Land of the Rising Pulse: A Social Ecological Perspective of Physical Activity Opportunities for Schoolchildren in Japan

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The uptake of policies and recommendations to promote physical activity (PA) in American schools has been slow. It can be useful to investigate international contexts where school-based PA promotion has had more success and consider whether facilitative factors have transferability to American schools. This study employed a social ecological perspective to examine the school-based PA opportunities for Grade 2 students in Japan and the factors influencing these opportunities. Observations in five public schools, relevant documents, and interviews with teachers, principals, and district and ministry officials were analyzed using constant comparison. Findings showed multiple PA opportunities existed in daily routines and throughout the year. Government policy had a downstream influence on all lower levels of the education system. Many of the PA opportunities Japanese schools provided align with American recommendations, but different educational priorities between Japan and the United States might make implementing these opportunities more challenging in American schools.

Keywords: school wide physical activity promotion, physical education, elementary classroom teachers, recess, policy

In the United States, school-based physical activity promotion has become a major focus of physical education (PE) and health promotion professionals in the last several years (Sallis, et al., 2012). National guidelines state that children should accrue at least 60 minutes of PA daily (U.S. Department of Health and Human Services [USDHHS], 2008). However, more than half of children ages 6 to 11 fall short of meeting this guideline (Troiano et al., 2008). Given that nearly

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all children in the US attend school, it is widely accepted that schools can play an important role in increasing children’s PA (Wechsler, McKenna, Lee, & Dietz, 2004). Federal legislation requires all local educational agencies participating in school meals programs to establish school wellness policies including goals for PA (S. 2507–108th Congress: Child Nutrition and Women, Infants, and Children [WIC] Reauthorization Act of 2004). Moreover, the number of state and local policies in support of school-based PA is on the rise (Story, Kaphingst, & French, 2006). Leading researchers (e.g., Pate, Davis, Robinson, Stone, & McKenzie et al., 2006) and national organizations (e.g., National Association for Sport and Physical Education [NASPE], 2008; Institute of Medicine [IOM], 2013) recommend schools implement a comprehensive approach to increasing children’s PA including daily PE, daily recess, PA integrated into the general classroom, and PA integrated into before and after school programs. Physical educators are viewed as central protagonists in efforts to maximize school wide efforts to promote PA (Carson, 2012; Castelli & Beighle, 2007; Heidorn & Centeio, 2012; IOM, 2013).

Most schools, however, appear to not be providing children with PA opportunities that are consistent with current policies and recommendations. A national survey found that only 16% of elementary schools, 13% of middle schools, and 6% of high schools provide a comprehensive school physical activity program (CSPAP) that includes PA before, during, and after school (American Alliance for Health, Physical Education, Recreation and Dance [AAHPERD], 2011). Moreover, only 3.8% of elementary schools in the country report offering daily PE for the entire school year (Centers for Disease Control and Prevention [CDC], 2007), and elementary schools meeting the recommended 150 minutes of PE per week (NASPE, 2004) are less likely to meet the recommended minimum of one 20-minute recess per day (NASPE, 2008); conversely, elementary schools meeting recess guidelines are less likely to meet the recommended time allocations for PE (Slater, Nicholson, Chriqui, Turner, & Chaloupka, 2011). Classroom-based PA opportunities appear to be absent in about one third of elementary schools (AAHPERD, 2011). Interestingly, a study with generalist elementary classroom teachers in South Carolina found that these teachers reported only sometimes using PA promotion strategies, despite the implementation of a statewide policy to increase PA in elementary schools (Webster et al., 2013). This policy requires schools to provide 60 min of PE, and an additional 90 min of PA every week. Overall, these trends are inconsistent with the comprehensive, school wide approach to PA promotion described above. It appears there may be relatively little support for children’s PA in American schools beyond what has been advocated in written policies and recommendations.

The Context: Japan’s Education System

Amid efforts to increase activism for school-based PA promotion, it can be useful to examine school contexts where support mechanisms already exist for children’s PA and consider the extent to which such mechanisms might successfully transfer to other settings. One avenue that holds promise in this regard is investigating the education system in Japan. Attention from the media (e.g., Costello, 2009), the U.S. Government (e.g., Stevenson, Lee, & Nerison-Low, 1998), researchers (e.g., Lewis, 1995; Lewis & Tsuchida, 1998; Sato & McLaughlin, 1992) and numerous online sources (e.g., Education in Japan website; Japanese Education website)
has usually been given to Japan’s education system because Japanese schools consistently produce some of the highest international test scores in the world (Wray, 1999). This attention has also helped to reveal school-based practices that provide children with numerous opportunities to be physically active. For example, previous reports indicate that elementary children in Japan spend 20 minutes after lunch every school day cleaning and sweeping their classrooms and the hallways. This activity is deemed an important part of the child’s education in Japan because it is believed to build character (Stevenson et al., 1998). Moreover, because the Japanese government actively promotes lifelong sports activities (Nakai & Metzler, 2005; Stevenson et al., 1998), 90 hours of school PE and health are required for students in all elementary grades (Nakai & Metzler, 2005). Other examples of PA opportunities include two 20-minute recess periods each day and an annual sports festival (Stevenson et al., 1998).

Social Ecological Framework

Despite the available information about Japan’s education system, limited research has specifically focused on Japanese schools from the perspective of the children’s PA opportunities. Furthermore, a social ecological perspective of these opportunities appears to be missing in the literature. Social ecological models (Bronfenbrenner, 1977) propose that multiple factors exist and interact at multiple levels of a hierarchical system to influence a target individual’s behavior (e.g., a child’s school-based PA). In social ecological models applied to school-based health and PA research (e.g., Elder et al., 2007; Langille & Rodgers, 2010), five levels of factors are typically represented in line with the work of McLeroy, Bibeau, Steckler and Glanz (1988): intrapersonal, interpersonal, organizational, community, and public policy.

