14 Green grounds for play and learning: An intergenerational model for joint design and use of school and park systems

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ABSTRACT

A growing body of research shows that in diverse societies and cultures, daily contact with nature is an important element of people's health and well-being. However, because parks are not equitably distributed throughout cities, some urban residents do not have access to these resources and related benefits. Given limited budgets for park acquisition and maintenance, many cities wonder how to provide more equitable access to nature for all citizens. One approach is to naturalize school grounds and open them to surrounding communities after school hours. This chapter explores how green school grounds can be conceived and used as neighbourhood parks, how city parks can serve as outdoor classrooms, and how these spaces can be designed to serve intergenerational needs through participatory processes with schoolchildren and older residents. To illustrate these ideas, we present a case study of participatory design in Boulder, Colorado (USA). Drawing on interviews with key agents in this process, we share lessons and recommendations that might be applied to other places where local governments or schools seek to increase community access to green spaces.

INTRODUCTION

This chapter explores how green school grounds can be conceived and used as neighbourhood parks, how city parks can serve as outdoor classrooms, and how these spaces can be designed to serve intergenerational needs through participatory processes with schoolchildren and older residents. After briefly reviewing the benefits of contact with nature for the health and well-being of children and adults and social inequities in access to nature, we examine the possibilities and challenges of shared design and management partnerships between school districts and parks departments as a way to ensure access to nature for all citizens, regardless of age, income or ethnicity. We also look for common principles in the design of green schoolyards and parks that can suit different age groups.

To illustrate these ideas, we present a case study of an initiative in Boulder, Colorado (USA) that took advantage of a school's need for a new playground and an adjacent park's simultaneous need for a new master plan. A participatory design process engaged elementary and middle school students, parents, school administrators, teachers, neighbourhood and senior housing residents, park staff, and faculty and students from the local university's design programme. Drawing on interviews with key agents in this process, we distil lessons from the initiative's successes and its potential for improvements, with recommendations that could be applied wherever local governments seek to use school grounds as community green spaces and schools seek to expand into local parks as grounds for learning.

THE RESEARCH PROBLEM

Studies from around the world indicate that in diverse societies and cultures, contact with nature during daily routines of life is an important element of people's health and well-being. For adults, proximity to parks and nature is associated with lower blood pressure, healthy endocrine system functioning, restoration from stress, social contact, greater physical activity, and greater perceived well-being (Tilt, 2011; Bratman et al., 2012; Roe et al., 2013; Wells and Rollings, 2012). For older adults, nearby green spaces for walking also predict greater longevity and higher quality of life (Takano et al., 2002; Sugiyama et al., 2009). For children, benefits of access to nature include improved concentration (Wells, 2014), better coping with life's challenges (Chawla, 2014; Wells, 2014), sustained moderate physical activity (Dyment et al., 2009), creative play, and positive social interactions (Chawla et al., 2014). More than formal programs in environmental education, access to free play and exploration in nature predicts that children will grow up caring for the natural world (Chawla and Derr, 2012).

Access to nature, however, is not equitably shared. In the United States, low-income and inner-city neighbourhoods may have small neighbourhood parks, but large well maintained parks with many amenities are more likely to be found in high income areas (National Recreation and Park Association, 2011). Another factor that defines access to nature is age, as children and the elderly tend to have limited ranges of independent mobility, making them more dependent on local resources than other age groups (Li et al., 2005; Fagerholm and Brogerg, 2011). Studies in The Netherlands (Maas et al., 2009) and Scotland (Mitchell and Popham, 2008) indicate that access to green spaces predicts better health outcomes for all ages and reduces income-

based health disparities. Therefore it is important to provide high quality green spaces for people of all ages and levels of income.

Given many cities' limited budgets for park acquisition and maintenance, how can access to nature be provided for all citizens? High quality green spaces include trees, water, and biodiversity—not just green playing fields (Loukaitou-Sideris and Sideris, 2010). How can urban areas offer these elements, despite the pressures of dense populations and environmental degradation, and how can green spaces be designed to be as attractive as possible for diverse citizens?

One response to these questions is to naturalize school grounds and to open them to surrounding communities after school hours. This brings nature where children are, considering that children in the United States and most European countries enrol in school between the ages of five to seven (Miller and Warren, 2011; European Commission, 2013) and spend the major part of their weekdays in school until the ages of 16 or 18. Landscaping school grounds with nature playscapes, natural habitats and gardens creates opportunities for play, learning across the curriculum, and the development of an environmental ethic. If green school grounds are open to the community, they can offer extended time for free play and discovery for children as well as recreation and restoration for all members of the community.

Many school grounds, however, are covered in asphalt (Schulman and Peters, 2008) or lack space for greening. Even if they include green spaces, in the United States they are usually inaccessible to communities after school hours, and this is most likely to be the case in low-income neighbourhoods (Cox et al., 2011). Under these conditions, can neighbourhood parks serve as nature playscapes and outdoor classrooms for nearby schools, at the same time as they address

the needs of adults, including seniors? Also, what design elements can help facilitate the joint use of green grounds between schools and parks? This chapter's case study of Burke Park in Boulder, Colorado addresses these questions by presenting a model process that involves several simultaneous initiatives. It includes renovation of the school playground to create a nature playscape and engages children in the design process of the entire park to ensure that the redeveloped grounds meet their needs. The school opened its doors to the community so that local residents could also have a voice in the design process, inviting them to see the school as a gathering place for the community. To extend the boundaries of the school into an adjoining park for purposes of play and learning and to enlist students as stewards in a plan for ecological restoration, the school forged a formal partnership with the city's Department of Parks and Recreation. During the process, a special effort was made to reach out to retired seniors in the neighbourhood, to ensure that their memories and attachment to the park are preserved even as the park undergoes changes.

