RESPONDING TO THE EMOTIONAL NEEDS OF RESETTLED REFUGEES IN THE CONTEXT OF COMMUNITY GARDENS

by

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ABSTRACT

RESPONDING TO THE EMOTIONAL NEEDS OF
RESETTLED REFUGEE COMMUNITIES IN THE CONTEXT OF
COMMUNITY GARDENS

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Refugee populations suffer from the effects of post traumatic stress disorder (Shannon, et al., 2014), and members struggle with feelings of helplessness, displacement and marginalization. Research indicates that healing landscapes can address the needs of those suffering from trauma and mental disorders, particularly war veterans and children. This research applies to the emotional needs of refugees settling in new countries (Murray, et al., 2010). For the displaced, creating meaning in their new environment is an essential part of the adjustment process (Brabec, 2018).

This thesis draws upon documented research about how landscape experiences can mitigate the effects of trauma in post-disaster contexts and how

such experiences can contribute to positive emotional and social developments. Prior to the research, the researcher helped to design the first phase community garden for a local refugee community in Dallas, Texas in collaboration with the International Rescue Committee (IRC). The garden is located at the Central Lutheran Church in Dallas, Texas. In addition to examining relevant research and case studies, the researcher conducted surveys and open-ended interviews with resettled refugees in the Dallas metroplex area, to record and understand their unique emotional needs, as well as their responses to the garden installation thus far. Using these findings and employing methods of post occupancy evaluation, as well as participatory charrettes with the garden users, the researcher applied this information in an improved, evidence-based design and recommendations to be implemented for future phases. The design proposal was communicated through a rendered site plan and several rendered perspective views. These recommendations were then reviewed by the research participants via photo elicitation, and further recommendations were made based on the gardeners' feedback.

The findings provide insight on how landscape experiences, such as food gardening, can improve the emotional well-being of refugee communities. The findings of these procedures provide valuable insights into how landscape architects can address the needs of refugees by facilitating the healing process,

empowering the displaced, and helping restore a sense of community for this vulnerable demographic.

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CHAPTER 1

INTRODUCTION

1.1 Research Objective

The physical landscape has the potential to positively impact local refugee communities, addressing their issues with trauma and emotional adjustments with being in a new environment. Therefore, the aim of this research is as follows:

1. Identify and assess the restorative aspects of community gardens from the perspective of resettled refugees and

2. Contribute to developing recommendations for improving existing community gardens to serve the emotional and social needs of resettled refugees, which will

3. Provide useful insights for landscape architects to engage with refugee communities in multiple ways, including, but not limited to, rethinking refugee camps, and working towards solutions that will truly empower displaced populations.

1.2 Research Questions

1. What are the aspects of a physical environment that can uplift the emotional and mental well-being of a refugee (spatial, aesthetic, cultural connection)?

2. How can landscape designers address the emotional needs of resettled refugees in a new environment, while fostering their agency and supporting community empowerment?

1.3 Definition of Terms

This research is focused on the impact landscape architecture can have on the emotional experience of refugees who are resettling. The following definitions provide background information not otherwise provided within the body of the text.

Asylum status is a legal status of protection that, when granted to a refugee applicant, allows that individual to live as a legal immigrant in the country of application, without being extradited back to their country of origin. Without asylum, refugees risk being deported back to their home countries (UN General Assembly, 1951).

Action research "combines the testing of theory with application," and is suitable for practical applications to projects being constructed (Sommer and Sommer, 1986).

Applied research "seeks practical answers to immediate questions." Its results can be applied to other projects of similar scope (Sommer and Sommer, 1986).

Refugee refers to the status of a person "who is unable or unwilling to return to their country of origin owing to well-rounded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion," according to the United Nations' Geneva Convention of 1951 (United Nations High Commissioner for Refugees, 2014b).

Refugee camps are areas of temporary settlement constructed to provide shelter, food and protection for refugees. Camps are typically built by governments, the United Nations High Commission for Refugees (UNHCR), or non-governmental organizations (NGO's). Refugees who live outside of official camps are "deprived of the of the refugee status to which they are entitled under international law (Kaiser 2006)."

Trauma is defined as the response to an unexpected shock of experience. In this response, the individual is mentally and emotionally overwhelmed (Everstine, 1993). War is well recognized as an event that can lead to trauma.

Phenomenology "is the study of structures of consciousness as experienced from the first-person point of view. The central structure of an experience is its intentionality, its being directed toward something, as it is an experience of or about some object (Smith, 2018)."

Post-occupancy evaluation (POE): a process that evaluates the

effectiveness of designed environments for their intended users (Cooper Marcus, et al., 1998).