When children’s health behavior is being targeted, intrapersonal factors include characteristics of the child, such as knowledge and self-confidence related to PA (Fitzgerald & Spaccarotella, 2009; Sallis & Owen, 2002). Interpersonal factors include primary social relationships (e.g., with parents, PE teachers, classroom teachers, and peers) and cultural norms in the system (e.g., common teaching practices and values related to PA). Organizational factors include people at school who do not directly interact with the individual, such as principals; aspects of the school’s physical environment, such as facilities and resources available for PA (e.g., gym, equipment for PE, playground); and school policies and procedures related to PA. Community factors include the local social and physical environments surrounding the school, such as neighborhood socioeconomic characteristics and community partnerships with agencies supporting children’s PA. Finally, public policy factors include policies enacted at the school district and government levels (Fitzgerald & Spaccarotella, 2009; Sallis & Owen, 2002). For instance, a state or school district might mandate the amount of curriculum time a school should provide for physical education.

Intrapersonal and interpersonal factors are seen as having a more proximal and direct influence on the target individual’s behavior, whereas organizational, community, and public policy factors are seen as having a more distal and indirect influence (Langille & Rodgers, 2010). For example, this perspective would situate a child’s attitude toward PE (intrapersonal factor) and the PE teachers’ interactive behaviors with the child (interpersonal factor) as having a direct bearing on
the child’s engagement in PA during PE lessons, while the impact of available equipment for PE (organizational factor), the cultural values of the surrounding community (community factor), or the PE policy of the school district (policy factor) would be viewed as filtered through the decision-making of the teacher and the child. Furthermore, while higher-level factors (e.g., government policy) are typically thought of as having a “downstream” influence on lower level factors (e.g., organizational policy), factors at lower levels in the system can also have an “upstream” influence on factors at higher levels (Bronfenbrenner, 1977; Emmons, 2000), such as when a school improvement council from a local school shapes the development of district policy.

The initial utility of social ecological models lies in their ability to help pinpoint key factors and how they are related within a given context where behavior change would be the ultimate goal. For example, Langille and Rodgers (2010) found that government policy in Canada had a downstream influence on school PA promotion but that specific promotion strategies were the responsibility of schools. While principals liked the flexibility afforded by higher-level policies, teachers desired more explicit direction and accountability. Such information could eventually be used to target important variables in intervention research and enhance efforts to increase children’s school-based children’s PA. Accordingly, social-ecological frameworks have been recommended to guide health behavior interventions (Ockene et al., 2007).

A social ecological perspective is warranted to better understand the patterns and processes in place to support children’s PA in Japanese schools. Therefore, the current study applied a social ecological model to examine the school-based PA opportunities afforded to children in Japanese public schools. Two specific research questions were asked. The first question was, “What PA opportunities are provided for children in urban Japanese public schools?” From our literature search, there did not appear to be any recent descriptive research focusing on such opportunities in the said context. The second question was, “What factors facilitate these opportunities?” McLeroy et al.’s (1988) social ecological model was adapted to answer this second question. Specifically, the roles of teachers (interpersonal level), school principals (organizational level), district supervisors and the Ministry of Education, Culture, Sports, Science and Technology (MEXT; policy level) were investigated.

Method

Design and Researcher Subjectivities

A qualitative approach was selected for this study. This design was deemed appropriate to answer the research questions, as it allowed us to explore, in depth, several cases representing a specific school context in Japan, such that PA opportunities and the social ecological factors facilitating these opportunities could be identified. To the extent possible, the COREQ (Consolidated Criteria for Reporting Qualitative Studies; Tong, Sainsbury, & Craig, 2007) guidelines were followed to report the methods used in this study.

At the time this study was conducted, the first author was employed as an assistant professor at a large Southeastern university in the U.S. Although an American, he spent seven years as a child/adolescent living in Southeast Asia but
had never visited Japan before conducting the study, and does not speak or write Japanese. Before holding an academic appointment, he worked as a PE teacher and coach at private international schools. The second author, a Japanese citizen, was at the time of the study an associate professor employed at small university in Tokyo with a good reputation for PE pedagogy. He is an experienced PE teacher who has lived in Japan his whole life. His connections with Japanese public schools, and his support in helping the first author win a fellowship from the Japan Society for the Promotion of Science (JSPS) made this study possible. Both authors have known each other for several years, and have dedicated much of their professional work to research and service aimed at improving the quality and quantity of PA opportunities in schools. Given this background information, the reader should bear in mind that, while the authors did not approach the study with an overt agenda to influence PA opportunities or other aspects of the study, it is possible that our subjectivities/biases inadvertently influenced the school environments that were observed, the responses of participants, the perspective brought to data analysis, and the interpretation of the results.

Participants and Setting

Five public elementary schools (Grades 1–6) in suburban Japan participated in the study, based on the second author’s already established working relationship with the school principals. Each school was situated in a different school district. The school districts included three districts within Tokyo Prefecture, one district in Saitama Prefecture (about 20 miles north of central Tokyo), and one district in Chiba Prefecture (about 25 miles southeast of central Tokyo). Each school was similar to other suburban public elementary schools in Japan in terms of total student enrollment (~700–1000) and student make-up (almost all Japanese; Lewis, 1995).

All public elementary schools in Japan follow a national course of study, operate on similar schedules, and use similar facilities. The framework for the current course of study consists of academic subjects (e.g., Japanese, math, science, social studies), nonacademic subjects (e.g., art, music, physical education), moral education (e.g., self-discipline, public manners, environmental awareness), foreign language activities (e.g., English), integrated studies (e.g., cross-disciplinary learning, inquiry learning), and special activities (e.g., ceremonies, cultural activities, sports). The course of study is designed for 35 weeks (April through March of the following year), although most schools tend to be in session for around 40 weeks to accommodate various other nonacademic school events, such as athletic meets and special ceremonies.