To place the results at Burke Park in perspective, the following sections review previous efforts to identify key design principles for school ground greening and park design for all ages and to create shared use partnerships between parks and schools.

PARK AND PLAYGROUND DESIGN FOR CHILDREN AND ADULTS

Designing school grounds and parks for children.

Many studies have explored connections between school grounds and park design features and children's play and learning. This research has shown that green school grounds tend to foster more active and creative play than barren school grounds (Malone and Tranter, 2003; Dyment and Bell, 2008; Dyment et al., 2009) and better opportunities for social,

emotional, and cognitive development (Herrington and Studtmann, 1998). Also, research shows that green school grounds can create significant opportunities for learning (Titman, 1994; Moore and Wong, 1997; Malone and Tranter, 2003; Dyment, 2005), and that they tend to be used for science and physical education (Dyment, 2005).

Beyond school borders, the presence of parks, playgrounds and other green spaces in the proximity of home fosters higher levels of physical activity in children (Almanza et al., 2012). In a review of playground designs that promote multifaceted play and physical activity, Czalczynska-Podolska (2014) identified design elements that she grouped under the three general features of playground appearance, usage, and arrangement. Unique features, combined with contrasts in colour and texture, can give playgrounds a ‘magical’ appearance and identity. High levels of activity and use are supported by graduated challenges that encourage children to master new skills, a variety of elements for diverse interests and abilities, and loose parts for manipulation and creative play. Playground arrangements should include partly enclosed semi-private spaces for quiet and dramatic play, grassy areas for rough and tumble play, and linked play zones connected by pathways.

Natural elements can promote all of these play functions, in green school grounds or parks (Malone and Tranter, 2003; Danks, 2010; Czalczynska-Podolska, 2014). Children prefer to play with a variety of natural elements and loose parts, such as sticks, plants, flowers, fruits, water and mud (Moore and Wong, 1997; Ward Thompson, 2007; Derr and Lance, 2012). Children also play in a diversity of spaces including small groves for exploratory play (Malone and Tranter, 2003); open spaces and hills for running, sledding or rolling (Derr and Lance,

2012); and bushes or tall grasses for hiding and secretive play (Derr and Lance, 2012). A study conducted in Sweden showed that, when children have access to forested areas, having access to formal playgrounds is less important for them, suggesting the importance of wild natural spaces (Jansson, 2008).

Park design for adults, including seniors

Whereas research on children's use of green schoolyards and parks focuses on opportunities for play, learning, physical activity and prosocial behaviours, research on adults' park use emphasizes benefits for their physical activity, mental and physical health, and social capital. According to reviews of research on green space and park features that promote physical activity and health (McCormack et al., 2010; Tilt, 2011), adults need to have a park in easy walking distance along direct routes that are free of barriers, attractive features that draw them into the park (such as natural elements and picnic tables), well maintained park conditions, and spaces that encourage active use such as playing fields and paved pathways that pass through trees and landscapes. Although large regional parks typically contain these features, Tilt (2011) stressed the importance of smaller neighbourhood parks that can be accessible to all social groups. Across countries, water features, wooded areas, and well-maintained landscapes attract people of all ages to parks, as people seek spaces for relaxing, exercise, walking the dog, enjoying wildlife, and enabling children to learn about nature (Tucker et al., 2007; Ward Thompson, 2007).

When adults are asked where they go when they are feeling down and want to feel better, the majority identify a nearby natural setting, often with water (Francis et al., 1991). In a Swedish study, stressed individuals found recovery in green spaces that were safe,

calm, spacious, and rich in species, with benches, play equipment, and vistas of grass surfaces (Grahn and Stigsdotter, 2010). People are more likely to say that parks support their ability to think reflectively and gain perspective, and to feel attachment and identity with the park they use when there is a high level of biodiversity, measured objectively or according to people's perceptions (Fuller et al., 2007; Dallimer et al., 2012).

In addition to physical activity, recovery from stress, and a sense of perspective, proximity to well landscaped parks promotes social capital. Urban parks serve as places where existing friends meet and new friendships form (Kazmierczak, 2013), and where different ethnic groups can mingle and informal interactions promote social cohesion (Peters et al., 2010). People in neighbourhoods with parks are more likely to report a sense of collective efficacy, defined as mutual trust and neighbours' willingness to help each other (Cohen et al., 2008).

Older adults do not differ significantly from mid-life and younger adults in terms of the features that attract them to parks. They spend more time in a park when they perceive it to be close to their home, measuring proximity as approximately half a mile or one kilometre (Mowen et al., 2007). They value safe road crossings on the way to the park, a sense of safety once they arrive, smooth pavements, cleanliness and other signs of good maintenance, benches, and nearby facilities like toilets and a café or food vendors (Ward Thompson, 2007; Spencer et al., 2014). Trees, other plants, pleasant scenery, water features and wildlife to watch attract them. Although they enjoy children's play, they feel uncomfortable when there are youths hanging around and unattended dogs (Ward Thompson, 2007; Spencer et al., 2014).

