# USING CHILD RESILIENCE STRATEGY TO INFORM THE DESIGN OF THE TENDERLOIN RECREATION CENTER

by

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(Under the Direction of Katherine Melcher)

#### ABSTRACT

In the field of landscape architecture, few studies have investigated the concept of child resilience. In the existing research that has discussed this concept, studied sites were always in war zones or disaster-stricken areas. The concept of child resilience has not been applied to designing in neighborhoods with a low standard of living such as the Tenderloin District, San Francisco. The thesis firstly introduces what child resilience is and how to foster it in children based on psychological research. After that, a literature review and two case studies are conducted, focusing on what applicable design solutions have been developed for recreational spaces in vulnerable communities. The thesis also analyzes the current living condition for the youth in the Tenderloin District and proposes strategic suggestions to help cultivate child resilience. A hypothetical design is developed to show how child resilience is more likely to be fostered in children when protective factors in one's living environment are increased, and when risk factors are avoided by landscape architectural design.

# INDEX WORDS: Landscape architecture, Design for recreation, Children's recreational space, Design for healing, Child resilience

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A Thesis Submitted to the Graduate Faculty of the University of Georgia in Partial Fulfillment of

the Requirements for the Degree

MASTER OF LANDSCAPE ARCHITECTURE

ATHENS, GEORGIA

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#### ACKNOWLEDGEMENTS

I would like to first thank my major professor, Katherine Melcher, for reading, commenting, and aiding me in developing the topics and thoughts behind this thesis. I would also like to thank my reading chair, Douglas Pardue, and my committee, Umit Yilmaz and Jennifer Lewis, for all their thoughts and advice throughout the writing and development process. Thank you to Laura Clark from the UGA writing center who provides precise proofreading on my thesis. Thank you to all of my family for their support in everything I do: to my loving parents, Ruiguo He and Shuhua Deng, and to my husband and best friend, Yifei Wu. Thank you for your unconditional love and encouragement.

Finally, the utmost thanks to Father God in heaven, Jesus Christ, and the Holy Spirit. I am so grateful that the Lord has revealed Himself to me more and more. God sanctified all the great difficulties I faced and all serious mistakes I made, and then He "cause[d] all things to work together for good to those who love God" (Roman 8:28). "Even though I walk through the darkest valley, I will fear no evil, for you are with me; your rod and your staff, they comfort me" (Psalms 23:4). All glory of my thesis was from God and should be for God.

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#### CHAPTER 1

#### INTRODUCTION

According to The American Psychological Association, child resilience is defined as "the ability to adapt well to adversity, trauma, tragedy, threats or even significant sources of stress" (APA 2015). According to Bonnie Benard (1991), "resilience in children" is a term used in the field of childhood education to describe a state of mind where children, through creativity, communication, and cooperation with others, can lead healthy lives even if they are in life trajectories of risk and adversity.

In the field of landscape architecture, as people develop design plans, few have considered the concept of child resilience as a design strategy aiming for fighting against poverty, crime, and lack of abilities among the youth. Out of the few designs (Kinoshita and Woolley 2015, Takieddine 2014) that have incorporated this idea, most were built around war zones and disaster-stricken areas. However, at the same time, there are many lower income neighborhoods in the world in which children are suffering from the external hurts physically and mentally, such as the Tenderloin District, a neighborhood in San Francisco. The community has suffered from long-term social issues including high crime rates and poverty as well as the lack of educational, environmental, and household resources (Cook 2009), and they can have a negative influence on these children. If children are without intentional and effective intervention, they will not grow into resilient adults and will have abysmal life trajectories.

The Tenderloin Recreation Center is one of the few places where these children can go to for recreational and educational purposes; however, its original design prohibits it from being a

functional and educational place to stay and play in. Prior to its redesign in this research, the playground of the recreation center was used for limited types of activities – playing baseball, playing with recreational equipment, and unstructured playing on a vacant piece of land. The only landscaping on the site is two lines of trees separately planted on the north boundary and on the south as screening. Elements such as lawns, seating, exploratory recreational equipment, or shaded gathering places are all absent from the existing design of the Tenderloin Recreation Center. Except for the activities held for physical exercise, community meetings, and certain festivals, the recreation center seldom hosts lectures and seminars that educate children to establish positive values or learn skills (San Francisco Recreation & Parks 2014).

#### **Problem Statement**

Based on the investigation of existing youth living conditions, the Tenderloin District has over 3,500 children (The New York Times 2010) and the living quality is currently substandard for them in the community. The Tenderloin District has undergone years of social, environmental, economic and political stresses and disturbances, including a notorious social reputation, drug dealing, alcohol addiction, violence, loitering, prostitution, political neglect, and the lack of educational, environmental, and household resources (MacLaren 1988). In addition, little financial support and employment opportunities have been provided for this district as a result of its reputation of being a dangerous and unstable place (Cook 2009).

Child resilience is an important concept to consider in the Tenderloin District, because having an ability to bounce back from the above-stated adversity can help children grow into mentally and physically healthy adults. Cook (2009) has shown that the children in the Tenderloin District need to deal with the severe inner disparities, hurts, and traumas caused by

the stresses and uncertainties of living there. The children need to learn how to express this inner frustration, to listen to others' experience, and to communicate and exchange emotions and opinions so that they are able to let out the inner stress in a productive way instead of burying painful memories inside, which will largely affect the formation of their values and personalities. The Tenderloin is also the home to crimes. Surrounded by such an environment, the children need to have the ability to think critically and to distinguish between what is right and wrong. This way, they will be protected and less likely to become criminals in the future. In addition, a sense of purpose needs to be fostered in the children. In a neighborhood with few educational resources and low employment rates, children need to see the hope that there are new things to learn and positions for which they are competent. Problem-solving skills, a sense of trust and stability, and a sense of control over their lives are all the signs of being resilient, which can largely help the children in the Tenderloin to lead healthy and productive lives in contrast to where they used to be.

#### The Combination of Child Resilience and Landscape Architecture

This thesis examines the feasibility of applying the concept of child resilience to the design of the Tenderloin Recreation Center. The strategy of using this concept to structure and inform a design emphasizes increasing a child's exposure to protective factors and reducing risk factors, and considers that this is an effective way to build child resilience. Protective factors can be categorized into three major groups: caring and supportive relationships, positive and high expectations, and opportunities for meaningful participation (Benard 1991). Risk factors can include exposure to poverty, divorce of parents, exposure to long-term lack of living resources, and a dangerous living environment (Masten and Coatsworth 1998). Based on the investigation

of the surrounding conditions, protective factors and risk factors will be identified for the Tenderloin District. A new design scheme for the Tenderloin Recreation Center will be developed in an attempt to enable the children in the neighborhood to come into contact with these positive and protective aspects and to stay away from negative and risky ones. Design elements such as landscaping, spatial variation, hardscape, and art installation will be adopted to integrate protective factors and to reduce the negative influences resulted from risk factors so that the design goal can be achieved.

#### **Research Question, Purpose, and Significance**

This research asks the question: How can the concept of child resilience serve as a design strategy to structure and inform the design of recreation facilities in lower income neighborhoods such as the Tenderloin District in San Francisco? The purpose of this thesis is to provide design suggestions to interpret how the concept of child resilience can be integrated into a landscape architectural design to create a better environment for children.

This thesis is important because currently there are few studies investigating the concept of child resilience in landscape architecture. There are many reasons why the concept of child resilience could be useful to landscape architecture design.

Firstly, it can help develop more effective and result-driven recreation center designs when thinking about how to cultivate the ability for children to adapt well to adversity, trauma, tragedy, threats, or even significant sources of stress (APA 2015). Multiple studies have discussed the importance of the natural environment in a child's development in a general way (Chawla 2014, Louv 2005). However, this general thought tends to ignore the consideration for children's specific needs or specific deficiencies, which need to be addressed by detailed and

functional designs. If they introduce the concept of child resilience to the design of recreation centers, landscape architects will more effectively identify what specific needs must be fulfilled for children. After this identification, a prioritized and goal-oriented spatial analysis can be generated for the design of a recreation center, based on which, more effective design solutions can be developed.

Secondly, with the concerns of child resilience, designs for recreation centers are more likely to be innovative. When designing with the aim of promoting child resilience, landscape architects would take into consideration the fact that the children they design for are those who suffer from impaired mental and cognitive development caused by a stressful environment. They may have a deficiency in abilities such as communication skills, imagination, and trust. In order to stimulate these abilities, design elements need to be different than those designed for normal children, which leads landscape architects to innovate.

Last but not least, the thought of child resilience helps landscape architects to design better recreation centers, because it helps them to understand and embrace the local culture and history. The understanding of the children's developmental condition in an area requires designers to closely watch the social, economic, and ecological aspects of that area and analyze them, because one's surrounding conditions can largely mold one into a certain personality type (Huttenmoser 1995). What violence have children experienced? What parental conflicts have they seen? What kind of education have they received? The accumulation of such observation and comprehension leads designers to acquire a broad and comprehensive picture about the area. It is this comprehensive understanding of the site that assists landscape architects to develop functional designs (Tonn, English, and Travis 2000).

#### **Research Delimitations**

First of all, the Tenderloin Recreation Center originally consisted of a building and an outdoor play space. However, this research focuses on the outdoor play space, the orientation of the building, the building façade, the green roof, and the access points of the building when mentioning "the Tenderloin Recreation Center" and "the landscape architectural design of the Tenderloin Recreation Center".

Secondly, the research is conducted based on psychological studies of child resilience. However, "child resilience" can be a multi-dimensional concept; besides psychological research, child resilience can be defined from other perspectives, such as sociology, physiology, and so on (Bell and Romano 2015, Rutter 2006). This thesis only bases its theoretical discussion on psychological statements and conclusions, because "positive factors" and "risk factors", as psychological concepts, are good starting points for analyzing and classifying the existing surrounding conditions of the Tenderloin Recreation Center so that the design scheme can be effectively developed.

Thirdly, this research does not have the ability to collect information from the potential users of the site itself, although this type of information is usually an important part of a design process, especially when designing for marginalized groups.

Fourthly, the term "children" mentioned in the thesis refers to "preteenagers", whose ages approximately range from 5 to 12 (American Academy of Pediatrics 2015). The children in this age group normally have gained a certain level of strength, communication skills, thinking ability, and independence. They are able to accomplish the work or the programs that are incorporated in the new design plan, including using gardening tools, meditating, expressing

opinions, playing competitive games, playing in teams, and creating art works. The research will not address children that are under 5 or older than 12.

Lastly, the major focus of this research is to discuss how the concept of child resilience can be applied to the design of the Tenderloin Recreation Center. While safety is ranked as the number one priority in the design for children, the design scheme in Chapter 6 of this research does not focus on safety-related questions such as how to select safe playground equipment or how much spacing the columns in a playing facility should have in order to avoid children's heads from being stuck in between. However, basic safety issues have been taken into consideration by this design. There will be fences separating the recreation center from the street that prohibit criminals and homeless people from entering. Later in the evening, lighting fixtures will be lit up to assure the visibility on the site. Furthermore, no vehicular roads will be included in the plan in order to prevent children from being run over, as the recreation center is designed for children to run and participate in activities.

#### Methodology

This thesis aims to address the topic through the use of projective design as a primary research strategy. The rest (literature review and case study) are methods that feed into the primary one.

To realize the possibility of using the concept of child resilience to inform the design of the Tenderloin Recreation Center, the following questions need to be answered:

• "What is child resilience and why do children need it?" To answer this question, the historic psychological research about child resilience and its enhancement was reviewed, which can be found in Chapter 2.

- "What is the definition of child resilience as it relates to the condition of the Tenderloin District?" The research about the definition of child resilience and the literature review about the condition of the Tenderloin District were examined in Chapter 2.
- "What is the relationship between the concept of child resilience and landscape architecture?" In Chapter 3, the literature review on children-focused landscape design and the relationship between the concept of child resilience and landscape architecture were discussed.
- "How do case studies demonstrate the design approach of using the concept of child resilience to inform the design of recreation centers?" Chapter 4 presented case studies that were conducted and that were summarized in bullet points to suggest applicable design solutions other people previously used in projects for building youth resilience.
- "Why is the Tenderloin District a special place to study and for which to develop designs?" The condition of the Tenderloin District was investigated and grouped into protective factors and risk factors, which can be found in Chapter 5.
- "How can the design solutions concluded from the literature review and the case studies be applied to the design of the Tenderloin Recreation Center?" The question was answered by a projective design of the Tenderloin Recreation Center, which can be found in Chapter 6. In Chapter 7, the results of this design were analyzed and reflected upon by discussing their limitations and potential improvements.

#### **Research Limitations**

Although this research was carefully prepared, it still has its limitations and shortcomings.

First of all, this thesis cannot cover all the external factors that could affect the development of the design scheme. Even if environmental, demographic, and sociological examinations have been included as the contextual research for the Tenderloin Recreation Center, some information may not be accurate in real time, so the thesis may not be able to predict and respond to the real-time information in every aspect.

Secondly, even if this thesis has developed methods for public place designs that will help foster child resilience, the design practice for the Tenderloin Recreation Center may not be able to be applicable to other children's recreation centers. Generally effective as the design scheme might be, changes should be made to different sites based on their unique surrounding conditions.

Thirdly, the design cannot solve all social problems emerging among the children in the Tenderloin District. The design can only help improve or increase communication skills, problem-solving skills, critical thinking ability, autonomy, a sense of purpose, and a sense of trust and stability for those children.

Lastly, the conclusion this thesis reaches is how to use the concept and the strategies of child resilience to inform and structure the design of the Tenderloin Recreation Center. Therefore, feedback in terms of the functionality and the effectiveness of the design from the actual center users is not going to be collected.

#### CHAPTER 2

#### CHILD RESILIENCE

In order to understand how one can use the concept of child resilience to inform landscape architectural design, it is important to clarify the definition of this concept and the relationship between this concept and landscape architecture. The importance of child resilience to landscape architecture has been addressed in Chapter 1: the former has the potential to guide the landscape architectural design to be more result-driven, innovative, and culturally diversified. In this chapter, the research defines child resilience, explains how the concept could be important in low income neighborhoods such as the Tenderloin District, and explores the importance of landscape architectural design in fostering child resilience.

#### **Children Need Resilience**

Highly-resilient children are more capable of withstanding the stresses they face during difficult times and continue to withstand in other phases of their lives. They tend to be more peaceful, creative, optimistic, rational, and successful (Benard 1991). Besides, they are reported to recover faster from trauma or do not develop as many traumatic symptoms, even if living in adverse conditions (Luthar, Cicchetti, and Becker 2000). Garmezy (1974) and Benard (1991) summed up the traits of resilient children as "working well, playing well, loving well, and expecting well" (Benard 1991, 7). Conversely, children with low levels of resilience tend to have a weak sense of competence and tend to be more vulnerable when facing and dealing with traumatic effects (Moore 1990). They are also likely to have low self-esteem, low self-

confidence, and mistrust in self-efficacy (Huttenmoser 1995), which will affect their physical health, cognitive development, school achievement, and emotional and behavioral performances (Brooks-Gunn and Duncan 1997).

According to Masten (2001), the things that make children resistant to hardships do not have to be special attributes; some 'ordinary magic' can still help children to manage to find essential resources for healthy development even in difficult circumstances. According to Alvord and Grados (2005), the statement of having successfully fostered resilience in children is only considered valid under circumstance where children have been exposed to chronic high-risky conditions or challenges, and they are protected and healed afterwards, by which positive outcomes are yielded. Longitudinal research results have indicated that even though child adversity, called "risk factors" (Brooks 2006, Luthar 1991, Masten 2011, Rak and Patterson 1996, Werner 1986), seems inevitable and invincible, resiliency can still be developed in youth as long as love, care, joy and other kinds of positive emotions and environments can come into play in their lives as "protective factors" (Benard 1991, Werner 1992, Werner and Smith 1989).

Risk factors (Brooks 2006, Luthar 1991, Masten 2011, Rak and Patterson 1996, Werner 1986) can include exposure to poverty, divorce of parents (Masten and Coatsworth 1998), exposure to long-term lack of living resources, and a dangerous living environment. Being exposed to such external stresses, children's physical health, cognitive development, school achievement, and emotional and behavioral performance can be impaired (Brooks-Gunn and Duncan 1997).

However, longitudinal studies have been conducted among children who grew up with mentally ill, alcoholic, abusive, or criminally involved parents or in poverty-stricken or war-torn communities. These studies, several of which followed the participants over the course of a

lifespan, showed that between half and two-thirds of these children have overcome the hardship and turned their lives of risk into resilient ones (Benard 1991). The reason for this successful shift of lifestyle is that protective factors have been introduced into children's lives and taken a positive effect.

Protective factors can be categorized into three major groups: caring and supportive relationships, positive and high expectations, and opportunities for meaningful participation. The formation of a caring and supportive relationship requires the presence of a caring person who understands, respects and gives compassion to vulnerable children, and who also supports and encourages children to be successful (Benard 1991). It is also significant to create a space for this type of person to talk to and share with the children. Setting positive and high expectations can drive unconfident children to achieve more, such as better academic performance, than normal expectations can do; it also enables children to believe in their future, and to produce self-efficacy, self-esteem and optimism (Benard 1991). Providing opportunities for meaningful involvement can foster a sense of responsibility (Sarason 1990), a sense of belonging, generosity, altruism (Werner 1993), and a willingness to give back in the children who live in a vulnerable environment; at the same time, a lower possibility of alienation and fear can be seen among these children who have participated in a wide range of activities (Benard 1991).