Consistent with previous descriptions of Japanese elementary schools (e.g., Wu, 1999), students at the participating schools in this study typically arrived at school from 8 to 8:30am, had three to four lessons before lunch, had lunch around 12:15pm, and had two to three lessons after lunch. The number of lessons before/after lunch depended on the subjects taught during a given school day (e.g., more time was spent in PE lessons than classroom lessons). The school day ended at 2:30pm. Either a 5–10 minute break or a 15–20 minute recess was usually given between lessons and after lunch. Each school was housed in a large, rectangular, concrete building, usually three stories tall. The classrooms were square with desks in rows, arranged to have two or three students sitting in groups, side-by-side, facing
the front of the room. Windows flanked one side of the room and were left open since it was hot and there was no air conditioning. Each school had a large indoor gymnasium, an outdoor swimming pool, and a large outdoor play area, which usually consisted of an open dirt field with an assortment of climbing apparatuses around the perimeter.

Grade 2 classes at each school were selected for this study. Given the short duration of the fellowship, we believed our efforts to generate a descriptive account of school-based PA opportunities and an in-depth account of the factors that facilitate these opportunities would be better accomplished by focusing on a single grade level than by focusing on multiple grade levels (Geertz, 1973). Grade 2 was selected for this study because each school had Grade 2 classroom teachers who were able and willing to participate. Seven Grade 2 classes participated. All classes were coeducational with class sizes ranging from 29 to 35 students. Other participants in this study included the classroom teacher who was the PE program leader from each school, the principal from four of the schools, the district supervisor for PE from three of the school districts, and the head supervisor of PE from MEXT. Professional education experience for the classroom teachers/PE program leaders, principals, district supervisors, and MEXT official is presented in Table 1.

**Procedure and Instrumentation**

Approval to conduct the study was obtained in line with JSPS requirements. Specifically, similar to common requirements for school-based research in the U.S., permission was granted from the review board for human subjects research at the second author’s university and from the participating school districts and schools before data collection. The study was conducted across an eight-week period from mid-June to early August 2011 as part of the fellowship awarded to the first author. The study was conducted in two phases. In the first phase, the first author conducted seven school visits as a nonparticipant observer (Patton, 2002) in the five schools, in each case shadowing one Grade 2 class for a full school day while taking written notes, photographs, and videos. This first phase of the study occurred during the final weeks of the academic term before summer vacation. (Notably, as the school year begins in April, this is still the beginning of school year. In addition, standardized testing is not emphasized in Grade 2, and therefore was not a consideration in scheduling data collection). Observations focused on instances when students were given an opportunity to leave their desks. The types of activities students engaged in, the duration of these instances, and contextual information (e.g., what the teacher was doing, what the nature of the physical environment was) were recorded. On several of the visits, a translator accompanied the first author during observations. At the end of each day, the first author summarized and expanded his notes and/or debriefed with the second author to gain perspective on the observed events. Observations were conducted by visiting a different school each subsequent day of data collection until all five schools had been visited. On the sixth and seventh days, a different Grade 2 class was observed at the first and second schools, respectively. At this point, it was clear that the observations within and across schools were revealing nearly uniform patterns in terms of daily schedules, routines, and events. Therefore, we decided that further observations were not necessary in helping to generate a portrait of the PA opportunities at the schools.
In the second phase, the first author conducted a total of 13 semistructured interviews (Patton, 2002) with the classroom teachers/PE program leaders, principals, district officials, and a MEXT official. Interviews lasted between 30 and 60 minutes. Since the first author cannot speak Japanese, either the second author or one of two translators also attended all of the interviews. The interviews had two purposes, which were explained to the interview participants. First, we wanted to

<table>
<thead>
<tr>
<th>Participants</th>
<th>Professional Experience in Education</th>
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<tbody>
<tr>
<td>School 1</td>
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<tr>
<td>School PE Leader/Classroom Teacher</td>
<td>Junior high school social studies teacher for 4 years; elementary school teacher for 8 years</td>
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<tr>
<td>Principal</td>
<td>Elementary school teacher for 7 years</td>
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<tr>
<td>District Supervisor for PE</td>
<td>Elementary school teacher for 21 years; district supervisor for 10 years; elementary school assistant principal for 1 year; elementary school principal for 4 years</td>
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<tr>
<td>School 2</td>
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<tr>
<td>School PE Leader/Classroom Teacher</td>
<td>Elementary school teacher for 7 years</td>
</tr>
<tr>
<td>Principal</td>
<td>Elementary school teacher for 21 years; district supervisor for 10 years; elementary school assistant principal for 1 year; elementary school principal for 4 years</td>
</tr>
<tr>
<td>District Supervisor for PE</td>
<td>Middle school PE teacher for 22 years; district supervisor for PE for 1 year</td>
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<tr>
<td>School 3</td>
<td></td>
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<tr>
<td>School PE Leader/Classroom Teacher</td>
<td>Elementary school teacher for 7 years</td>
</tr>
<tr>
<td>Principal</td>
<td>Elementary school teacher for 23 years; elementary school assistant principal for 5 years; elementary school principal for 3 years</td>
</tr>
<tr>
<td>District Supervisor for PE</td>
<td>Elementary school teacher for 18 years; district supervisor for PE for 4 years</td>
</tr>
<tr>
<td>School 4</td>
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<tr>
<td>School PE Leader/Classroom Teacher</td>
<td>Elementary school teacher for 4 years</td>
</tr>
<tr>
<td>Principal</td>
<td>Elementary school teacher for 22 years; elementary school assistant principal for 12 years; elementary school principal for 4 years</td>
</tr>
<tr>
<td>School 5</td>
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<tr>
<td>School PE Leader/Classroom Teacher</td>
<td>Elementary school teacher for 7 years</td>
</tr>
<tr>
<td>Principal</td>
<td>Elementary school teacher for 35 years; elementary school assistant principal for 7 years; elementary school principal for 4 years</td>
</tr>
<tr>
<td>District Supervisor for PE</td>
<td>School PE leader/elementary school teacher for 17 years; district supervisor for 5 years</td>
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<tr>
<td>MEXT PE Supervisor</td>
<td>Elementary teacher for 15 years; elementary school assistant principal for 2 years; MEXT PE supervisor for 4 years</td>
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*Note: MEXT = Ministry of Education, Culture, Sports, Science and Technology.*
expand the information gathered from the observations to increase the developing portrait of the PA opportunities for Grade 2 students. Second, we wanted to gain an understanding of the factors facilitating PA opportunities for Grade 2 students. PA was defined for participants as “bodily movement that requires more energy than sitting” and the examples provided were walking, jumping, doing vigorous cleaning chores, and climbing. Interview questions asked participants about the kinds and significance of PA opportunities for PA during, before, and after school, any school-based PA policies or programs they knew of, the role and importance of children’s PA and PE in school goals, and their own PA promotion behavior. While the initial questions gave participants the opportunity to discuss elementary school PA in general, probes were used to explore any unique aspects of Grade 2. The interviews were not audio recorded, as it was not possible to obtain the support needed to review, transcribe, and/or translate audiotapes of the interviews. Therefore, the first author took written notes during the interviews, and directly following the interviews he summarized and expanded the notes. As soon as possible, he also debriefed with the second author to gain perspective on the interview responses.