Older adults who maintained a diary of daily activities and health measures visited local parks for significantly longer stays when they faced high levels of daily stress, had lower blood pressure after they stayed in a park for at least an hour, and felt healthier when they participated in park activities with friends rather than alone (Orsega-Smith et al., 2004).

Joint use of school grounds and parks

In dense urban neighbourhoods, one way to increase access to nature for all ages is to keep school grounds open after school hours to serve as neighbourhood parks and to encourage schools to use local parks for play and learning. Little research, however, has explored the design and management possibilities and challenges that these arrangements present. Most studies related to the joint use of school facilities come from the field of public policy. Several federal and state agencies in the US recommend or allow joint use, mostly motivated by public health goals (Spengler et al., 2007). However, joint use is rare in the US, as school officials tend to be concerned about the lack of supervising staff, inadequate funding, safety, liability, and vandalism (Cox et al., 2011). When joint use partnerships exist, three main models have been used (Vincent, 2010). In the first, a school facility is used, controlled, or owned by other agencies. In the second, a school facility is designed, built and used in a partnership between schools and other agencies. In the third, schools and other agencies establish permanent partnerships to design, build, use and manage facilities, so that several school facilities are designed, used and managed jointly.

Research about how school grounds and neighbourhood parks can be designed for joint use is scarce. Yet some model school grounds, such

as the Edible Schoolyard in Berkeley, California, are heavily used as neighbourhood parks (M. Guerrero, 2007, pers. comm., April), and the Boston Schoolyard Initiative includes joint use and management of renovated school grounds (Lopez et al., 2008). A few scholars have advocated for design and use synergies between school grounds and neighbourhood parks (Moore et al., 2008; Rigolon, 2012), but have not given specific design recommendations based on empirical data.

Finally, little research has explored the design of joint use school grounds as a community-wide placemaking activity. This chapter contributes to the literature and practice of joint use because it discusses the design process and outcomes of a partnership between a school district and a parks and recreation department, with the goals of creating a nature playground for a school and its neighbouring community and encouraging students to use an adjacent park as an outdoor classroom.

SCHOOL GROUNDS AND NEIGHBOURHOOD PARKS: THE CASE OF BURKE PARK

Burke Park is the only neighbourhood park for one of the most densely populated neighbourhoods, Frasier Meadows, in the city of Boulder in Colorado, USA. The neighbourhood is bounded by major roads and highways on all sides, making access to other parks difficult for children and elderly alike (see Figure 14.1). Much of the neighbourhood was built in the 1950s and 1960s and consists of single family homes with multi-family homes near the boundaries. Of the 6,265 residents in the neighbourhood, 48% are families with children under 18, 44% rent their homes and 43% live in multi-family housing units with no access to yards or green spaces (US Census, 2010; City of Boulder, 2013). The neighbourhood and school are primarily Caucasian (80% and 87% respectively) with roughly 5% of the school population receiving free

or reduced-price lunch (a metric for low-income families) and 15% qualifying as special needs (BVSD, 2014). The neighbourhood is also home to many retired residents who grew up near the park and have attachments to the park and lake within it. The need for park redesign emerged from both the city and the school.

Insert Figure 14.1 here.

Historically, the lake was created as a stock pond by a ranching family. Over time as the neighbourhood developed, residential uses caused a drop in the water table and lake water levels. While long-term residents wanted to maintain the lake as they remembered it by filling it with treated city water, the city needed to create an ecologically sustainable park given current and future climate scenarios. In opposition, neighbourhood seniors staged a 100 person sit-in to protest changes to the lake. At the same time, the school adjacent to Burke Park had recently expanded its building facilities and needed to create a new playground. The need to simultaneously redesign the community park and school playground became an opportunity to collaborate and develop an intergenerational model for park planning that might also help to build new, more sustainable connections to the park's landscape for the school and community. Student engagement in the park planning process was facilitated by Growing Up Boulder, a partnership between the City of Boulder, Boulder Valley School District, and the Children, Youth and Environments Center at the University of Colorado Boulder. The Burke Park case study is a story of many partners coming together with different needs and desires, but through collaboration and an engaged design process, developing a playground and park that created opportunities for recreation and learning in nature for children and elderly alike.

The process of engagement involved three phases. Phase I engaged 4th grade students (9–10 years old) in thinking about and redesigning the school playground. Through a series of drawing and model-making exercises, students envisioned key features of their playground. The municipality took these ideas and developed a master plan that was used for fundraising and implementation. Phase II was an intensive 4-week design thinking class offered as a partnership between two teachers at the Horizons K-8 School and Growing Up Boulder. Two of the authors were involved in this phase. The goal for this course was to have students think beyond the playground to the entire park grounds, and to consider the ecological and human communities and users of the park. Activities included photogrids (that guide students in systematically photographing positive and negative attributes of a place), a bioblitz (that involves students in identifying as many plants and animals species in a place as possible), drawing and model-making of specific design concepts, and a community workshop and parent night in which students worked collaboratively with community members to share ideas and identify common desires for the park (GUB, 2014).

A second workshop held in the winter of 2013, marked the beginning of Phase III, when a University of Colorado Environmental Design (ENVD) studio course designed and built some of the elements identified by the community. Undergraduates attended a community workshop at Frasier Meadows, gathered ideas from a community board at the retirement community, interviewed elder members of the community to collect oral histories, and developed interpretive materials for the site. Growing Up Boulder (GUB) also shared materials collected on the website. About mid-way through the design-build semester, the instructors shared their design concepts with the GUB coordinator to

ask if they were meeting the intent of the students. Around this same time, the city held a community meeting to share final concept plans. The ENVD students installed three landscape features as well as a wooden outdoor classroom structure. They also considered pathways and connections through the site and the positioning of the community garden (University of Colorado, 2013).

