Participatory Design of a Comprehensive Playground Intervention Manual

for Obesity Mitigation in Phoenix, AZ

by

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ABSTRACT

In the past three decades alone, the United States has witnessed a dramatic rise in the prevalence of obesity and overweight in adults and children. Efforts towards obesity mitigation and prevention have produced promising recommendations and researchers and practitioners alike acknowledge that real solutions must match the complexity of the problem. Comprehensive approaches that target environmental, economic, socio-cultural, and knowledge-based factors that influence diet and physical activity are highly recommended.

However, the literature yields little in the way of what such comprehensive obesity interventions actually entail and how they ought to be developed. In particular, there are knowledge gaps in how various stakeholder groups can bridge institutional barriers to collaborate in ways that maximize resources, build upon synergies, and avoid duplication of efforts; and how specific recommendations are actually implemented.

This thesis aims to contribute to an emerging body of literature that fills this gap by presenting a practical case study on how to create a playground obesity intervention in the Gateway District of Phoenix, Arizona, in collaboration with researchers, health professionals, neighborhood residents, and city officials. The objectives were two-fold: 1. To outline concrete steps that will allow an organization to create a playground linked with healthy kids education program that aims to increase physical activity, perceptions of safety, and community cohesion; 2. To outline how diverse stakeholders can collaborate effectively to create such a cohesive, complex obesity intervention.
A detailed, actionable intervention manual was drafted through semi-structured interviews, literature review, a survey, a stakeholder workshop, and an extended peer-review. The manual describes the sequence of actions necessary for creating an innovative playground that reinforces learning, encourages creative play, and increases physical activity. The sequence of actions was linked with existing local assets, stakeholder roles and responsibilities, costs, and potential barriers. This manual, as well as the process itself, can serve as a transferable model for helping organizations come together to build the capacity required in order to tackle complex health challenges.
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EXECUTIVE SUMMARY

In the past three decades alone, the United States has witnessed a dramatic rise in the prevalence of obesity and overweight in adults and children. This rapid growth in overweight and obesity prevalence is especially troubling because obesity is strongly linked with chronic diseases that lead to death and disability. It is estimated that “obesity-related morbidity may account for 6.8% of US health care costs” (Mokdad et al., 1999, p.1519) and obesity has become the second leading preventable cause of death in the United States, second only to tobacco use (Yasken et al., 2009, p.305).

There has been an urgent call by federal health agencies, health professionals, and community members alike, for action to address the obesity epidemic. In recent years great strides have been made in understanding the individual mechanisms at work, and the multitudes of environmental, social, economic, and cultural factors that influence obesity behaviors. Real solutions must match the complexity of the problem -- comprehensive approaches that target environmental, economic, socio-cultural, and knowledge-based factors that influence diet and physical activity are highly recommended. Some examples of such interventions are emerging in the literature but in general, evidence is lacking. Researchers and decision-makers alike have pushed for more comprehensive evaluation of obesity interventions in order to build a body of evidence that can be used in decision-making processes.

While this evaluation work is essential to building the capacity required to solve complex problems, evidence of what works does not necessarily lead to implementation of what works. A major limitation of the type of evaluation advocated for is that it does
not provide any guidance on “the policy-making process itself, including the drivers and barriers to adoption of evidence-based interventions at the organizational, local, state, and national levels” and the “characteristics most likely to affect intervention efficacy, scalability, and dissemination (e.g., financial constraints; feasibility of replication; and the funding, partners, community support, political support, staff, skills, resources, and protocols required to implement the intervention)” (Brennan et al., 2011, p.218) – the “how”. What does implementing a comprehensive obesity intervention actually entail and how can they be developed. In particular, there are knowledge gaps in how various stakeholder groups can bridge institutional barriers to collaborate in ways that maximize resources, build upon synergies, and avoid duplication of efforts and how specific recommendations are actually implemented.

This thesis aims to contribute to an emerging body of literature that fills this gap by presenting a practical case study on how to create a playground obesity intervention in the Gateway District of Phoenix, Arizona, in collaboration with researchers, health professionals, neighborhood residents, and city officials. The objectives were two-fold: 1. To outline concrete steps that will allow an organization to create a playground linked with healthy kids education program that aims to increase physical activity, perceptions of safety, and community cohesion; 2. To outline how diverse stakeholders can collaborate effectively to create such a cohesive, complex obesity intervention.

Using the Transformational Sustainability Research Methodology paradigm, the project engaged about 30 stakeholders in the Gateway District through semi-structured interviews, a survey, a stakeholder workshop, and extended peer-review. This process
resulted in a refined and contextualized understanding of obesity and its influences in Gateway District, a vision for what a comprehensive playground and educational intervention could look like, and an evidence-based, actionable obesity intervention manual on how to implement a comprehensive playground obesity solution was drafted and shared with participants.

The manual is divided into three components – the physical component, the social component, and the educational component -- and describes the sequence of actions linked with costs, potential partnerships, and local assets and barriers.

The physical component includes the planning, design, and installation of all infrastructure and landscaping of the playground facilities. Key vision elements are physical design elements for safety, access, and community building; shade and vegetation; cool water easily accessible; and playground equipment that encourages learning, creative play, and greater physical activity. The phases begin with establishing a team, site selection and funding, engaging community in innovative playground design elements, and building and maintenance.

The social component is driven by the vision of the playground as an active, bustling, community hub where families and children are there playing and relaxing at most hours of the day. Key vision elements include:

1. Social elements of community building: holding community events like celebrations, health fairs, music events, Zumba classes, and farmer’s markets.
2. Social elements of safety: police patrols and volunteers to supervise the playground at certain hours.
3. Social elements of access: An afterschool ‘walking bus’ run by a rotating schedule of volunteer parents that brings kids from the surrounding areas to the playground.

The educational component includes the steps for creating a playground-based nutrition and physical education program that is flexible enough to engage families with different time-constraints, language abilities, and commitment levels. Like a gym or fitness center, the program is accessible through regular sessions or through drop-in hours at certain times. Both kids and adults learn through hands-on activities about incorporating healthy diets and movement into their lives. Parents can even drop their children off at the playground, where local university students in Nutrition, Childhood Education, and Exercise and Wellness programs lead them through educational activities and games on the playground. Educational programming was meaningfully linked to the playground design and could be sustainably staffed through local university student internships.

In addition to the intervention manual, the research also produced a compelling case study on a process for engaging diverse actors in participatory obesity intervention design that can serve as a transferable tool for advancing collaborative solutions in other communities. Workshop settings can advance collective understanding of how various actors can come together to build capacity in order to tackle complex health challenges -- who can contribute what resources, expertise, staff; targeted funding sources; and when specific stakeholders must act. Results suggests that TSR methodology and the field of
sustainability may have real contributions in bringing together stakeholders in the complex health challenge arena.

While this research has provided some basic outlines to the shapes in the fog, its utility is limited by several factors that were difficult to control and outside the scope of a Master’s thesis.

A major limitation of the research was insufficient diversity and representation at the workshop -- of the 42 participants invited only 16 came. Despite best efforts to engage a diverse group of participants, time conflicts, lack of responses, last-minute cancellations, and no shows were issues that could not be controlled. The workshop was completely voluntary, outside of the normal scope of the workday, and included few concrete incentives. This limitation speaks to a general challenge of collaborative engaged work in that there is a dearth of institutional structures and norms to support cross-sector, cross-disciplinary work. Furthermore, lack of participation is also due to limited time and resources: nearly all of the people working in communities are stretched thin and over-extended. Thus, many stakeholders who are the most invested and most active have the least amount of time for more engagement.

A second limitation to this research is that there was insufficient intervention manual testing past the extended peer-review. The questions remain of how or whether the intervention manual is used, whether or not the intervention manual facilitates the implementation process, the quality of implementation, and whether or not the playground intervention works in reducing obesity, improving safety perceptions, and building community cohesion.
In light of the challenges and limitations, further long-term evaluation research into the efficacy of this work is certainly needed and would inform our understanding of how the intervention manual can achieve distal outcomes and the value of this design process in facilitating collaborative work.

Lastly, while the results provide a rudimentary idea of how transition arenas can be initiated and managed, this was only a secondary aim of the research project. There is much more work to be done in understanding how effective the transition arena was in overcoming established boundaries, whether the stakeholders will continue collaborative efforts, and what sort of long-term formal institutional arrangement can help align action and build on synergies. These questions can and should comprise a whole study of their own, if we are to create institutional frameworks that will generate the collaborative capacity needed to address exiting and emerging complex problems.
INTRODUCTION

The Obesity Epidemic

Obesity is perhaps the most urgent public health issue of our time, with pervasive negative impacts across all sectors and scales. In the past three decades alone, the United States has witnessed a dramatic rise in the prevalence of obesity and overweight in adults and children. According to the 2009-2010 National Health and Nutrition Examination Survey, 35.7% of American adults and 16.9% of children and adolescents are currently obese (Ogden et al., 2012). Among adults, “obesity prevalence increased from 13% to 32% between the 1960s and 2004” and it is projected that by 2015, 75% of adults will be overweight or obese, and 41% will be obese (Wang & Beydoun, 2007, p.6).