Photo elicitation: a method of research that involves participants responding to photographs, in interviews or questionnaires. While most studies using this method use photographs, other visual graphics can also be used, including paintings, cartoons, and public art (Harper, 2002).

CHAPTER 2

LITERATURE REVIEW

This literature review will focus on the importance of addressing the needs of resettled refugee communities from a landscape architecture perspective, starting with an overview of the refugee crisis and refugee camps, and the implications of these experiences for resettled refugee populations and the host countries. Recognizing the effects of refugee camps and the overall refugee journey experience will assist those working in the humanitarian sector in future endeavors for the improvement of the emotional and mental well-being of refugees who are resettling. Resettled refugees are a uniquely vulnerable population—addressing their needs requires cultural awareness, as well as an understanding of various nature-based therapy concepts for those with post-traumatic stress disorder. This literature review will review established theories and research about the benefits of outdoor therapy for populations with PTSD, research about healing landscapes, as well as the ways the field of landscape architecture has thus far engaged with the refugee crisis.

2.1 The Urgency of the Refugee Crisis

By the end of 2015, 65.3 million people were 'forcibly displaced from their home countries worldwide as a result of persecution, conflict, generalized violence, or human rights violations." Of that number, 21.3 million of these were refugees. The world is now facing the biggest refugee crisis since World War II (United Nations High Commissioner for Refugees, 2015). The current refugee crisis includes Syrians fleeing the civil war in their home country, Afghans fleeing nearly forty years of ongoing violent conflict, Iraqis fleeing war or persecution, Darfurians fleeing a ten year genocide, Bhutanis fleeing ethnic cleansing, and the Rohingya fleeing violence and persecution in Myanmar, among many others.

In addition to ongoing political and humanitarian conflicts on the international scene, the issue of forcibly displaced populations continues to grow with the effects of global climate change. With rising sea levels, increased storm severity and an increase of flood frequency, the world's vulnerable populations in low-lying islands, such as the Philippines, will be at risk of displacement from their home countries. This gives rise to the need for the international community to address a different class of "refugees," referred to by the United Nations (U.N.) as "climate refugees" (Rivero, 2014). The U.N. estimates that "between 50 million and 200 million people—mainly subsistence farmers and fisherman—

could be displaced by 2050 because of climate change (Davenport, Robinson 2016). In short, the refugee crisis is an international issue that continues to grow and develop.

2.2 Refugee Camps as Long Term Settlements

Relevance of Refugee Camp Aid

Refugee camps are initially set up to be transient living arrangements, temporarily providing basic needs to people who have escaped war or other perilous plights, until they have been granted asylum and can function as legal immigrants in the country of application. However, most of these settlements end up operating for a much longer time period than anticipated—some refugee camps are in effect for over a dozen years, by necessity, due to the indefinite and precarious conditions of their home countries (Radford, 2015). With short-staffed processing systems, political reservations and bureaucratic hindrances, and depending on the country of application, the asylum application process is a complicated, laborious one that can take years (Hyndman, 2012). While current humanitarian aid models focus on refugee camps, "after several years of existence, these still do not provide the conditions for economic survival, and refugees in them are consequently still heavily reliant on food aid (Kaiser 2006)." As Kaiser points out, refugee camps are mainly structured around donations,

rather than encouraging refugees to work and provide for themselves. While camps are essential for hosting refugees, aid agencies have yet to take sincere consideration of the long-term effects of such a stay. Reconsidering the typical refugee camp design typologies could lead to innovative and more effective ways of responding to the refugee crisis.

2.3 Refugee Camps as Places of Transition

One phase of the refugee experience that is often overlooked is that of the transition between "flight of persecution and resettlement (Chan 1987)." Life in refugee transit camps is often a regulated and disempowering experience--yet refugees who want to be granted asylum and retain their refugee status must settle in camps (Kaiser 2006). Only refugees' most basic survival needs are being considered in refugee camps, and this mindset can hinder their self-sufficiency and sense of identity, thus affecting their mental state after resettlement. Refugees in camps face "boredom, uncertainty and helplessness (Chan 1987)." This experience alienates and marginalizes refugees even further. "We have to get away from the concept that, because you have that status – migrant, refugee, martian, alien, whatever – you're not allowed to be like everybody else (Kleinschmidt 2015)." Refugee camps are "the cities of tomorrow"—they are the places refugees inhabit between their escape and their eventual resettlement in

countries that will accept them. Refugees' experiences in these camps very much shape their mental well-being, which impacts their resettlement (Radford 2015).