While the design-build studio was running, a group of parents, school administrators, and city staff wrote and submitted a grant to the Great Outdoors Colorado Foundation (GOCO) to request funding for the school playground. The partnership was successful in obtaining a $100,000 play yard grant, in large part because of the extent of involvement of the students and community partners. The project is featured as a model on GOCO's website (Great Outdoors Colorado, 2014). Construction was completed 18 months later in September, 2014.. One of the requirements of GOCO grants is that they be open to the community as parks when not in use for school.

Children's and senior's requested design elements as compared to the literature

During the participatory process, ENVD students chose to work in four groups, focusing on community gardens, playscapes, ecological features, and pathways. Overall, the most commonly desired features were water-focused. They included fountains, a miniature bullfrog pond, and water-viewing features along the existing lake. Second to water features was a the desire for more diverse forms of nature and natural habitats, and play structures that increased the potential for experience of nature, such as climbing nets that had gardens beneath them or trees above them. In general, students' suggestions are similar to features documented elsewhere in the literature (Table 14.1). Differences exist

in that students were encouraged to think about the park for all ages, so they incorporated more diverse design elements than a typical nature playscape. Students were attentive to aesthetics and sensory experiences, the need for comfort, shade, smooth walking areas for seniors, and connectivity between the different functions. They also showed a great interest in enhancing the ecological habitat for the benefit of both wildlife and people. This is consistent with literature about park design for adults (Table 14.1).

Senior suggestions were compiled and are summarised in comparison to children's design requests and are placed within the literatures for successful park and playground design (Table 14.1). The benefits and functions for adults and children help clarify the differences between the elements in Table 14.1.

Insert Table 14.1 here.

Design outcomes

Suggestions for design features were incorporated into a master plan by city landscape architects (see Figure 14.2). The new school playground is located in the school's courtyard and can be accessed from the park and from a neighbouring street (see Figure 14.2). Both the playground and the park are intended to include many of the design elements requested by the children and the seniors (see Table 14.1 and Figure 14.2). In the playground, these include a dry river of sand, rocks, and boulders, a tree house, and a grassy knoll (see Figure 14.3). Other suggested elements appear in the park, such as mounds and trees (see Figure 14.3), and further elements that the children and the seniors requested will be added in successive phases of development (see Figure 14.2).

Insert Figures 14.2 and 14.3 here.

LESSONS LEARNED

This section shares perspectives from key professionals involved in the Burke Park case study about the design process as well as the aspects of design that could be most effective in promoting play and learning in a joint-use neighbourhood park and school playground. We interviewed landscape architects, city staff, school staff, parent representatives, and the retirement centre's outreach coordinator to understand the perspectives of the different actors involved in this project.

Landscape architects and city staff shared their perspectives on challenges, lessons learned, and necessary elements for the design process as well as their perspectives on incorporating children's ideas and desires into the master plan and implementation of the park redesign. The school principal, 4th grade teacher, and parent leadership council representative explained how the park's new features facilitate play, learning and connection to the community. The retirement centre's outreach coordinator shared her views on how the design process and outcomes have benefited the seniors who reside in the centre. Most importantly, all these stakeholders shared their insights on the advantages and challenges of the synergy between the school and the city's park system.

Design for joint use

Our observations of the school playground and the interviews with the various stakeholders showed that the courtyard layout of the school, combined with the presence of sightlines, are very important elements for shared use. The location of the playground inside the school courtyard creates a spatial gradient, from private to public, between the courtyard and the park.

Private-public gradient

From the courtyard space, the most private, intimate and defensible realm, the playground opens into a threshold space, located next to the end of the courtyard and the beginning of the open part of the park (see Figure 14.4). Beyond this threshold, children have access to the park itself, which is the most public space and a place of total exploration (see Figure 14.4).

Important features of the gradient between these three spaces are the visual connections between the courtyard and park. This layout works for children because they have different spaces with various levels of prospect and refuge, and control by teachers. Prospect is a feature of places in which children can observe others, while refuge is found in settings where they can retreat and find their privacy (Appleton, 1975). This gradient also works for teachers because they can control children easily in two of these three spaces (courtyard and threshold space); with teachers' control diminishing as children approach the park. However, a 4th grade teacher reported that children rarely played in the park near the lake without teachers' supervision. Also, the courtyard is a 'defensible' space when school is in session, i.e. community members feel that they are entering a private space and teachers and students can recognize who they are.

Insert Figure 14.4 here.

This gradient derives from a variety of factors but this layout was not intentionally planned for these outcomes. A recent building expansion added a third wing to the school, creating an interior courtyard. With classrooms on three sides, the school wanted this area to serve as a quiet playground so that noise levels outside would not distract indoor learning. A parent representative noted that the school wanted to locate more quiet activities and gathering spaces within the

courtyard and active louder play in the intermediate zone just outside the courtyard, more distant from the classrooms. This public–private gradient could be usefully applied to other sites.