This increase in overweight and obesity prevalence is especially troubling because, as numerous studies over the years have shown, obesity is strongly linked with chronic diseases that lead to death and disability such as diabetes and cardiovascular disease (WHO, 2012; Pi-Sunyer, 1991; Lew, 1985; Thomas et al., 1950). As body weight increases, risk for hypertension (Dyer & Elliot, 1989), diabetes, cardiovascular disease (Brown et al., 2000), cancer, hypertriglyceridemia, stroke, degenerative joint disease,
sleep apnea, and several other diseases increases as well (Pi-Sunyer, 1991; Wolf & Colditz, 1996; National Institutes of Health, 1998). It is estimated that “obesity-related morbidity may account for 6.8% of US health care costs” (Mokdad et al., 1999, p.1519) and obesity has become the second leading preventable cause of death in the United States, second only to tobacco use (Yaskin et al., 2009, p.305).

Major health organizations such as the Centers for Disease Control (CDC) and Prevention, WHO, and National Institutes of Health (NIH), federal agencies, and public and private organizations are funding research on understanding the causes of obesity, how obesity leads to serious chronic diseases, and on developing prevention and treatment strategies. There has been an urgent call by federal health agencies, health professionals, and community members alike, for action to address the obesity epidemic (Brennan et al., 2011; CDC, 2009; Huang et al., 2011; NIH Obesity Research Task Force, 2013; Robert Wood Johnson Foundation, 2013; WHO, 2013;). Although examples of successful interventions can be found, on the whole, obesity rates are generally holding steady or increasing for some segments of the population in the United States (CDC, 2012).

One reason for this lack of success is the predominant view of obesity as an issue of energy balance. This view of obesity lends itself to solutions that target the individual, for instance, one study suggests: “the development of strategies and programs for weight maintenance as well as weight reduction must become a higher priority. Public health messages should focus increasingly on balancing energy intake with physical activity” (Mokdad et al., 1999).
Previous prevention and intervention strategies have largely focused on individual behavior change to improve knowledge and cognitive behavioral skills (Summerbell et al., 2005) without the consideration of context or generalizability. Many of these strategies have aimed to increase physical activity or decrease calorie intake in individuals through education-based approaches. Evidence suggests, however, that interventions targeting only individual behavior change have limited success (Kumanyika, Jeffery, Morabia, Ritenbaugh, & Antipatis, 2002; Summerbell et al., 2005). (Huang et al., 2011)

While it is true that fundamentally, the cause of obesity and overweight is an imbalance between calories/energy consumed and calories/energy expended (WHO, 2012), the genetic, environmental, economic socio-cultural and knowledge-based factors that influence energy balance are numerous, complex, and operate across all scales.

A growing agreement is these socio-environmental factors may have a more profound impact on individuals’ body weight than the individuals’ characteristics (Egger & Swinburn, 1997; Hill & Peters, 1998; Huang et al., 2011; Wang & Beydoun, 2007; WHO, 2000;). Human biology and willpower are not significantly different from what they were generations ago. Society and environment however, have radically altered in the past few decades. There have been major changes in where and how we work, transportation, food processing, and media and advertising. “This is not to dismiss personal responsibility altogether, but to highlight a reality: that the forces that drive obesity are, for many people, overwhelming” (Butland et al., 2007, p.5).
More recently, several obesity researchers have expanded upon this view and advocated for a complex systems approach to obesity (Finegood, 2008; Kumanyika, 2011; Huang, T., 2009).

A systems perspective helps decision makers and researchers think broadly about the whole picture rather than merely studying the component parts in isolation. Such a perspective can help to frame, explain, and resolve complex problems such as obesity. It can lead to a better understanding of interactions and highlights the importance of taking into account the context in which public health problems occur and how that context may affect the implementation and impact of interventions. A systems perspective can enhance the ability to develop and use evidence effectively and suggest actions with the potential to effect change.

(Kumanyika et al., 2011, p. 6)

One such system map, shown below, has been created by the Foresight program of the UK Government Office for Science (Butland et al., 2007).
Figure 2. Foresight Full Obesity System Map (Butland et al., 2007, p.84)

The Foresight complex system map was developed through a multi-stakeholder process and includes 108 variables, some of which are measurable and some of which are more difficult to operationalize.

The relationships between the variables are illustrated with >300 solid or dashed lines to indicate positive and negative influences. All the variables are interconnected, some with large numbers of inputs and others with large numbers of outputs. The connections give rise to feedback loops with as few as two variables (e.g., a affects b which in turn affects a) or involving as many as 16 variables. At the core of the map is “energy balance” (energy intake vs. energy expenditure). The core (also referred to as the engine) is surrounded by variables
that directly or indirectly influence energy balance. These variables are clustered in seven themes ranging from Food Production to Physiology. (Finegood et al., 2010, p.S13)

The objective of creating this system map was to communicate the “systemic and messy nature of the problem” (Finegood et al., 2010, p.S14) and thus, redirect attention from ineffective single intervention approaches to solutions that are multifaceted and more appropriate for complex problems.

Similarly, the obesity epidemic is discussed in sustainability literature as a sustainability problem with specific characteristics (Talbot, 2012; Wiek et al., 2012a). Wiek & Lang (2013) developed a set of criteria for identifying and framing sustainability problems, based on a literature review of complex, “wicked”, and “persistent” problems. They threaten the viability and integrity of societies or groups; they are urgent, requiring immediate attention for decisions to avoid irreversibility; they have projected long-term future impacts that necessitate consideration of future generations; they are place-based, which means causes and impacts can be observed within distinct localized area; they exhibit complexity at spatial levels (reaching from local to global levels) and cut across multiple sectors (social, economic, environmental); and they are often contested.

Obesity is life-threatening in that has become one of the leading preventable causes of death in the United States. It is a long-term problem whose negative impacts last for lifetimes and pass on through generations. Obesity and overweight are increasing at a rate that demands urgent action. As demonstrated through the systems maps developed by the Foresight program (Butland et al., 2007), obesity is a complex problem
that is driven by cross-sectoral and cross-scale influences from an individuals’ peer network to mass media advertising and messages about body image, from walkability to industrial food processing. Obesity is place-based in that it manifests in specific individuals and communities. Lastly, obesity is contested, in that there are those who view obesity as the sole responsibility of the individual – an issue of individual willpower as opposed to a complex problem linked with environmental, social, economic, and knowledge-based influences.

A second reason for the lack of successful obesity interventions is the need to switch from a problem-orientation (reductionist in nature, seeking to understand causal mechanisms of obesity better) to a solution-orientation (integrative in nature, seeking to understand the causes of improved health) (Wiek et al., 2012b). For example, the Foresight obesity program used a solution-oriented approach by framing the problem of obesity as a complex network of interactions. This allowed them to use the system map to identify leverage points and sort out promising solution options that could affect those leverage points (Finegood et al., 2008). In the book Making Things Work: Solving Complex Problems in a Complex World, Bar-Yam (2005) introduces a solution-oriented framework built out of his experience in solving complex problems. Finegood (2008) distills the following seven principles from the book: 1. Consider that individuals matter – for different individuals, different subsets of factors are important and thus different approaches are needed. 2. Match capacity to complexity. Failure is likely when our capacity is insufficient and often times, we fail to build capacity “when there is little opportunity to gain experience or practice a complex task, or when we can’t translate a
task into terms we can easily understand” (Finegood, 2010, p.S15). Thaler et al. (2010) suggest that the mismatch between capacity and complexity can be addressed by ‘choice architecture’, where system actors reduce complexity of tasks by “retaining elements of choice, by avoiding the mantra of demanding ever more choice, and by ‘nudging’ people in the right direction” (Finegood, 2010, p.S15). 3. Set functional goals and directions for improvement. 4. Distribute decision, action, and authority. 5. Form co-operative teams to build relationships across sectors and disciplines. 6. Create competition and feedback loops. 7. Assess effectiveness and maintain accountability and reflexive learning attitude (p.40).

These principles bring us to the third reason for the lack of successful obesity interventions: lack of knowledge on how to effectively collaborate across sectors. As the system maps show, obesity is a complex problem that no single intervention or actor can solve on their own. Designing and implementing solutions requires bridging institutional barriers, building internal capacity, and augmenting capacity through collaboration and partnerships (Kumanyika et al., 2011). Finegood (2010) states: “Wicked problems such as obesity demand appropriate responses including recognition of the fact that contextual factors are important to the effectiveness of solutions. As such, we need integrated systems that support the work of a diverse set of actors in learning from what they do and adapting their actions to their current context.” (p.S16).

These sorts of integrated systems have recently emerged in the Netherlands where they are used to tackle other complex sustainability problems like global environmental change, and have developed into an area of research called “transition management”
(Loorbach, 2010; van der Brugge & van Raak, 2007; van de Kerkhof & Wieczorek, 2005). The transition management framework “is concerned with the dynamics of structural change in societies, and when and how transformations can be initiated, facilitated, and influenced” (van der Brugge & van Raak, 2007, p.2). A key feature of the transition management framework is the transition arena – an institutional setting that allows a variety of cross-sectoral actors to come together and commit to a plan of action around a complex challenge. The arenas are described as a negotiation space where actors develop joint visions and concrete strategies for interventions. Whereas typical meetings are spaces for the exchange of information, a transition arena is a space for change – confronting individual interests, aligning interests, renegotiating objectives, committing resources, and action. (van de Kerkhof & Wieczorek, 2005, p.737). The transition arena is seen as the counterpart for “the normal short-term, interest driven policy arena” (van der Brugge & van Raak, 2007, p.9)

There is still much to be learned about transition arenas, and ways to institutionally reinforce collaborative work. Common critiques of the transition management framework are that it is not explicit enough about the methodological organization and maintenance of a transition arena – who is responsible for organizing the arena? Who selects the participants and by what criteria? Who facilitates the arena so that discussion is generative and helps progress towards the articulated vision? How do participants deal with conflict in the transition arena? (van de Kerkhof & Wieczorek, 2005, Shove & Walker, 2007). What is clear is that it remains a challenging task to collaborate meaningfully across a diverse network of stakeholders.
The Research Gap

Recent research in obesity has advocated for a complex, solution-oriented approach that relies on collaboration and broader socio-environmental change to build capacity. Already, there are a few interventions of this type under way in communities across the United States (CDC, 2009; Crespo et al., 2012; National Association of County and City Health Officials, 2011; Vaughn et al., 2012).