In order to foster resilience in the children who live in stressful environments, Werner and Smith (1989) pointed out that a balance between the risk factors and the protective factors needed to be achieved. This balance can be achieved by reducing risk factors and enhancing the effect of protective factors. To be specific, the reduction of risk factors includes decreasing the exposure of children to unsafe or violent environments and decreasing the length of time children stay with violent parents or other people. The enhancement of the effect of protective factors

includes having children be exposed to positive environments, elongating the time of this type of exposure, building assets in children, and connecting children to mentors and friends through gardening (Masten and Reed 2002).

#### Children in the Tenderloin District Need Resilience

Benard (1991) pointed out that resilient children have the abilities of social competence, problem-solving skills, a critical consciousness, autonomy, and a sense of purpose. Boyden and Mann (2005) added that resilient children were able to learn to trust others and seek help. In the book *Children in Danger* (Garbarino 1992), resilient children are characterized to have a sense of humor and be popular among the multitude.

In order to frame an effective design approach for the Tenderloin Recreation Center, this definition of child resilience needs to be adapted to reflect the living conditions in the Tenderloin neighborhood.

Children who are socially competent are responsive, flexible, empathetic, and capable of communicating with others (Benard 1991). The Tenderloin District is a stressful and vulnerable community. Having seen crimes and community violence and even suffered from violence in the family themselves, the children in the neighborhood are likely to have received many negative messages and trauma. If they gain communication skills, they will be able to express their emotions and opinions; thus, the inner negativity can be released. Furthermore, seeing crimes and violence, children will be misled to deal with people and matters in a violent and disrespectful way. Being trained for social competence will enable them to listen, to obey the rules (Williston Herald 2012), to think empathetically, to collaborate, and hence to function in teams. All these abilities will largely help the children in the Tenderloin in their future careers.

Problem-solving skills, including capabilities to plan, to seek help, and to think critically, creatively, and reflectively is also important to the Tenderloin children. Through learning problem-solving skills, including learning to plan, to think critically, and to create, the children's intelligence is stimulated and improved, which is essential to their careers and success (Benard 1991). To provide such an opportunity is vital, because the substandard educational resources in the community and the children's unemployed parents (Cook 2009) might not have the adequate ability to provide knowledge in this aspect.

A child who has acquired a critical consciousness is able to be aware of the structures of the oppression and also to come up with strategies to overcome them (Benard 1991). It is likely that the children in the Tenderloin think that using violence is a direct and effective way to solve problems or conflicts, because crimes and violence can be seen constantly in the neighborhood. In addition, the disparities, hurts, and traumas caused by the stresses and uncertainties in the community can result in chronic anxiety for children. When gaining a critical consciousness, the children are able to analyze their living environment, better understand the structure of the hardship, and cope with the complicated surroundings.

Children who have acquired autonomy know their identities, are able to act independently, have a sense of control over their living environment, have a feeling of selfefficacy, and are resistant to and can detach themselves from negative messages (Benard 1991). The Tenderloin is home to crimes; people can see crimes such as drug dealing, robbery, and prostitution on the street. Surrounded by such an environment, the children need to have the ability to think critically and to distinguish between what is right and wrong, and to gain a sense of control over their inner state as well as external impacts. This way, they can protect themselves and are less likely to become criminals in the future, too. The Tenderloin District also

has a poor reputation and is isolated from other communities (Cook 2009), so it is likely that the children have low self-confidence and self-esteem. Therefore, the promotion of self-efficacy is important.

A sense of purpose includes a belief in a bright prospect, abilities to form goals, educational aspirations, motivation, persistence, hopefulness, and optimism (Benard 1991). The Tenderloin is famous for its high crime rates; the children in the neighborhood often witness criminals doing unlawful deeds. If not educated with the message that they can have different and bright prospects, the children might be largely affected by what they have seen and lose the right direction of their lives. The employment rate in the Tenderloin is low, and there are few job training programs provided for the young generation. Therefore, if a sense of purpose and educational aspirations can be fostered in the children, they are more likely to be resilient and successful in the future.

In the Tenderloin District, there is a high possibility that children witness or even become victims of different sorts of personal crimes and violence when walking on the street including robbery, assault, murder, rape, and gunfire (Cook 2009, San Francisco Association of Realtors 2014). Additionally, many of the Tenderloin residents are parents who do not have the financial capacity to fulfill basic needs of their children, including not being able to afford to take their children to clinics for treatment (Cook 2009). Having experienced such tragedy or violated expectations for one or even multiple times, the children might think that the world is a dangerous or unstable place and that most people have the potential to hurt them or break their hearts. They become over-self-protected and doubtful about others' kindness (GoodTherapy.org 2014) and reject the idea of communicating with others and seeking help from them. Lacking the ability to trust will possibly result in control issues for these children (Focus on the Family 2008),

which causes unpleasant social collaboration and even pain to other people. Therefore, it is essential to create in the Tenderloin District an environment free of crimes and violence in which the children can fully relax, put their guards down, and have the chance to connect with beautiful things and minds. In such a way, they will be influenced to think that the world is not always filled with negative things and that there are people who they can turn to for help. With such a mindset, the children will be more likely to recover from adverse situations.

By developing the abilities of social competence, problem-solving skills, critical consciousness, autonomy, a sense of purpose, and a sense of trust and stability, the children in the Tenderloin are more likely to grow into mentally healthy adults and start leading positive lives. Gaining a sense of humor and popularity among people as proposed by Garbarino (1992) may make the children more interesting and welcomed, but they are not providing them with fundamental qualities to defeat negative life trajectories. This research aims to talk about how the children can still bounce back from the stressful environment with the help of landscape architectural design—that is why gaining a sense of humor and popularity is not considered as important in this thesis' interpretation of the term "child resilience."

#### The Role of Landscape Architectural Design in Fostering Child Resilience

Generally speaking, design is a way of showing thoughtfulness and generosity. In essence, it is the process of considering others' needs, surroundings, and aspirations (Curry Stone Design Prize 2013). Environmental design is initiated in order to solve the problems or reduce the risks that human beings are facing, including natural disasters, environmental changes, financial crises, social oppression, and unlawful behaviors. With regard to fostering children resilience, landscape architecture design serves as a bridge to connect families, schools, and communities (Epstein 2001). According to Werner (1990), it is essential to integrate protective factors from within the family, the school, and the community, because the interplay of these three systems is beneficial. To be specific, for a child who mostly receives the risk factors from her family, the school or the community may be the place to receive positive messages and to experience a healing process; a child suffering in her school may find that protective factors derive from her family or her community. Unfortunately, most researchers have defined risk factors and protective factors within only one of these two systems.

Epstein (2001) stated that the three most indispensable locations where children learn and grow are homes, schools, and communities. They receive education and build development in all these three contexts simultaneously and continuously. Thus, it is significant to build the connection that relates each of these three elements to one another.

When landscape architectural design comes into play, it can serve as the bridge connecting families, schools, and communities. In the case of the Tenderloin Recreation Center, through landscape architectural design, a space can be created in which the scenarios of family, school, and community can be mixed together, and none of them will exist individually. Children, parents, caregivers, and educators coexist and share the space. Furthermore, the design features incorporated in the landscape architectural design, which can include playgrounds, lawns, gardens, art installations, and sitting areas, give children, parents, caregivers, and educators opportunities to share the resources, to communicate, to help, and to collaborate so that emotional and mental happiness can be generated and child resilience can be developed. As a consequence of this process of sharing and communicating, the Tenderloin's children are given

the opportunity to talk about the trauma and to dispel the negative influence received from families, schools, or community streets.

#### Conclusion

By combining the psychological study and the investigation of the Tenderloin District, a definition of child resilience that works best for the topic of this research has been created, which is having the ability of social competence, problem-solving skills, critical consciousness, autonomy, a sense of purpose, and a sense of trust and stability. This chapter also points out that the key to promoting these abilities and qualities is increasing the exposure to protective factors and decreasing the exposure to risk factors for children.

The concept of child resilience can be useful to landscape architecture and vice versa. If considering the enhancement of child resilience as a design motivation and a design goal, landscape architects tend to develop more result-drive designs; also, there will be innovation of design features if the two main ways of enhancing child resilience, increasing protective factors and decreasing risk factors, can be used as a design strategy; the emphasis put on child resilience will lead designers to look at cultural factors even more when designing. The concepts of protective and risk factors are important in framing the analysis of the Tenderloin neighborhood, because the identification of protective and risk factors enables designers to know what design features need to be put into the design and what should not.

On the other hand, it is the landscape architectural design that creates a shared space and play features which children, parents, caregivers, and educators can enjoy together. Through this process, a sense of joy and trust can be generated in children, which can help to foster child resilience.

#### CHAPTER 3

#### LITERATURE REVIEW

Chapter 2 provided a psychological and theoretical foundation for the relationship between the concept of child resilience and landscape architecture. This chapter looks at previous studies and projects addressing children-focused environmental design in order to clarify the fact that the concept of child resilience has been rarely incorporated into the landscape architectural design in reality. This chapter also investigates the design solutions proposed by these studies and projects that could help enhance the quality of life for children.

#### **Childhood Development and Landscape Architectural Design**

Multiple studies of landscape architectural design for children have been done. Concerns about general childhood development have appeared frequently in landscape architecture literature, such as the relationship between children and nature, the role of recreation centers, the design of playgrounds, safety issues, and design for healing; they are also closely related to the topic of this thesis – to design an open play space for the children who live in a stressful environment.

#### Nature's Important Role in Children's Lives

In the book *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder* (Louv 2005), the author reveals the essential role of the natural environment in children's lives. Exposure to nature not only is beneficial to children's physical well-being but also creates opportunities for children to touch, to think, to imagine, to work, and to cooperate. The

cultivation of all these habits and abilities can help children grow into adults of healthy and happy mental states. In addition, the book points out that the exposure of youngsters to nature can be effective in healing their physical and mental wounds. On the other hand, the book also warns that the increasing divide between nature and the young generation could result in a slower and weaker physical and mental development in children.

Other scholars also emphasize nature's contribution to fostering children's living, playing, learning and working abilities, and communication skill mastery (Fjørtoft 2001). With the presence of natural surroundings and the views of nature, children can concentrate better (Taylor, Kuo, and Sullivan 2002, Wells 2000), can better control impulses and delay gratification (Taylor, Kuo, and Sullivan 2002), and can be more capable of dealing with upsetting events (Wells and Evans 2003). The presence of special places in nature can help children achieve the assimilation and transformation of experiences (Goodenough 2003); they think that they are connected to the surrounding world (Clayton 2003), and calmness can be fostered in them (Chawla 1990, Hoffman 1992, Robinson 1983). Playing in nature, children can form a better ability to concentrate on tasks (Kuo and Taylor 2004, Taylor and Kuo 2009, Taylor, Kuo, and Sullivan 2001), they can achieve better motor coordination and agility (Fjørtoft 2001), and they become more cooperative and creative (Herrington and Studtmann 1998, Kirkby 1989, Taylor et al. 1998). Gardening can help children to develop greater self-understanding (Robinson and Zajicek 2005) and self-esteem (Cammack, Waliczek, and Zajicek 2002). It can also foster a better capability in children to work on a team (Robinson and Zajicek 2005) and a sense of connection and responsibility to the environment (Cammack, Waliczek, and Zajicek 2002, Cutter-Mackenzie 2009).

Unlike scholars who point out nature's contribution to children in a general way, some researchers focus on outdoor play and learning environments to examine what benefit nature can bring to youth (Brett, Moore, and Provenzo 1993, Henniger 1994). Lindholm (1995) found that students' performance was remarkably more creative during their breaks with the presence of natural environments in or around schoolyards.

#### Role of Recreation Centers

Recreation is one of the foundations on which humans grow and develop. Through participation, mostly in groups, in the recreational activities such as games and sports, social relationships can be established between children. They can also learn social norms, rules, expectations, and communication skills. It is through such processes that children develop a sense of limits, willingness to play fair, self-discipline, honesty, inventiveness, and the capability of asserting one's self properly in an environment. It is of high necessity that structured recreational activities in homes and community frameworks should be programmed, because they can significantly affect a child's moral development, personality formation, and social orientation (Illinois Periodicals Online 1995). Recreation centers are places that can accommodate a considerable amount of recreational activities and programs; therefore, their presence is instrumental in cultivating child resilience.

It is significant for children to participate in physical activities in order to have a healthy current and future development (McKenzie et al. 2013). According to national recommendations, a child needs to engage in at least 60 minutes of moderate-to-vigorous physical activity every day (American College of Sports Medicine 2014). As a place where a large spectrum of physical activities can take place, a recreation center contributes largely to boosting children's physical health (Moody et al. 2004).

Young generations spend their leisure participating in physical activities; however, this is merely one aspect of a healthy lifestyle. The programs in a recreation center provide opportunities for children to spend their leisure time engaging in goal-oriented recreational forms that can be paramount to one's mental and intellectual growth, such as reading, collecting, learning music and art, or other activities that prepare for a child's professional life (Illinois Periodicals Online 1995). Through such education, it is possible to reduce the barriers against building child resilience, self-esteem, and self-efficacy, such as illiteracy, crime, drug use, alcohol abuse, unmarried pregnancy, and unemployment (Illinois Periodicals Online 1995).

Having recognized the significance of recreation to children's development, a considerable number of landscape architects such as MVRDV (ArchDaily 2015) and Michael Van Valkenburgh Associates (MVVA 2015), started to design good outdoor environments for children; thus, many functional and effective children-related landscape architectural design thoughts and solutions have been developed.

#### <u>Playgrounds</u>

Playgrounds are one of the most common outdoor places used by children; therefore, they are used typically as design sites where landscape architects can test their design solutions to see whether they have effectively served children or not.

Barbour investigates the impact that playgrounds have on children's play behaviors and peer relationships (Barbour 1999). On playgrounds of contrasting design, children with different levels of physical competence were observed and interviewed. The research conclusion was that different equipment, materials, and spatial delineation in a playground influenced children's physical and social skill development on different levels.

Multiple studies examined different types of playgrounds in detail. Traditional outdoor playgrounds are designed to facilitate children's play and to enhance their physical, social, and mental development (Hart 1993), but those playgrounds do not necessarily meet the needs of allowing for children to adequately explore nature. Traditional playgrounds are typically flat, barren, covered with asphalt, and equipped with climbing bars, a swing, a sandpit, a seesaw, and a slide; usually the equipment is made of metal (Frost 1992, Hartle and Johnson 1993). Such playgrounds have not been found to be very challenging, and cannot fulfill the needs of stimulating children's developmental potential physically or mentally (Frost 1992).

Many researchers and practitioners started to question whether it was possible to insert more developmental playground elements in a design in order for children to experience a more interesting and challenging playing process, although it was still unknown at that time whether children were able to take the risk in play (Little and Eager 2010). Interviews among 38 children had been set up to examine their outdoor play preferences, risk-taking behavior, and playground equipment usage. The result not only showed that children had a strong preference for challenge and excitement but also indicated that low-risk playground equipment provided few opportunities for children to practice mastery of skills. Suggestions for parents have been made that they should trust children to explore the environment around them in a way of self-direction; and parents are responsible for creating such exploratory spaces for them (Casey 2007).

However, Brussoni et al. (2012) point out that in recent decades, changes have been seen in societal perceptions of children's competencies and resilience (Hoffman 2010). From once considering children as actively responsible and capable, researchers have more recently moved to viewing them as inadequate by comparison to adults, leading to a perception that children need to be protected from their own inadequacies (Cunningham 2005, Valentine 1997). These

trends have contributed to placing limits on children's exploration and access to outdoor free play opportunities (Valentine 1997, Valentine 2000).

#### Safety Issues

Besides the studies about the outdoor playing and learning environment, safety issues are constantly discussed when thinking about good environmental designs for children. There is an important concept proposed by Newman (1996) in the realm of public space design – the concept of defensible space. All defensible space principles have a common purpose of allowing space users to control the areas around that space by restructuring the physical layout of the place, such as changing the number of housing on a street.

Crowe (2000) also mentioned that it was advisable and applicable to develop functional architectural designs, manage space, and alter physical environmental features in order to reduce crimes as well as to maximize productivity. He expanded this idea by additionally addressing several environmental settings in the attempt to explain criminal behaviors and historical aspects of design and how human behavior can be influenced by environment in a positive manner.

Newman did not write specifically about children, nor did he solely write about landscaping. Rather, his work emphasizes on relying on residents' sense of responsibility and involvement to build a successful defensible space in order to reduce crime rate. Crowe also wrote for people in general. However, these books are still fundamental in understanding the relationship between human engagement and the creation of a place that makes humans feel safe, which is applicable to designing children's environments.

Among studies that elaborate on safety issues in child development, Garbarino (1992) conducted research about community violence and how children respond to such an atmosphere
of danger. While the book did not directly mention design implications, it still addresses how important it is to make changes in a violent environment in order for children to grow healthily.

As for studies on safety issues in the field of landscape architectural design specifically for children, the consideration for safety is important in terms of the possibility of a child to change her surrounding environment when she grows up (David and Weinstein 2013). The safer she feels as a child in the built environment, the more competently she can engage herself in the environment and the higher the possibility there is for her to change or manage the built environment around her as an adult.

Later David and Weinstein added that while it was important to create a safe environment for children, stimulating elements should also be included in the environment. In such a "stimulating yet safe environment", children were given the opportunity to experience risks including doing, failing, redoing, and succeeding, which were necessary aspects of human growth (David and Weinstein 2013, 10).

There are also design-related statements. Generally speaking, safe places for children commonly provide seats for parents to sit and watch their kids (Freeman and Tranter 2011), "small patches of open ground in cul-de-sacs", and well-lit places in the evening used as gathering spots (Christensen and O'Brien 2003, 109).

