of the island was hung at eye level and each child was given four different colored stickers. Children were asked to place a sticker on a location on the map that related to the following: a) Their favorite place in the community; b) Where they spend the most time with friends; c) The place where they most often do after school activities; and, d) The place they would go if they needed help and family wasn't around. The child's age, gender and answers to the questions were recorded. This method allowed a connection between place and activity and addressed social networking as well programs and resources. For example, where they do after school activities provided a description of the types of activities that the children are involved with and the programs and services of the community.

**Group discussions.** The same questions asked in the individual interviews were used for the group discussion, that is: a) Why is this community good for kids? b) Why is this community not good for kids? c) Can you suggest changes or solutions? Like the interviews, content and thematic analyses were conducted.

### **Features That Promote Social and Emotional Development**

**The natural environment.** Previous research has shown that children who consistently play outdoors exhibit more positive feelings about each other (Moore & Wong, 1997). Outdoor play also triggers positive social interactions among children (Bixler, Floyd, & Hammitt, 2002; Moore, 1986). A 1997 study conducted at the University of California compared infant development in a non-green outdoor play space with a play space designed with plants and terrain. Researchers found greater social development occurring in the green play spaces (Herrington, 1997).



On a more macro level, research has identified that natural settings within neighborhoods positively affect children. Seminal work by Kaplan and Kaplan (1989) found that natural settings are more restorative, reduce cognitive fatigue, and enhance positive affect. In natural settings, children engage in more creative play (Faber Taylor, Kuo, & Sullivan, 2001; Kirby, 1989), and develop better motor skills (Fjortoft, 2001). Natural settings have also been shown to enhance attention (Wells, 2000) and reduce symptoms of attention deficit hyperactivity disorder (Kuo & Faber Taylor, 2004).

A random sampling of video sessions of all outdoor play spaces in *The Outside Criteria Study* found that children spent 15% of their time engaged with plants or other living things. Not all centers contained plants, but the ones that did enhanced social interactions. Play sessions involving plants involved three children on average, who often engaged in emotionally intense verbal exchanges regarding the killing or preserving of plants, worms, and spiders. Living organisms not only promoted verbal exchanges but often led to moral debates among the children. Supporting this finding, the literature suggests that early childhood experiences with animals and plants may instill empathy for living things (Dighe, 1993; Finlay, 1988; Harvey, 1989; Russell, 1973). ECEs were impacted by plants as well. Those ECEs who worked in outdoor play spaces with plants reported significantly more positive feedback than those who worked in spaces without plants (Herrington, 2008).

Similar results were found in *The Child and Youth Well-being Study*. In this study, positive benefits of the natural environment were identified by all three age groups, although especially children 9-11 years of age. Children reported that the natural environment was calming, serene, and provided wonderful opportunities to play. They appreciated the quiet and the lack of crowding, pollution, and traffic. Consistently, the beaches were identified as favorite places or

places that they spent time with friends. This high importance given to the natural environment supports thinking by Evans (2006), Polivka, Lovell and Smith (1998), Shonkoff and Phillips (2000), and the large body of work conducted by the Kaplans (Kaplan, 1983; Kaplan & Kaplan, 1989).

**The built environment.** *The Playground Study* investigated whether the design of the outdoor play spaces in preschool children's day care centers influenced their social behavior and social play styles. Based on a subsample of half of the original videotapes (one sunny day, one rainy day per daycare center), two kind of social interactions were defined; positively engaged interactions and negatively engaged interactions. Positively engaged interactions refer to social behaviors in which the child interacts in an emotionally positive way with another peer and contains the original coding categories: social conversation, cooperative play, and friendly touch. In contrast, negatively engaged interactions denote social behaviors, in which children relate in an emotionally negative way with other peers or the physical environment, including: arguing, object possessiveness, aggression, and aggression to objects. The analyses indicated that on playgrounds with a modular and re-use character, children showed more negatively engaged social interactions whereas on playgrounds with an organic or metaphor character, children engaged in more positive than negative interactions. This finding indicates that the character of a play space can influence the social behaviors of preschool children who play on this space.

By using a median split procedure, play spaces were classified as either high or low in challenge or chance. The results indicated that significantly more positively engaged behavior occurred in playgrounds high in challenge compared to those low in challenge. Similarly, there was significantly more positively engaged behavior on playgrounds high in chance. However, there was no significant difference in social interactions in spaces high or low in change. This

suggests that play spaces that provide children with different levels of physical challenge and those in which children can manipulate and leave an impression on their environment (e.g., malleable materials and loose parts) are associated with more emotionally positive interactions between children.