In addition to conducting observations and interviews, we toured the school buildings, attended several school faculty meetings, and collected copies of several documents to provide further insight about opportunities for PA and the factors facilitating these opportunities. We took written notes during building tours and faculty meetings. Documents included the national course of study, district policy manuals, and school schedules.

Data Analysis

Observation data (field notes, photographs, and videos), interview data, field notes from building tours and faculty meetings, and documents were analyzed using classic constant comparison methods (Glaser, 1965, 1978) to identify school-based PA opportunities, distill interpersonal, organizational, community, and policy factors supporting these opportunities, and understand relationships between factors at different levels. This process, led by the first author, involved continually reexamining the data as they accrued throughout the study to trace instances of PA opportunities, inductively formulate hypotheses about the factors that facilitate these opportunities (Glaser, 1978), and consider these hypotheses from the social ecological perspective used to frame this study (Bogdan & Biklen, 1992; Bryman & Burgess, 1994; Glaser & Strauss, 1967). In keeping with the epistemological stance that is consistent with classic constant comparative methodology (Glaser, 1965, 1978, 1998), the perspectives of the researchers and the participants in this study were viewed as contributing to a conceptual understanding of the phenomena in question (Glaser, 2002). This is to say that, while recognizing the multiplicity of perspectives on PA opportunities in Japanese elementary schools, the authors believed the data obtained could provide a basis for outlining key (i.e., “latent”) opportunities, and factors in the provision of these opportunities, which transcend variation in perspective (Breckenridge, Jones, Elliot, & Nicol, 2012).

Data reduction occurred in two stages. In the initial stage of the analysis, substantive coding was used to generate concepts and develop categories pertaining to PA opportunities and factors facilitating these opportunities (Glaser, 1978). For example, during one of the school visits, the whole school gathered in the outside
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play area to engage in jump rope exercises together. The event was initially coded as a “jump rope meeting.” However, during the interviews and in reading the national course of study, it became clear that the event was an example of special activities that were typical at schools, and we therefore combined the initial code with other examples as part of the same category.

In the second stage of the analysis, theoretical coding was used to develop more general hypotheses from the data, based on the identification of categories that were descriptive of PA opportunities or factors that seemed to share a conceptual basis (Glaser, 1978). For example, a comparison across three of the initial categories that were developed—“Recess,” “Cleaning Time,” and “Breaks”—revealed that these categories were all descriptive of PA opportunities that supported educational goals related to moral education in the national course of study. Analysis in this stage allowed us to identify new patterns in the data, which suggested broader connections between concepts and enhanced our understanding of the interrelationships between different levels of the social-ecological model (Glaser & Strauss, 1967).

Peer-debriefing with the second author, triangulation of the observational, interview, and document data, and being sensitive to apparent inconsistencies in the data helped to ensure the trustworthiness of the results (Lincoln & Guba, 1985). As the analysis was ongoing throughout the study, there were several instances during early stages of the analysis where observations or statements made by interview participants seemed to contradict the information already collected. These instances were noted, discussed with the second author, and, addressed in subsequent interviews. Through this process, apparent inconsistencies were clarified as examples that supported the broader connections and hypotheses that emerged during later stages of the analysis.

Findings

PA Opportunities

**Daily Routine.** During each school visit, the following daily routine was generally observed. The vast majority of children walked to school, usually without parents, and played on the playground or in the school building for about 15 minutes before lessons started. The start of school was marked either by attending a school assembly or beginning lessons in the classroom. After 45 minutes to an hour, usually following one lesson, children took a 5–10 minute break, during which they either played on the playground or in the building. After another one or two lessons, students took a 15–20 minute recess, again playing either outside or in the building. Children then participated in another lesson, followed by a lunch period of about an hour and 15 minutes, which consisted of students preparing for lunch with the teacher, serving lunch to each other, eating lunch in their classroom, cleaning after lunch, and taking another 15–20 minute recess. Students usually had two more lessons after the lunch period with a 5–10 minute break between the lessons. After school, students walked back home.