Indicators of good community planning or design can include safe and accessible places where children can meet friends, the safe environment that enables children to amble around, green spaces that are away from dangerous traffic and ones that are safe enough for children to play in (Christensen and O'Brien 2003, Freeman and Tranter 2011), safe street crossings and clean well-lit walkways, and safe places for children's unstructured activities (Freeman and Tranter 2011).

A building is more readily considered to be a safe place for children when its form and material selection are more tactile-friendly; children can touch the walls, the ground, or other design elements of the building without being hurt or scratched. On the contrary, excessive stimulation or excessive variations in physical elements tend to cause children to feel frightened and disoriented. Therefore, in order to create a comfortable and safe place for youths, it is advisable to only make moderate changes in floor level, ceiling height, lighting, color, and other physical elements (Olds 1979). "The space within" is appropriate for the child-scale, and it serves as "a safe retreat" or "a 'cave", making children feel private and secured (David and Weinstein 2013, 284).

# Design for Healing

Gardens are considered to be significant in healing children, because children relate themselves to the world by connecting with and playing in nature (Moore and Wong 1997). Children enjoy the freedom, and they are attracted to the movement and the exploration in gardens. Furthermore, gardens serve as an external power of both stimulation and solace to integrate children's inner world; they are places where children can work through internal stress and express desires in a nonverbal way (Casement 2014). This is especially essential for children as inpatients in hospitals. An outdoor environment can provide them with varied stimulations that an indoor environment does not have, such as open play spaces and large walkable spaces (Marcus and Barnes 1999).

Based on this understanding of the important role healing gardens are playing in children's well-being, general design principles have been developed. As previous studies have shown, anxiety, stress, and depression in youth can be mitigated by doing exercises (Koniak-Griffin 1994). Therefore, it is important for designers of healthcare gardens to particularly

consider providing spaces for stress-reducing physical activities and play (Marcus and Barnes 1999).

Some suggestions for design details in a healing garden have been proposed. The height of drinking fountains in a healing garden needs to be adjusted carefully in order for children with disabilities to also drink the water. Water is an excellent element used in healing gardens. As landscape architect Anne Spirn writes, "Water is a source of life, power, comfort, and delight, a universal symbol of purification and renewal. Like a primordial magnet, water pulls at a primitive and deeply rooted part of human nature" (Spirn 1985, 142). Water surface is used as a place for reflection and meditation, a place for gathering, and a place where people tactilely get connected with the natural. Water attracts wildlife and provides "visual, auditory, and seasonal interest" (Marcus and Barnes 1999, 312). Its sound is pleasant and can mitigate noises. Water features serve as good starting points to draw children into the garden, and waterways are good connectors and navigators and lead children to different destinations in the healing garden (Marcus and Barnes 1999). All these great aspects of water can contribute to the therapeutic process for children.

In the study of childhood development in the field of landscape architecture, a considerable amount of design thoughts and design solutions have been generated and developed. However, the concept of child resilience is rarely mentioned and used as a design approach and a design principle. The study of child resilience in the field of landscape architecture necessitates the grouping of children into different types, and this concept is especially related to the study of the children of low resilience who live in a vulnerable environment. However, in the above-stated discussion of children in nature, the role of recreation centers, playgrounds, safety issues, and healing designs; children are defined and framed on a general level. Scholars neither regard

low child resilience as a starting point or a foundation to initiate the study for childhood development nor do they study the children who are living in a stressful environment as a special group. Additionally, the aforementioned literature only provides generic design suggestions, such as using water as a design element, creating exploratory playgrounds, and creating a safe space, whereas the study of child resilience leads to specified and goal-oriented design solutions, such as creating therapeutic spaces to heal mental traumas and generate a sense of purpose for children and setting up spaces of different scales in order to cultivate children's communication skills in small, medium, and large groups.

## Child Resilience and Landscape Architectural Design

Out of the very few studies investigating the concept of child resilience in the field of child-focused landscape architectural design, a majority of them study children who come from war zones or post-war regions and disaster-stricken areas such as those hit by floods, tornadoes, or earthquakes. The book *Children in Danger: Coping with the Consequences of Community Violence* (Garbarino 1992) is one of the very few studies describing how community violence and crimes can result in insecurity in a child and damage her/his resilience. This book discusses the relationship between child resilience and community violence or crimes from sociological and psychological standpoints; some ideas have been proposed and can be viewed as design principles or goals for landscape architects to utilize in the environmental design.

Garbarino (1992) pointed out in this book that firstly, an attachment relationship (Garmezy and Rutter 1983), which can be between parents and children, family members and children, and caregivers and children, is potent in children's social, emotional, and cognitive development in a violent community. Secondly, the book reveals the need for establishing a predictable, structured, and safe environment for children in a violent community. School-based programs can enhance children's natural resilience and help ameliorate some of the long-term developmental consequences of living in danger by providing children with the continuity and regularity that is otherwise lacking in their lives. Thirdly, the book talks about the safety issues of children walking home from schools in a violent community and suggests that a communitybased helping system needs to be established in order to reduce the likelihood that children are confronted with violent incidents (such as cross fire) when they walk back home. Fourthly, the importance of play and art has been pointed out. Children develop physical, social, and logicomathematical knowledge in play (Kamii and DeVries 1977) and they experience a sense of freedom in a playful scenario. Playful experimentation increases children's repertoire of abilities such as proposing questions, problem-solving skills, and dismantling and reconstructing ideas. A playing process also enables children to integrate negative emotions and feelings and hence release them. As for art, art-making provides an opportunity for children to present and express their inner status and emotions and their understanding of their past and the current reality. The above-stated four statements encourage landscape designers to envision and design places where children of low resilience can co-exist and interact with adults, to introduce structured programs in order to cultivate a sense of stability for children, to incorporate design features such as trees, lighting fixtures, and signage system to make streets safer places, and to specially designate a space for play activities and art-making.

Other than Garbarino's book, most of the studies conducted on child resilience and environmental design focus on post-war regions and disaster-stricken areas.

In the book *Greening in the Red Zone: Disaster, Resilience and Community Greening*, Tidball and Krasny (2013) suggest that the natural environment needs to be included in

child protection and reconstruction after wars and natural disasters, because in the diversified environmental context children can have meaningful engagement which enables the children to respond to adversity and make meaning out of their experiences. Through interacting with the stress or adversity variable, nature serves a protective or buffering function and is able to reduce the negative effects of war or disasters. To be specific, for children who live in poverty, if they have access to a nearby park or natural area, they are more likely to have a better academic performance, because positive mental effects generated in the process of playing in nature balances out the negative ones. Many children who are diagnosed with difficulty concentrating, completing tasks, and disciplining themselves tend to function better in lives after activities in green settings than in non-green settings.

Malekoff (2007) states that after suffering from conflicts, wars, or disasters; children need safe places to go, worthwhile things to do, and opportunities for belonging. Malekoff (2007) and Peek (2008) point out that it is vital that these resources and programs are provided to children in a way of respecting their capabilities and offering opportunities for actions representing triumph over helplessness and despair. Peek also claims that encouraging children's participation and ensuring equitable treatment during the process are as well significant. In terms of specific programs, ecological restoration, building memorial structures or environments, participating in an environmental rebuilding process, and caring for plants and animals can help promote children's resilience and recovery after experiencing conflicts and disasters (Tidball and Krasny 2013).

Apart from children's active participation in the natural environment, Tidball and Krasny (2013) and Winterbottom (2014) all agree that environmental designers are responsible for creating playful spaces as a means of therapy for children, such as therapeutic gardens. When

developing and building such spaces, designers should intentionally dedicate the design concept to the purpose of protecting, healing, learning, and skill building, and should include protective factors in the design. Winterbottom even enumerates a list of specific abilities and knowledge that children can gain by playing in therapeutic gardens, including learning about the natural world, culture, science, math, and writing as well as acquiring vocational skills. He also proposed a series of programs that can be accommodated in therapeutic gardens, including horticultural therapy, drama, music and art therapies, active recreation, and contemplative escapes.

One good example of environmental design for enhancing child resilience in a post-war region is the design done by a landscape architecture student at the University of Washington named Malda Takieddine. She redesigned a portion of the outdoor space in the Za'atari refugee camp for the children who lived there, and she named the project "Oasis of Resilience". She was concerned with the developmental conditions of the children in the refugee camp, so she developed an outdoor space design for them in hopes to build a connection between nature and the children in order to enhance their resilience.

Takieddine divided the outdoor space into three zones – a structured program zone, therapeutic zone, and flexible zone. Each zone was established in an attempt to foster a sense of routine and stability, a sense of trust, and other different capabilities in children. Programs including routine art classes, planting, climbing, constructing, weaving, and self-regulated playing and learning were integrated into the design scheme (Takieddine 2014).

Unlike other studies that focus on proposing general design suggestions to enhance children resilience in post-war regions, Takieddine's research is conducted based on a specific site, thoroughly examines the social and environmental reality of the refugee camp, and develops

the design based on such an investigation. Furthermore, in the process of applying programs and design features to the site, the designer pays much attention to incorporate the local culture, surrounding environmental conditions, and the fact of the site being in a war zone in order to create a play space that fits well to the site, and hence can effectively enhance the child resilience in the refugee camp.

Additionally, Takieddine introduced the concept of Self-Regulated Learning (SLR) rather than simply following the rules of having children participate in scheduled programs as other studies have suggested. She believes that children ought to be given the freedom to explore, discover, experiment, and reflect through self-initiated activities.

Takieddine's design for the Za'atari refugee camp is a good example of what previous studies have shown about fostering child resilience in a stressful community. Her design will also be covered in more detail in Chapter 4 as a case study with the purpose of distilling specific design methods and elements for the redesign of the Tenderloin Recreation Center.

## Conclusion

While this chapter clarifies the fact that the concept of child resilience has been rarely incorporated into the landscape architectural design in reality, it still proposes some design suggestions that can help enhance the quality of life for children.

General design suggestions have been made to playground design, design for safety, and design for healing. Playgrounds with exploratory features enable children to experience a more challenging and interesting playing process which is beneficial to their development. In the meantime, protective facilities and limits on exploration should be established on site to protect children; they can include sitting places for parents, well-lit places for children to play in the

evening, gathering places for children to meet friends, private and enclosed spaces that function as retreats for children, and greenspaces which serve as both screening and places to play. A safe place should also incorporate design features that children can touch and play with. In addition to playgrounds and safety issues, healing is another important factor that needs to be taken into consideration when designing for children in a stressful environment. Gardens and water are usually used as design features for creating a therapeutic process for children.

More specific and in-depth design suggestions can be found in the children-focused projects in violent communities, post-war regions, and disaster-stricken areas. Creating a space where children and adults can come together would help provide a sense of trust and security; in addition, a predictable and structured environment is needed to battle with the violent and unstable environment that children are accustomed to living in. A playful experience can foster multiple abilities in children. Art-making helps children to release inner stress, and a connection with nature can generate positive mental effects for children. Encouraging them to participate in the reconstruction of their community creates a sense of belonging. Moreover, the incorporation of cultural elements in a play space helps build children's personal identities.

The above-stated cases do not directly point to designing for children in low-income neighborhoods such as the Tenderloin District. However, the design principles or suggestions are still useful for the redesign of the Tenderloin Recreation Center in terms of giving suggestions to the design for youth resilience. Some of these design solutions are multi-purposeful. The possibilities of these design solutions that enhance child resilience are as follows:

• Social competence can be improved by establishing gathering places and greenspace as play spaces as well as by providing a playful and exploratory experience for children.

- Problem-solving skills can be cultivated by designing exploratory playgrounds and encouraging children to take part in art-making and reconstruction of the community.
- Critical consciousness is more likely to be fostered in athletic activities and an exploratory playing environment.
- Autonomy can be built by providing children with a playful experience, engaging children in reconstruction of their community, and encouraging them to connect with cultural elements.
- A sense of purpose can be achieved by the process of art-making, the participation of the reconstruction of the community, and the incorporation of cultural elements.
- A sense of trust and stability would be enhanced if protective facilities or factors are added to the design, including sitting place for parents, well-lit places in the evening, private or enclosed spaces, greenspace as screening, design features that children can touch, a garden and water as healing elements, the creation of attachment between children and adults, and a predictable and structured playing environment.

Many of the above-stated design solutions will be applied to the new design scheme of the Tenderloin Recreation Center and adjusted accordingly with the unique condition of the site.

### **CHAPTER 4**

## CASE STUDIES

In Chapter 3, general design suggestions have been made in order to create a better playing environment for children. In this chapter, two specific cases are examined in depth. The outdoor children's place space in the Za'atari refugee camp and a recreation center in the Tenderloin District – the Boeddeker Park –are studied in detail in order to draw useful design principles and approaches to designing for child resilience.

The general selection criteria for both of the two projects included: (1) providing recreational facilities for children; (2) being situated in a vulnerable community; (3) being established after 1995 (20 years); (4) being actively used for purposes of learning, mental healing, and playing.

## **Oasis of Resilience – Za'atari Refugee Camp**

A landscape architecture student at the University of Washington named Malda Takieddine included a conceptual redesign of a portion of the outdoor space in the Za'atari refugee camp in her graduate thesis, and she named the project "Oasis of Resilience". This case was briefly mentioned in Chapter 3 as a literature review and will be analyzed in-depth in this chapter. Takieddine thoroughly explained that she was concerned with the developmental condition of the children in the refugee camp, and that she hoped, through design, to build a connection between nature and the children in order to enhance their resilience. She also clarified

in the thesis how each design solution could effectively meet the design goal, even if the project was conceptual (Takieddine 2014).

# An Overview of the Site

The Al-Za'atari refugee camp was established in July 2012 in northern Jordan – an area that is accommodating more than 50,000 Syrian children who have lost their homes in war.

Spanning around 9 square kilometers, the camp is located on a degraded rangeland. It is divided by two major roads. One is north-south oriented, and the oldest and most crowded section of the camp is located west of it. The other road is newer and sitting on the east side of the older one. This road serves as a central artery for the camp and many makeshift stores start gathering on its two sides, turning this part of the camp into a business and activity center (See Figure 4.1).



Figure 4.1: Aerial View of the Za'atari Refugee Camp (Takieddine 2014)

The camp endures a very arid climate, scorching sun, little shade and very little precipitation annually, and is vulnerable to all forms of desert extremes. The air quality is deteriorated and sandstorms can happen from time to time because of the strongly wind in that area.

Other characteristics of this camp include dust that can be found everywhere and tents and caravans that sit very close to each other; coarse gravel covers the campground for drainage purposes; and soil bunds are built surrounding the camp and are used to prevent unauthorized vehicles from entering (Takieddine 2014).

It is reported by the latest United Nations High Commissioner for Refugees (UNHCR 2013) report on Syrian refugees that children of all ages are enduring first-hand conflicts, destructions, violence, traumas, uncertainties, and unhealthy environments such as sniper fire, rockets, missiles and falling debris. Consequently, they are carrying immense physical, intellectual, and psychological wounds, such as deficiencies in physical well-being, sleep, speech, and social skills. There are very limited educational resources for the children in the refugee camp, which, if not provided, will lead to disengagement from education and learning for the youth (UNHCR 2013). Many refugee children are forced by the war to spend their childhood in exile, which only brings them a limited world to live in, such as refugee camps, small rooms, or crowded rooms. Basic living resources, such as private bathrooms, sanitary tools, and clinics are not adequate. The life in the camp is stressful and sometimes unsafe, and there are not many designated places where children can escape to and seek safety and joy (Takieddine 2014).

### Design Concept

It is essential for children living in harsh conditions to find a place which would provide safety and respite in order to develop healthy and positive life trajectories. According to Takieddine (2014), the redesign of the Za'atari refugee camp proposed a landscape architectural design scheme to ameliorate harsh physical conditions for Syrian children and enrich the few opportunities they had, aiming to support them in healing from and overcoming trauma and uncertainty as well as to empower them to move forward.

The physical design content and implications were enhanced with the increased understanding of child developmental psychology and pedagogy science, aiming for the provision of opportunities to connect children with the landscape, climate, and their surroundings. The landscape architectural features that were added into the original site would encourage and assist children to play, to learn, to innovate, and to communicate. Through the interactions with the environment and its products, the physical and the mental health of the children at Za'atari were likely to be boosted; at the same time, the quality of the landscape itself would get improved.

The design also examined and identified some experiences and programs that enabled children to develop necessary skills. The cultivation of these skills could not only meet their natural growth needs but also helped children discover their capabilities and help form their identities. The participation of facilitator parties would be another positive result brought about by this design; this could bring together children, parents, and aid agencies to create a safe and educational place that was away from calamities.

## **Design Principles**

The Za'atari refugee camp incorporated the idea of child resilience into the design. First, taking the enhancement of child resilience as a motivation, the landscape architect conduct the analysis about how wars could damage children's physical, mental and intellectual development, after which she created a toolkit targeting the solutions to the problems caused by the war to children. This was a result-driven design process. Second, based on the analysis of the needs of the children who lived in the war zone and that of the local climate, the designer created an outdoor play space consisting of three individual spaces – an area of flexible activities, an area of structured programs, and an area for therapy. This new design solution was developed on the

premise of keeping the concept of child resilience in mind. Last but not least, it could be seen in many design features that the designer made efforts of incorporate historic and cultural elements, such as the beehive-house-like play structure and the rugs woven by the children.

## **Design Solutions**

Takieddine (2014) considered that the landscape architectural features she put into the site needed to work altogether to accomplish five goals. Firstly, beautification was needed to stimulate children's imagination, foster their self-esteem, and help discover their identities. Secondly, the design would create an opportunity for trainers to schedule daily routines for children. Thirdly, the variations in colors and shapes needed to be incorporated to develop children's senses and build their capabilities of thinking and distinguishing. Fourthly, there needed to be therapeutic features for children to let out inner stresses and ultimately heal them. Lastly, techniques that helped children learn to concentrate needed to be introduced so that the negative impact caused by wars could be reduced. Based on these goals, design solutions were developed.