Sightlines

The parent representative explained that besides the joint use obligations mandated by the GOCO grant, the school does not want to build a fence between the courtyard and park because they ‘wanted to give the kids the idea of sharing and not being scared’. However, in order to mitigate risk and increase safety, the school avoided planting shrubs or pine trees in the courtyard, which could have created hiding places for strangers. Thus, visibility and clear sightlines are important design elements when designing for shared use.

Intergenerational design elements

Since many of the designed park features have not been built yet, it is hard to determine which design elements can facilitate shared use of the park beyond the courtyard. However, one of the city landscape architects suggested that the community garden (not built yet) could be ‘a community catalyst’ to bring different generations together. Also, the analysis of Table 14.1 shows that what the children and the seniors asked for are quite compatible. However, the Frasier Meadows community outreach coordinator noted that some seniors would like to see less young people in the park for noise reasons. Although the community outreach coordinator suggested that seniors need to understand that the park is a shared space, this indicates the need for areas with different noise levels.

Best practices for a joint-use park planning process

The interviews with professionals involved in this project also highlighted successes and shortcomings of the Burke Park participatory process, which suggest the following principles for best practice. Many

participants noted that the main success of the Burke Park project was the process itself, including the involvement of many different groups. As one of the city architects observed, ‘Unless people are engaged, [the park] is not going to be used’. Figure 14.5 includes a diagram with the various steps of the Burke Park participatory process and a diagram showing how the process could have been improved, based on the professionals’ ideas.

Insert Figure 14.5 here.

Strategic planning

The comparison between the two diagrams in Figure 14.5 shows that best practices include strategic planning at the very beginning of the process. Many actors expressed the need to set the goals, timeline and budget for the project early in the process, and invite all stakeholders to be engaged from the very beginning. Several participants observed that Frasier Meadows residents were not invited from the beginning, and therefore the overall goals of the project and its timeline were unclear to people in this community. This shows the need for initial meetings with all the actors involved, in which they define the blueprint for the project, including a flowchart with the role of each actor.

Inclusive community meetings

The majority of those interviewed believed that the community meetings were the most significant part of the process. These meetings brought together people with different needs, interests and priorities and allowed them to share their visions. By doing this, the project created space to find common ground and acceptance of different ideas and needs, as the retirement centre’s outreach coordinator explained:

> At the community meeting at Horizons in November, you were doing your best to allow everyone to have a voice. Having different

tables with different objectives was a good strategy for engagement. It was an obvious open door to communication.

Having Horizons' students present their ideas to the larger community was particularly significant. A teacher stated that it was significant 'for kids to have the courage to speak about ideas, the ability to listen to others and hear different perspectives, to feel empowered'. Students at Horizons were used to presenting their ideas to their classmates, 'but they don't often get the opportunity to speak in front of people they don't know'. Having design professionals and community members listen to them showed students that their ideas could have a meaningful impact.

A slow design process that allows dreaming

In addition to providing different spaces for participation, some observed that it was important that the project provided an initial unhurried time for 'dreaming'. This was significant for relationship building, for shared learning about the ecology of the park, and for adequate consideration of potential changes and opportunities; and to provide a space for 'dreaming', Dreaming was important because it allowed points of connection and collaboration and led to more creative outcomes, but it also created a framework for different sectors of the community to come together. As the school principal explained:

> [The most significant part of this project was the first couple of meetings], where everyone agreed to take a balcony view and take time to ask, "What inspires you about this project?" I felt compelled by the possibility of this partnership, not coming with answers but with a lot of "what ifs," giving people space for dreaming.

Several people claimed that the project increased awareness and cooperation among different community groups, and created a new interest in learning about how they might work more together. After the community meeting held at Frasier Meadows, residents there started thinking about how they might hold more activities in the park, not just for individual groups but also for the whole community. In the words of the retirement centre's outreach coordinator:

> This meeting when you [project partners] finally came over was a turning point….[It reminded] residents that the park is theirs, too. That it is for them with their families, their grandchildren and great-grandchildren.

These new relationships were unexpectedly demonstrated by the neighbourhood response to a severe flood that hit Boulder the following autumn. Frasier Meadows was significantly hit by floodwaters. When water was pouring into the building, people from the neighbourhood came out to help. Frasier staff attributed this to the relationships they had developed over the course of the project, 'There is a whole lot more of wanting to take care of each other'.

By providing the space of several months for the community process to unfold, people began to trust in each other and in the process. Previous tensions started to mend. Similarly, by providing spaces for everyone to have a voice, people were able to listen to each other, and to 'put away their specific voices for the greater good'. More than one participant felt that this was important not only for the children but also for the school community and parents, and the seniors:

> Learning came from working with the city and community. Kids learned that it is great to dream but they have to work within

> the realities of the project. That there has to be negotiation—you are not the only one using the space.

Another benefit of providing space and time was that the children were able to engage more deeply with the site, to ‘dwell in the state of design’ and to develop more detailed design ideas. Giving students different media to express themselves was also important, made possible by the prolonged process of engagement. One of the city architects expressed his appreciation of working as a team with children because of the ideas they brought to the table: ‘As designers, we have our own visions. That’s why we do what we do, but some of us, too, love working in teams because of what happens in that’.

Sharing the ongoing successes

Several participants noted the sense of community that the meetings helped establish. The Explorations in Burke Park website (Explorations in Burke Park, 2012), which was created to document and trace the progression of the participatory design process, also helped build a sense of community and pride in the process. Through the website, parents and the larger community could engage with ideas generated at school, facilitating an understanding of new design ideas proposed for the site. The website was updated regularly, and in doing so contributed to the energy of the project. A city architect expressed the importance of sharing ongoing project successes.