A wide variety of playground activities were observed before lessons commenced and during breaks and recesses. Activities that were common to most schools included jumping rope (long and short ropes), playing ball games, playing on rows of tires fixed vertically into the ground, running around the infield.
(sometimes marked with lines, such as for making lanes for races), climbing and swinging on monkey bars, swinging and balancing on vertical bars, balancing on low bars like on balance beams, climbing tall poles, digging in a sandpit, and riding unicycles. Students from different grades shared the playground simultaneously. Teachers sometimes participated with the students on the playground, sometimes casually observed from the sidelines, and sometimes remained inside the school building, leaving children unsupervised outside.

The lunch period offered multiple opportunities for children to be active. To prepare for lunch, several children moved their desks together to make lunch tables while other children left the room to retrieve the lunches and serving equipment. This process usually took 15–20 minutes. Students served lunch to each other and ate in their classrooms with the teacher. Following lunch, the students and the teacher usually spent about 20 minutes cleaning the classroom and other parts of the school building, such as the halls, the stairwells, the school’s front foyer, and other classrooms (e.g., the art room, the library). Cleaning activities included moving the desks, sweeping the floors, and wiping the floors, desks, chalkboard, and windowsills with wet rags. Many of these activities appeared quite vigorous. For instance, students carried heavy buckets of water from one place to the next for wiping, and often wiped classroom floors by pushing the wet rags with their hands across the room while running. Cleaning duties for different students typically rotated on a weekly basis.

Numerous other routine opportunities for PA were also observed at different points in the school day. These mainly included instances related to classroom management, such as students passing out workbooks to each other, collecting homework from each other, going up to the front of the room to have the teacher check their work, moving desks to join groups for certain activities or separate for taking a test, retrieving and returning materials from cubbies and shelves, changing clothes for PE (boys and girls changed for PE in the classroom together), and watering classroom plants or gardens. Most of these opportunities lasted between one and five minutes. The level of structure varied somewhat from one classroom to the next, but overall, teachers allowed students to leave their seats and take responsibility for managing classroom materials and organizing transitions.

PE. The national course of study requires that elementary schools offer PE 3 hr per week, with a total of 105 contact hours for Grade 2 students. In Japan, generalist classroom teachers teach PE in elementary schools as opposed to a specialist PE teacher. Three PE lessons were observed, each at a different school. In each case, all Grade 2 students (two or three classes) attended the lesson together, which is common. Two teachers led students mostly by having students perform activities as the teachers modeled what to do or by having students perform activities after the teacher gave instructions. The first lesson took place outdoors on the school playground and lasted about 45 minutes. The activities included jumping, stretching, and balancing to the teachers’ repeated signals (using a drumbeat), activities to build muscular strength and endurance (e.g., walking on hands, resistance exercises with a partner, hanging on bars), and relay races. The second lesson took place in an indoor gymnasium and also lasted about 45 minutes. Again using a drum for a signal, the teachers had students perform locomotor activities, such as moving like different animals and traveling in different ways with a partner. The third lesson took place in the swimming pool and lasted for about an hour and 30 minutes. The
activities involved students doing calisthenics, practicing some basic swimming techniques (e.g., kicking in the water from the pool deck), and having free time to play in the water at the end of the lesson. Because the PE lessons were taught to so many students simultaneously, students often had to wait their turns during activities. Therefore, opportunities for PA during PE were mainly limited to those instances when students were not waiting their turn.

Special Activities. Special activities are built into the national course of study and include classroom activities, school assemblies, clubs, and school events. Many of the activities offer opportunities for PA. Cleaning time after lunch is an example of a special activity in the classroom. Interview participants discussed several examples of school assemblies that focused on children’s PA. Assemblies were held at the start of the school day and, as frequently as once per month, involved dancing, jump roping, gymnastics activities, light exercises that students could also do at home, and/or other types of exercise.

Clubs (e.g., playing on a sports team) were community-based but the schools played an important role by allowing the clubs to use school facilities before or after school hours. Clubs were typically only available to students above Grade 2. While interview participants did describe a few opportunities for Grade 2 students, including soccer, baseball, and dodgeball clubs that met on Saturdays and gymnastics clubs that met during the summer vacation, most children chose not to participate.

School events that offered opportunities for PA included school wide PA meetings, various PA competitions for different grades, and class walks. Schools sometimes (e.g., once per month) held meetings in the morning or during recess where all students were required to participate in a selected physical activity, such as running or jump roping. The frequency of these meetings varied. For example, one school reserved one week each year to have students do jump rope activities during every morning recess, whereas another school reserved three days each year for a floor exercise meeting, a vault meeting, and a jump rope meeting, respectively, during an extended lunch period. PA competitions included Field Day and intra- and interschool competitions in selected sports, such as soccer and long-distance running (different distances for different grades). Field Day often included both competitive activities (individual- and team-based) and noncompetitive activities, such as dancing for fun. PA competitions were usually held once per year. Class walks were usually conducted two to three times per year. These walks usually took all classes at a grade level together to local destinations between 20 and 40 minutes away from the school. Destinations varied between schools. Some examples include the zoo, a lake, a park, and the beach. The first author participated in two class walks during the study. For instance, one walk took a circuitous route through town, including several stops to local historic sites (e.g., a temple), and after about an hour, ended at a public park, where students spent about 15 minutes playing together and with their teachers before returning to school using a direct route that took about 15 minutes.

Factors Facilitating PA Opportunities

National Policy Level. The various PA promotion roles of factors at each level of the social ecological model investigated in this study are presented in Figure
1. As shown in the figure, government policy at the national level drove decision-making at all lower levels of the Japanese educational system. The national course of study emphasizes three main educational goals: academic performance, physical health, and moral education. The document gives these three goals equal emphasis and views them as interconnected through all educational activities at school. For instance, the general provisions outlined in the introduction to the document state that instruction in physical training and health promotion should be provided “through all of the school’s educational activities...not only in physical education period but also in the periods of home economics, special activities and other educational activities” (p. 2). The emphasis on physical health stems from a recent report on children’s fitness and motor skills in Japan, which showed performance decrements from the previous report. Examples of policies developed as a result of these data include providing two 20-minute recesses daily, encouraging teachers to promote children’s PA during recess (e.g., PA meetings), and providing PE three times per week.