Considering the sun as an important element to enrich the spatial experience for children, Takieddine coordinated children's activities into three zones (See Figure 4.2) based on the sun's orbit position throughout the day and the year. These three zones are "structured program zone", "therapeutic zone", and "flexible zone". The routine of spending their time in different zones during different time slots would enable children to find trust, stability, and a sense of security. In this way, the design can fulfill the goal of fostering child resilience. In the "structured program zone", children can start their day singing to the music and then take acting classes which take place in a theater. The "therapeutic zone" normally takes place during noontime. Children are divided into groups to participate in the activity, such as planting, drawing, group play,

storytelling, and crafting, among which some outdoor ones take place under a translucent structure which is used to defuse the strong sunlight, while indoor ones are conducted in caravans. The "flexible zone" is used at the end of the day. In this place for unstructured activities, children would be trained to interact with other people and use experimental materials in order to discover skills and form their identities.



Figure 4.2: Proposed Zoning Idea for the Za'atari Camp (Takieddine 2014)

Traditional beehive houses are typical in Syrian culture, being the expression of the earthen building culture and semi-nomadic people living in the arid region (Mecca and Dipasquale 2009). The beehive house is a round building that has a dome on the top with an oculus through the wall through which light can come in.

The children in the refugee camp were encouraged to participate in the construction processes of a beehive-house-like-structure in order for them to discover the passion for designing and building (See Figure 4.3); the children in the camp would also come to recognize

the value of hard work, and a sense of pride could be established by doing so. The process of working in teams would help children to foster the ability of communication and collaboration.

The process of preparing for the earth plaster allows children to use different materials, such as sand, clay, and straw to create new things. This would give children the chance to think, to move, and more importantly, to be connected with their environment. Furthermore, the dirt is reported to be effective in healing children from a biological standpoint, for the bacteria in the dirt can stimulate human neurons that produce serotonin; serotonin works as a natural anti-depressant and is able to activate many body functions (Medical News Today 2007).

The beehive-house-like structure would also be used as a gathering space where they could meet other children and express opinions. In addition, children could find the pleasure of tunneling through this structure, which stimulates them to explore.

Children at Za'atari were also encouraged to weave rugs with the help of their mothers. The cultural elements were shown and reinforced in this practice, which could enrich children's knowledge and understanding of their own tradition and culture. In this way, children's inner distress and inferiority could be mitigated. Furthermore, through this practice, children would see themselves creating connections with landscape architecture, as rugs they made were used as decorative features to beautify their living environment (See Figure 4.4).



Figure 4.3: Beehive-House-Like Structure (Takieddine 2014)



Figure 4.4: Rugs Woven by Children in the Za'atari Camp (Takieddine 2014)

There was a place on the site where children would learn about gardening, planting, watering, monitoring, and maintaining (See Figure 4.5). The plantings included a wide range of vegetables and plants, such as lettuce, herbs, tomatoes, and flowers. Through encouraging children to take care of these plants, a sense of commitment, love, and a feeling of being rewarded could be established in children.



Figure 4.5: Gardening Area in the Za'atari Camp (Takieddine 2014)

One section of the site was inspired by the idea of Self-Regulated Learning (SRL) (Ormrod 2011). SRL means that one can control herself and evaluate her own learning process and behavior, and emphasizes on the belief that a child is able to "explore, discover, experiment, create, share and reflect" through playing. In order to help realize these abilities in children, grids were created. Children would bring materials and tools from caravans to the grids and use them to create shapes or forms in accordance with their own desires and interests (See Figure 4.6).



Figure 4.6: Area for Self-Regulated Learning (Takieddine 2014)

At the end of the day, children were responsible for returning all the tools and materials back to the caravans and keeping the inside of caravans clean and organized. This was a process that would cultivate self-discipline and self-trust in children.

# The Interpretation of Findings

The following Table 1 shows how the redesign relates to child resilience.

Resilience factors	Design elements	Resilience goals
	0	Social competence (SC)
		Problem-solving skills ( <b>PS</b> )
		Critical consciousness (CC)
		Autonomy (A)
		A sense of purpose ( <b>SP</b> )
		A sense of trust and stability ( <b>TS</b> )
Increase protective factors	The establishment of the	A sense of trust and stability( <b>TS</b> )
increase protective factors	"structured program zone"	The sense of trust and submity (10)
	The establishment of the	The promotion of interaction among
	"flexible zone" and the	children (SC)
	anouragement of Solf	An opportunity for shildren to explore
	Deculated Learning	discover experiment erects and reflect
	Regulated Learning	( <b>PS</b> )
	The construction of an outdoor	The emphasis on hard work (CC)
	structure symbolizing the local	The establishment of a sense of pride (A)
	culture	The cultivation of the ability of
		collaboration and a sense of social-
		bonding (SC)
		The promotion of problem-solving skills
		and a sense of self-efficacy ( <b>PS</b> )
	The utilization of natural	The familiarity with nature as a healing
	elements, such as dirt and soil	process ( <b>PS</b> )
	Outdoor playing structure	A gathering space for children to
		communicate (SC)
		An exploratory play space (CC)
	Art making	The recognition of children's cultural
		identity (A)
		The expression of inner frustration ( <b>TS</b> )
		The stimulation of children's
		imagination (SP)
	The incorporation of various	Sensory development ( <b>PS</b> ) ( <b>CC</b> )
	colors and shapes	
	A garden	The foster of a sense of responsibility
		( <b>PS</b> )
		The cultivation of a feeling of being
		rewarded (SP)
	Cleaning up the play space	The cultivation of children's self-
		discipline (CC)
Reduce risk factors	The establishment of the	An outlet for children's inner stress by
	"therapeutic zone"	encouraging them to participate in
	L	activities for self-expression (A) (SP)
	Site beautification	The shift of children's concentration
		from war so that the impact caused by
		wars can be reduced ( <b>TS</b> )
	Translucent outdoor structures	The prevention of sunburn ( <b>TS</b> )
	on the site	prevention of buildenin (LD)

Table 1: Design Solutions of the Za'atari Camp Fulfilling the Child Resilience Goals

While the design for the Za'atari refugee camp proposes some good solutions addressing fostering child resilience in a stressful environment, the site itself is not located in a dense urban area like the Tenderloin and cannot reflect and solve issues that only arise from big cities, including increasing the efficiency of spatial usage, preventing criminals from entering the site, and providing good screening between the site and the street. Another limitation of this design is that it is unable to manifest cultural diversity due to the fact that the demographics of the refugee camp mostly consist of people from Syria.

# **Boeddeker Park**

The Boeddeker Park is located in the Tenderloin District and shares many things in commonalities with the Tenderloin Recreation Center, including being located in a dense urban area, being adjacent to a street, and being one of the very few recreational places in the neighborhood. More importantly, the redesign of the Boeddeker Park has reached the same goal as the Tenderloin Recreation Center will strive to do – improve the living environment for children in negative conditions such as financial shortage, crimes, lack of education and medical resources, lack of greenspace, and a notorious reputation. Therefore, it is useful to study the design methods of the Boeddeker Park and apply them to the Tenderloin Recreation Center.

In 2011, a landscape architecture firm named WRNSSTUDIO redesigned the Boeddeker Park in the Tenderloin District, San Francisco. The new design scheme not only changes the spatial layout and the design features that the park originally had, but also encourages people to launch varied programs to attract children and improve their development.

### An Overview of the Site

The Boeddeker Park was originally opened in 1985, located in the heart of the Tenderloin District. A renovation of this park started in the summer of 2011, and the new park was opened on December 10, 2014 (San Francisco Recreation & Parks 2014). Now the inviting new park, which consists of 1-acre park land and a 4,000 sq ft clubhouse (WRNS Studio 2014), is able to work more effectively, accommodate more services and programs, and provide visitors with a more interesting spatial experience (The Sustainable Sites Initiative 2014).

The older design scheme for the Boeddeker Park, which was developed in 1985 (WRNS Studio 2014), was to provide an outdoor hang-out place for more than 3,000 children and their families (Salvadori 2000); therefore, tall and strong fences were intentionally put around the park, leaving only a door open for people to come in and go out (See Figure 4.7); this was for keeping a sense of freshness in a vulnerable neighborhood like the Tenderloin and also for ensuring security as the major park users are mothers with their children (Thompson 2000).

However, located in the heart of the Tenderloin District, a neighborhood with a high population density (Salvadori 2000, The New York Times 2010), the Boeddeker Park was a failure because the fencing created a sense of disconnection, and had reduced its capability of welcoming and accommodating surrounding residents in their leisure time before it was renovated. As a result of few residents going into the park and playing, drug dealers and intoxicated people took the place as a trading spot and a place to stop, which brought about other kinds of urban entropies. As there was more and more loitering and drug dealing occupying the place, even taller and stronger fences were installed, which hampered accessibility and visibility and created hidden corners. Eventually the park was padlocked even during daylight hours, excluding law-abiding park users (Thompson 2000).



Figure 4.7: Fences around the Old Boeddeker Park (Thompson 2000)

Not only had the design intention of the park not been effective, but also its spatial layout had been controversial and questionable. A broad diagonal promenade which was wide enough to juxtapose two cars ran through the site, dividing the space into two parts evenly. What is more, the layout created a series of spaces on both sides of the promenade; spaces, such as a basketball court, playground equipment, a lawn, a tai chi patio, a stage and a clubhouse (Attwood 2012) were fenced off by six-foot black fences (See Figure 4.8). The layout virtually had separated different groups of users from each other (Salvadori 2000). By the action of "caging" and prohibiting users from traveling through the site, rather than tying together all subdivisions by establishing a central gathering space, the Boeddeker Park eventually failed to become an effective and inviting community gathering place.



Figure 4.8: Aerial View of the Old Boeddeker Park Showing Its Spatial Designation (Thompson 2000)

# Design Concept

In 2014, the renovation of the Boeddeker Park began. The goal of this redesign was to create a safe and secure public space with green areas. They employed active programming as an effective way to attract more children to the site. The Tenderloin is also a place with children of diversified age levels and ethnic backgrounds, including youth immigrants who do not speak English as their first language. So, the Boeddeker Park redesign also aimed to create a meaningful gathering place to bring together those groups (The Sustainable Sites Initiative 2014). Design Principles

Although the landscape architects involved in the redesign of the Boeddeker Park did not necessarily think about the concept of child resilience when developing the plan, they still had the goal of turning the old park where only drug dealers would come into a place that provided joy to children and their families. Therefore, the author of this research considers that this thought of turning a negative environment into a positive one for people including children similar to the thought of child resilience. The landscape architects approached their design goal by the following ways. First, before the landscape architects developed the new scheme for the Boeddeker Park, they set goals of renovating this park into a more inviting place where family and community members could gather and communicate, and all the design features were incorporated in an attempt to achieve this goal. This is a result-driven design process. Second, the design solutions such as the form of the recreation building and the sustainability-sensitive design are all innovations in order to serve the goal of making this place more functional, spacious, interesting, and inviting. Last but not least, the landscape architects put historic and cultural elements into the design by introducing a variety of historic and cultural activities and programs into the site for people to participate. Also the designers invited local people to maintain and administrate the park together.

### **Design Solutions**

The main design solutions for the Boeddeker Park include outdoor fitness equipment, a lawn, a basketball court, art installations, a plaza, a garden, some sustainable design features, and a clubhouse (See Figure 4.9). These design features enable the children in the Tenderloin to participate in physical exercises, group work, art appreciation activities, and knowledge learning programs, which all help foster child resilience from different perspectives.

Some design features from the old park, such as outdoor fitness equipment, lawn, and a full-size basketball court, have remained. New facilities, including a walking path with accessible ramps, plazas, outdoor sculptures, a garden (The Sustainable Sites Initiative 2014), and a modern glassy clubhouse (SFGate 2014), are incorporated in order for children to have a more inviting spatial experience.



Figure 4.9: New Plan View of the Boeddeker Park (WRNS Studio 2014)

By such design, not only the physical health of children can be maintained, but also mental resilience can be fostered and improved. Accessibility to each area of the park is provided for disabled children, making them feel cared for. The plaza and garden are good places for children to gather, explore, discover, interact, and cooperate. The exposure to outdoor art installations is an essential aspect to stimulate children's development of sensory and perceptual powers. It also plays a significant role in improving their ability to recognize, assess and distinguish items, make decisions, and communicate their comments and ideas (Gardner 1990). Children's inventiveness and cultural awareness can also be built in this process.

The sustainable design in the park can help foster child resilience in a way of cultivating a sense of ownership and participation in children. These sustainable design solutions help secure children's rights to environmental resources, enable children to have adequate access to environmental information and the decision-making process, encourage children to cooperate for environmental protection, and provide parents and educators with opportunities to teach and communicate with children. The establishment in children of all these abilities is a sign of them being resilient (Mainka et al. 2005).

The Boeddeker Park is a participant in the Sustainable Sites Initiative and has incorporated an ecologically-sensitive design, addressing issues of sustainable water management and resource conservation and creating voluntary national guidelines and performance benchmarks for sustainable land design, construction, and maintenance practices. Features such as water-efficient landscaping and recycled materials make the park and clubhouse a model of sustainable design (The Trust for Public Land 2016). In San Francisco, infrequent but heavy storms can cause a large overflow and rainwater runoff. The permeable pavements on the site, vegetated swales, and an infiltration field help capture and infiltrate on-site 97% of a 2-year storm. The infiltration field consists of a series of water holding cells installed under the lawn area, which hold additional water temporarily until it can percolate into the ground. This not only decreases the amount of runoff that enters into the city's sewage system, but also helps to recharge the groundwater aquifer. The park design also incorporated climate-adapted plants and drip irrigation to reduce the water use. The only cooling method for the clubhouse is passive cooling, including operable windows and a vaulted ceiling design, which is appropriate for San Francisco's mild climate. The building also introduces geothermal technology for heat; the 250feet deep underground water is circulated by a vertical geothermal system to absorb the earth's thermal mass, and a radiant floor heating system is responsible for heating the whole building.

Additionally, the design employs energy-efficient lighting with daylight sensors and local, reused and recycled materials (The Sustainable Sites Initiative 2014).

Additionally, in order to educate park users about the sustainable design, icons with explanations of sustainable features (See Figure 4.10) on them are spread throughout the park (The Sustainable Sites Initiative 2014).



Figure 4.10: Elevation View of the New Plan of the Boeddeker Park (WRNS Studio 2014)

The clubhouse was conceived to be an inviting room; its architectural geometries and language are integrated into the form of the park, also forming a respectful contrast to the surrounding neighborhood fabric, which is a gridiron pattern. Organized around two flexible gathering spaces, the clubhouse's main recreation room is facing Eddy Street and framing the main parking entry on the street. The architectural form of the room reaches to the sky for light and volume, which allows for gaining more empty space. The room opens to the main plaza; the recreation room is transparent, making interior activities visible to both the neighborhood on the east and park on the west (WRNS Studio 2014). With the adequate amount of empty space, good physical and visual movements are reported to largely increase the level of constructive participation and self-directed play among children (Kritchevsky 1969).

The physical design is only a part of the solution to the neighborhood; active programming and stewardship are keys for creating a truly safe environment (WRNS Studio 2014), and it is the constant comings and goings of people as a result of participation in the programs that keeps the place safe (Whyte 1980). The place can accommodate a broad spectrum of community programs and activities, such as boys' camps and girls' clubs, homework tutoring, bodywork, teen hoops, Torch Clubs, and classes in culinary arts and life skills (SFGate 2014), which are hosted at the park's playground and inside a new activity center. A Safe Passage program has been added to the park, allowing more than 3,500 children in the Tenderloin and surrounding neighborhoods to access the place through designated routes (PR Newswire 2014). All these programs can serve as protective factors that encourage youth resilience (Woodland 2014).

A drawing of the master plan of this park has been posted at the front gate, showing all the above-mentioned features (LandNotes 2010). Although there is still an adult theater opposite the street, and loitering, drug dealing, and alcohol addiction are still prevalent in the Tenderloin, the level of safety of the Boeddeker Park is very likely to create a street-level morality by incorporating active programming and meeting the community's needs, which can potentially keep illegal behaviors away from young generations (SFGate 2000) and make them feel physically and mentally protected. Once the place is safe and without major disturbances, more

children from different backgrounds will come here to meet and play, thus allowing the child resilience to be built in a larger scope. At the same time, the outreach and the partnership formed during the design process gives the children a sense of ownership of the park, which is also important in terms of cultivating self-confidence and self-esteem in children (The Sustainable Sites Initiative 2014).

# The Interpretation of Findings

The following Table 2 shows how the redesign of the Boeddeker Park relates to child resilience.