> The story, the photos that you provided [on the GUB Burke Park website] were huge. It was almost like the fuel. There was always the ability to go back and see, “look what we did,” that imbued so much energy for me. I remember sending out links to like 200 friends, saying, “Look at this, look at what a school in our

> community is doing, look at how it is breaking down ideas of what a city government is.

Translation from community ideas to finalized plans

The translation of design ideas from the community meetings to feasible plans is a key moment in participatory design processes. During this step, in the words of one of the city's architects, 'The job of designers and planners is to step back, look at the options, and distil a do-able summary of what people are asking for'. This step can be problematic at times, as one of the city architects observed that 'some architects can be quite egocentric', while when working with communities the key element is 'negotiation'. In the Burke Park project, drawings from both the municipality and CU students demonstrated integrity in the process. The drawings tell that the city architects were listening and tried to honour what they had heard from the participants.

In particular, we asked the participants about the opportunities and challenges of translating children's ideas into operational plans. Although children were given the opportunity to dream, many participants noted that children had generally feasible ideas, as shown in the final design (see Figures 14.2 and 14.3). One of the city architects noted that, to elicit useful ideas from children, 'You need to be open and honest, and let children know that their ideas won't be built exactly this way'. Another city architect defined working with children and translating their ideas as an 'amazing experience' and noted an interesting difference between translating children's and adults' ideas:

> Kids know what they want, and they are really clear about putting that down and showing you how to do it. They don't do it in a

way, like adults, where it's like they *need* it right there, in that way, in that colour. It was exciting that they could say, "That's what I want, do something with it," and when we did—whatever we did—as long as there was a hint, a flavour wafting through, it was enough.

Despite these successes, a few participants from Horizons highlighted that the process would have benefited from an additional meeting with the city architects before a final design was completed. One of the differences between the two diagrams in Figure 14.5 is an added step in which the community gives feedback about the plan to the designers. This feedback session should include the way designers incorporated the community's ideas into the plan and could include the evaluation of two or more conceptual design plans.

There could have been one more meeting with Parks and Rec staff, parents and students before the draft plans were finalized. One more meeting to say, "Let's stay open, and what do you think of this?" Maybe have an architect unpack their thinking as they went into the design phase (here is what they thought they heard, here is what they did and why). One more feedback session when it was really close so that people would have felt part of it.

CONCLUSIONS

The lessons learned from the Burke Park participatory project have implications beyond Boulder. Lessons about design for shared use that could be applied in other contexts include the benefits of a public-private gradient between school and park, the need to lay out areas with compatible sound levels, the need for sightlines and to avoid spaces to hide near the school, and the potential of community gardens as places that can bring the community together. However, these design

lessons need to be defined by the specific community groups that will create shared green spaces; thus the importance of an inclusive design process.

In terms of process, lessons include the importance of strategic planning at the beginning of the process, the necessity of inclusive community meetings, allowing enough time for a slow process open to dreaming, sharing ongoing successes inside and outside the community, the importance of accurately translating the community's ideas, and the need for a feedback session in which the community comments on proposed designs. These lessons, partially depicted in Figure 14.5, constitute best practices for a joint-use park planning process.

Given the success of the project, the Parks and Recreation Department sees Burke Park as a model that can be expanded to other schools and parks in Boulder. Another design process for a joint-use playground is currently underway in the city. As our interviews indicated, joint-use has mutual advantages for cities and school systems. School districts often have few resources to develop their outdoor spaces, but they often own considerable land, which can enable cities to expand park and playground access.

These mutual benefits show the potential of schoolyards as neighbourhood parks and of neighbourhood parks as schoolyards, as integrated types of green infrastructure that can provide opportunities for contact with nature for children and their communities in dense urban environments.

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Figure 14.1 Burke Park in the Frasier Meadows neighbourhood in Boulder, Colorado

Table 14.1 Comparison of adults' and children's desired design elements

Recurrent themes	What the literature says: adults	What seniors said	Benefits and functions: adults	What the literature says: children	What children said	Benefits and functions: children
Paved paths through nature	Smooth pavements for easy access	Well-maintained walking areas through nature	Physical activity and health, mental health and restoration, safety	Pathways linking play zones	Paths with different colours, textures, functions. A boardwalk to the centre of lake	Connectivity supporting different users (e.g., bikes, elderly), wildlife viewing
High levels of biodiversity: Ungroomed wild nature	Biodiverse park spaces, presence of wildlife	Ungroomed wild areas, areas to experience nature, acceptance of climate change, permaculture design, change of seasons	Experiencing nature, mental health and restoration		Animal habitats, meadows, bird nests, bullfrog pond, water	Exploration of wildlife habitat
Natural diversity: Nature play				Natural elements, loose parts, small groves, open spaces, hills, bushes, tall grasses	Hills, hill slides, dirt mounds, willow tunnels, active play equipment with nature	Active play: Rolling, sliding, crawling; Experiencing nature
Attractive natural features: Well-maintained manicured landscapes	Park spaces with trees, plants, pleasant scenery, water features	Community gardens, A naturalized enclosure with trees and seats, xeriscape, fishing, change of seasons	Mental health and restoration, social capital, experiencing nature, safety		Community gardens, tipi with seating, natural arbors, water features	Aesthetics, sensory experience, food, quiet reading spaces