Finally, we investigated whether the overall number of 7Cs influenced the occurrence of positive or negative behavior on the playground. For each day care center, we summed the total number of 7Cs and defined playgrounds high in 7Cs and low in 7Cs using a median split.

In spaces with an overall low number of Seven Cs design elements, children showed more negatively engaged interactions than in spaces with an overall high number of Seven Cs.

**The social environment.** Across a broader community level, children and youth from *The Child and Youth Well-being Study* identified the social environment as very important. The important social aspects related mainly to social cohesion, i.e., a caring and friendly community, its small size where most people are familiar, and the feeling that people look after each other. Social cohesion has been reported as important to children by others (Bandura, 1986; Connors & Brinks, 1999; Ellen & Turner, 1997). In this study, most of the children reported that they would turn to their neighbors in times of need.

The older children (ages 12-15 years) also identified adult role modeling and social control as essential (Jencks & Mayers, 1990; Leventhal & Brooks-Gunn, 2000). They appreciated the support by other community members and enjoyed mixed-aged community events. The smaller population level of the community was associated with the need to get along with others and communal activities with people of all different ages. However, even though the older kids reported positive aspects of a close-knit community, they also felt a sense of surveillance by other adults (“where you know they are going to tell your mother on you”).

## **Features That Promote Physical Development**

Seven percent of Canadian children under the age of six are now classified as obese and twenty percent are overweight (British Columbia Legislative Committee, 2006). According to Health Canada, obese children tend to become obese adults, facing increased health risks. In a Canadian study of child care centers, children in thirty-six percent of the studied centers spent less than ten percent of their time engaged in outdoor play. Lack of space was the main reason for not going outdoors (Maufette, Frechette, & Robertson, 1999). Children who play regularly outdoors show better motor fitness, including coordination, balance and agility, and are sick less often (Fjortoft, 2001). Ample outdoor play spaces can also provide fundamental motor skills, such as those associated with running, biking, jumping, and throwing. A comparative study of children's caloric costs in outdoor versus indoor settings found that outdoor physical play burned more calories than indoors (Pellegrini, Horvat, & Huberty, 1998). Physical development has also been linked to bone strength in later life. In a study that examined associations between physical activity and bone measurement in 368 preschool children, researchers found that there were statistically significant associations between physical activity and optimal bone development (Janz et al., 2001).

Adequate resources. A random sampling of all video sessions in *The Outside Criteria Study* found that children spent between 12-13% of the time playing on equipment. While all play spaces contained equipment, this means approximately 87% percent of the time, the equipment was unoccupied. When equipment was played upon, it was used as intended only 3% of the time. For example, the equipment was used in conjunction with loose parts (such as pouring sand down the holes of the support columns) 5% of the time, while children played underneath the structure 4% of the time and used the play structure to visually survey the area 1% of the time.

In addition to equipment, the provision of ample outdoor space for exercise is key to children's physical development. Research on outdoor play environments for young children indicates a need for more outdoor space per child than current standards call for in North America. For example, 6.9 to 9.2 m<sup>2</sup> of outdoor play space per fully enrolled child at child care centers has been a standard in North America since the 1980s (Moore, Goltsman, & Iacofano 1992). This space is equivalent to half of a parking stall. However, a spatial density study by Smith and Connolly (1980), found correlations between limited physical space and reduced gross motor activity. It was also found that 7.62 m<sup>2</sup> per child was the threshold dimension where activity was marked by aggression and a significant reduction in group play. A 1999 Canada-wide safety assessment of outdoor play spaces in child care centers recommended 13.5m<sup>2</sup> outdoor space per child in order to provide children with the diversity of experiences needed outside for their development while respecting safety standards (Maufette, Frechette, & Robertson, 1999). In *The Outside Criteria Study*, only nine of the 17 centers studied conformed to the regulated child-to-space ratio and operated at maximum levels of density. This spatial deficit was clearly understood by the ECEs working in the studied centers. From the focus group interviews, 64% of ECEs identified the need for more space (Herrington, 2008).

All groups in *The Child and Youth Well-being Study* identified the need for additional resources that related to play and recreation. Supporting the Neighborhood Resource Theory (Leventhal & Brooks-Gunn, 2000) and the Institutional Model (Jencks & Mayer, 1990), the children reported wanting more recreational opportunities such as a public swimming pool, a recreational center, and more organized sports. The younger and middle groups also wanted more play structures and parks. Older youth wanted more and different programs, as well as places to gather as a group, play music, or do pick-up sports.