However, only very recently, has there been a systematic review and evaluation of the effectiveness of these interventions (Brennan et al. 2011). Brennan et al. designed an ongoing review system to evaluate policy and environmental strategies to combat childhood obesity as well as emerging and promising strategies worthy of further investigation. “The system is designed to assess evidence and identify gaps quickly and to stimulate new thinking about the evaluation, research, and systematic reviews needed to identify what works and what might work in the arena of policy and environmental strategies to prevent childhood obesity” (Brennan et al., 2011, p.200).

While this evaluation work is essential to building the capacity required to solve complex problems, Brennan et al. acknowledge that evidence of what works does not necessarily lead to implementation of what works. A major limitation of the research is that it does not provide any guidance on “the policy-making process itself, including the drivers and barriers to adoption of evidence-based interventions at the organizational, local, state, and national levels” and the “characteristics most likely to affect intervention efficacy, scalability, and dissemination (e.g., financial constraints; feasibility of replication; and the funding, partners, community support, political support, staff, skills,
resources, and protocols required to implement the intervention)” (Brennan et al., 2011, p.218) – the “how”. There is little guidance in the way of how these complex interventions that are recommended in the literature can actually be implemented in real-world situations – what are the resources, partnerships, and expertise required? How would an organization or coalition embark on creating a similar intervention in their own community? Perhaps even more critically, we lack the knowledge of how various stakeholder groups can bridge institutional barriers to collaborate in ways that maximize resources, build upon synergies, and avoid duplication of efforts and how specific recommendations are actually implemented.

This thesis aims to address the gap in actionable knowledge by presenting a practical case study that brought together obesity researchers, health professionals, neighborhood residents, and city officials to design a manual for how to create a playground obesity intervention in the Gateway District of Phoenix, Arizona. A detailed explanation and justification of the site and intervention selection are provided in the sections below. The study addressed two major research questions:

1. What are the concrete steps that will allow an organization to create a playground linked with healthy kids education program that aims to increase physical activity, perceptions of safety, and community cohesion?

2. How can diverse stakeholders collaborate effectively to create such a cohesive, complex obesity intervention?

This case study provides one evidence-based instructional guide for implementing a complex obesity solution as well as an example of a process that may serve as a
transferable model for how to help diverse organizations come together to tackle complex health challenges.

**Gateway District**

The Gateway District is situated in Phoenix Arizona and is bounded by Sky Harbor Airport to the south, the highway 202 to the North, I-10 to the West, and SR-143 to the East.

*Figure 3. Gateway District Map (Wiek et al., 2013)*
An analysis of U.S. Census data shows that the Gateway District has a population of 13,928 people with a median age of about 31 years. 72% of residents identify themselves as ethnically either Hispanic or Latino, and 11% identify themselves as African American. There are a total of 2,539 families, with an average of about 4 people per family. Single mothers head 31% of families. There are 4,537 total housing units, 84% of which are occupied. Of those occupied units, 71% are rentals. Only 106 people live south of Washington St., indicating that the majority of residential area is in the northern half of the district (Wiek et al., 2013).

Although no district-level obesity data is available, childhood obesity is a documented issue in the state of Arizona. The state suffered a 46% increase in childhood obesity between 2003 and 2007 -- the highest rate of increase in childhood obesity of all states -- and 17% of children were obese in 2007 (Singh et al., 2010). While the precise obesity statistics for Gateway District are unknown, the prevalence and priority of obesity as a health challenge were confirmed during a summer 2012 community visioning and strategy building process led by Arizona State University School of Sustainability (ASU SOS) and Mountain Park Health Center (MPHC), a non-profit health organization. The process engaged over 100 health professionals and community members who described obesity and its associated chronic diseases as the top health challenges in the community (Xiong et al., 2012).

Some of the specific reasons obesity is prevalent in Gateway district are the lack of recreational facilities and a negative safety perception in areas of the neighborhood. St. Luke’s Health Initiatives (SLHI), another major health organization in the metro-Phoenix
area, performed a health impact assessment of the Gateway District in 2012 (Fonseca & Narayan, 2012). Several asset mapping and survey activities were conducted as part of a community workshop involving 48 residents. During the workshop, community members identified four major concerns:

a) Lack of availability and access to healthy food

b) Lack of recreational facilities such as community centers, parks, or even large social gathering spaces in the district.

c) Negative safety perception due to street and traffic safety and a socially uncomfortable or dangerous environment (prostitution, drugs, vagrancy).

d) Limited public transportation access, due to infrequent routes and costs.

The following map shows the community-identified assets: only one park appears on the map.
The Hilaria Rodriguez Park, which was completed in 2012, has a small playground appropriate for toddlers. SLHI found that nearly 50% of the residents at the workshop were “either uncertain of the location or existence of this park” (Fonseca & Majumdar-Narayan, 2013, p.12). SLHI liability mapping data and anecdotal evidence from conversations with community members indicates that the location of the park is in an industrial/commercial area that is considered unsafe with a high concentration of prostitution and adult entertainment facilities, stray dogs, and many liquor stores.

Gateway District can be considered an “obesogenic” neighborhood -- one where the “layout prevents or discourages physical activity” (Cutts et al., 2009, p1314.). Obesity
Interventions in Gateway District are required that address community concerns of lack of healthy food, lack of recreational opportunities, safety, and limited mobility.

In addition to the physical and demographic features that make Gateway District a compelling case study, the area was selected largely due to strong existing relationships with local stakeholders and availability of data from past engagements and past work in the neighborhood (Machler et al., 2012; Xiong et al, 2012). Sky Harbor Neighborhood Association has worked together with ASU on a number of community building, visioning, and strategy engagements and Mountain Park Health Center and the ASU School of Sustainability (SOS) began exploring collaboration options in 2009. Active collaboration began in 2011, when MPHC started the planning process for relocating the East Clinic to a new, larger site in the heart of Gateway District. In a stark departure from typical new clinic construction protocol, MPHC felt that community input in clinic design was essential in making sure community needs were addressed and so the clinic could become a real community resource. This resulted in a partnership to hold several community visioning and strategy building workshops in the summer of 2012. The ASU research team developed strong relationships with MPHC and with stakeholders in the Gateway community that allowed for continued engagement and research.
RESEARCH DESIGN

Transformational Sustainability Research Methodology

This research project adopted the Transformational Sustainability Research (TSR) Methodology (Wiek et al., 2012b; Wiek & Lang, 2013) – a solution-oriented research approach using mixed methods that has recently been applied to other studies on public health issues in Phoenix (Talbot, 2012; Xiong et al., 2012). The goal of the methodology is to generate actionable knowledge on how to solve complex problems by meaningfully engaging stakeholders and communities.

For this project, TSR is structured in three basic modules:

1. Assessment of the current state: develop a basic understanding of the problem, prevalence, behaviors and activities, drivers and influences, and adverse effects. It is important to emphasize that current state analysis is not the focal point of this research methodology; it serves as a reference point for developing strategies.

2. Envisioning a desirable future state: develop a coherent and consistent vision of the ‘problem solved’ state, the ideal situation.

3. Developing interventions and transition strategies: develop a transition pathway with interventions that will help moving from the current state to the envisioned future state.
Figure 5. TSR design of the thesis research project

This thesis research project engaged various stakeholder groups to generate an understanding of obesity and its causes and influences in Gateway District; to envision an active, healthy community; and to develop a specific playground obesity intervention manual that guides the reader in achieving the vision

Expert Interviews and Survey

The objective of the interviews and survey were to:

1. Develop and refine an understanding of the behaviors, actions, and drivers behind obesity in the community.
2. Learn about ongoing obesity intervention efforts and their results in the community.
3. Identify the top few intervention points in the obesity system map that must be targeted.
4. Identify the top few interventions that would target those intervention points.
Eight semi-structured interviews were conducted with local health professionals, non-profit organization leaders and staff, school officials, and obesity researchers. Due to time constraints and scheduling conflicts, a survey was also developed to reach six more health professionals and educators. Initial participants were recruited through relationships built during a prior community engagement process in Summer 2012 with the Mountain Park Health Center. Additional participants were found through a general search of health organizations active in the Gateway District. These contacts helped broaden the participant pool through their own networks and recommendations.

Interview and survey participants were first asked to peruse and respond to a draft of the obesity complex problem map, which drew on literature review and previous attempts at mapping obesity (Wiek et al., 2012a). This initial obesity diagram relied heavily on the Foresight project (Butland et al., 2007; Kumanyika et al., 2001) to ensure all major thematic clusters were captured. The Foresight map is the most complete, detailed, and functional of system maps reviewed, with feedback loops, operationalized variables, and comprehensive relationships that convey the complexity of the problem. However, these characteristics also render the system map unusable and ineffective as a tool for engagement and communication with community and stakeholders. The sheer number of variables and lines are overwhelming so it was necessary to find a way to simplify the diagram so that stakeholders could meaningfully engage with the problem understanding. Thus, the following initial diagram was created that limited obesity to four main categories of drivers: physical environment factors, economic factors, socio-cultural factors, and knowledge and capacity.
Figure 6. Obesity Complex Problem Map – Draft 1

Interviewees and survey participants were asked to comment on the accuracy and completeness of the diagram, and suggest any revisions or additions. The obesity complex problem map was referred to throughout the interview process. Interviewees described the obesity interventions they knew of in the area or had worked on and mapped them on to intervention points in the obesity complex problem map. Finally, participants were asked to identify the intervention points that were most critical to target or gaps where there are currently no existing interventions. Based on these leverage
points, participants were asked to identify the most appropriate, feasible, and effective interventions to target those intervention points.