Resilience factors	Design elements	Resilience goals
		Social competence (SC)
		Problem-solving skills ( <b>PS</b> )
		Critical consciousness (CC)
		Autonomy (A)
		A sense of purpose (SP)
		A sense of trust and stability ( <b>TS</b> )
Increase protective factors	The change of spatial layout	An exploratory playground
1		Better circulation for children to travel
		(SC) (PS)
	Outdoor fitness equipment a	The promotion of children's physical
	lawn and a basketball court	health (CC)
		Opportunities to cooperate (SC)
		Opportunities for children to challenge
		themselves to fail and to succeed ( <b>PS</b> )
	Walling games	The same for dischlad shildren (TS)
	waiking ramps	The care for disabled children (15)
	Ecologically-sensitive design	The access to environmental resources
		and decision making rights (PS)
	A plaza	A place for children to meet and
		communicate (SC)
	A garden and landscaping	Places for children to connect and
		commit to nature, to gather, to explore,
		to imagine, to interact, and to collaborate (SC) (PS)
		The promotion of children's self-
		efficacy ( <b>PS</b> ) ( <b>A</b> )
	Outdoor art installation	The promotion of sensory development.
		imagination, inventiveness, and cultural
		cognition (A)
		The promotion of children's ability to
		recognize distinguish and express ideas
		(PS)
		Better community identity (A)
	The clubhouse	The enhancement of constructive
	The endbloase	participation and self-directed play
		among children ( <b>PS</b> ) ( <b>TS</b> )
	The unique form of the	A more spacious, bright and free indoor
	clubhouse	environment ( <b>TS</b> )
		The enhancement of the visibility from
		the inside out and vice versa to make
		children feel safe ( <b>TS</b> )
	Active programming and	The increase of park usage (SC)
	stewardshin	A sense of ownership for children $(\mathbf{A})$
Reduce risk factors	The removal of excessive fences	A more inviting park environment for
		nark users (TS)
		An actively used park where criminal
		will not gather ( <b>TS</b> )
	Active programming and	The reduction of crime rates (TC)
	stewardship	The reduction of crime rates (15)
	Safe Passage Program	A safe route through which children can
		get to the park ( <b>TS</b> )

Table 2: Design Solutions of the Boeddeker Park Fulfilling the Child Resilience Goals

## Conclusion

Useful design methods and solutions (See Figure 4.11) can be seen from the two case studies. Setting up different zones helps to provide a structured and stable playing environment for children. The translation of culture into specific design elements helps children to recognize their backgrounds and personal identities. Incorporating natural elements such as gardens and sustainable features such as rooftop gardens can create a healing environment as well as enable children to have access to knowledge, participate in the decision-making process, and be involved in cooperation and communication. Maintaining outdoor playing facilities is good for keeping children physically active and healthy. Art-making helps children to let out inner stress, and the utilization of various colors and shapes can stimulate children's sensory development. Changing spatial layout can lead to a more effective spatial usage and inviting spatial experience for children. A gathering spot such as a plaza can encourage children to communicate more. Elements including sunlight, programs, circulation, and spatial experience need to be taken into account when designing the recreation center building in order to accommodate more available activities and provide children with a comfortable and safe environment.

These design methods and solutions will be introduced into the redesign of the Tenderloin Recreation Center so that the children in the neighborhood can have a nourishing playing experience.



Figure 4.11: Diagram Showing Design Solutions in the Case Studies Fulfilling the Goal of Child

Resilience

### CHAPTER 5

## TENDERLOIN DISTRICT

The psychological study on child resilience found that increasing protective factors and decreasing risk factors are the ways to foster child resilience. The literature review proposed some general design approaches and solutions to build a better environment where child resilience could potentially be cultivated. Through studying two cases that share many common areas with the Tenderloin Recreation Center, in-depth design approaches and solutions were looked at and categorized into the group of protection and the group of risk, suggesting a useful design method for the redesign of the Tenderloin Recreation Center. In this chapter, the existing condition in social, financial, and environmental aspects of the Tenderloin neighborhood will be investigated and grouped into the group of protection and the group of risk likewise. These elements in the two groups will be translated into specific design features in the later projective design.

### An Overview of the Tenderloin District

The Tenderloin District is a neighborhood located in downtown San Francisco, California. It sits on the flatlands on the southern slope of Nob Hill, another neighborhood in the northeastern part of the city (See Figure 5.1). The Tenderloin District has an area of 0.278 square miles (City-Data.com 2013), and it is estimated to have 50 square blocks. It has a shape of a wedge/triangle, with its point facing east; it is bounded on the north by Geary Street, on the south by Market Street, and on the west by Van Ness Avenue. The whole district is situated between the Union Square shopping district on the northeast and the Civic Center office district on the south, and it is set apart from the San Francisco bay by the Nob Hill community (See Figure 5.2).



Figure 5.1: Map of San Francisco and the Tenderloin District (Google 2016)



Figure 5.2: Surrounding Conditions around the Tenderloin District

The Tenderloin District was established as a residential neighborhood after the California Gold Rush in 1849. By the late 19th century, the Tenderloin District was especially famous for its active nightlife with many theaters, restaurants and hotels. After the 1906 earthquake and fire, and continuing into World War II, the Tenderloin started to lose its population, creating a considerable amount of vacant housing units, which used to be single-room-occupancy hotel rooms, studio and one bedroom apartments for single adults and couples to live in. After the Vietnam War, the Tenderloin District became the gathering place for refugees and resettlement agencies from Southeast Asia due to the low housing cost and the proximity to Chinatown, and this demographic character remains today. By the 1920s, the neighborhood had been considered notorious for gambling, billiard halls, boxing gyms, "speakeasies", theaters, restaurants, and other nightlife. The neighborhood has been living with such reputation since then (Beyond Chron 2014, CBS Local 2015, SFGate 2000).

From the late 1950s to the early '60s, due to the replacement of what had been a movie house and theater territory by the television and suburban culture, the economy of the district started to go down. People preferred to stay at home, and they stopped coming to the Tenderloin and spending money on different kinds of entertainment in this area. Today, the Tenderloin is still troubled by its economic depression, and it still leaves the first impression of being filled with drug dealing, addiction, prostitution, and mentally unstable street people (CBS Local 2015, MacLaren 1988).

According to the 2010 U.S. census, the total population of the Tenderloin District was 31,565, with a median age of 39.73 reported by *sfrealtor*, making up 3.9% of the population of San Francisco (805,235). It was estimated that there were more than 3,500 children in the neighborhood (United States Census Bureau 2010).
The Tenderloin District is famous for its ethnic and cultural diversity. Here dwell the white, the American-African, the Hispanic, the Asian, and people from other races (City-Data.com 2013). On one hand, different cultures might cause some difficulties and problems in communication among different racial groups, including language barrier and ideological conflicts. It is likely that the children in the Tenderloin will lose peaceful states of mind but develop anxious and frightened ones if they see and are involved in too much of such conflicts. On the other hand, the richness in culture enables these children to be connected with multiple types of people, opinions and information, which can contribute to the cultivation of dynamic ways of thinking for them. With certain good pedagogical interventions coming into play, children can be educated to embrace different things and think critically and comprehensively. When dealing with tasks, they are more likely to come up with creative and practical inspirations and solutions because of their experience of living in such culturally diversified environment. The Tenderloin Recreation Center will be designed as a means of intervention in an attempt to create a safe and peaceful space for children to be connected with the positive aspect of the cultural diversity while the conflicts resulted from it can be reduced.

### **Risk Factors**

For many years, the Tenderloin has been a center for prostitutes, hustlers, and drug dealers to gather. On the street, one can easily find stores and entities like adult book stores, liquor markets, massage parlors, pay day loan stores, drug rehab clinics, pot dispensaries, and strip clubs. The Tenderloin also suffers from an absence of good housing quality, substandard medical services, inadequacy of educational services, and isolation from other neighborhoods due to the lack of financial support (Cook 2009, Vice 2013). Childhood trauma is among the

biggest risk factors for mental disorders and depression. The excessive exposure to an adverse environment of this sort can intensely trigger the stress response system in children's bodies, resulting in the disruption on the development of brain architecture and function, and organ and metabolic system disorders (Shonkoff et al. 2012). In addition, the children usually have not developed a good sense of values. Living in the environment where these children can often see crimes, they are likely to imitate such behaviors or be involved in crimes as victims (Garbarino 1992).

### **Economics**



Figure 5.3: Severe Low-Income Problem in the Tenderloin District (United States Census

### Bureau 2005)

Cook (2009) pointed out that due to the city's massive reduction of financial support, job opportunities in the Tenderloin have been largely reduced. Figure 5.3 shows that the Tenderloin

District is severely below the poverty line, which has resulted in the severe fighting over money and goods, and stealing from other people (Cook 2009).

The disproportion of the city budget distribution makes some already much wealthier neighborhoods around the Tenderloin become even more wealthy and livable, but causes the Tenderloin to continue suffering from the lack of resources in households, education, medication, and employment. Nearly half of the Tenderloin's families with children of school age are below poverty level (City-Data.com 2013), and the district's consumer spending is below that of the national average (See Figure 5.4). Additionally, the Tenderloin is notorious for providing inadequate medical services (Cook 2009), mainly because low-income patients are not able to keep in regular contact with their health providers due to the very limited email access in the neighborhood (Forbes 2014). The Tenderloin's main day treatment clinic for the mentally disabled is also almost forced to shut down due to budget cuts (Cook 2009).

	National Average	
	Below Average	Above Average
	100	
Total Household Expenditure	87	
Contributions	89	
Insurance	87	
Clothing	89	
Education	96	
Entertainment	86	
Food	88	
Health Care	89	
Household Furnishings	87	
Shelter	89	
Household Operations	87	
Other	90	
Personal Care	89	
Reading	90	
Tobacco	88	
Transportation	83	
Utilities	89	
Gifts	91	

Figure 5.4: Consumer Spending in the Tenderloin District (San Francisco Association of

Realtors 2014)

#### Social Condition

In the Tenderloin there is a stark absence of some fundamental rights, including rights to privacy, housing, health, safety, community services, and employment (Cook 2009).

Firstly, even if the Tenderloin District is in the middle of two gathering places of tourism and commerce – the Union Square District and the Civic Center District, it is still less visited and appreciated by tourists and consumers due to its historically notorious reputation of being the center of crimes and poverty (Cook 2009, Hague 1969).

Secondly, the statistics in 2013 showed that there were three major crimes happening every hour in this neighborhood, and a majority of residents have been attacked by criminals and many of them have been done so twice within one year. The types of crimes mainly include robbery, murder, personal crime, automotive theft, and rape (See Figure 5.5). In addition, the number of homeless people, among which there are HIV-positive drug users who may cause disease-infection (Vice 2013), has increased (Cook 2009). This can make the street feel less safe for children. Furthermore, the fact that public sidewalks can be the place that people commit all levels of drug dealings and prostitution (Vice 2013) prohibits children from coming outside and enjoying free outdoor activities.

According to Cook (2009), some policies that the government made to guarantee residents some fundamental rights are not very well implemented in the Tenderloin. In many housing units, damage in the walls and ceilings is common; broken elevators remain in a hazardous state for weeks and it is just a matter of time before people could die in them. These examples of disrepair indicate the poor housing maintenance that the government should have monitored. The tenants are forced to ask building managers for toilet paper, and they also need to

repeatedly ask the post offices for mail delivery, indicating that the government has not provided and enforced good community services.



Figure 5.5: Tenderloin Crime Rate and Statistics (San Francisco Association of Realtors 2014)

#### Education

According to the data from the Census Bureau's American Community Survey, based on samples from 2005 to 2009 (The New York Times 2010), compared to other communities in San Francisco, there are fewer children in the Tenderloin going to private schools – less than 20% of the total children in this neighborhood can afford private schools. This may be seen as a sign of economic hardship in this area. Around 80% of the residents in the Tenderloin hold high school degrees, whereas in the case of other communities in San Francisco, more than 95% of their residents have attained high school degrees (See Figure 5.6). Around only 30% of the Tenderloin's residents have attained bachelor's degrees while in some other communities the people who have bachelor's degrees account for 50%-90% (See Figure 5.7). Only 6% of the

Tenderloin's residents acquired master's degrees and it is one of the communities that have the fewest people going to graduate schools. The statistics suggest that the education level of the residents in the Tenderloin is lower than that in other communities. This is why in the new design scheme of the Tenderloin Recreation Center, indoor and outdoor study spaces will be added to accommodate a broad spectrum of educational opportunities such as outdoor classrooms, skill training programs and informative lectures.



Figure 5.6: Low High School Graduation Rate in the Tenderloin District (United States Census

Bureau 2005)



Figure 5.7: Low Attainment of the Bachelor's Degree in the Tenderloin District (United States Census Bureau 2005)

# Natural Environment

There is little greenspace available for large groups of people to use in the Tenderloin District. Within a 10 minutes' walking radius, there are 50,000 people. Given that there are no more than 5 moderate size greenspaces within the neighborhood, approximately every 0.15 acres of park area will need to be shared by 1,000 people (The Sustainable Sites Initiative 2014). Furthermore, living in San Francisco's densest neighborhood, most of the residents live below the poverty line in single-occupancy apartments where there is no backyard or landscaping (WRNS Studio 2014).

Tenderloin National Forest is one of the very few green spaces in the neighborhood. It is special because perhaps it is the only greenspace that is lush, artistic, and inviting. This is a forest growing in an urban alley, and it consists of an arboretum where people can grow plants and install works of art as well as paint murals and a green laboratory where art events such as taiko drumming and hip-hop performances can be held.

In terms of the physical environment of this urban forest, asphalt on the ground was teared up in some locations in the space to plant trees; a redwood stood at the back of the alley symbolizing native California, and a Japanese maple and a *Gingko biloba* were planted subsequently representing the cultural diversity of the Tenderloin. In addition, sod was rolled out over the ground, on which other plants were planted.

Artists, landscape architects, neighborhood residents and politicians have made many efforts to establish this place, and neighborhood residents can constantly come to this place to share gardening experiences and offer advice on plant selection (Melcher 2008). While this is a good place for education and volunteering, and it can represent the community identity, it only does little for an ecological zone due to its small size.

In the Tenderloin District, there are other green spaces. A majority of them are small in size, such as the Sergeant John Macaulay Park and the Turk and Hyde Mini Park, which can be seen on the map; they only take up small patches of land in blocks (See Figure 5.8). The biggest greenspace in the community is the Boeddeker Park; however, even after its renovation, greening and gardening is still not its main focus. The space is mainly used for outdoor active sports and

indoor programs. One piece of lawn, several trees, and some sustainable design features on the site are just not able to provide adequate greenspace for the large population in the neighborhood.



Figure 5.8: Locations and Sizes of the Greenspaces in the Tenderloin District (Google 2016)

# **Protective Factors**

A rich body of research on resilience, school effectiveness (Comer 1984, Edmonds 1986, Rutter et al. 1979), and ethnography shows that "protective factors" are the common elements that have been adopted in the family, school, and community environments which are able to alter or reverse negative outcomes and help individuals to become resilient.

As of September 5, 2012, The Huffington Post has commented on the Tenderloin District, saying "...there's so much more to the neighborhood that borders both downtown San Francisco and City Hall. Hidden in the secret corners of the Tenderloin are an endless array of local gems, from community-painted murals and vibrant performing arts centers to innovative pop-up shops and some of the best food west of the Bay."

The Tenderloin District is famous for its ethnic and cultural diversity including food and tradition, historic association with art and music, and assorted architectural styles as a historic legacy. These elements all can be considered as protective factors and be integrated into the design for the Tenderloin Recreation Center featuring the various and unique aspects of the community. Emphasizing on the community assets can help children construct community identities and personal identities as well as appreciate the advantage of their experience and value themselves.

#### Cultural Diversity

According to the 2010 U.S. census, 32% of the total population of the Tenderloin District is white, 11% is black, 28% is Asian, 24% is Hispanic and other ethnic groups constitute the last 5% of the population (City-Data.com 2013).

Immigrants from Asia are the second largest component of the Tenderloin's population, and they largely contribute to this area's cultural diversity. During the last 30 years, many immigrants from Southeast Asia moved to the Tenderloin District. Nowadays, there are more than 250 Vietnamese American-owned businesses in this community. Their business scope covers restaurants, tailors, jewelers, acupuncturists, doctors, and dentists. Also, the Tenderloin District hosts Tet Festival annually to celebrate the Vietnamese Lunar New Year; at that time, thousands of people will come to join the celebration (San Francisco Sights 2016).

Different ethnic groups are well-connected in the Tenderloin neighborhood. The neighborhood even has its multilingual newspaper, the *Tenderloin Times* (See Figure 5.9), which consistently investigates and reports important news and stories that are then picked up by the city's mainstream media. Since 1985, the paper has been published in Vietnamese, Cambodian,

and Laotian as well as English in hopes to maintain connections with the different ethnic groups in this increasingly diverse neighborhood (FoundSF 2016).



Figure 5.9: The *Tenderloin Times* (FoundSF 2016)

# Art

The Tenderloin District is experiencing an arts revival; art programs have their own workshops and open studios, and artists open exhibitions of art installation in the neighborhood sometimes (SFGate 2012). In addition, the Tenderloin acts as the center of murals in San Francisco, and the works of many famous wall-painting artists can be seen here (Aerosol Friends 2010). Murals are not only used as advertising tools to promote companies' names such as Coca-Cola but are also sprucing up the neighborhood's image (SFGate 2011).

### <u>Music</u>

The neighborhood has a historic association with musicals, shows and plays, and their prevalence can be seen from the great number of theaters in the district. From the mid-20<sup>th</sup> century till today, musicians and performers keep gathering in the neighborhood's theaters,

hotels, bars, and clubs to perform music (TIME 1959). There are a variety of musical genres, including jazz, folk, electronica, indie rock and alternative country that are played in the district (SFGate 2016).

### Historic Architecture

After the 1906 earthquake, the Tenderloin District was rebuilt with more density; the material used for rebuilding was no longer wood as before 1906 but concrete for safer and more fireproof structures. Also, an assortment of architectural styles had come in to give a new look to this community which used to be a single Victorian neighborhood. In 2009, the Tenderloin District was officially designated a national historic district because of its architectural richness (Beyond Chron 2008). Nowadays, some of San Francisco's most beautiful buildings can be found in the Tenderloin District, such as romantic penthouses and magnificent domes. Many theater buildings in the district have ornate exteriors, such as the Alcazar Theater (See Figure 5.10) and The Royal Theater, whose sculpted and ornamented façades are local landmarks (Public Art and Architecture from Around the World 2012).