## Features That Promote a Sense of Safety

Safety has been consistently featured in the research and literature on children's health and development. Regarding outdoor play environments, the most common playground injury is falling from equipment. As a result, the play equipment and the standards that regulate them have been lowered in height and are less challenging than previously designed equipment (Herrington & Nicholls, 2007). Fifty seven percent of ECEs interviewed as part of *The Outside Criteria Study* wanted more challenging equipment in their outdoor play spaces (Herrington 2008). Ironically, less challenging equipment may, in fact, diminish actual safety for children playing in outdoor play spaces. A lack of challenging things to do in play spaces has been identified as a primary reason for increases in bullying (Blatchford, 1989; Rivkin, 1995).

A sense of safety was a dominant theme of a good community identified in *The Child and Youth Well-being Study*, often combining aspects of both the physical and social environment. For the youngest group, safe communities included: no robbers, not a lot of toxic stuff, not too crowded or busy, and not too much traffic. The few negative comments identified by the younger children were concern related to pedestrian safety and worries about drugs and alcohol. The middle group reported feeling safe because the community had no robbers, no gangs, people who steal kids, and the streets are safe to play on. The oldest group reported feelings of safety because the community is small, there is very little crime, not a lot of traffic, and it provides an increased sense of independence and freedom. The importance of safety identified by these children has been supported by reviews of proxy data (Connors & Brinks, 1999; Ellen & Turner, 1997) and reports from other children (Chawla, 2002; Figueria-McDonough, 1998; Polivka, Lovell, & Smith, 1998). Likely unique to a small semi-isolated community, the children's sense of safety was also associated with more independent activities and less adult supervision, explaining

reports of children playing unsupervised at beaches, the forest, and in fields with their friends.

### **The Importance of Play in Development**

Developmental research has demonstrated that play benefits competency development across different domains, particularly social development in the preschool years. The preschool years can be characterized as the play years, because children of this age spend most of their waking hours at play (Frost, Wortham, & Reifel, 2001). Preschool children also start to interact with people outside their family context, particularly with same-aged peers. Thus, the foundation for later peer relationships and friendships emerge from those first social interactions in the preschool years. One of the first theoretical accounts concerning the development of social play during the preschool years comes from Parten (1932). Through observations of children's interactions, she concluded that social play develops along five developmental levels. At the first level, unoccupied behavior, the child is not interacting with others but engages in watching things happening around him or her or wanders around aimlessly. At the next level, onlooker behavior, the child is observing other children, but does not engage in play with them. This level is followed by solitary play where the child plays alone and makes no attempt to interact with other children. At the next level, parallel play, children play independently but in close proximity to each other. Even though children may engage in the same or similar activities, their play is not mutual and there is no communication between children. Finally, in cooperative play, children engage in similar activities with each other, the play is mutual and children subordinate their individual interests to the goals of the play group.

Even though research following Parten (1932) does not interpret these levels in terms of a developmental succession, they still serve as categories for coding play interactions between children. Studies by Rubin and colleagues (1976, 1978) have shown that cooperative play

increases both in frequency and intensity over the preschool years and that children increasingly play with a wider range of peers (Frost, Wortham & Reifel, 2001). One type of cooperative play that has gained special attention because of its importance to emotional development is socio-dramatic play. In socio-dramatic play, children imitate real-life occurrences and people and role-play typical events in their (social) environments (e.g. playing family, playing doctor, playing school). According to Smilansky and Shefataya (1990), socio-dramatic play involves interactions with at least two players who verbally play out a theme over an extended period of time. It has been argued that through the acting out of social roles, relationships, and experiences, children live through the emotions of the person they are playing. Furthermore, socio-dramatic play encourages children's role-taking abilities. Similarly, pretend or make-believe play, a component of socio-dramatic play, helps children to develop their theory-of mind skills and facilitates their understanding of what other people think, desire, believe, and feel (Lillard, 2001; Taylor & Carlson, 1997).