The role of the moral education guidelines in facilitating PA opportunities was amply clear in both the interviews and the observations. The general provisions in the national course of study state:

Moral education is aimed at... developing Japanese citizens with a proactive attitude who would apply a spirit of respect for human dignity and reverence for life in specific activities at home, school and other social situations...respect traditions and culture, love one’s country and hometown...[and] contribute to the preservation of the environment” (p. 2). Many of the PA opportunities supported children’s moral education. Interview participants said Field Day was important because of its long history, which began as a celebration of crops. Schools spent several weeks preparing for Field Day, especially in training children to perform well for the parents who would attend. PE was used as the vehicle for such training. Cleaning time was another PA opportunity that was directly linked to moral education, as it was believed to help children learn to take care of themselves (human dignity). In addition, class walks were viewed as an educational experience to develop children’s respect for local traditions, Japanese culture, and the environment. Other examples that seemed to support the connection between moral education and PA opportunities were children being given responsibilities to manage and organize their classroom environments (e.g., checking each other’s work, preparing for lunch), walking to school without parents, and playing outside without teacher supervision. Some of the playground equipment, such as the tall climbing poles, seemed to also provide a way for children to use PA for building confidence, resilience, and character.

The MEXT supervisor for PE was in charge of creating the national course of study guidelines for PE/PA, helping teachers understand the document, and creating teaching materials for PE. Policy for PA is firmly embedded in guidelines for PE specifying the required number of weekly meetings, total contact hours, and curriculum content for students in each grade. The overall objective for PE is to help students learn to “participate in enjoyable physical activity throughout their lives, maintain and improve their health and fitness and cultivate an appropriate attitude towards leading a pleasant and happy life” (p. 2).
Figure 1 — Social ecological model identifying the various roles of school PE leaders, principals, district PE supervisors, and the Ministry of Education, Culture, Sports, Science and Technology (MEXT) PE Supervisor in promoting children’s school-based PA opportunities. All members of the Japan education system work toward the three major educational goals specified in the national course of study. The shaded arrow spanning all levels of the model illustrates the downstream influence of the national course of study on PA opportunities.

**District Policy Level.** The district supervisors for PE performed several important duties that supported school PE programs and other PA opportunities. These officials were in charge of school PE programs for all public schools in the district. They viewed their primary duty as improving children’s physical skills and health. Their job responsibilities included promoting professional development for PE in the district, improving PE policy in the district, promoting PA in schools (e.g., creating cards illustrating different activities to give to schools, creating a booklet of PE activities to give to teachers), analyzing children’s fitness tests and giving...
feedback to teachers, and leading the organization of PA meetings and competitions for schools in the district.

District supervisors worked in tandem with the MEXT supervisor for PE and the school principals to support the national course of study guidelines and tailor the guidelines to the specific contexts of different schools in the district. For example, one district supervisor created a policy leading to the formation of a district-wide committee for children’s school-based fitness promotion. All school PE leaders attend the committee meetings five times per year, and their work through the committee results in school policies, such as holding running meetings before school. The district supervisor described the program as being consistent with the national guidelines promoting an integrated approach to education in which a healthy body and a healthy mind were viewed as equally important and interdependent.

Organizational Level. The school principals helped to support the PE program and other school PA opportunities. Principals viewed part of their responsibilities as monitoring children’s health and wellbeing. For instance, one principal said he greeted children every morning as they entered the school building and visited classrooms to check on students’ attendance because he believed his doing so helped to create an environment of caring for one another’s wellness. This value appeared to underpin other things he did to promote a healthy school environment, such as including recesses and breaks in the school schedule, holding running meetings at the start of the school day, and providing long lunch/recess periods to encourage playing outside. Principals also worked in collaboration with members at higher levels of the education system, and with teachers, to ensure there was ample playground space for PA before school, during breaks and recess, and for special activities, that portable equipment, such as playground balls, jump ropes, and unicycles was provided when the playground was in use, that school PA facilities were made available for clubs, and that the professional context allowed for frequent collaboration among teachers. Teachers shared a faculty office with desks arranged in groups, began each workday with a whole staff meeting, and often collaborated in formal committee meetings with grade-level and mixed grade-level colleagues.

When asked why they supported PE/PA in school, the principals consistently cited the national course of study, believing it was important to achieve balance between the three major educational goals (academics, morality, and physical health). Consistent with the perspective espoused in the national course of study, they viewed school PA as inextricably linked to all of these goals. For example, they pointed out that PE/PA improves children’s concentration for academics and social skills.

Interpersonal Level. The school PE leaders served as the most direct and proximal support mechanisms for children’s school PA opportunities. These teachers’ responsibilities included teaching PE, organizing special PA events (e.g., assemblies), purchasing PE/PA equipment, managing PE/PA facilities (e.g., lining fields, cleaning the swimming pool, ensuring a safe environment), motivating students during special events (e.g., running meetings), creating PE materials (e.g., illustrated lesson plans, curriculum documents), increasing other teachers’ awareness of PE goals in the national course of study, helping other teachers teach PE (observing lessons and giving advice, having other teachers’ observe the PE leader’s lessons), attending and leading professional development trainings for PE,
and sharing new information with the other teachers at the school. As with the other participants who were interviewed, the school PE leaders consistently referred to the national course of study as the impetus for the kind of work they were doing to promote PA at school. These teachers were not given a reduced teaching load. Such leadership was viewed as a special responsibility, and all teachers were given special responsibilities in one form or another. It was typical for teachers to arrive at school before 8am leave after 7pm, and work at school during vacations.