Figure 5.10: Alcazar Theater, 650 Geary Street (Explore San Francisco 2014)

# Conclusion

To sum up, the risk factors in the Tenderloin District are high crime rate, prostitution, poverty, substandard housing quality, isolation from other communities, inadequate educational resources, and lack of sufficient green space. The protective factors are the richness in cultural diversity, creative arts, music, and historical landmarks. Such mixture of increasing exposure to advantages and reducing that to adversity provides a good approach for a redesign that emphasizes childhood resiliency.

By grouping the neighborhood elements into protective and risk factors, the design solutions can be developed accordingly, such as fences that can be built in order to prohibit unsafe people from entering the recreation center, while decorations of various colors and patterns showing the Tenderloin's cultural identity can be added to the fences to stimulate children's sensory development and imagination as well as to foster children's personal identities. In this way, the investigation of the living environment around the children in the neighborhood can help develop a more functional and effective design for the Tenderloin Recreation Center.

#### CHAPTER 6

### DESIGNING THE TENDERLOIN RECREATION CENTER

This chapter uses the concept of child resilience to inform the redesign of the Tenderloin Recreation Center. The signs of children being resilient have been defined in Chapter 2 as a series of abilities – social competence, problem-solving skills, a critical consciousness, autonomy, a sense of purpose, and a sense of trust and stability. The enhancement of child resilience means the enhancement of these abilities. They are also the goals for the design. To enhance child resilience, protective factors and risk factors need to be identified from the Tenderloin District first. This process has been discussed and finished in Chapter 5. As a result, the cultural diversity, the art, the musical heritage, and the historic architecture have been considered as the protective factors in the neighborhood; the financial shortage, the high crime rate, the substandard educational condition, and the inadequate greenspace have been considered as the risk factors. In the design process in this chapter, the increase of the exposure of children to a protective environment and the decrease of that to a risk environment are the design principles. Design solutions are developed in order to create medium such as landscaping, play spaces, meditating and healing spaces, learning spaces, and educational programs for children. In such an environment, children are more likely to be enlightened about the positive sides of their lives and sheltered from the stresses coming from the negative aspect of the Tenderloin District; thus, resilience can be fostered in them.

### **Child Resilience and Landscape Architecture**

In the study of child resilience, protective/risk factors and six child resilience qualities (social competence, problem-solving skills, critical consciousness, autonomy, a sense of purpose, and a sense of trust and stability) can be seen as two most important pieces of information that can potentially influence the landscape architectural design. The identification of protective factors and risk factors from the site and its surrounding environment can be considered as the design basis – by identifying them, the positive part of the external environment to children can be incorporated and promoted even more and the negative part can be avoided or improved. Six child resilience qualities are thought to be the potential design goal, because it is these six qualities that constitute the definition of child resilience, which is the ultimate goal for the design of the Tenderloin Recreation Center. If the utilization of the design features or solutions for the Tenderloin Recreation Center can largely increase the possibility of fostering these six qualities for children, then the whole design can be thought to be effective in terms of cultivating child resilience. Therefore, the development of the design solutions and the selection of the design features need to aim at the enhancement of these six child resilience qualities. By using the design inventory and analysis to identify protective and risk factors and using design features and solutions to achieve six child resilience goals, the basis of the design strategy would be formed and the concept of child resilience would mostly get reflected.

### From Previous Design Suggestions to A New Design Guideline

From the literature review, some general design suggestions that are helpful to childhood development can be concluded as what are showed in the following table:

Types of landscape architectural design	Design features and solutions	Benefits brought by such design
Landscape architectural design in the field of childhood development	The connection between nature and children	A benefit to children's physical, mental, and intellectual well- being, including touching, thinking, working, cooperating, controlling impulse, concentrating, and recovering from distress
	The presence of special places in nature for children	The achievement of the assimilation and transformation of experiences for children
	Outdoor recreational spaces	The establishment of the social relationship among children The development of problem- solving skills
	Gardens	The development of the understanding of the surrounding world for children A stimulation for children's inner world A place allowing children to work through inner stress and express desires The ability to work on team A sense of responsibility
	Exploratory play features	The development of problem- solving skills The encouragement for children to experience risks that are good for their growth
	Protective features and elements	The protection for children from their inadequacies
	The creation of safe spaces	The cultivation of children's competence in engaging, changing, and managing the environment as adults in the future
	Tactile-friendly design features	The development of children's sensory development A safe feeling
	The moderate changes made in floor levels, ceiling heights, lighting colors, and other physical elements	A comfortable and safe feeling for children
	A space where children can retreat	A safe, protective, and secured feeling
	Water features	A place for reflection and meditation A place for gathering The connection with nature The provision of visual, auditory, and seasonal interest

Table	3:	Design	Suggestions	Concluded	from the	Literature	Review
1	•••			0011010000			

Landscape architectural design	The creation of an attachment	The development of children's
for fostering child resilience in	r fostering child resilience in between children and adults by a	
violent communities	space	abilities
Violent communities	The establishment of a	The reduction of the feeling of
	The establishment of a	The reduction of the feeling of
	predictable, structured, and safe	living in an unstable and
	environment	dangerous environment
	A community-based program for	The reduction of the possibility
	children to walk home safely	that children are confronted with
		violent incidents
	A space for play	The development of children's
		physical, social, and logico-
		mathematical knowledge
		The experience of a sense of
		freedom
		The opportunity for children to
		transform and release negative
		faalings
	A space for art	The opportunity for children to
		express inner stress
		The opportunity for children to
		average their understanding of
		their next and assument reality
T 1 1'4 4 1 1 '		their past and current reality
Landscape architectural design	The incorporation of nature in	The encouragement of
for fostering child resilience in	children's life	meaningful engagement
war regions		The reduction of negative effects
		coming from the war
		The enhancement of academic
		performance
	Programming	The respect for children's abilities
		An opportunity for participation
		The promotion for children's
		recovery from wars
	A space for play	A snace of therapy
		Tr space of therapy
	Dividing space into different	A sense of routine and stability
	Dividing space into different zones	A sense of routine and stability
	Dividing space into different zones The incorporation of local culture	A sense of routine and stability The enhancement of children's
	Dividing space into different zones The incorporation of local culture into design	A sense of routine and stability The enhancement of children's acknowledge of their living
	Dividing space into different zones The incorporation of local culture into design	A sense of routine and stability The enhancement of children's acknowledge of their living background
	Dividing space into different zones The incorporation of local culture into design Self-regulated learning	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to
	Dividing space into different zones The incorporation of local culture into design Self-regulated learning	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment,
	Dividing space into different zones The incorporation of local culture into design Self-regulated learning	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect
Landscape architectural design	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of
Landscape architectural design for fostering child resilience in	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic performance
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic performance The respect for children's
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life Programming	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic performance The respect for children's abilities
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life Programming	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic performance The respect for children's abilities An opportunity for participation
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life Programming	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic performance The respect for children's abilities An opportunity for participation The promotion for children's
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life Programming	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic performance The respect for children's abilities An opportunity for participation The promotion for children's recovery from disaster
Landscape architectural design for fostering child resilience in disaster-stricken areas	Dividing space into different zones The incorporation of local culture into design Self-regulated learning The incorporation of nature in children's life Programming	A sense of routine and stability The enhancement of children's acknowledge of their living background The freedom for children to explore, discover, experiment, and reflect The encouragement of meaningful engagement The reduction of negative effects coming from the disaster The enhancement of academic performance The respect for children's abilities An opportunity for participation The promotion for children's recovery from disasters

In the case studies, design solutions and features that are helpful to fostering child

resilience are proposed and explained in detail, which can be seen from the following table:

Table 4: Design Suggestions Concluded from the Case Studies

Cases	Design features and solutions	Benefits brought by such
		design
Za'atari Refugee Camp	The establishment of the	A sense of trust and stability
	"structured program zone"	
	The establishment of the	The promotion of interaction
	"flexible zone" and the	among children
	encouragement of Self-	An opportunity for children to
	Regulated Learning	explore, discover, experiment,
		create, and reflect
	The construction of an outdoor	The emphasis on hard work
	structure symbolizing the local	The establishment of a sense of
	culture	pride
		The cultivation of the ability of
		collaboration and a sense of
		social-bonding
		The promotion of problem-
		solving skills and a sense of
	The utilization of natural	The femilierity with noture of a
	elements, such as dirt and soil	healing process
	Outdoor playing structure	A gathering space for children
	Outdoor playing structure	to communicate
		An exploratory play space
	Art making	The recognition of children's
		cultural identity
		The expression of inner
		frustration
		The stimulation of children's
		imagination
	The incorporation of various	Sensory development
	colors and shapes	
	A garden	The foster of a sense of
		responsibility
		heing rewarded
	Cleaning up the play space	The cultivation of children's self
	Cleaning up the play space	discipline
	The establishment of the	An outlet for children's inner
	"therapeutic zone"	stress by encouraging them to
		participate in activities for self-
		expression
	Site beautification	The shift of children's
		concentration from war so that
		reduced
	Translucant outdoor structures on	The prevention of suphurn
	the site	The prevention of sufform

Boeddeker Park	The change of spatial layout	An exploratory playground Better circulation for children to travel
	Outdoor fitness equipment, a lawn, and a basketball court	The promotion of children's physical health Opportunities to cooperate Opportunities for children to challenge themselves, to fail, and to succeed
	Walking ramps	The care for disabled children
	Ecologically-sensitive design	The access to environmental resources and decision making rights
	A plaza	A place for children to meet and communicate
	A garden and landscaping	Places for children to connect and commit to nature, to gather, to explore, to imagine, to interact, and to collaborate The promotion of children's self-efficacy
	Outdoor art installation	The promotion of sensory development, imagination, inventiveness, and cultural cognition The promotion of children's ability to recognize, distinguish, and express ideas Better community identity
	The clubhouse	The enhancement of constructive participation and self-directed play among children
	The unique form of the clubhouse	A more spacious, bright, and free indoor environment The enhancement of the visibility from the inside out and vice versa to make children feel safe
	Active programming and stewardship	The increase of park usage A sense of ownership for children
	The removal of excessive fences	A more inviting park environment for park users An actively used park where criminal will not gather
	Active programming and stewardship	The reduction of crime rates
	Safe Passage Program	A safe route through which children can get to the park

The design solutions and features suggested by both the literature review and the case studies serve as a basis for proposing a design guideline for the Tenderloin Recreation Center. The identification of the protective and risk factors in the Tenderloin neighborhood (See Table 5) helps translate the above-stated design suggestions into specific design solutions and features that are suitable for the Tenderloin Recreation Center itself. Based on these two steps, a guideline for designing the Tenderloin Recreation Center can be proposed as follows:

- Adding natural elements to the original recreation center.
- Creating special places in nature for children to play, learn, make art, rest, and talk.
- Adding gardens.
- Adding exploratory yet safe features to the site.
- Incorporating tactile-friendly features.
- Maintain a certain level of consistency in colors and shapes for the design features.
- Adding water feature.
- Dividing space into different zones.
- Creating a transitional spatial experience.
- Creating a space where children and parents can come together.
- Providing opportunities for children to engage in community reconstruction through programming.
- Providing programs that respect and cultivate children's abilities in many aspects.
- Incorporating local cultural elements into the design.
- Providing opportunities for self-regulated learning or playing.

Protective factors in the Tenderloin	<b>Risk factors in the Tenderloin</b>
Cultural diversity	Poverty
Art	High crime rates
Musical heritage	Substandard educational condition
Historic architecture	Inadequate greenspace

Table 5: The Protective and Risk Factors in the Tenderloin District

Among all these design principles in the proposed design guideline for the Tenderloin Recreation Center, some are different than normal design solutions and are specially proposed for designing for child resilience in a low-income community in an urban setting. Poverty is very likely to cause many problems such as high crime rates, inner stress, a negative reputation, and substandard education resources. Safety-focused design features such as sitting area for parents, fences, and trees serving as screening would help create a sense of trust and secured for children. Dividing space into different zones for different types of activities and creating a transitional spatial experience would be useful in terms of providing children with a sense of routine and stability and a predictable and structured environment. Designing a place for children to meditate or start constructive conversations with adults would be helpful for them to work through inner trauma. The incorporation of water elements because of its healing qualities would also help with the therapeutic process. Encouraging children to participate in the process of reconstructing their community would give them a feeling of responsibility, stewardship, and self-efficacy. The lack of educational resources caused by the financial shortage can be possibly mitigated by educational features such as the sustainable design or art-related programs added to the site. The incorporation of the urban cultural elements can increase the possibility that children recognize and acknowledge their own living background and culture advantage; thus a positive self-image can be established.

### **Inventory and Analysis**

The inventory of the Tenderloin Recreation Center is different from that of the Tenderloin District as shown in Chapter 5. While the latter looked at the social, financial, and environmental aspects of the neighborhood in order to find out protective and risk factors, the former mainly focused on the environmental elements related to the recreation center as a design site, including: the area of the site, the original building materials, the composition of the original site design (a recreation center building, a baseball court, and an area for playground equipment), the surrounding streets, the surrounding buildings, the local demographics, the local climate and the orbit of sun, the surrounding land use, and the soil types. These factors are considered because they influence the relocation and the change of the form of the new recreation center building, the rearrangement of the outdoor space, the selection of plants, the selection of materials, the selection of design features, and the programming.

One reason of selecting the above-stated factors to do the inventory is that they are usually what a standard inventory should look at to provide a fundamental understanding of the site. The other reason is that some of these factors are also indispensable to think about in order to fulfill the goal of fostering child resilience. The consideration about the building materials, the surrounding streets, the surrounding buildings, and the surrounding land use is useful to create a safe place for children. The investigation of the area of the site, the original composition of the site, and the local demographics can help develop a design that is spatially intriguing and rich in cultural diversities. The involvement of the local climate, the orbit of sun, and the soil types allows children to get more connection with nature and creates a more comfortable outdoor microclimate.

The Tenderloin Recreation Center was originally built in 1995. It is situated on a 0.6-acre tract of land located along Ellis Street to the south in the Tenderloin District in northeast San

Francisco, California. Ellis Street is an east-west oriented primary road; it is wide and allows for a higher traffic speed than the north-south oriented roads. Ellis Street has some slope but the Tenderloin Recreation Center is relatively level. The site consists of a recreational building and a playground (See Figure 6.1). The original two-story recreational building is sitting on the west side of the site facing the playground and abutting Ellis Street. The recreation center building is adjacent to a seven-story building to the west and is oriented towards the east, posing a unique challenge for getting adequate sunlight for the interior space. The building was built with concrete and painted in light pink. On the second floor, there is an outdoor patio at the corner. The roof is covered with ordinary tiles painted in green (See Figure 6.2).

The existing playground consists of vacant land covered with asphalt for very limited group activities, a baseball court covered with concrete, and an area covered with asphalt with some playground equipment on it (See Figure 6.2). All these paved areas pose a need for rainwater absorption, harvest, and reuse. There is a building adjacent to the playground to the east, and that building's wall serves as an eastern boundary for this playground. There are sparse tree canopies shading the site, leaving the majority of the playground bare in the sun. A line of tall trees was planted on the north side of the site as the dividing line between the Tenderloin Recreation Center and buildings at its back. The site is fenced off on the south side, leaving only one gate as an access point for people to go through. The fence was planted in light green and not particularly designed for attracting children to enter the site. There is a tree line on the sidewalk that is between the street and the recreation center, providing some shade for pedestrians.

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### Site



Figure 6.1: Surrounding Conditions around the Tenderloin Recreation Center



Figure 6.2: Aerial View of the Tenderloin Recreation Center (BAWCC 2016)

# **Demographics**

According to the 2010 U.S. census, the total population of the Tenderloin District was 31,565, with a median age of 39.73 reported by *sfrealtor*, making up 3.9% of the population of San Francisco (805,235); Figure 6.3 shows that the Tenderloin District is one of the densest districts in San Francisco (United States Census Bureau 2010). Thirty-two percent of the total population is white, 11% is black, 28% is Asian, 24% is Hispanic, and other ethnic groups constitute the last 5% of the population; Figure 6.4 shows the ethnic diversity around the Tenderloin Recreation Center (City-Data.com 2013).



Figure 6.3: Population Density of the Tenderloin District (United States Census Bureau 2010)



Figure 6.4: Ethnic Groups in the Tenderloin District (United State Census Bureau 2010)

# <u>Climate</u>

The Tenderloin Recreation Center mostly receives the sunlight from the south (See Figure 6.5). The sun rises from the southeast side of the site and sets down on the southwest side. Figure 6.6 shows that San Francisco has a mild year-round climate with little seasonal temperature variation. Usually the dry season starts in June and ends in September.



Figure 6.5: Variation of Sun Trajectories during the Year (SunCalc 2015)



Figure 6.6: San Francisco Climate Graph (U.S. Climate Data 2015)

# Building Location, Orientation, and Interior

Figure 6.7 shows the location and the orientation of the existing recreation center building – being located on the west side of the site and facing east. These two factors can determine if the children inside the building would get adequate natural sunlight or not. Figure 6.8 and 6.9 show that the interior of the existing recreation building needs to be lit up by electric light even if when it is still during daytime. There is high possibility that the children indoor do not have the chance to enjoy natural sunlight, which is not good for the production of Vitamin D in children's bodies – a substance helping grow healthy bones (Mead 2008). The benefits of natural sunlight also include boosting mood and helping people feel calm and focused. If without this natural sunlight, children are very likely to have a higher risk of seasonal affective disorder – a form of depression (Healthline 2015). Therefore, the location and the orientation of the existing building need to be changed in order for more natural sunlight to come into the building to improve children's physical and mental health.