**Selection of the Playground Intervention**

Intervention selection was determined through literature review, expert interviews, and a survey. The literature review focused on interventions that have been evaluated, have yielded success, are low-cost, and are appropriate for Gateway District. The selection criteria are the following:

1. **Cost of implementation and maintenance** – low cost interventions are preferred although higher cost interventions that also have a good probability for funding are possible as well. An intervention that is no- or low-cost for the user is also preferred.

2. **Effectiveness** – tested interventions with proven success are preferred.

3. **Demonstrated need for this type of intervention in Gateway District** – is the intervention contextually appropriate and is there a gap in this type of service in the neighborhood? Does the intervention target a particularly strong leverage point? This draws on data from interviews that highlighted gaps in service and key leverage points.

4. **Existing Assets Available**: existing physical resources, skills, expertise, capacity, funding available, and organizational will behind implementing the intervention. Intervention cost and effectiveness are determined based on research and literature while demonstrated need and existing asset criteria are based on empirical data on Gateway
District and participant input. Criteria were weighted differently – effectiveness was the most important, followed by demonstrated need and existing assets. Cost was less important as often it can be mitigated through existing assets.

Table 1

*Intervention Selection Criteria*

<table>
<thead>
<tr>
<th>Rating Scale</th>
<th>Cost*</th>
<th>Effectiveness*</th>
<th>Demonstrated Need for Intervention**</th>
<th>Existing Assets**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low cost</td>
<td>Tested, proven effective</td>
<td>High priority</td>
<td>Funding, expertise, and resources available</td>
</tr>
<tr>
<td>2</td>
<td>Medium cost</td>
<td>Tested, mixed results</td>
<td>Medium priority</td>
<td>Some existing assets available</td>
</tr>
<tr>
<td>3</td>
<td>High cost</td>
<td>Untested but promising</td>
<td>Low priority</td>
<td>Few existing assets</td>
</tr>
</tbody>
</table>

* Based on literature review

** Based on empirical data from Gateway District

**Comprehensive Playground Intervention Manual Design Workshop**

A stakeholder workshop was held at the GateWay Community College on March 27\(^{th}\), 2013. The workshop was designed to bring together local health professionals, local organization representatives, obesity researchers, City of Phoenix staff, and community members in order to:

1. Initiate a transition arena setting for diverse stakeholder groups in Gateway District to develop an obesity mitigation and prevention strategy.

2. Review and form a consensus on the problem understanding of obesity in Gateway District, via the obesity complex problem map.
3. Elaborate on a vision for safe, accessible, community play areas and educational programming that encourages active healthy lifestyles.

4. Co-create a detailed intervention manual for how to design a playground that is linked with an active kids educational program in Gateway district.

The participant pool was composed of local obesity researchers, health and wellness organizations, neighborhood associations, experts in playground creation, school districts, and City of Phoenix Parks and Recreation staff. Participants were recruited based on existing relationships, through the interview and survey process, and through a general internet search of playground, health, and community organizations. These invitees were also asked to suggest a colleague in the case that they were not able to attend the workshop. 42 people were invited through the recruitment process yielding 16 workshop participants from different organizations and backgrounds.

Table 2

<table>
<thead>
<tr>
<th>Organization</th>
<th>Number of People Contacted</th>
<th>Number of Final Workshop Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona State University</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Local Health Organizations</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>Local School Districts</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Neighborhood Organizations</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>City of Phoenix Staff</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>42</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

The workshop design was influenced by Intervention Research Methodology (Fraser et al., 2009), which describes the steps in creating and revising intervention materials with stakeholders. Fraser et al. describe the researchers role in intervention manual design as conceptualizing intervention strategies rooted in the logic model,
incorporating research findings into the manual, and integrating best-practice evidence. The stakeholders’ role is to conceptualize intervention strategies rooted in the logic model, identify institutional and community level assets and barriers, and contextualize material within the community’s condition. Thus, the workshop was designed in a way where prior research could be communicated to stakeholders and reflected upon, and where stakeholders could contribute new, contextual knowledge.

Participants began by vetting the obesity complex problem map, which served as an important communication aid and reference during the rest of the workshop. Participants then divided into three breakout groups facilitated by School of Sustainability graduate students and faculty: playground design for increased physical activity; educational programming linked with playground; access, hours, and making the playground a community space.

The breakout groups were tasked with developing a detailed vision of their topic (What does a playground that increases physical activity look like? Who is using it? When are they there and what are they doing?) and with discussing all details related to the implementation of that vision (See Appendix B: Breakout Group Questions). Next, facilitators lead the breakout groups through a series of questions to determine the sequence of steps, stakeholder roles, costs, capacities and skills required, existing assets, barriers and coping strategies, collaborative opportunities, and monitoring and evaluation opportunities. Two of the breakout groups had ASU School of Design students who contributed to discussion and also provided real-time sketches of group ideas and visions.
As many participants had expertise and interest in more than one breakout group area, there was time allocated towards the end of the workshop for regrouping, sharing, and feedback so all ideas could be incorporated.

The workshop ended with a plenary discussion on ways to continue collaboration, overcome institutional barriers to collaboration, build upon existing coalitions, and concrete next steps.

**Extended Peer Review of the Intervention Manual**

An initial draft of the Intervention Manual was developed based on interview, survey, literature review, and workshop results. This draft was shared with all stakeholders involved in the project as a way to continue engagement and capture feedback on content and ease of use. Seven specific stakeholders with expertise in in-school educational programming, parks and recreation, and safety and policing were asked to provide a more formal review of the document. For example, a representative from the Arizona Bridge to Independent Living, a disability advocacy group, was asked to review the document to incorporate aspects of universal design and ensure the playground was accessible to children of all physical abilities. Peer reviewers were also affiliated with ASU, various City of Phoenix departments, the Phoenix Children’s Hospital, and the Arizona Association for Health, Physical Education, Recreation and Dance. In addition to assessing the coherence of the manual, they were asked to evaluate the quality of the evidence presented, the feasibility of the project, and the thoroughness of content.
Feedback from this extended peer-review process was incorporated into the final draft of the manual. Additionally, the peer-review also provided an opportunity to capture perspectives of key stakeholders who were invited but unable to attend the workshop.
RESULTS

Current State Problem Assessment: Obesity as a Complex System

Interview, survey, and workshop participants found the initial obesity problem map accurate and complete in describing obesity and its causal factors in Gateway District. When asked to rate the diagram on a scale of 1-5 (1 = very accurate and complete; 5 = inaccurate and incomplete), 66.7% of survey respondents rated the map a 1 and 33.3% rated the map a 2 (n = 6).

Figure 7. Obesity Complex System Map – Final Version
The problem model centers on the relationships between obesity, an individual’s actions or behaviors, and the broader social and physical “background” drivers. Direct causes of obesity on the individual level can be simplified to three major factors – epigenetic and genetic predisposition, diet, and physical activity.

Poor maternal health and prenatal care can lead to infants who are predisposed to obesity and overweight. Although not shown on the diagram, many of the influencing factors that lead to poor maternal health and prenatal care are the same ones that lead to poor diets and insufficient physical activity.

While there is always an element of individual choice, several external factors influence an individual’s diet as well. Physical environmental factors include the availability, awareness, and access to healthy food in the neighborhood and prevalence of junk food. In the Gateway District, the only food stores within 1 mile of most residents are convenience stores and fast food restaurants. One interview participant mentioned that although the nearby Chinese Cultural Center provides fresh groceries, the majority of residents are non-Asian and prefer grocers that are more tailored to their cultural needs. Economic factors include the cost of healthy food and food preparation in terms of time, money, and resources. Many stakeholders commented that healthy food is not necessarily more expensive, although it might take more effort and time to purchase and prepare than picking up a meal at a fast food restaurant. Socio-cultural factors include values of comfort, familiarity (for example, certain cultural food traditions) and convenience and messages from food media and advertising. Finally, education plays a large role in diet in terms of knowledge of nutrition and how to prepare healthy meals on a budget.
Stakeholders suggested that nutritional knowledge was not simply a question of adequate education, but also an issue of the prevalence of misinformation in the media such as celebrity fad diets and misleading statements about sugar-free or fat-free foods.

Like diet, an individual’s physical activity patterns are influenced by several external factors as well. Physical availability and access to recreational opportunities such as parks, walking paths, gyms, and fields is a major issue in Gateway District. Neighborhood walkability is low due to physical factors such as lack of shade, traffic safety concerns, and need for sidewalks and safe street crossings; and social factors like perceptions of safety. Safety is a major barrier to physical activity, as many parents are unwilling to let their children play outdoors and do not feel comfortable walking in the evenings. Furthermore, a unique issue to this region and socio-cultural group is the political climate and Arizona immigration law, SB1070. Interviews revealed that many residents are fearful of police and authority figures, which leads to a downward spiral in terms of crime and reporting – residents are hesitant to even report crimes and violence to police. Finally, stakeholders identified insufficient physical education as major barrier citing “lack of quality physical education and health education in the schools”, and reduction of recess time and cutting physical education programs due to lack of funding.