2.4 Trauma of Refugees

In addition to fleeing war, many refugees have faced torture at the hands of persecutors, have seen death and violence firsthand, and thus suffer from post traumatic stress disorder (Shannon, Wieling, McCleary, Becher 2015). Symptoms of post traumatic stress disorder include emotional distress and depression. Post traumatic stress disorder seems to have longer negative effects if it is the result of "a deliberate man-made conflict", such is the case with war (August 1987). In adjusting to their new environments, refugees will "inherently" face at least one of the following: "poverty, illiteracy, prolonged dependency on welfare, sociocultural change and isolation, [language barriers], and loss of self-esteem (August, 1987)." Host countries will be affected by these challenges of refugee resettlement.

While symptoms of post-traumatic stress disorder are recognized across cultures, refugees have described "[significantly varying ways of expressing] distress, indicating the need for more research on culture-bound disorders and idioms of distress (Shannon, Weiling, McCleary, Becher 2015)." Such data indicates the importance of cultural awareness in this type of research.

2.5 Stress of Refugee Resettlement & Integration

For many reasons, resettling is challenging and stressful for refugees. After resettlement in the United States or other developed countries, refugee communities tend to suffer from much higher rates of food insecurity than the general population (Peterman, et al., 2012). The "loss of social supports and status" are a key concern for refugees entering a new country—resettled refugee communities need emotional and social support in order to integrate well into their new environments (Montgomery, et al., 2014). Recommendations for mental health interventions for resettled refugees "[encourage] community-based interventions that facilitate personal and community growth and change (Murray, et al., 2010)." The period of time in which refugees are expected to become self-sufficient is often not enough, according to Dauda Balubwila, an IRC caseworker. As a Congolese refugee who has both gone through the process of resettlement and assists incoming refugees with navigating their resettlement, Balubwila advocates for better investment in the support of resettled refugee communities. In his work as an IRC caseworker, Balubwila often finds some people who, even after eight months, are still struggling as if they had been [in the developed country] for only a month, "because to cope with the adjustment is so difficult (Gurumurthy, 2019)."

While the same could be said for some immigrant populations, and although refugees can eventually change their status to immigrant after a year of resettlement, it must be noted that "the psychosocial profile of a large proportion of the refugee population has little in common with that of most immigrants (Segal et al., 2005)." Segal et al. formulates that immigrants are typically motivated by the "pull" of a better life in a developed country, while refugees are "pushed" to flee their home countries. The latter journey often occurs out of unplanned urgency and is motivated by a "well-rounded fear…due to war, violence, or persecution (International Rescue Committee, 2018)." That is not to say that the journey of immigrants always occurs without trauma or danger, as that often is the case for many undocumented immigrants (Segal, et al. 2005). Refugees and immigrants will both struggle with the cultural duality that comes with resettlement, and face similar issues of discrimination and prejudice, but the key differences between them are their motivations for leaving home and the amount of choice they had in that matter. While immigrants may be able to return to their home countries to visit, refugees face another dimension of losing their cultural ties, in that they unable to return to their home country (at least until the conflict or persecution has been resolved, which could be indefinite).

2.6 Landscape Architecture's Engagement With the Refugee Crisis

The refugee crisis has stimulated a growing amount of interest in the fields of architecture and landscape architecture. While landscape architecture's engagement with the issues has been less articulated than the field of architecture, this engagement has been steadily increasing since 2010, especially in the research of graduate students. Research about landscape architecture and the refugee crisis have a broad range, including:

1. Investigating ways to improve refugee camp layouts and ecological functions through an alternative framework that emphasizes refugees' individual needs and skills, with social and ecological functions in mind, (Yu, 2015),

2. Exploring how applying the integration of ecological planning and refugee participation can improve the human and environmental conditions of refugee camps in the long-term (Kruigt, 2014),

3. Proposing the use of landscape architecture as a tool for social resilience by integrating incoming refugees with existing communities in need (Wu, 2018), and