Figure 6.7: Location and Orientation of the Tenderloin Recreation Center



Figure 6.8: Tenderloin Recreation Center - Activity Room (San Francisco Recreation & Parks

2014)



Figure 6.9: Tenderloin Recreation Center - Community Room (San Francisco Recreation &

Parks 2014)

# Land Use

In *Tenderloin Neighborhood Profile, Demographics, Land Use, and Economics, San Francisco 2004* (Urban Solutions 2004) – a profile using the land use and the business data collected from a lot-by-lot field surveying in spring 2004 – the land use condition and the building height were illustrated. The two major uses of the land in the Tenderloin District are residential use and the mix of commercial and residential uses. The buildings around the Tenderloin Recreation Center are mainly used for residential and commercial purposes (See Figure 6.10).



Figure 6.10: Land Use in the Tenderloin District (Urban Solutions 2004)

# **Building Height and Proximity**

The buildings around the Tenderloin Recreation Center all have at least four floors. The buildings at the backside of the center are on average higher than those on the left and right sides. The highest building, which is also located at the back of the center, has up to 14 floors. The distance between the Tenderloin Recreation Center and the surrounding buildings ranges from 0 to 20 feet (See Figure 6.11 and 6.12).



Figure 6.11: Building Height and Proximity in the Tenderloin District (Urban Solutions 2004)



Figure 6.12: Location of the Tenderloin Recreation Center and the Surrounding Buildings

From all the above-stated inventory– both the inventory of the Tenderloin District in Chapter 5 and that of the recreation center site itself in this chapter, protective factors and risk factors have been identified as follows: Table 6: Protective Factors and Risk Factors Identified from the Inventory and Analysis of the

	Protective factors	Risk factors
The Tenderloin District	Cultural diversity	Economics
	Art	Social condition
	Music	Education
	Historic architecture	Natural environment
The Tenderloin Recreation	Natural sunlight	Insufficient natural
Center		surroundings and shade
	Colorful building façade	Vision of people from
		surrounding buildings
	Pediment as a building	Paved ground
	component	
	Outdoor patio on the second	Insufficient natural sunlight
	floor of the building	due to the location and the
		orientation of the existing
		building
		Single type of athletic activity
		Inadequate area for group
		activities
		Noise and a feeling of danger
		from the busy street
		Unattractive fences
		Rainwater runoff

Tenderloin District and the Tenderloin Recreation Center

Based on the above inventory, some analyses can be concluded. The original entrance can be remained at the same place. The sunlight mostly comes from the south side of the site, which determines that the recreation center building had better be relocated to face south in order to maximize sunlight exposure for the children inside. More natural surroundings and views such as trees, shades, shrubs, water features need to be added to the site in order to connect children with the natural world as well as to absorb and reuse the rainwater. Diversified yet transitional spatial experience needs to be added into the site in order to provide a feeling of stability and predictability. The original baseball court would be transformed into a multi-sport court to encourage various types of exercises. The play equipment can be remained at the same location, but next to them there needs to be protective features to make children feel safe. Fences need to be changed into a more interesting style to attract people to come into the recreation center. Based on the investigation of land use of the surrounding area and the height of the surrounding buildings, certain design features need to be added to block the vision of people coming from the adjacent buildings. The local demographics determine that there is a need for expressing the cultural diversity; ethnically-related programs as well as music and art related programs would need to be integrated into the design.

#### Design

### Design Concept

The design is the synthesis of the research. The new design scheme for the Tenderloin Recreation Center offers a broad spectrum of opportunities for children to play and learn, so that they can be healed and built with resilience. By integrating design features including the ones that keep children away from risky and stressful environments, maintain safety, encourage children to communicate and collaborate, and incorporate playful and educational spaces, services, and programs, the new plan enables children to connect to and explore nature. More importantly, it helps children to understand themselves and their living environment, discover their identities, build abilities and skills, and establish positive values and self-esteem.

#### **Design Goals and Principles**

The principles of this design are derived from the understanding about the concept of child resilience. For the Tenderloin District, the promotion of child resilience is evaluated from six perspectives based on the discussion in previous chapters – social competence, problem-solving skills, critical consciousness, autonomy, a sense of purpose, and a sense of trust and

stability. Therefore, they are considered as design goals on which all the design features center. In order to achieve those goals, the design should promote connecting children with nature, encouraging children to communicate and collaborate, and letting children experience the process of dealing with tasks, problems, and even stress. The Tenderloin District is located in a dense urban area where adequate green space is lacking; however, the natural world plays an essential role in healing children's mental trauma. That is why it is of much benefit to create a connection with nature in the Tenderloin Recreation Center for children as much as possible. Communication and collaboration enhance children's intellectual and social skills including thinking, talking, trust, exchange, compromise, and love; the process of dealing with challenges enables children to gain the capability to fight against stress, build up self-recognition and selfidentity, and find out what their advantages and purposes of life are.

#### Design Scheme

The literature review and the case studies of the Al-Za'atari refugee camp and the Boeddeker Park have explained how design elements can be used to respond to the abilities and skills children need to acquire and the goal of enhancing child resilience. The design features and solutions utilized in such background research can be selected, adjusted, and introduced in the new plan of the Tenderloin Recreation Center to achieve the same goal (See Figure 6.13-14).



Figure 6.13: Design Solutions of the Tenderloin Recreation Center Influenced by the Literature

**Review Meeting Design Goals**


Figure 6.14: Design Solutions of the Tenderloin Recreation Center Influenced by Case Studies

Meeting Design Goals

In the diagram below (See Figure 6.15), the column on the left represents the elements included in the analysis of the Tenderloin neighborhood and the recreation center itself. In addition, this column shows that these existing conditions of different aspects of the Tenderloin have been grouped into protective factors and risk factors. The column in the middle displays the transformation that these elements are turned into specific design features or solutions. The column on the right explains how each design feature and solution responds to the six facets constituting the concept of child resilience.



Figure 6.15: Risk Factors and Protective Factors in the Tenderloin District and the Tenderloin Recreation Center Being Incorporated

into the New Plan of the Recreation Center to Fulfill Design Goals

With all the above-stated design goals, design principles, analyses, and design solutions taken into account, some changes have been made to the original plan of the Tenderloin Recreation Center. Figure 16 is a bubble diagram showing how these changes can be roughly reflected.

In order to get adequate sunlight, the location of the building is moved from the west side of the site to the north side. The building now is oriented towards the south, facing the playground. At the west and the east ends of the building, a projection for each end is extruded towards the south in order to gain even more interior space without losing sunlight (See Figure 17). The characteristics of the original building including the colorful façade, the outdoor patio on the second floor, and the pediment can be incorporated into the new building design. A space for art-making and music playing is situated on an elevated platform which is in front of the building. There are two pieces of lawn sitting in the center of the site, which are facing the art space to the north. A narrow walkway runs between the art space and the lawn, with a waterway going along on its south side. There is a broader walkway running in between the two pieces of lawn, serving as the major circulation that connects different destinations on the site (See Figure 18). The south part of the site has been designated to a series of playground equipment; several benches are placed right next to the play equipment in order to make children feel safe and protected. At the southwest corner, there is a multi-sport court which can accommodate exercises like basketball, football, and tennis. The fences on the south edge have been redesigned, decorated with drawings of the local animals and plants (See Figure 6.19). The entrance of the recreation center is also opened on the south edge of the site, being in between the multi-sport court and the playground equipment. At the east side of the lawn, there is a small plaza where people can sit together. An edible garden is located in the east part of the site and a quiet place

where children and adults can talk is situated at the southeast corner of the site. A rooftop garden which is inspired by the outdoor patio on the original building is designed on the east end of the second floor on the recreation center building.

The form of the most elements in this design plan is linear and they are in the shape of polygons, mimicking the straight outline and the wedged shape of the Tenderloin District. Besides, the waterway and the secondary pathway wraps around the central lawn just like the San Francisco Bay wraps around the city; the grid-like pavement design on the primary pathway in the new design represents the urban tissue of San Francisco, and the colorful strip on the pavement symbolizes the colorful cultural richness of the city (See Figure 20). Plants have been added for multiple purposes including blocking the noise and the of feeling of danger from the busy street, blocking the vision of people coming from the adjacent buildings, absorbing rainwater, serving as educational spots to impart the knowledge of sustainability to children, providing shades, and serving as gathering venues (See Figure 21).



Figure 6.16: Bubble Diagram Showing Spatial Distribution of the Tenderloin Recreation Center



Figure 6.17: Change of the Form of the Recreation Center Building



Figure 6.18: Primary Pathway and Secondary Pathway



Figure 6.19: Redesign of the Fences (Quirky Berkeley 2016)



Figure 6.20: Design Form Mimicking the Culture of San Francisco



Figure 6.21: Plan View Showing that A Great Amount of Plants Have Been Added to the Site

Windows of different sizes and shapes are opened on the recreation center building façade in order to create a lively atmosphere for the recreation center, bring in outside natural views, realize visual connection between the interior and the exterior, and provide more natural sunlight for the indoor environment. The outer edge of the window frame is broad enough for children to sit; this way, the windows serve as places where children can retreat to and enjoy watching other children play. A structure mimicking the silhouette of the architecture in the Tenderloin District is painted into colors and attached to the building façade. Part of this structure is shaped like pediments, and some other parts are shaped like short columns. This new façade design can be seen as a backdrop for the art-making space which is in front of the building, indicating the Tenderloin's colorful and diversified culture. In addition to the unique design of the façade, a place for art-making and music-playing is designed in a novel form for the purpose of highlighting the neighborhood's cultural characteristics and encouraging children to explore and imagine. Vertical frame-like structures painted in colors again mimicking the silhouette of the Tenderloin architecture are established in this space. Children can simply play with the frames including running through them, enjoying their shadow, or just leaning on them. There are also slabs being set up vertically and horizontally for children to paint murals. Among all these structures, there are long and short benches installed on the ground for children to rest once in a while. Around these structures and benches, several sets of outdoor soundplay equipment are placed for children to play with the sound and the rhythm. There is also a lot of open space where children can display their works of art as they like (See Figure 22-23). The whole art space is on an elevated platform which is approximately 10 inches above the ground. The terraces designed for this elevated space of can be used as an amphitheater; children can simply sit there, resting or watching others play. Stepping stones are put over the waterway so

that children won't fall into the water. Children can also paint murals on these stones. The art and cultural elements are incorporated throughout the whole design (See Figure 24). They not only represent the cultural richness of the Tenderloin neighborhood, but also they invite children or the local artists to participate in the sculpting and installing process. The sculptures displayed include the mascot of the San Francisco baseball team, the kinetic sculpture that move alongside children's dancing motion, the water jetting sculpture that not only indicates the unity within the neighborhood but also engages children to play, and the mosaic sculpture designed by the children themselves. Figure 6.25-26 show how these design elements can work together to provide an interesting and inviting playing space for children.



Figure 6.22: Plan View Showing the Design Elements in the Art-Making Space and the Colorfulness of the New Site



Figure 6.23: Perspective View Showing the Design Elements in the Art-Making Space and the

# Facade Design



Figure 6.24: Locations of All Sculptures



Figure 6.25: Plan View of the Tenderloin Recreation Center



Figure 6.26: Perspective View Showing Children Are Playing on the Lawn

As for the rooftop garden, it is located on the east end of the second floor of the recreation center building. With the wall of the adjacent tall buildings being as backdrop, the rooftop garden is an enclosed and exploratory place where meandering pathways are laid, the benches and the cultural sculptures are placed sporadically, and trees are planted providing much shade. There are a couple of boards being established vertically in the garden in order for children to paint murals (See Figure 6.27).



Figure 6.27: Perspective View Showing Children Are Playing on the Rooftop Garden

## The Design Scheme Enhancing Child Resilience

The designed is developed based on the understanding of the meaning of child resilience. A resilient child has the following traits: social competence, problem-solving skills, a critical consciousness, autonomy, a sense of purpose (Benard 1991), and a sense of trust and stability. These six traits are considered as the design goals, and all design features are created in order to highlight these goals and create more possibility for them to happen than the exisiting recreation center. In the process of designing for these goals, the design approach of increasing protective factors and reducing risk factors is adopted, so that the design can better reveal and fulfill the strategy of using the concept of child resilience to inform a design.

### Social Competence

A child being socially competent means that she/he acquires the ability of responsiveness, flexibility, empathy, and communication skills. It is important for children to engage in group games or group work and be encouraged to collaborate, speak up, and express opinions in order to become responsive and skillful at communication. In addition, assorted activities, rather than single or just a very few activities, can help build flexibility and empathy in children. Exercises that require different kinds of body movements such as bending, running, jumping, twisting, turning, and stretching (Playground Professionals 2016) enhance children's physical flexibility; aerobic running (Diamond and Lee 2011), dancing and skating are feasible in the case of the Tenderloin Recreation Center. Meanwhile, according to *Scientific American* (2013), activities requiring children to think and act out of their own original characters and to remember others' roles can help children to gain mental and cognitive flexibility and empathy, such as social pretend play. They tend to discover new connections among elements and are able to accept different opinions and surprises.

In the new masterplan of the Tenderloin Recreation Center, two adjacent pieces of open lawns are designed to accommodate different scales of group activities. With the northern lawn being larger than the southern one, and a paved open ground being in the middle of them, the combination of spaces is limitless, the transition of different spaces is free of obstacles and the children can run freely. They can choose to play on the larger lawn only, for small group games; they can also play on the paved ground and the larger lawn for medium scale group works; they can even occupy both of the lawns and the paved ground for large group activities. The choice is made by children themselves depending on what type of activities they start. Apart from playing on the lawn, the art-making space, the outdoor gardens and an indoor kitchen are both places for children to experience teamwork. In the above-mentioned group activities, children are given the opportunity to exchange information and ideas and to collaborate in order to achieve better results as a team. Through this process, the ability of responsiveness and communication can be fostered in them.

Having the opportunity to participate in a variety of activities introduced into the Tenderloin Recreation Center, the children are asked to use different body movements such as bending, twisting, and stretching, instead of being limited to just a few movements repeated in one game. Dancing, skating, and aerobic running are the three most prominent exercises encouraging children to use multiple parts of their bodies; thus, their physical flexibility can be improved. In the design scheme, an amphitheater is located at the north boundary of the northern lawn, serving as the sitting place for people who watch the children's dancing performances. The paved ground surrounds the southern lawn as a running and skating loop, offering different exercise types to children in different seasons.

Mental and cognitive flexibility and empathy are also important to the strengthening of child resilience. The amphitheater and the lawn serve as a theater place where children can play social pretend plays and dramas, which offers opportunities for the children to think, feel, and act from someone else's standpoint. They can also learn to appreciate different points of view and take advantage of serendipity through this process. The children can also participate as teams in building and designing the art-space, installing the art exhibition, and creating the works of art. The collaboration process can help them to gain cognitive flexibility and empathy.

#### Problem-Solving Skills

A child who has acquired problem-solving skills is able to plan, to seek help, and to think creatively, critically, and reflectively. In the new design plan of the Tenderloin Recreation Center,

an outdoor garden and an indoor kitchen are incorporated in order to accommodate programs that can help train children's abilities to deal with tasks. Gardening and cooking both have to do with knowing how to plan, think, coordinate, dissolve, and work around problems (Kirsh 2009). Gardening procedures such as deciding what species to plant, setting schedules for seeding and watering, planting the plants in a shaded or sunny area properly, monitoring, fertilizing, and harvesting, or culinary works such as preparing for food materials, chopping, stewing, frying, and serving food will benefit children in terms of training them to plan in advance, seek help and collaboration, and master problems.

According to Hinton (2000), one of the effective ways of healing is to find spaces where children can imagine new futures instead of making them talk about their traumas. The outdoor art space can fulfill this goal of stimulating children's imagination and creativity. A variety of colors, shapes, materials, and tools can awaken unlimited inspiration in children. In addition, the process of art-making not only includes the creation of a new feature but also requires critical thinking (Gardner 1990) – children ought to selectively listen to and respectively reflect on the objective comments and critiques from others in order to improve their art works. The outdoor exhibition space can also be used for displaying all kinds of works of art. This space is a stage where children's creations are displayed in front of public and receive objective comments and critiques as well as praises and appreciations. In this way, children can learn to accept different perspectives objectively without taking them as personal attacks. The praises and appreciations give them a sense of acceptance and reward.

#### A Critical Consciousness

Children who have critical consciousness are able to be aware of the structures of oppression and also able to come up with strategies to overcome them. The stressful environment

of the Tenderloin District has inserted a sense of oppression to the children in the neighborhood. Therefore, the design scheme of the recreation center proposes different types of spaces to help foster abilities in children to recognize, analyze, synthesize, evaluate, and master the oppression they are confronted with (The Critical Thinking Community 2016).

Research shows physical exercises are beneficial in improving one's mental status (Penedo and Dahn 2005); the participation in a sport can help build certain mental capabilities in children. A multi-sport court which can accommodate basketball games, tennis games, and football games is located at the southwestern corner of the playground, forming an active activity space together with the lawn. All these sports are full of rivalry and swiftness, making children directly face the physical oppression coming from the opposite individual or team with little hesitation. More importantly, some coaches believe that around 60 to 70% of the game is mental (Body and Soul 2016). By being involved in this competitiveness, children are trained to stay focused and calm, to keep thinking about game structures and strategies while moving, and to take actions in faith and with courage; also, a mental fortitude is cultivated during the game. Through this process, children's ability of recognizing, analyzing, and eventually mastering the oppression will be improved, and a sense of overcoming, achievement, and pride will be developed in them. In addition to sports, playground equipment serves as another good approach to engage children's mobility. A series of such facilities would provide children with multiple choices of play and encourage them to deal with and master emotional challenges during the play, such as fear, anxiety, confusion, and hesitation.