**Leverage Points in the Obesity Complex Problem Map**

Stakeholders identified several areas where interventions were critical – key leverage points that should be a priority for researchers and health organizations in the area. An analysis of interview transcripts and survey responses to the questions “Based
on your work and experience, what are the top three intervention points in the diagram that should be targeted (i.e. lack of economic resources, lack of safe play areas, lack of accessibility to grocery stores, etc.)?” and “Based on your experience and expertise, what are the three most promising, effective, and feasible obesity interventions for diverse, low-income neighborhoods in Phoenix?” yielded these top three leverage points: safety (6 mentions), access to healthy food and recreation (8 mentions), and family-centered education tailored to the cultural background and language needs of the population (10 mentions).

These leverage points were also confirmed in the literature and through the SLHI Health Impact Assessment of Gateway District. For instance, a recent study suggests that negative social variables like crime and safety perception might prevent locally available resources for physical activity from being truly accessible to community members. Through GIS mapping “to evaluate the relationship between the distribution of populations vulnerable to obesity and proximity to parks and walkable street networks in Phoenix, Arizona” (Cutts et al., 2009, p.1314) the research team found that:

Counter to predictions, subpopulations generally considered vulnerable to obesity (and environmental injustices more generally) are more likely to live in walkable neighborhoods and have better walking access to neighborhood parks than other groups in Phoenix. However, crime is highest in walkable neighborhoods with large Latino/a and African-American populations and parks are smaller in areas populated by Latino/as. Given the higher prevalence of obesity and related diseases in lower income and minority populations in Phoenix, the results suggest
that benefits of built environments may be offset by social characteristics. (Cutts et al., 2009, p.1314)

This study confirms the issue of safety as a major barrier to successful obesity interventions, as it is not enough to provide physical access to educational programming, healthy food outlets, or recreational facilities. Access is more complex than availability and transportation routes but is layered with social characteristics that can prevent or enhance physical access.

**Selected Intervention**

The top few interventions suggested by participants and found in the literature were evaluated based on criteria described in the research design section and presented in the table below.

Table 3

*Intervention Selection*

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Cost</th>
<th>Effectiveness</th>
<th>Demonstrated Need for Intervention</th>
<th>Existing Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>School-based Educational Interventions</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Walkability Interventions (Trees, Sidewalks, Public Transit)</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Building Park and Playground Facilities</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mobile Food Pantries and Healthy Food Stores</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Family Education Interventions</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Cost and effectiveness were determined through literature review. Education-based interventions are less expensive while interventions involving physical infrastructure such as playgrounds, building health food stores, and walkability interventions are more expensive. In terms of effectiveness, education-based interventions yielded mixed results (CDC, 2009) and while an association has been established between availability of healthy food and consumption of healthy food, mobile food markets are largely untested in the literature (Faith et al., 2007; Jago et al., 2007).

Demonstrated need for intervention was established through empirical data on Gateway District and through interviews. Multiple school-based interventions are already well underway and Gateway District is part of the ReInvent Phoenix project, a long-term city-university effort to improve walkability and transit-oriented development along the metro light-rail transit corridor.

Based on participant input and research, a comprehensive playground intervention teamed with a family-oriented educational program was selected. Although the selected intervention is high cost, the cost was balanced out by high contextual feasibility, proven effectiveness in the literature, demonstrated need, and the presence of existing neighborhood assets.

Research has shown that access to playgrounds and similar recreational facilities can contribute to increased physical activity (CDC, 2009; USDHHS, 2012). In fact, intentional playground design such as painted lines and shapes on the pavement (Stratton & Mullan, 2005) and temporary portable play modules that introduce an element of
novelty (Hannon & Brown, 2008) are proven to increase physical activity in experimental playgrounds over control playgrounds.

Research also suggests that playgrounds can address a major barrier to recreation and physical activity – safety concerns. Playgrounds are good gathering spots that can increase community cohesion (Knight Foundation, 2012), which is based upon good interactions and trust between community members. Stolle et al. (2008) found that “the negative effects on trust are mediated by the regularity with which individuals interact with their neighbors” (p.58). Thus, increasing social interactions between residents in diverse neighborhoods may actually help build interpersonal trust and community cohesion, and increase perceptions of safety.

As shown by the SLHI asset mapping, there is a demonstrated need for playgrounds and recreational facilities in the Gateway district. This point also came up several times during interviews with stakeholders.

Finally, there exists a compelling suite of assets in the Gateway District that contributed to the selection of the playground intervention. Mountain Park Health Center is building a new clinic in Gateway District and has plans for building a playground on campus. Not only is MPHC equipped with land and poised to acquire funding for the playground intervention, they are interested in comprehensive community health interventions and have expressed interest in using a manual on playground intervention design.
The Vision: A Safe, Active, Community Play Space

Workshop participants informed the construction of a vision narrative by describing physical elements of the playground, activities, the users, and the aspects of the educational program that could be linked with the space.

The playground is seen as a holistic community space where children are encouraged to engage with the environment through imaginative play and families can enjoy spending time together, walking around the nearby walking paths, and sitting in the shade. Natural elements like trees, vegetation, and contoured land are integrated with man-made playground elements. There is plenty of shade provided by a canopy of tree cover and cleverly angled shade sails that block the summer sun but allow winter sun to enter and warm the area.

Children’s sensory and imaginative skills are engaged through colorful lighting in the evenings and musical playground elements modeled after xylophones and drums. Children run around a grassy area where they can use balls, jump ropes, and other equipment. There is a pavement space with painted letters, lines, and shapes. These painted lines are proven to increase children’s physical activity on playgrounds and can also be used to reinforce things children might be learning about in school – numbers, letters, shapes, and geography (Stratton & Mullan, 2005). A small horizontal climbing wall runs along one side of the playground – short enough to see over and for any falls to be painless, but tall enough to provide a good challenge for children.
The kids can cool down by playing in a small splash park adjacent to the playground, which operates during the hotter months, or by drinking cold water at any of the several water fountains located around the periphery.

During the evenings, the playground is safe and well-lit. There are no dark corners and the community cares for the playground so that it is well-kept and free of litter and graffiti. The area has become a community hub and is quite active and bustling at most hours. An afterschool ‘walking bus’ run by a rotating schedule of volunteer parents walks a route around the nearby neighborhood, picking up kids to go to the playground. It is well used by families with children of all ages, who come to the playground on foot and bicycle. The community hosts events there in the evenings and weekends and sometimes a farmer’s market sets up nearby. As the playground becomes more well-known, some families even travel by light rail to attend events at the playground.

The playground is also seen as an excellent place for family-oriented health education programs but stakeholders articulated that it is more than just a passive setting – design elements of the playground actively reinforce a child’s education through pictures, colors, shapes, and motions. Kids manipulate and play with shapes they learn about in math class. Along the walkways and walls, are small planter boxes labeled “pizza” or “taco”, filled with herbs, tomatoes, beans, onions, or lettuce to help kids learn about where their food comes from.
The educational program is flexible enough to engage families with different time-constraints, language abilities, and commitment levels. Like a gym or fitness center, the program is accessible through regular sessions or through drop-in hours.

Some families participate in the afterschool and weekend program at the playground, where both kids and adults learn through hands-on activities about incorporating healthy diets and movement into their lives. While parents sit in on a short nutrition module in a shaded green space nearby, their kids are being lead through an activity on the monkey bars, where they are identifying the muscle groups they are using to pull themselves along the bars. They learn about healthy eating and cooking on a tight budget, nutrition myth busting, and other basic health education topics.

Passersby and more occasional playground users stop by the colorful bulletin board where they find new recipes, a schedule of fitness and wellness classes at the playground led by volunteer fitness instructors, playground events, healthy snack ideas, and ideas for active games the kids can play.

Parents can even drop their children off at the playground, where local university students in Nutrition, Childhood Education, and Exercise and Wellness programs lead them through educational activities and games on the playground. Not only is this a free educational opportunity for the families, it is an opportunity for the university students to gain practical hands-on experience as well.

The playground is envisioned as a dynamic place that continues to change and evolve over time – when the playground lines wear off, new, community painting events are held and different designs are painted on. Small, inexpensive portable play equipment...
modules are cycled out every few months and the children can use their imaginations to create new games and new experiences every day. The community has a large role in envisioning how the playground should be today and into the future.

The Vision Map below shows how the playground intervention affects several intervention points on the obesity problem map, resulting in improved child and family health with positive individual and societal feedback effects. The playground and educational programming can target diet through improved knowledge and capacity and physical activity through all influencing factors – accessibility and affordability of recreation, increasing positive social interactions that mitigate safety barriers to recreation, and improved knowledge and capacity for active living and physical education. Workshop participants also indicated that the intervention could influence maternal health by providing a space for mothers to be more active and learn about preparing healthier meals.
The Intervention Manual

The intervention manual draws on evidence and information from research and from the workshop breakout groups. Participants at the workshop discussed the context specific details that allow the intervention manual to be actionable and relevant for the community. The core elements of the Gateway District Playground Obesity Manual are presented below.

The manual begins with an introduction of the inputs, process, and actors who supported the creation of the manual. It gives a broad overview of the obesity epidemic.
and a detailed narrative of the vision for the playground intervention as a safe, active, community space – a more tangible inspiration for users of the manual. The rationale for selecting a playground intervention and the objectives of the intervention are explained.

**Goals of the Playground Intervention Manual**

The immediate objective of this manual is to provide Gateway District community members with the basic knowledge necessary to plan for, design, and create a playground linked with healthy families education program; and some of the feasible partnerships (both formal and informal) between organizations and stakeholders that will help make the intervention possible.