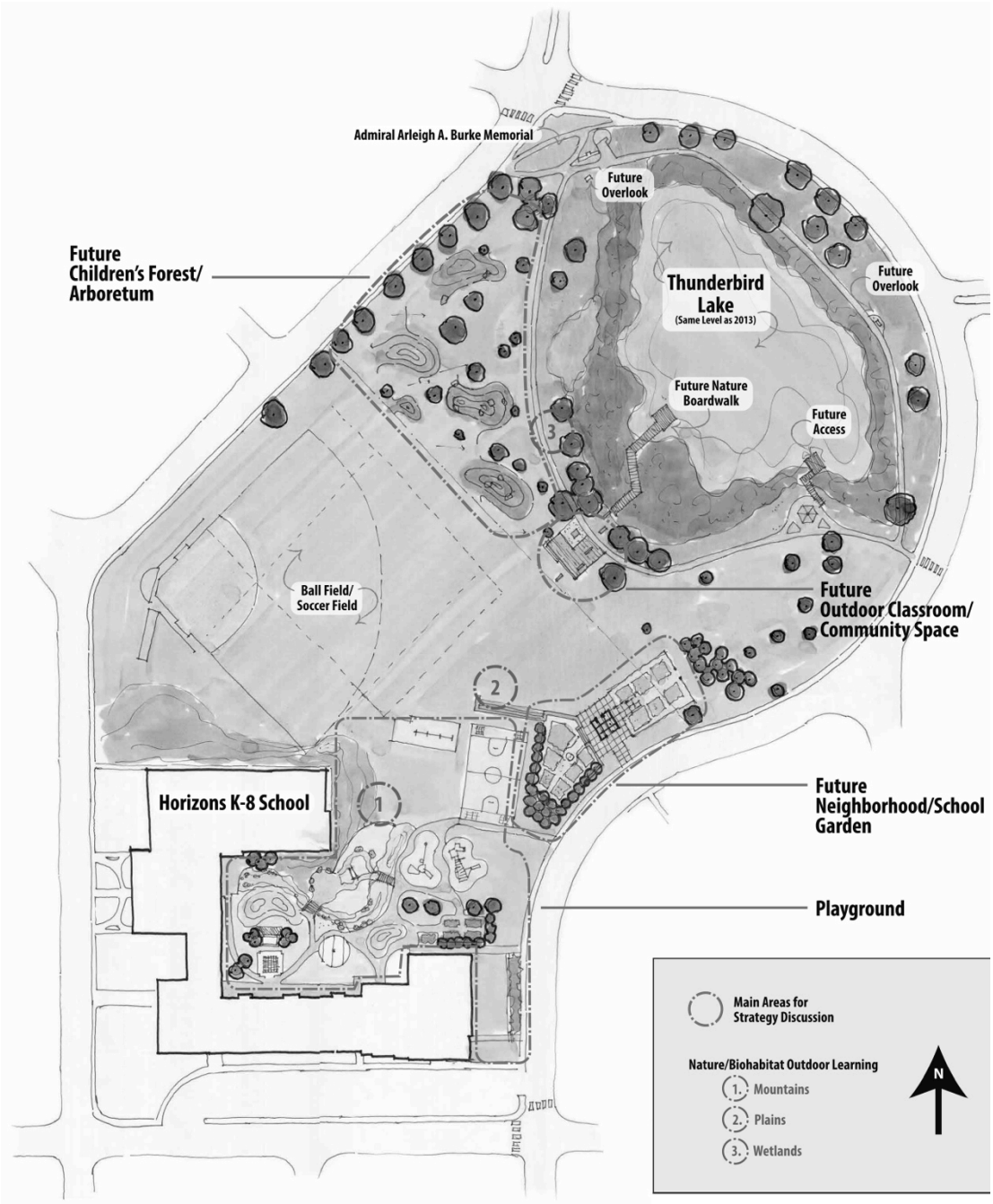

Figure 14.2 The Burke Park Master Plan (Source: City of Boulder's Par and Recreation, 2014)

Figure 14.3. The design created a new playground (top; source: Stephen Cardinale), outdoor classroom and habitats (bottom; source: Lynn M. Lickteig).