Overall, the data suggest PA opportunities were facilitated through a loyalty to higher levels of the system leading to unanimous support of the national course of study. All participants who were interviewed referred to the national course of study when asked about the importance of PA opportunities in schools. The downstream influence of government policy on all lower levels of the Japanese education system was highlighted in participants’ uniform response to the question of accountability for schools to follow such policy. In all cases, the question was met with silence and confusion, followed by the claim that no, there was no formal measure of accountability for not following a government policy, but that not doing so was unprecedented for public schools in Japan. Why would the government need to hold schools accountable for their actions? The national course of study is “law.”

Discussion

This study sought to understand the PA opportunities afforded to schoolchildren in Japan as a possible means to discover transferable strategies for increasing PA promotion in American schools. The findings reveal a number of opportunities in line with current recommendations for increasing children’s PA in American schools. However, based on the social ecological perspective used in this study, the provision of PA opportunities in Japanese schools seemed to be based on an educational system that was highly supportive of PA goals. This support existed at all levels of the system, stemmed primarily from a top-down influence of government policy, and appeared to enjoy little to no resistance from educational stakeholders. Although this was not a comparative study, existing data seems to suggest that the American school system would likely have to adopt a more balanced set of educational priorities to successfully implement many of the PA opportunities identified in this study.

Consistent with previous reports on Japanese schools (e.g., Stevenson et al., 1998), the kinds of PA opportunities evidenced in this study occurred across the school day in multiple contexts, not just in PE classes. This approach is congruent with current US recommendations for school wide PA (e.g., CDC, 2011; NASPE, 2008; Let’s Move in School website), which call for schools to provide PA during PE, at recess, in the academic classroom, and in before and after school programs. Recommendations encourage schools to link with the community to increase children’s PA, such as by allowing access to school PA spaces outside of normal school hours (Let’s Move in School website). The opportunities for before and after school PA made available to Japanese children by allowing access to school facilities align with these recommendations.

Recommendations also call for PE specialists to serve as school wide PA leaders by engaging in a number of responsibilities, such as serving as a resource
person for classroom teachers and organizing school wide PA events (e.g., Castelli & Beighle, 2007; Rink, Hall, & Williams, 2010). While PE specialists were not typically employed in Japanese elementary schools, the classroom teachers who served as school PE leaders engaged in a wide range of responsibilities in line with the role of a PA director. It is likely that professional context at the organizational level (e.g., layout of teacher work space, frequent meetings) helped to facilitate the work of PE leaders. Previous research on Japanese education described the same professional context and contrasted it with that in American schools, where teachers have complained that the physical layout and lack of formal opportunities to routinely meet with teaching peers in the building do not foster a collaborative work environment (Sato & McLaughlin, 1992).

It should be noted that while PE added to the number of opportunities Japanese children received to be active, the allotted curriculum time was less than the Institute of Medicine (IOM, 2013) recommendation of 30 minutes every day for elementary students. In addition, the PE lessons observed during the study provided evidence of teaching practices that were incompatible with the IOM (IOM, 2013) goal of having students spend at least half of every PE class period in moderate-to-vigorous PA, and inconsistent with NASPE’s (2003) definition of quality PE, which emphasizes full inclusion of all students and maximum practice opportunities. Combining Grade 2 classes for PE lessons increased the amount of wait time students experienced and reduced the teachers’ ability to include all students simultaneously as active learners. Separating the classes would allow for increased practice and PA time for all students, assuming the teacher(s) leading each class was able to maximize use of space, equipment, and time. However, research with nonspecialists in the U.S. has shown that these teachers tend to lack the knowledge and skills needed to effectively teach PE (e.g., DeCorby, Halas, Dixon, Wintrup, & Janzen, 2005; Faucette & Patterson, 1989), and NASPE (2003) recommends PE be taught by a qualified PE specialist. When specialists are not available, the Japanese strategy of having a generalist teacher at each grade level serve as a PE leader seems to at least be a step in the right direction. Yet, with the apparent overall top-down support in Japan for educational goals tied to physical health, it seems contradictory that specialist-taught PE would not be required in elementary schools. While this issue was not explored further in the current study, Japanese education officials may believe that the support and training elementary classroom teachers receive to teach PE is sufficient. This study found numerous examples of support from MEXT, the school district, and the school principal for teachers to teach PE. Furthermore, these teachers are required to complete a minimum of 16 credits for physical education teaching during preservice education (Japanese Education website), which is much more extensive than the one course (e.g., 3-credit) requirement for preservice classroom teachers that is commonly found in U.S. teacher education programs (Hall, Little, & Heidorn, 2011).

Another difference between the U.S. recommendations and the opportunities observed in this study was the types of PA observed in the academic classroom setting. U.S. recommendations call for teachers to deliberately infuse PA into academic lessons and provide structured movement breaks (e.g., Energizers) in the classroom between lessons (e.g., Faber, Kulinna, & Darst, 2007; Kahan, 2008; Maeda & Murata, 2004). Teachers in this study did not promote PA in these ways but gave children free time breaks between lessons. Moreover, while these breaks
were often given to deliberately promote PA, other opportunities such as cleaning time were given to promote moral education and, incidentally, also promoted PA. These findings stress the value of investigating school-based PA promotion from a “ground up” perspective. It is possible teachers in American schools are promoting PA in contextually-driven ways that are positive, effective, and even consistent with curriculum goals, but that have not been considered in the recommendations.