By building this knowledge and these networks, it is hoped that the community can implement an innovative obesity intervention that provides much needed recreation space, and builds community cohesion.

The long-term objectives of this manual are to encourage transitions to healthy and active lifestyles in Gateway district and to help keep community attention focused on continuing collaborative efforts to combat obesity and work towards sustainable, healthy communities.

*Figure 9. Intervention Manual Excerpt – Goals of the Playground Manual*

The manual also contains a section on the target audience and how the manual can be used to support obesity intervention efforts:
Using this Manual

Who should read this manual?

This guidebook is intended for a wide variety of audiences: schools, parks, community health centers, community organizations, afterschool programs, and many more may find the guidebook, or elements of the guidebook useful.

The manual is also intended to be used by collaborative teams – we recognize that it is resource and time intensive to create and maintain comprehensive interventions and some of those barriers can be overcome by taking advantage of existing synergies through partnerships with other organizations.

How do you use the manual?

The manual is divided into three sections:

- The Physical Component: Playground Infrastructure
- The Social Component: Access, Safety, and Community
- The Educational Component: Healthy Families Program

In each section, you will learn about the main phases for implementing each component as well as detailed steps, stakeholder roles, costs, capacities, assets, and barriers. Each section concludes with some ideas for monitoring and evaluation so that the community can learn and improve upon the intervention.

Roles: The actors involved at a certain stage and their responsibilities.
Costs: Financial costs and physical materials necessary
Capacities: Social costs – the expertise, knowledge, and staff necessary
Assets: These are all existing resources, materials, and expertise that can contribute to implementing the intervention.
Barriers: These are social, economic, cultural, and physical factors that stand in the way of implementing each phase of the intervention.

Figure 10. Intervention Manual Excerpt – Using the Manual

Breaking the intervention into three components, allows the manual to be more adaptable and flexible to suit readers’ needs. It can be used in its entirety for an organization that is starting from scratch, or it can be used in a piecemeal fashion to implement components. For example, a school that has an existing playground but wants to learn about extending playground hours so that the facility is accessible to the public
afterschool can look into Section 2 – The Social Component: Access, Safety, and Community. A community park might be looking to update playground area equipment and can peruse the playground design piece in Section 1 – The Physical Component. A boys and girls club that has access to a playground might read Section 3 – The Educational Component, on how to create a fitness and nutrition education program that takes advantage of the playground space to enhance student learning.

The transition diagram below shows the basic structure of each of the three components. We begin with the current state – no playground, lack of safety and community cohesion, lack of health and nutrition education, lack of access to recreation, high obesity rates – and progress towards the vision of a safe, active, community play space by accomplishing the actions within each phase. The phases are made up of a few concrete steps that are linked with roles, costs, capacities, assets, and barriers. As we overcome barriers and perform the transition actions, we move from phase to phase.
The manual concludes with ways for communities to revise, improve, and personalize the manual to fit the contextual needs of their own communities. A comprehensive packet of templates, resources, and references are included as well.

**The Physical Component of the Playground.** The physical component includes any physical infrastructure of the playground and surrounding areas. Readers are reminded of key vision elements in the beginning – physical design elements for safety, access, and community building; shade and vegetation; cool water easily accessible; playground equipment that encourages learning, creative play, and greater physical
activity. The following transition diagram shows the specific phases and steps for designing and building the playground.

**Figure 12. Transition Diagram – The Physical Component**

Each step is meant to be an actionable task that is linked with assets and collaborative opportunities within the Gateway District. For example, several roles and expertise-types are suggested in *Phase 1, Identify Team Members and Roles*. These general roles are linked with the specific people and organizations in the community, identified by stakeholders during the workshop, who could fulfill them.
Step 2. Identify Team Members and Roles

The initial core team should be composed of individuals with expertise in playground architecture, design, early childhood education, health and physical activity, public engagement, grant writing and fundraising, city zoning and building requirements, and the community. Ideally, team members are inspired by the vision and are willing to commit to a project that will be 1 – 3 years in length. Team members may be expected to contribute somewhere from 1 – 4 hours per week. Additionally, as the project progresses, more team members may be added on like the playground site owner, volunteer coordinator, and a construction team liaison.

A critical step is to draft a job description and responsibilities for each team member. The job description should contain a job title, a summary of the job, the desired skills, and the expected duties. This will help ensure that tasks do not fall through the cracks; responsibilities are distributed in a way that is manageable, fair, and transparent; and that team efficiency is maximized. Some examples are listed below:

- Architects and Designers
  - Kellogg and Associates (http://www.kellogg-associates.com/) are currently designing the Mountain Park Health Center playground at 3838 E. Van Buren St, Phoenix, AZ.
  - The Arizona State University Herberger Institute for Design and the Arts may be able to contribute expertise. Students are always looking for capstone projects and internships. Faculty might be interested in taking on a playground design project as part of a workshop course for students.

- Community Liaisons
  - Contact your local neighborhood associations

- City of Phoenix Liaison
  - Contact the City of Phoenix Parks and Recreation Department http://phoenix.gov/parks/index.html
  - Contact the City of Phoenix Neighborhood Services Department http://phoenix.gov/nsd/index.html

- Volunteer Coordinator

- Fundraiser/Grant writer
  - Contact local non-profit organizations to see if a fundraising or grant-writing specialist on their staff would be willing to donate some time to fill this role or to help train a team-member.

- Playground Site Owner
  - Local health clinics such as Mountain Health Park Center
  - Local community centers
The Social Component of the Playground. The social component is driven by the vision of the playground as an active, bustling, community hub where families and children are there playing and relaxing at most hours of the day. Key vision elements include:

4. Social elements of community building: holding community events like celebrations, health fairs, music events, Zumba classes, and farmer’s markets.

5. Social elements of safety: police patrols and volunteers to supervise the playground at certain hours.

6. Social elements of access: An afterschool ‘walking bus’ run by a rotating schedule of volunteer parents that brings kids from the surrounding areas to the playground.

The following transition diagram shows the specific phases and steps for how to create safety, accessibility, and community-building opportunities at the playground.
The Social Component: Access, Safety, and Community

Figure 14. Transition Diagram – The Social Component

The phases are detailed, with examples and stories from the community. For instance, in Phase 2, Plan Playground Hours, privately owned playgrounds at schools, churches, community centers, or health clinics will need to think about how to extend playground hours past when the main facility is open. Interviews with a local superintendent provided an excellent example of a successful partnership that allowed the school to open its fields, gym, playground, and library after school hours. Wilson Elementary partnered up with Wilson Coalition – a community group -- and applied for a neighborhood block watch grant. This grant is used to pay for a security person who is also a community member to keep an eye on the facilities after school.
Phase 3 describes the process for setting up a “Walking Bus” to bring local latchkey kids to the playground afterschool:

### Phase 3 – Enhancing Community Access

**Objectives:** By the end of this phase you will be able to establish playground hours and implement a helpful “Walking Bus” program to make sure community members and children are able to access the playground safely. A Walking Bus is a trusted adult who walks a specific route around the neighborhood to pick up local children and safely accompany them to another location.

**Step 1. Work with Local Schools and PTSAs**
The community liaison and volunteer coordinator should start with local PTSAs at Crockett Elementary and Wilson Elementary to speak with parents about the idea of a Walking Bus. Recruit parents who would be willing to lead the walking bus on a daily, weekly, or monthly rotation.

**Step 2. Create a Formal Walking Bus Group**
Share the names and contact information of all adults involved and create a schedule. The Walking Bus group, led by the volunteer coordinator or community liaison, should meet to decide on a good route and identify houses where children would be picked up. An initial group activity can be walking the route together and enjoying a potluck or other fun event at the playground. This way, families can meet each other, develop relationships, and build trust.

**Step 3. Walking Bus Training**
The volunteer coordinator should develop a short training program and resources for the Walking Bus group that teaches ways to travel with large groups of children safely, any standard guidelines such as taking attendance, and protocols for any emergency or non-emergency situations (a child goes missing, a child wants to go home, a child gets hurt). Be clear about responsibility and liability – what happens if a child is hurt?

**Step 4. Walking Bus Group Updates**
The Walking Bus Group should check in with each other virtually or in person every month to make sure things are going smoothly, and incorporate more members. Additionally, one or two group members should be appointed school liaisons to share about the Walking Bus with the school and be active in recruitment.

*Figure 15. Intervention Manual Excerpt – Enhancing Community Access*
The Educational Component of the Playground. The educational component includes the steps for creating a playground-based nutrition and physical education program that is flexible enough to engage families with different time-constraints, language abilities, and commitment levels. Like a gym or fitness center, the program is accessible through regular sessions or through drop-in hours at certain times. Both kids and adults learn through hands-on activities about incorporating healthy diets and movement into their lives. Parents can even drop their children off at the playground, where local university students in Nutrition, Childhood Education, and Exercise and Wellness programs lead them through educational activities and games on the playground.

Passersby and more occasional playground users stop by the colorful bulletin board where they find new recipes, a schedule of fitness and wellness classes at the playground led by volunteer fitness instructors, playground events, healthy snack ideas, and ideas for active games the kids can play.

The following transition diagram shows the specific phases and steps for creating the family health educational program:
An important area that stakeholders considered were the many barriers to a successful educational program such as low participation, community apathy, high drop-out rates.