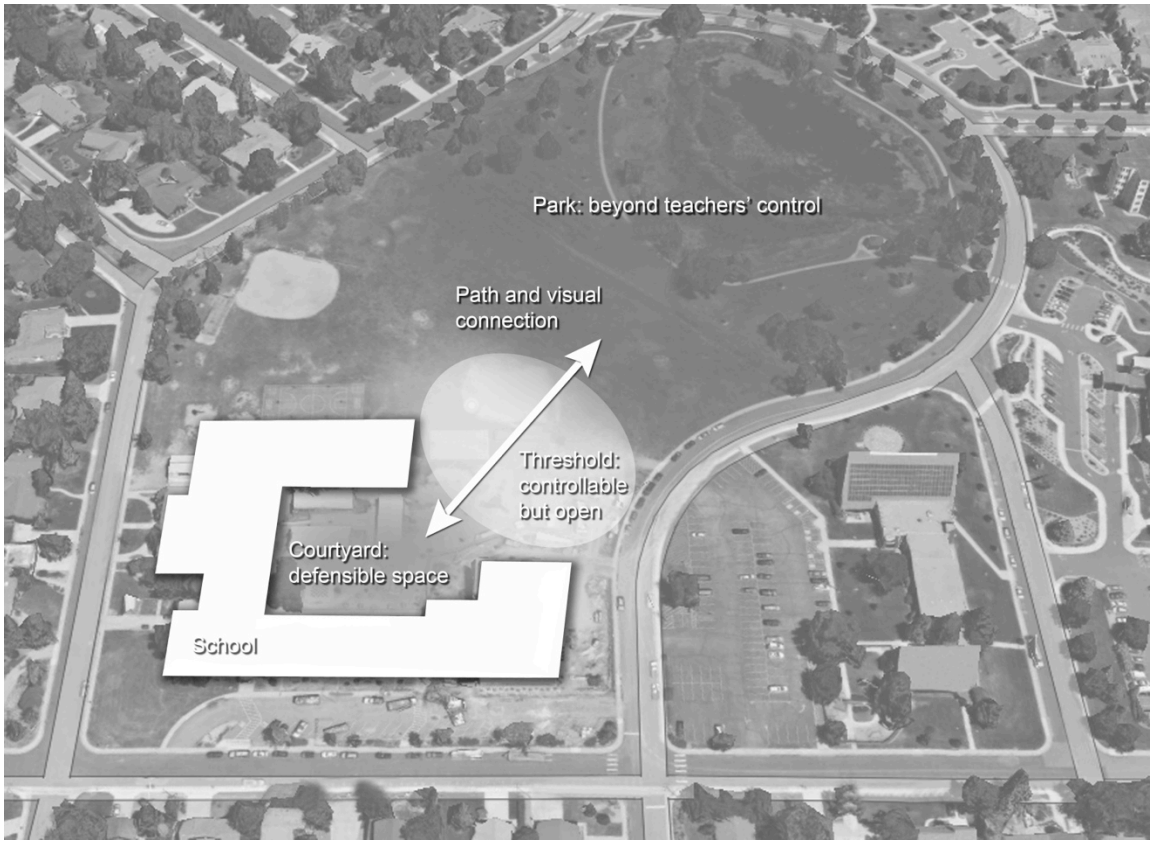

Figure 14.4 The spatial relationship between playground and park

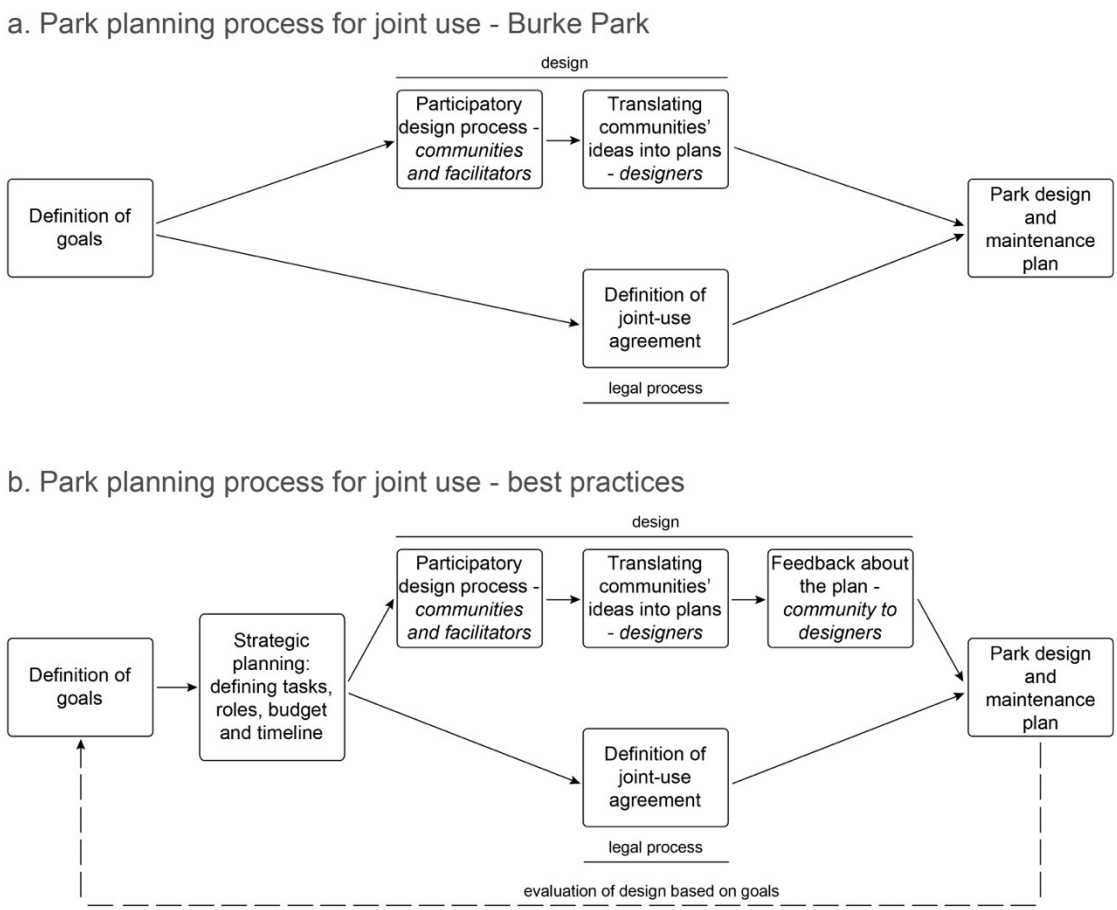

Figure 14.5 a) The participatory design process for Burke Park and b) how it could have been improved