4. Examining the importance of the roles of garden spaces within refugee camps and resettled communities (Brabec, 2018).

Helen Yu, a landscape architecture Master's candidate at the University of Pennsylvania's School of Design, developed an alternative framework for refugee

camp design that promotes "[the generation of] ecological services and [allows for] flexibility and self-organization (Yu, 2015)." In 2015, Yu and her research advisor, David Gouverneur, traveled to the Beqaa Valley in Lebanon, for a refugee camp design workshop program, hosted by the American University in Beirut and the International Federation of Landscape Architects. In the first workshop, Yu met with stakeholders, including the United Nations and local NGO's. In the second workshop, Yu met with Syrian refugees, and engaged with Lebanese students and professors, to come up with proposals for landscape interventions in the Al Tilyane refugee camp. Yu's strategy responds to both the rising number of refugees and the duration of their stay in camps. In her research, Yu focused on rethinking the UNHCR's guidelines for refugee camp models designed for 20,000 people. While current guidelines take little account of the contextual landscape of the camps, Yu's alternative landscape framework proposes an integrative approach to refugee camp planning that uses the landscape for ecological services, while leaving flexibility for camp inhabitants. Yu's solution addressed on-site hydrology issues, food needs, and social infrastructure, with the incorporation of household gardens, nutrient recycling through composting and storm water management, and nurseries (Yu, 2015). Yu's approach emphasizes flexibility for the participants and building social infrastructure, which will inform the researcher's methodology.

In 2014, Robert Kruigt, a landscape architecture Master's candidate at Wageningen University in The Netherlands, explored the perception and planning of refugee camps from environmental, cultural and human perspectives, with a focus on the Zaatari camp in Jordan. In his research, Kruigt collaborated with an NGO called the International Medical Corps (IMC), an organization that provides psychological and physical assistance for refugees. IMC agreed to host Kruigt and facilitate his research because they recognized a possible correlation between human suffering and environmental degradation/desolation in the Zaatari camp (Kruigt, 2015). Kruigt's research was exploratory, in which various methods and techniques were used to gain a better understanding of the phenomena, rather than seeking final answers and solutions. Kruigt's goal was to examine the environmental and health impact on humans and the landscape in the Zaatari refugee camp, as well as explore the potential of empowerment through the refugees' participation in the planning and design of the camp layout and landscape. The concept of a "right to landscape" and linking social justice to the landscape was central to Kruigt's research (see Figure 2.1), influenced by the work of Makhzoumi et al (2011). This connection between human dignity and placemaking in the landscape, and the tangible and intangible impacts of the landscape on the human experience, will be explored by the researcher.

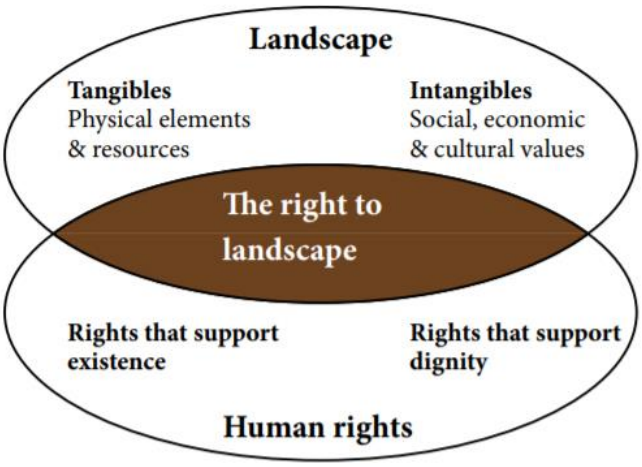


Figure 2.1: Kruigt's conceptual diagram visualizing the connections between landscape and human rights (influenced by Makzhoumi, et al. 2011).

Kruigt conducted the majority of his research through fieldwork in the camp, which started with environmental exploration, landscape analysis and observation, leading to participatory Green Town Workshops to identify the needs of the refugees, and action research, which was done in collaboration with the UNHCR. For the participatory method of his research, Kruigt relied on Dr. Ir. Duchhart's Green Town Workshop method (Figure 2.2). The researcher's work will also make significant use of participatory workshops, as will be discussed in Chapter 3.