Together, stakeholders brainstormed several intentional recruitment methods and incentives to overcome these barriers:

*Building Capacity and Improving the Program - Establish a mentoring program*
*Implement monitoring and evaluation plan for organizational improvement*

*Educational Program Design and Monitoring and Evaluation Plan - Engage the community and organizational partners - Design basic curriculum and structure - Estimate final costs - Design a monitoring and evaluation plan*

*Establishing a Program Design Team - Identify a champion - Identify team members’ roles - Recruit team members - Teambuilding*

*Current State - Phase 1 - Health Education for All - Phase 5*

![Figure 16. Transition Diagram – The Educational Component](image-url)


### Phase 4 – Recruitment, Training, and Implementation

**Objectives:** By the end of this phase you will have recruited participants, trained interns, and begun the educational program!

#### Step 1. Recruit participants.
Some barriers to the program success are low turnout and participation, and lack of incentives to participate. These barriers can be addressed through an intentional recruitment plan. If community members have been involved in the design process, it is likely that they will have already helped to spread the word.

1. Tap into these neighborhood networks to make sure families know of the program, that is comes at no cost to them, and can be flexible to fit their needs.
2. If the program is located at site with other organizations (health clinic, community center, school) the community liaison and volunteer coordinator can partner with them to recruit participants through their networks. A health clinic, such as Mountain Park Health Center, can even ask their doctors to recommend the program to patients from the area.
3. Build startup energy by planning a few fun kickoff events in the beginning and consider some program incentives. For example, families who attend a certain number of drop-in hours are entered into a raffle for a donated grocery store or farmer’s market gift certificate, a trip to Jump Street (a local indoor trampoline park – http://gotjump.com/), or some certificates for training sessions at AmenZone (http://www.amenzone.com/).

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*Figure 17. Intervention Manual Excerpt – Recruitment, Training, and Implementation*

### Relationships, Networks, and Future Plans

The workshop ended with a plenary discussion on ways to continue collaboration, overcome institutional barriers to collaboration, build upon existing coalitions, and concrete next steps. Participants agreed that this was crucial and suggested that more informal events could be helpful. They also thought that institutional continuity could be achieved if another graduate student continued efforts in the Gateway District or if the university set up student internships. The internships could provide more consistent ways
to ensure there is new energy and that there is always someone spearheading obesity prevention and mitigation efforts. A committed faculty member or professional could mentor the intern to ease the transition, help the new student get up to speed, and ensure that connections remain.

Workshop participants also remarked that an essential aspect of ensuring continued engagement was stakeholder buy-in to a compelling, detailed vision “if people buy into the vision, then it helps sustain long-term efforts”.
DISCUSSION

The primary aim of this research was to contribute to an emerging body of literature that fills the gap in actionable obesity intervention knowledge by presenting a practical case study on how to create a participatory playground obesity intervention in the Gateway District of Phoenix, Arizona, in collaboration with researchers, health professionals, neighborhood residents, and city officials. As Brennan et al. acknowledge, evidence of what works does not necessarily lead to implementation of what works. Research must provide actionable knowledge on how evidence-based interventions are implemented, replicated, funded, staffed, and supported (Brennan et al., 2011).

To this end, the research produced:

1. A detailed intervention manual on how to create an evidence-based playground obesity intervention that can be used by stakeholders in Gateway District and adapted as a resource for similar communities elsewhere.

2. A compelling case study on one process for engaging diverse actors in participatory obesity intervention design that can serve as a transferable tool for advancing other collaborative solutions.

It is important to acknowledge that this research – the scope, quality, and timeline -- was enabled by previous research and partnerships in the Gateway District, building off of previous comprehensive health visioning (Machler et al., 2012; Xiong et al., 2012) and transit-oriented development (Wiek et al., 2013) in Gateway District. The research project took advantage of a window of opportunity where a prior research partner, MPHC, was in the midst of designing a new comprehensive community health clinic,
focusing on in clinic services, on campus services, and community partnerships. This type of alignment, investment in institutional capacity building, and timing are essential in getting collaborative obesity interventions off the ground. The playground intervention project has allowed for continued engagement of stakeholders in envisioning and strategizing for a more sustainable healthy future while also planting some seeds for collaborative work on obesity in Gateway District.

By working together to add detail and substance to the intervention manual, stakeholders provided a clearer picture of how various actors in Gateway District can come together to augment capacity in order to tackle complex health challenges -- who can contribute what resources, expertise, staff; targeted funding sources; and when specific stakeholders must act. The research also provided a setting for an initial conversation on the importance of collaborative efforts and how they can be facilitated and sustained.

Although there is still much to be learned about transition arenas (van de Kerkhof & Wieczorek, 2005, Shove & Walker, 2007), the case study does provide an example of an initial transition arena setting, organized and facilitated by a researcher. Distinct from most examples within the transition arena literature, the stakeholders in this case study were gathered around a specific and concrete intervention, as opposed to the broader challenge of obesity itself. The more tangible and clear-cut nature of the intervention allowed for an accelerated process and more efficient use of time. Future research should look into the potential of first catalyzing transition arenas around interventions and then expanding them, rather than the other way around. The results also suggest that graduate
students and faculty could potentially fulfill the need for facilitation and management of a transition arena setting, although it should be acknowledged that the university is oftentimes a stakeholder within the transition arena settings as well.

Initial discussions with stakeholders indicate that the manual will be used to support and inform ongoing design and construction efforts at the new Mountain Park Health Center East clinic on 3838 E. Van Buren St. Not only is the intervention manual a resource for the Gateway District that identifies specific phases and steps to implementation, costs, local assets and barriers, and strategies to overcome those barriers, it can inform the greater body of obesity solution literature on how to do a playground and education intervention for obesity mitigation, safety, and community building.

Elements of the document such as overall structure of phases and steps, and many of the costs and barriers are universal. Thus, the document has some transferability, especially for other low-income communities in Phoenix, AZ where many of the stakeholders involved in the Gateway District also operate. However, an important caveat should be made on the issue of transferability and generalizability of such intervention manuals: the utility of the document lies in the specificity and contextual nature of the details that inform the structure of the steps. While it would be ideal if the manual could be used to address issues of safety, community building, and recreation anywhere in the world, realistically it can serve as a basic resource at best. There are no shortcuts for this type of work – another community interested in playground interventions would first need to evaluate if the playground is even an appropriate intervention for their community by refining and contextualizing their own obesity problem map and by investing time and
effort into engaging local stakeholders and community members. This caveat also reveals an important finding of the research: the transferability and utility of the process used to create the manual.

The research has provided a case study on how TSR can be used to engage diverse stakeholders and how the process can lead to the creation of useful, specific, manuals and strategies for transitions in a community. The current state problem understanding module provides the basis for mapping out existing assets and interventions in a community and allows for informed intervention selection. The visioning module unites stakeholders in creating a detailed vision about the future they would like to see – an important source of continued inspiration that can drive these difficult collaborative initiatives forward. Finally, the strategy module helps stakeholders construct an actionable plan and manual for moving forward.

**Challenges and Limitations**

This research has provided some basic outlines to the shapes in the fog; however, its utility is limited by several factors that were difficult to control and outside the scope of a Master’s thesis.

A recent review article on visioning indicates that compelling, “positive visions about our societies’ future are an influential, if not indispensable, stimulus for change” (Wiek & Iwaniec, 2013, p.1) and that several methods exist to ensure the constructed visions are truly visionary, sustainable, systemic, coherent, and plausible. Unfortunately, due to time and capacity constraints, the playground intervention vision was not subject
to thorough analysis and testing against these criteria. However, the vision is generally supported by more rigorous visioning efforts that occurred in Gateway District in the past few years (Machler et al., 2012; Wiek & Iwaniec, 2013; Wiek et al., 2013; Xiong et al., 2012).

A second limitation of the research was insufficient diversity and representation at the workshop -- of the 42 participants invited only 16 came. The creation of the manual relies on the varied expertise and knowledge of the stakeholders so this limitation resulted in a less robust manual. Despite best efforts to engage a diverse group of participants, time conflicts, lack of responses, last-minute cancellations, and no shows were issues that could not be controlled. The workshop was completely voluntary, outside of the normal scope of the workday, and included few concrete incentives.

This limitation speaks to a general challenge of collaborative engaged work in that there is a dearth of institutional structures and norms to support cross-sector, cross-disciplinary work. Within academia, there were deep-seated disciplinary boundaries that resulted in lack of engagement across the university. ASU recently began a “multi-faceted, trans-disciplinary” Initiative to combat obesity. Although attempts were made to engaged staff and researchers, the Initiative was not represented at the workshop or in interviews.

Furthermore, lack of participation is also due to limited time and resources: nearly all of the people working in communities are stretched thin and over-extended. Thus, many stakeholders who are the most invested and most active have the least amount of time for more engagement.
A third limitation to this research is that there was insufficient intervention manual testing past the extended peer-review. Although the manual was well received, the questions remain of how or whether the intervention manual is used, whether or not the intervention manual facilitates the implementation process, the quality of implementation, and whether or not the playground intervention works in reducing obesity, improving safety perceptions, and building community cohesion. Further evaluation research into the efficacy of this work is certainly needed and would inform our understanding of how the intervention manual can achieve distal outcomes, however, it is outside of the scope and timeline of a Master’s thesis.
CONCLUSION

Based on the Transformational Sustainability Research (TSR) Methodology, this project engaged about 30 stakeholders in the Gateway District in designing a collaborative obesity intervention manual. The case study yielded an evidence-based instructional guide for implementing a comprehensive playground obesity solution as well as an example of a process that can be used to engage diverse actors in collaborative obesity intervention efforts. The research suggests that TSR methodology and the field of sustainability may have real contributions in bridging institutional gaps and bringing together stakeholders in the complex health challenge arena. The research also illustrates how graduate students, with appropriate professional and academic mentorship can play a role in facilitating collaborative work in communities.