As discussed earlier in this paper, it appears the recommendations for school wide PA have yet to be widely adopted by American schools. A major barrier to increasing PA opportunities has been pressure to improve children’s academic performance (Kahn et al., 2002). This suggests a trend for policymakers to view PA as a competing goal in schools. However, research shows that PA does not interfere with other school goals (Trudeau & Shephard, 2008) and can benefit children’s classroom performance and academic achievement (Carlson et al., 2008). In the current study, stakeholders seemed to understand that increasing children’s PA supports other educational goals. Equal footing was given to PA as a priority in children’s education, and this appeared to be a primary reason why PA promotion opportunities existed across the school day in Japan. American educators must consider this difference in educational priorities when attempting to adopt the PA practices identified in this study. For example, while it might be possible to model the professional context of American schools after Japanese schools to encourage increased teacher collaboration and facilitate the work of the PA director, schools are not likely to make significant changes in providing PA opportunities unless more emphasis is placed on PA in the American school system.

In the U.S., school performance tends to be driven in large measure by formal accountability (Abrams, Pedulla, & Madaus, 2003). For instance, school profiles and report cards reveal school performance measures that include students’ academic achievement on standardized tests. Thus, in addition to raising PA on the priority list for U.S. schools, increasing accountability for implementing school PA policies may also help to increase the PA opportunities schools provide. When PA policies lack accountability, schools may be less inclined to implement these policies because of localized factors, such as the beliefs of principals and teachers. In their study of PA promotion in Canadian schools, Langille and Rodgers (2010) found that schools varied in their receptiveness to policies from higher levels of the system due to differences in the unique culture of each school. Participants from higher levels discussed the critical importance of school and teacher “buy in” for the successful uptake of policies.

Most current PA policies in the U.S. are not backed by formal accountability measures, such as assessments of students’ school-based PA. Therefore, it can be reasonably argued that the provision of school wide PA opportunities may depend largely on the ability of individuals in a given school to organize and lead PA promotion efforts. While U.S. recommendations for school wide PA have repeatedly underscored the importance of PE teachers playing a leading role in such efforts (e.g., NASPE, 2008), it is important to also consider whether stronger accountability strategies are needed to motivate school communities to make PA promotion a priority. Several more recent recommendations reflect growing attention to this issue. For instance, the CSPAP Policy Continuum (CSPAP Policy Continuum website) proposes optimum policies for school wide PA, such as requirements to include grades for PE on students’ report cards and to include a written PA plan in
the school profile or report card, while the IOM (IOM, 2013) recommends monitoring PE and other PA opportunities in schools, and suggests numerous strategies for doing so. It may also be necessary to increase the role of state governments, and perhaps even the federal government in generating school PA policies. Story, Nanney and Schwartz (2009) determined that policy leadership for school PA in the U.S. has mainly come from school districts and, to a lesser extent, from state and federal governments. The authors concluded that stronger state and federal policies are needed to create change at the school level.

Formal accountability did not appear to play a role, or be necessary, in school-based PA promotion in the current study. Participants’ ubiquitous loyalty to the national course of study seemed to suggest they willfully embraced government policy. All participants contended that PA should be treated equally as an educational goal alongside academics and morality, as specified in the national course of study. While this attitude toward policy was not explored further, it may stem more generally from beliefs about work in Japan. It is common for Japanese people to view their work environment as a sort of family and to consider doing a good job as honorable (Dolan & Worden, 1994; Japanese Education website; Misumi, 1993). These beliefs promote dedication to one’s employer and a willingness to learn new skills to improve job performance. Previous research on Japanese education has shown that, compared with American teachers, Japanese teachers spend at least 20 hours more per week at school, take on more responsibilities at school, and engage in more professional development (Sato & McLaughlin, 1992). Future studies should endeavor to better understand the factors that shape Japanese educators’ dispositions toward PA-related policies, how such dispositions differ from those of American educators, and how such dispositions help to facilitate PA opportunities.

This study had several limitations. First, the data cannot be generalized beyond the context of Grade 2 in urban Japanese public schools, particularly at the end of the academic year. While the current study provides an in-depth account of children’s PA opportunities in this context, future research focusing on different times during the academic year, different grade levels, and suburban and rural schools is needed to understand how factors in different contexts might influence such opportunities. Second, the beliefs and values of the participants in this study may not be representative of the perspectives and values of all members of the public elementary school system in Japan. Several of the participants in this study had PE backgrounds and one of the schools was formally recognized as a model school for PE improvement. Therefore, their views may be biased toward the prioritization of PE/PA in schools. Third, due to time constraints in the current study, we did not investigate the role of community factors (e.g., local social and physical environments surrounding the school) in promoting children’s PA in the given context. The perspectives of community members with a stake in children’s education and/or PA would have helped to identify other key variables in children’s PA promotion and draw further connections across levels of the social ecological system being explored. Fourth, not having verbatim transcripts of the interviews limits the trustworthiness of the data in this study. While we were able to draw from a record of extensive written notes, photographs, and video, as well as confirm our findings through peer debriefing and triangulation with observations and documents, transcripts and direct quotes from participants would have permitted us to use member checking and help to substantiate our analysis and interpretation of the data. Finally, PA opportunities
were defined in this study only in terms of students being away from their desks, which does not provide a means for objectively measuring the extent of children’s PA or discriminating different levels of PA. In future studies, it would be useful to link opportunities for PA (e.g., cleaning up after lunch) with the amount and intensity of children’s PA as measured by pedometers or accelerometers.

In conclusion, this study enriches the current literature documenting PA opportunities for Japanese schoolchildren, and adds perspective to an understanding of these opportunities through a social ecological lens. The children in this study were provided with ample school-related opportunities to satisfy the U.S. recommendation of 60 minutes of daily PA (USDHHS, 2008). These opportunities can be traced to collaborative efforts among educators at all levels of the Japanese education system in line with the national course of study and in the absence of formal accountability. Unfortunately, the reality of schools playing a foundational role in PA promotion has so far slipped America’s grasp. It remains in question whether U.S. educators, and especially physical educators, will be able to generate increased opportunities for PA without governmental tracking of the progress schools make toward meeting written policies.

References


Webster and Suzuki