*The Playground Study* investigated whether the outdoor play environment affects children's social play as defined by Parten's (1932) social play levels. The study focused particularly on differences in cooperative play and unoccupied behavior. As pointed out above, Parten (1932) regarded cooperative play as the most developmentally advanced form of play and this type of play lays the foundation for children's subsequent cooperation with peers, perspective-taking abilities, and emotional development. If children engage in much unoccupied behavior on the play ground, they do not train their physical or social competencies. Results from *The Playground Study* showed that children engaged in more cooperative play in play spaces that are high in challenge and high in chance (opportunity for manipulation of the environment). Overall, children on play spaces that were low in challenge and chance tended to exhibit more



unoccupied behaviors than children on play spaces that were high in challenge or chance.

Play was another major theme in *The Child and Youth Well-being Study*. A number of differences were noted across the epoch groups. Underlying these differences was the desire for increased independence as the children grew older. This move toward independence was reflected in their accounts of play and socialization and was related to a sense of safety, the natural environment, the social environment and available resources. The younger children liked the community because they could play on the street in front of their house, fly kites in the fields, go fishing and ride on the many bike trails. When not playing in their neighborhoods, the younger children played at the playground at the community school.

More independent play was evident from the middle group and tended to focus in natural settings, such as at the beach, building forts in the forest, or playing in the fields—further afield from their neighborhoods. Quite a few children in this group reported that due to the lack of advanced play structures for their age, more imaginative play occurred, however this may also have been the result of playing in natural settings (Faber Taylor, Wiley, Kuo, & Sullivan, 2001; Kirby, 1989). Safety concerns impacting their independence were also expressed by the younger and middle groups regarding the lack of sidewalks and lights for children to cross streets.

Play for the older group translated into the desire for opportunities and places for greater social interactions with friends. They wanted more and different recreational and arts programs as well as places to gather as a group such as cafés, shops or drop-in centers. Their increased sense of independence was also evident in their desire for better transportation around the island and more frequent ferry service to go off-island.

### **How Children and Youth Define Good Communities**

Based on *The Child and Youth Well-being Study*, four broad categories emerged as important for nurturant environments for children and youth. These included: the physical environment, the social environment, feelings of safety, and available resources. These themes were identified across the different methods and across the different age groups. Specifically, positive benefits of the community for all of children/youth regardless of age included: a sense of safety, the positive influence of the natural environment, a close-knit community, and available resources, programs, and services.

The majority of responses by the younger and middle groups reported some aspect of the physical environment as a positive element of their community. Typical responses for children aged four to eight years included: lots of nature, lots of trees, can play on street, can fly kites, and can go fishing. Responses from children aged 9-11 years also mainly focused on how the physical environment assisted in play, such as: lots of different places and spaces to play; swimming at the beach, safe to play on the road, great biking trails, nice and quiet and lots of trees. The older group felt the community was good for kids because it provided the chance to see lots of wild animals, had wide open spaces, where nature was very calming, and there was no pollution.

The importance of the social environment was highlighted by all groups but particularly the older youth. Overall, this community was identified as good for kids because people are nice and friendly, they look out for each other and due to the small size of the community, most people are familiar. Finally, in the category of resources, the younger children felt that the island had good schools, fun things to do, a toy store and for some, swimming in at a private neighborhood pool. The older children mentioned the schools, trails, the Teen center, and the arts and recreational programs.

These results are consistent with research examining environmental child friendliness, which also uses child and youth reports. For example, Haikkola, Pacilli, Horelli and Preeza (2007) tested the theoretical framework of environmental child friendliness (mentioned in the introduction) by asking children, their parents, the elderly and professionals about those features of two different urban neighborhoods in Helsinki and Rome that were positive for children. The following describes the children's responses. The most important features of the Finish neighborhood, according to its children, were recreational services, public areas, the social environment, and a sense of safety. These 12-year-olds either preferred resources that promoted recreation (playgrounds, sports facilities, youth center) or the social environment (familiarity, social security, friendliness). Negative features of the environment related to a sense of safety in one area (junkies, alcoholics) which effectively limited their autonomy. Ideal environments from these children's perspective would include a swimming place (pool or lake) and an amusement center. Children from Rome (11-12 years) indicated that services (e.g., stores, game center, school) were important to them and also indicated the importance of green spaces (e.g., providing clean air, doing group sports, socializing with friends). Two other factors were identified as important: proximity—ease of reaching a specific place; and spaciousness or the largeness of spaces. Negative elements included traffic, urban decay (garbage, pollution). and boredom (lack of things to do). Ideal environments would include recreational opportunities/services, less pollution, green spaces to play, less crowding, and opportunities for greater independence such as using streets for bicycles only. The over-riding features of both neighborhoods from the children's perspective were the need for settings which allowed for safe play and social interactions with peers. Chawla (2002) and Horelli (1998) have also examined child-friendly environments from the perspective of children and found similarities across

difference cultures. Children value independent mobility, opportunities for action, places to meet friends, green areas, basic services, and safety and continuity.