Besides, the individual or group counseling is a good way to support children in recognizing, acknowledging, addressing, and altering what they believe they can accomplish in life and what opportunities they allow themselves to pursue (Agape Christian Counseling

Services 2015). Multiple seating places are designed throughout the recreation center in an attempt to encourage the counseling conversation to happen between the children and caregivers or educators. There are table sets in a shaded area at the southeastern corner of the playground; the landscaping around this place makes it a tranquil place for the children to talk and to release their inner feelings as well as a place for adults to impart the knowledge of dealing with the oppression.

#### <u>Autonomy</u>

"Autonomy" means that children know their identities, are able to act independently, have a sense of control over their living environment, have a feeling of self-efficacy, and are resistant to and can detach themselves from negative messages.

Gardening has a positive impact on children. Kellert (2002) argues that a child's attention is more likely to be attracted and stimulated in a garden environment because nature changes rapidly and entails a child's focus and observation. By naming and categorizing objects found in the information-rich garden, children learn to make sense of their surrounding environment, gain a capacity to retain information and ideas (Bloom 1956), and develop a sense of efficacy. The floral garden, which is on the ground level in the Tenderloin Recreation Center, provides opportunities for children to experience such process of concentrating, recognizing, memorizing, and achieving. Also, through working in the edible garden and growing fruits and vegetables that they can eat, children can develop a sense of sufficiency and independence. In addition, as a sustainable design, the rooftop garden and the riparian plants would broaden children's experience of ecosystem complexity (Blair 2009), thus empowering them with the right to learn and understand how the natural world works as well as to know that they are helpful in protecting the natural environment; thus, the children can feel that they can make sense of the

surroundings and develop a sense of stewardship for and a sense of control over their living environment.

The space designated to art-making and installations is another place for children to develop their autonomy in terms of building their own characters and identities. Children are encouraged to create their own works of art. The process of art-making is an artistic self-expression which contributes to the building and maintaining of a healthy self-identity, because art assists the expression of a stressful experience that is hard to put into words (Reynolds and Prior 2006) as well as the expression of fear, the reduction of feelings of helplessness, and the discovery of inner resources.

Apart from conveying the negative inner emotions, the communication of positive thoughts and feelings can be achieved by art-making. The children in the Tenderloin District come from different cultural backgrounds such as Hispanic culture and Asian culture; however, the stressful living environment may have resulted in the ignorance of their own cultures and identities. Art-making can lead children to learn to retreat to their own cultures and experiences for artistic inspirations by coming into contact with a broad spectrum of colors, shapes, textures, and patterns. During this process, children can be more aware of the beauty and the advantage of their cultures, hence the identities can be built up.

#### A Sense of Purpose

A child who has a sense of purpose is optimistic and believes in a bright prospect, has the abilities to form goals and directions, has motivation and persistence when dealing with tasks, and wants to seek educational aspirations.

Encouraging children to participate in the construction of the recreation center can be a good way to cultivate a sense of purpose and stewardship for them. Children can help with deciding the forms, the colors, and the locations of the frame-like structures which are in the art-making space, and they can even help paint and install these features by themselves. Children can also make sculptures and display them for site decoration. Murals painted by children on stepping stones, on sculptures, and in gardens make the site colorful and lively. Being in a part of the community construction would enable children to provide and contribute, find out the meaning of their existence, and feel responsible for their surroundings.

According to Kelly and Dassoff (1988), a good social network within a community is a source of competency and resilience for its individuals. In the new design scheme for the recreation center, besides lawns and other places for physical exercises that can be used for socialization, there are passive gathering places such as seating areas, dining areas, and quiet corners for meditation and conversation. At the southeastern corner of the playground, a quiet and shaded area is integrated into the design as a place where children can sit, rest, and taste the fruits and vegetables they grow in the nearby edible garden. The waterway and the riparian plants are good topics for children to propose questions to adults. In these places, children, parents, educators, and caregivers can socialize not through a form of active activities, but through quiet and mild communications. By being involved in such communications with the presence of caring and supportive caregivers or educators, children are provided with the mindset of becoming resilient adults and the knowledge about how to find directions and set goals as well as to keep themselves motivated and persistent.

Psychologically or spiritually educational lectures and seminars can be held in the classrooms inside the recreation center building. These lectures and seminars can cover a variety

of content which inspire and educate the children to believe that they can have a bright future, seek educational aspirations (Harlow, Newcomb, and Bentler 1986), and form abilities to deal with tasks to come, including health care, child care, education, and job training.

Another good way to cultivate children's belief in a compelling future is to encourage children to participate and to set up high expectations for them in educational programs, which can include outdoor plant study, indoor cooking classes, and preparing large meals and serving food for the community, because when children are given responsibilities, they can receive the message that they are worthy and capable of being contributing members of society (Benard 1991).

## A Sense of Trust and Stability

"Trust" means having the belief that someone or something is reliable, good, honest, and effective (Merriam-Webster 2016). The term "stability" means the state of being firmly established and not changing or fluctuating constantly. It also means that someone is not subject to insecurity or emotional illness (Merriam-Webster 2016).

According to previous studies, children can still become resilient despite the burden of living in a stressful environment if they had the opportunity to establish a close bond with a person who can provide stable care and adequate and appropriate attention (Benard 1991, Garmezy and Rutter 1983, Werner 1990, Werner and Smith 1989). The new design of the Tenderloin Recreation Center has introduced this idea and set up a space where the children of Tenderloin can sit down with parents, caregivers, or teachers to receive some encouragement, comfort, and instruction about life. During this process, the children can learn to open up their hearts, trust others, and express their pain without feeling doubtful and threatened. This communication or meditation place is settled at the southeast corner of the playground, being

framed by shrubs and a garden. It is easier for the children to trust and talk about their inner stress when being in an environment with defined boundaries allowing for solitary and privacy (Rodger and Ziviani 1999).

Additionally, the design has incorporated features such as playground equipment, a multi-sport court, and resting areas located throughout the playground. In the process of playing with playing facilities and in athletic games, the children learn to trust that others are willing to help them, that not everybody will put them in danger, and that people feel happy about their achievements. There are also benches placed close to these playing areas, so that adults can sit down and watch their children in order to prevent hazardous events from happening. All these elements in design can help cultivate a sense of trust for the children.

The outdoor play space of the Tenderloin Recreation Center is divided into zones of different scales in forms of lawns, paved plazas, a multi-sport court, planting areas, and so on, in order for large, medium, and small groups of children to participate in different types of activities. Children go to plazas to rest and talk, go to the meditating corner to have communication with teachers and caregivers, go to garden areas to experience the connection with nature, go to the small lawn to participate in flexible small group programs, go to the large lawn to engage in structured activities, and go to the art-making space to create. Different activities happen in specific given areas. This type of spatial designation functions as a routine and enables children to have a sense of direction, stability, and predictability (Papatheodorou 2005), removing them from the anxiety of relocating themselves every time (Takieddine 2014).

The playground is designed to embrace both active and passive activities. Passive areas are situated in the eastern part of the site and active ones are in the western part; what is lying in the middle are lawns and the art-making area which can be shared by both motor activities such

as running, playing, and installing as well as quiet and calming actions such as reading, sitting, talking, drawing, and creating. There are two pathways running through all these zones, serving as a transition to gradually bring children from one sensory and spatial experience to another as well as to help children better switch from one activity to the next (Rogers 2015, Webster-Stratton 1999). This transition provides children with a predictable and stable shift and coherent and meaningful experiences (Bronson 2000), which is helpful to cultivate a feeling of security for them.

## Conclusion

Table 7 shows how each design feature or solution in the new plan of the Tenderloin Recreation Center can respond to the six child resilience qualities. Table 7: Design Features and Solutions of the Tenderloin Recreation Center Responding to the

Child Resilience Qualities

Child resilience qualities	Design features and solutions of the
-	Tenderloin Recreation Center
Social competence	Two pieces of lawn (Diamond and Lee 2011,
	Playground Professionals 2016)
	A rooftop garden
	A central corridor (Diamond and Lee 2011,
	Playground Professionals 2016)
	A space for art-making and music-playing
	The play space being divided into different zones
	(Diamond and Lee 2011, Playground Professionals
	2016)
	An edible garden
	A waterway and riparian plants
	Encouraging children to participate in the
	Lee 2011 Playaround Professionals 2016)
Drohlom solving skills	Lee 2011, Playground Professionals 2010)
	A month for art making and music playing (Hinton
	2000)
	An edible garden (Gardner 1990, Kirsh 2009)
	A waterway and riparian plants (Gardner 1990, Kirsh 2009)
	Encouraging children to participate in the
	reconstruction of the community
Critical consciousness	A multi-sport court (Body and Soul 2016, Penedo
	Exploratory playaround againment
	A shaded place for coupseling and moditating
	(A gape Christian Counseling Services 2015)
Autonomy	A space for art-making and music-playing
Autonomy	(Reynolds and Prior 2006)
	A shaded place for counseling and meditating
	An edible garden (Bloom 1956, Kellert 2002)
	A roofton garden (Bloom 1956, Kellert 2002)
	Colorful payement (Reynolds and Prior 2006)
	Sculptures (Reynolds and Prior 2006)
	A waterway and riparian plants (Blair 2009)
A sense of purpose	A space for art-making and music-playing (Kelly
	and Dassoff 1988)
	An edible garden (Kelly and Dassoff 1988)
	A shaded place for counseling and meditating
	A waterway and riparian plants
	Encouraging children to participate in the
	reconstruction of the community

A sense of trust and stability	A new recreation center building
	The play space being divided into different zones
	(Bronson 2000, Papatheodorou 2005, Rogers
	2015, Takieddine 2014, Webster-Stratton 1999)
	A predictable, transitional and gradual spatial
	experience provided for children (Bronson 2000,
	Rogers 2015, Webster-Stratton 1999)
	A shaded place for counseling and meditating
	(Benard 1991, Garmezy and Rutter 1983, Rodger
	and Ziviani 1999, Werner 1990, Werner and
	Smith 1989)
	Playground equipment
	Sitting areas for parents (Benard 1991, Garmezy
	and Rutter 1983, Werner 1990, Werner and
	Smith 1989)

#### CHAPTER 7

## CONCLUSION

This thesis explored the possibility of using child resilience strategies to inform the design of the Tenderloin Recreation Center: What psychological methods can foster child resilience? Are there previous design cases showing how design approaches realize those psychological methods? How can these methods be transformed into design solutions for the Tenderloin Recreation Center? The concept of child resilience has been represented by theoreticians, such as Benard, Garmezy, Boyden, and Mann, from different aspects. This thesis has been a test for its concept and its influence in design by looking at what the definition of this concept can be as it relates to the condition of the Tenderloin District, what the relationship between this concept and landscape architecture is, and what design approaches have been developed from previous design cases that have successfully enhanced child resilience.

This research attempts to answer the following questions: What is child resilience and why do children need it? How can child resilience be defined as it relates to the condition of the Tenderloin District? What is the relationship between the concept of child resilience and landscape architecture? Why is the Tenderloin District a special place to study and develop designs for? How do case studies demonstrate the design approach of using the concept of child resilience to structure and inform the design of recreation centers? How can the concept of child resilience be applied as a design strategy to the Tenderloin Recreation Center?

In Chapter 2, the importance of child resilience, its importance in children's development, and ways to foster it in a psychological sense was discussed; the increase of the exposure to

protective factors at the same time as the reduction of the exposure to risky ones was considered to be the major method to achieve the goal. The landscape architecture literature review in Chapter 3 showed that there were numerous studies focusing on child development and landscape architectural design; nevertheless, only a few of them paid attention to the concept of child resilience. Out of the very few studies discussing the relationship between child resilience and landscape architecture, a majority of them looked at war zones or disaster-stricken areas. Therefore, a low income neighborhood with a high crime rate such as the Tenderloin District was novel yet problematic, and was worth studying and creating designs for. In Chapter 4, two case studies explained how protective factors and risk factors in vulnerable neighborhoods were transformed into specific site-appropriate design solutions; some of these design solutions had been adjusted and introduced in the design in Chapter 6. An investigation of the existing conditions of the Tenderloin District in Chapter 5 provided insights into different aspects of this neighborhood, which could be categorized into protective factors and risk factors. These factors serve as the foundation for the design in Chapter 6. The projective design for the Tenderloin Recreation Center, Chapter 6, required a site analysis at first, after which an explanation was provided for the design process and how each design feature could contribute to the cultivation and the enhancement of child resilience (See Figure 7.1).

### **Design Critique**

The design of the Tenderloin Recreation Center incorporated a variety of design methods and features; some of them were very effective in creating other playing spaces that helped enhance child resilience.

Creating a space for art-making which allowed for not only drawing and sculpting, but also music playing and dancing would encourage children to imagine and create new things, to exchange opinions, and to express appreciation; these are all signs of being socially competent. To include multiple art-making spaces or art works throughout the site design would multiply children's chances of communicating with each other, which would help enhance child resilience even more.

A community garden and a rooftop garden could serve as educational spots where children can be asked to deal with different tasks, including assigning work, making schedules, growing plants, monitoring and keeping track of conditions of plants, cooperating with teammates, and expressing ideas. Adding exploratory playing features such as a labyrinth-like space in the garden gives children the opportunity to experience emotional challenges such as impatience, confusion, or anxiety. Such scenarios could enable children to learn to deal with emotional negativity and become adversity-resistant.

Turning a court from a single sport court to a multi-sport court would give children opportunities to be engaged in different kinds of exercises and sports. They would be able to experience various competitive situations, which would be helpful to cultivate critical consciousness in children.

The translation of culture into a broad range of design elements would help children to acknowledge and appreciate their backgrounds and identities. Such design elements could include kinetic sculptures that moved alongside children as they did the traditional dancing, stones that children could carve into with figures or stories that came from their own cultures, and murals representing children's life stories.

To set up different zones on the site for different scales of activities would be effective in enabling children to experience a transitional and smooth spatial variation, which could provide children with a sense of trust, security, and stability.

While the design outcome is helpful for designing for children-focused space, by using the Figure 7.2, the design process and the outcome proposed in Chapter 6 can still be critiqued. The columns on the left and in the middle in Figure 7.2 display that some elements of the Tenderloin neighborhood and the Tenderloin Recreation Center (as discussed in Chapter 5 and 6) were successfully categorized into the protective factor group or the risk factor group, and they were transformed into specific design solutions which were later engaged in the design plan. The existence of low job opportunities provided for the neighborhood was seen as a risk factor; the renovation of the recreation center and the introduction of job-seeking related programs could help children gain practical skills and build up their confidence, thus the risk of low job opportunity could be successfully avoided and the goal of fostering child resilience could be achieved. However, Figure 7.2 still displays the elements that were only put into different groups without being further addressed as potential design solutions. Low graduation rate was discussed in Chapter 5 as a risk factor for the neighborhood. However, no design solution has been proposed in the design to effectively avoid or improve this situation in Chapter 6.

Some elements were not implemented in the design scheme for the following reason. In order to really reduce the exposure of some risk factors to children, or to create more connection with protective factors for children, some strategic, administrative, or governmental decisions need to be made—design alone cannot solve the entire problem. Sometimes protocols or policies made by government departments, such as claims that teaching quality should be improved, are more direct and effective than design solutions. Problems of low income, lack of financial

support from the government, housing, and insufficient medical and community service all require the government to come into play in order to achieve good results.

If the redesign of the Tenderloin Recreation Center is not for the purpose of fostering child resilience, the design would be done differently. First, a very enclosed and private space for counseling and meditating would not be added. Instead, normal places for resting such as benches and table sets would be incorporated. Second, massive educational spots and features such as a waterway, riparian plants, and a rooftop garden would be replaced by normal educational features such as bulletins or presentation boards to impart knowledge to children. Last, local cultural elements such as sculptures made by local artists or children themselves, structures mimicking the local architecture, and mural boards and stones would not be placed throughout the site. Only a moderate amount of these features would be incorporated because a large amount of the space would be designated to playground equipment and athletic activities if the design is not aiming for fostering child resilience.



Figure 7.1: An Organization Repeating from the Design Suggestions to the Site Analysis to the Design Features for the Tenderloin

Recreation Center to the Child Resilience Goals



Figure 7.2: Risk Factors and Protective Factors in the Tenderloin District and the Tenderloin Recreation Center Being Incorporated

into the New Plan to Fulfill Design Goals

#### **Implications for Further Research**

From a design standpoint, this research focused on changing the building form, the circulation, and the spatial designation to create a transitional yet inviting spatial experience for children; in addition, some cultural art works and diversity elements were incorporated throughout the site design. These factors are all important in fostering child resilience. While water is always considered to be an important element in designs for healing, it was not utilized very much in the projective design in Chapter 6. A narrow waterway, several small ponds, a water jetting sculpture, and riparian plants were used as the only water element in the design. If the research were to be conducted a second time, the healing attributes of water would be researched thoroughly, which might include the trickling sound of water that blocks the noise, the shapelessness of water that could stimulate children's imagination, and the warmth of heated water which could warm up children physically. These healing qualities of water will be presented more in the design next time to work together with art, nature, and cultural diversity to create a playing space that enhances child resilience.

Future research can include the study of behavioral characteristics of children who are between 5 to 12 years old, and the most common and suitable activities for them will be identified, too. With the understanding of children's needs and characters, programs put into the design would be more carefully selected; hence the design would serve children better. In addition, information such pre-design surveys will be collected from the local residents, especially the children, in the Tenderloin District in the future. Questions about their favorite plants and vegetables, favorite sports, and popular activities and events will be asked, so that these elements can be incorporated into the design scheme.

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