In light of the challenges and limitations, future research is recommended in order to test the intervention manual logic model and to evaluate how the manual is actually used. Although a peer-review of the manual is under way, a more systematic method of tracking stakeholder use of the manual is needed. A longer-term study can contribute to a better understanding of the value of this type of design process in facilitating collaborative work and help reflect upon and improve the process. Further research can also contribute to an understanding of how such intervention manuals and collaborative processes can serve as tools for policy change and advocacy.

Lastly, while the results provide a rudimentary idea of how transition arenas can be initiated and managed, this was only a secondary aim of the research project. There is much more work to be done in understanding how effective the transition arena was in
overcoming established boundaries, whether the stakeholders in Gateway District will continue collaborative efforts, and what sort of long-term formal institutional arrangement can help align action and build on synergies. These questions can and should comprise a whole study of their own, if we are to create institutional frameworks that will generate the collaborative capacity needed to address existing and emerging complex problems.
REFERENCES


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APPENDIX A

INTERVIEW SCHEDULE
Participatory Design of a Comprehensive Playground Intervention Manual for Obesity Mitigation in Phoenix, AZ

Guiding Questions for Interviewer

After introductions and a short description of the thesis research objectives, the Interviewer describes and shows the following system analysis diagram of the complex obesity problem. We will refer to this diagram at certain points throughout the interview.

1. This diagram that shows the direct and indirect causes of obesity as well as the adverse effects of obesity. Based on your work and experience, do you agree with how this diagram describes the problem of obesity? How would you revise this diagram? [Interviewee and Interviewer revise the diagram]
2. What sorts of initiatives does your organization do to combat obesity? How does your organization's work map out onto this diagram? What indirect and direct causes do your organization or initiative target?

3. Have there been any formal or informal evaluations of your organization’s initiative? Are you willing to share the results? What factors contributed to the initiative’s success or failures?
   a. If we are discussing failures or poor results: Was this due to insufficient resources to implement the program fully, a flawed logic model, activities that were not carried out properly, or other reasons?

4. We are looking at creating an intervention manual for obesity mitigation and prevention in Gateway neighborhood. We hope that much of this manual can be transferable to other communities but the manual will be tailored specifically to the population and needs of Gateway. Based on your work and experience, what are the top three intervention points in the diagram that should be targeted (i.e. lack of economic resources, lack of safe play areas, lack of accessibility to grocery stores, etc.)?

5. The intervention manual we create together will focus on a small suite (2-3) of interventions. What are the most promising interventions – in terms of effectiveness and feasibility -- that you think will target those intervention points? Would you be able to direct me to any research or contacts that are knowledgeable about these interventions?

6. Do you or your organization have any expertise or resources that they would be able to contribute in the implementation of any of these interventions?

7. Do you have any data sets on obesity statistics in the area that you would be willing to share?

8. Are you interested in staying involved? We are planning on holding a workshop where we will discuss current research on obesity interventions and design a step-by-step guide for the implementation of a few key interventions in late March. Are there other people you think we should reach out to?

Thanks! Any questions? Interviewer provides follow-up information.
APPENDIX B

BREAKOUT GROUP QUESTIONS
Breakout Group 1: Playground design for increased physical activity

Objective: Generate a detailed vision, list of costs, assets, barriers, steps and roles. Discuss all details related to the design and construction of the playground. Specifically, the breakout group is trying to answer the question: What are the steps to creating a playground and what are certain design elements that will help increase physical activity, safety, and social interaction of playground users?

Introduce yourself to the group and do another quick round of introductions if needed. State the objective of this breakout group.

1. VISION: In broad strokes, how would you envision a safe, functional, playground? Describe what it looks like, who is there, what they are doing. (Aim for as much richness in vision detail as possible)
   a. What are design elements that could help increase the physical activity of playground users?
   b. What are design elements that keep the playground safe?
   c. Are there specific considerations given that we are in a hot desert climate, urban low-income neighborhood, adjacent to a busy street?
   d. What are design elements that would encourage social interaction?
   e. Could we create a few basic sketches of the playground to show these design elements and spacing?

2. SEQUENCE OF STEPS: In order to create this playground, what are the main steps in the process (design, acquisition of materials, selection of site, mobilizing community volunteers and scheduling a build day, promotion/advertising, maintenance, etc.)?
   a. What is the timeline?

3. ROLES: Who is involved in each step? Get into the nitty gritty of these steps!
   a. Who is missing from this conversation right now and what could they possibly contribute?

4. COSTS: What resources (material, financial) do we need?

5. CAPACITIES: What skills, knowledge, expertise do we need?

6. ASSETS (existing): Let’s begin with the general and move down to the specific. What are existing assets in the community that could help with this process? We can think of assets broadly – existing physical resources, existing expertise, existing funding etc.
   a. What kind of funding opportunities exist?

7. BARRIERS and COPING STRATEGIES: What are existing barriers in the community that could hinder the construction of this playground and how can we overcome them?

8. SYNERGIES AND COLLABORATION: What are ways we can collaborate to make this happen?

9. MONITORING AND EVALUATION: How can we build in a way to evaluate and monitor the success of the playground as a tool to increase physical activity? (How do we define, monitor/measure, and evaluate success?) Who does this?
Breakout Group 2: Educational programming linked with playground

Objective: Generate a detailed vision, list of costs, assets, barriers, steps and roles. Discuss all details related to the creation of successful educational programs on physical education and nutrition. Specifically, how can the educational program be linked with playground activities in a meaningful way? Who would be enrolled in the program and how?

Introduce yourself to the group and do another quick round of introductions if needed. State the objective of this breakout group.

1. **VISION:** In broad strokes, what would an educational component for physical education/nutrition linked with a playground space look like? Who is participating, who are the leaders, what are participants doing, what are the learning objectives and outcomes? (Aim for as much richness in vision detail as possible)
   a. How can the program be linked with the playground in a meaningful way to improve diet and increase physical activity?
   b. Who would be enrolled in the program and how would they be recruited?
   c. How do you envision this program running – over the course of a school term? Summer camp? Afterschool activity? Other?
   d. Can we involve students in some sort of internship setting to sustainably staff the program? What benefits would students receive from participating?

2. **SEQUENCE OF STEPS:** In order to create this educational component, what are the main steps in the process (design, recruiting staff, recruiting participants, funding, pilot group of kids, monitoring and evaluation, etc.)? Get into the nitty gritty of these steps!
   a. What is the timeline?

3. **ROLES:** Who is involved in each step? Get into the nitty gritty of these steps!
   a. Who is missing from this conversation right now and what could they possibly contribute?

4. **COSTS:** What resources (material, financial) do we need?

5. **CAPACITIES:** What skills, knowledge, expertise do we need?

6. **ASSETS (existing):** Let’s begin with the general and move down to the specific. What are existing assets in the community that could help with this process? We can think of assets broadly – existing physical resources, existing expertise, existing funding etc.
   a. What kind of funding opportunities exist?

7. **BARRIERS and COPING STRATEGIES:** What are existing barriers in the community that could hinder the implementation of this program and how can we overcome them?

8. **SYNERGIES AND COLLABORATION:** What are ways we can collaborate to make this happen?

9. **MONITORING AND EVALUATION:** How do we define, monitor/measure, and evaluate success? How can we build in a way to evaluate and monitor the success of the educational component? Who does this?
Breakout Group 3: Access, hours, and making the playground a community space

Objective: Generate a detailed vision, list of costs, assets, barriers, steps and roles. Discuss all details related to implementing extended hours for the space. The driving question should be how we can make the playground a community space, where families feel safe, welcomed, and a sense of ownership.

Introduce yourself to the group and do another quick round of introductions if needed. State the objective of this breakout group.

1. VISION: In broad strokes, what does a playground that is a safe community hub look like? Who is there, at what time, and what are they doing? (Aim for as much richness in vision detail as possible)
   a. Specifically, what hours are most important for the playground to be accessible?
   b. Are there design elements that mitigate from sources of risk: ‘stranger danger’, traffic, appropriate lighting and fencing/barrier structures, policing (formal or informal)?
   c. How can we attract families to the space?
   d. How can community feel a sense of ownership over the space? Can community play a role in playground maintenance? In playground management?

2. SEQUENCE OF STEPS: In order to make this playground a real community space that increases safety perceptions and community cohesion, what are the main steps in the process (securing funding, staffing, physical safety infrastructure implementation, advertising/promotion of the space, holding community events, etc.)? Get into the nitty gritty of these steps!
   a. What is the timeline?

3. ROLES: Who is involved in each step? Get into the nitty gritty of these steps!
   a. Who is missing from this conversation right now and what could they possibly contribute?

4. COSTS: What resources (material, financial) do we need?

5. CAPACITIES: What skills, knowledge, expertise do we need?

6. ASSETS (existing): Let’s begin with the general and move down to the specific. What are existing assets in the community that could help with this process? We can think of assets broadly – existing physical resources, existing expertise, existing funding etc.
   a. What kind of funding opportunities exist?

7. BARRIERS and COPING STRATEGIES: What are existing barriers in the community that could hinder the implementation of this program and how can we overcome them?

8. SYNERGIES AND COLLABORATION: What are ways we can collaborate to make this happen?

9. MONITORING AND EVALUATION: How do we define, monitor/measure, and evaluate success? How can we build in a way to evaluate and monitor the success of the extended hours in creating more community cohesion or safety perceptions? Who does this?