### **Conclusions**

These three studies address typical places frequented by children and youth and describe findings that are positive or nurturant for their social, emotional and physical development. Although child outcomes were not directly measured, through analysis of their behavior and from their own words, our research found that nurturant environments include natural elements, child friendly built elements, feelings of safety and positive social interactions. Playgrounds that include living, natural elements promoted social interactions and discussions about the importance of nature. Neighborhoods that include natural elements such as forests, beaches and fields also provided greater social interactions and opportunities for play. As well, positive emotional responses were noted for natural environments such as a sense of serenity, calmness, and the opportunity to view wildlife. Conversely, environments that included crowding, pollution and traffic were disliked by children and youth.

The built environment was also shown to influence children's social and emotional behavior. Play spaces that provide children with different levels of physical challenges and where they could manipulate the environment resulted in more positive social interactions with their peers. As well, play spaces that were low in challenge and chance tended to have children who exhibited more unoccupied behaviors than children on play spaces that were high in challenge or chance.

A supportive social environment was also found to be important to children and youth. The important social aspects identified relate mainly to social cohesion and a close-knit community. Adult role modeling and knowing that adults were looking out for you were also positively

identified as important.

The availability of child friendly resources was also shown to be central for children's physical development. Playgrounds that did not stimulate the children were not used the majority of the time. Further, playgrounds without enough space for children to move around and play were considered inadequate. Resources were also identified as important in the community study. Children reported wanting more recreational opportunities such as a public swimming pool, a recreational center, and more organized sports. The younger and middle groups also wanted more stimulating play structures and parks. Older youth wanted more and different recreational programs, as well as places to socialize.

Findings from these research studies suggest that other physical environments are worthy of study. These studies focused on playgrounds at daycare centers and a rural coastal community. Places not examined include other types of communities or neighborhoods (e.g., urban, rural, suburban), community recreational centers, public parks, and school settings. Further research should endeavor to examine these settings to determine those aspects that promote positive social, emotional and physical development in children and youth.

Even with this restricted scope, our findings supported 7 out of 10 dimensions of Horelli's *Framework for Environmental Child Friendliness* (2007). These included: 1) feelings of physical and psychological safety and security; 2) opportunities for close social relationships with family, kin, peers and community; 3) environments which are functional, aesthetic and cultural that provide a variety of interesting affordances and arenas for activities; 4) resource provision and distribution and poverty reduction; 5) elements of nature and sustainable development; 6) a sense of belonging and continuity; and 7) opportunities for children to participate in planning and development within their environments. Two dimensions which we would add based on our

findings are: environmental features which provide stimulation and the opportunity for developmentally safe risk taking in order to develop competencies; and a category related to play spaces that incorporates different developmental needs and levels of independence.

As pointed out by Bronfenbrenner (2005), the physical environment is an important contextual factor that can promote or hinder children's (positive) development. The findings from these three research studies corroborate the transactional nature of person-environment relationships, from the scale of an outdoor play space to an entire community. They also increase our knowledge about places frequented by children that are structured by institutions and agencies, such as planning boards and health agencies, whose goals rarely factor in children's development. We recommend that people working day-to-day in children's environments, such as practitioners in child development, community psychologists and social workers, as well as children themselves, be involved in decisions regarding children's environments. By drawing upon research that identifies the powerful link between person-environment relationships and child development; community-based programs can help introduce the very human needs of children into official plans, initiatives, strategies and services.

However, this effort needs to extend beyond communities into the realm of public policy. As Gill (2008) indicates, countries that promote and support child play, activity and freedom, such as the Netherlands and other Scandinavian countries, have the highest levels of subjective well-being and the best outcomes around family and peer relationships and child health behaviors and risks, according to an international assessment of child well-being in developed nations (UNICEF, 2007). Some may argue that a society that endorses and supports children's rights to a safe environment that promotes recreation, learning, social interaction, psychological development, cultural expression and civic participation, as identified by UNICEF's Child-

Friendly Cities Initiative, is utopian. We respond that the development of our future citizens necessitates careful consideration of how our environments influence their health and well-being and a concerted effort toward value-based public policies that supports them.