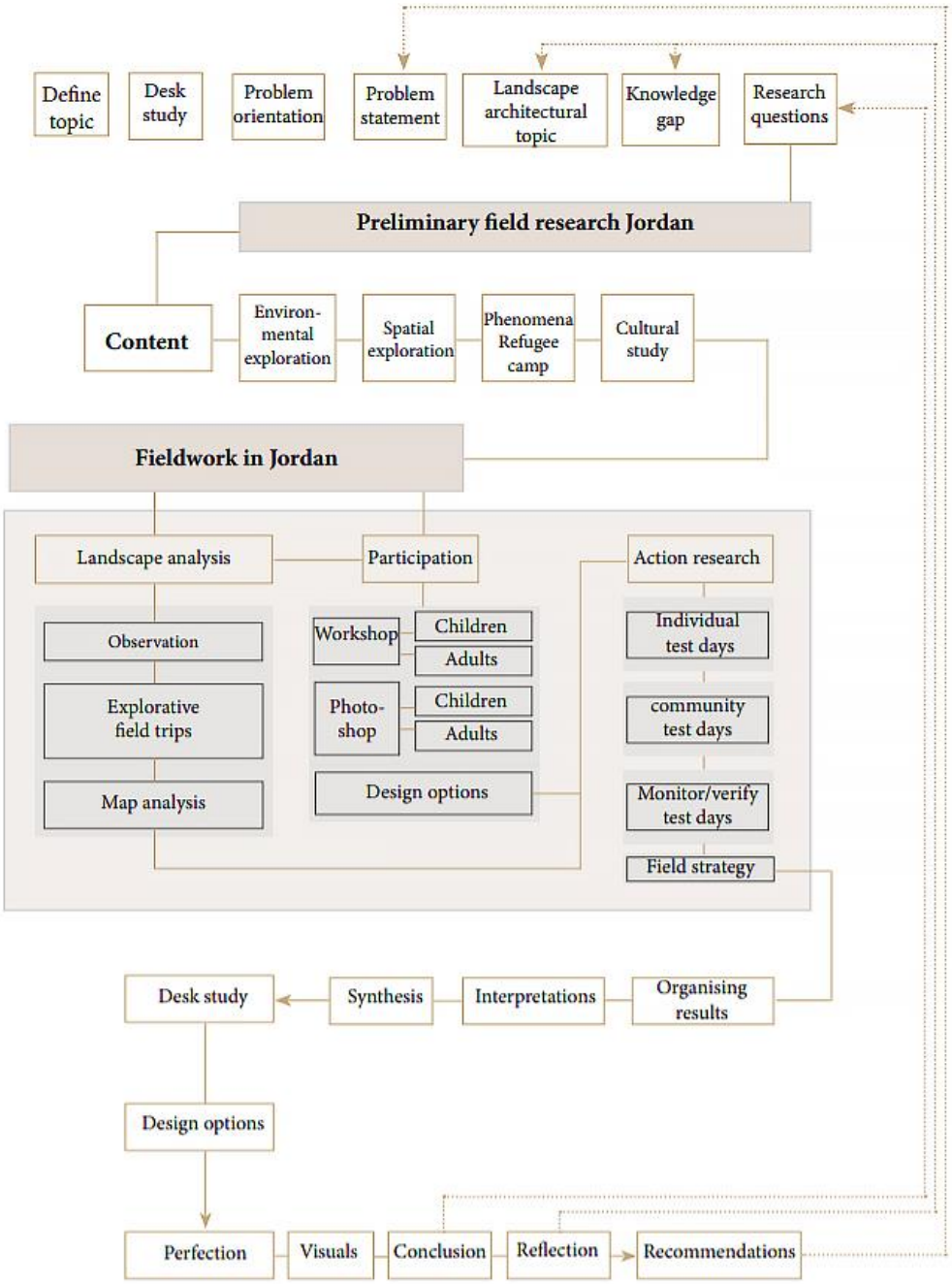


Figure 2.2: Kruigt's methodology.

Duchhart's method aimed "to introduce sustainable integration of environmental considerations into urban development, in order to achieve a healthy and attractive living environment which provides inhabitants with basic needs, such as water, food, energy, and shelter (Duchhart, 2007)." As recommended by the IMC, over the course of a month, Kruigt participated in the Zaatari camp as a volunteer for daily activities, including soccer matches and agricultural classes. This created a strong sense of rapport and trust between Kruigt and the participants in order for the workshops to be conducted.

The Duchart workshop method was conducted over the course of three days, through a series of workshops each day. On Day 1, participants discussed problems within the camp, and shared their experience about living life as refugees. Through in-depth conversations and mapping exercises, Kruigt gained a deeper connection and understanding of the participants' experiences as refugees. On Day 2, participants were asked to describe their current interactions with the landscape in Zaatari camp, and in contrast, they discussed the cultural relationship between man and nature in their homeland (Syria). The discussions about the camp's issues were supplemented by field trips to identify and verify refugees' concerns about specific issues, such as water waste, waste collection, sewage, electricity, and a lack of vegetation and shade. These discussions helped inform collaborative design solutions. On the third day, Kruigt had participants come up

with potential solutions for the problems identified. He faced some difficulty throughout the workshops, as the refugees were more concerned about finding solutions for the problem in their homeland of Syria, rather than the Zaatari camp. With patience, they were able to identify and plan out solutions, and elected a voluntary action group. It was imperative for Kruigt to involve the refugees in his research through a participatory method, because it "[created] more ownership for proposed solutions (Sutton, 2011)." This emphasis on collaboration with participants informed the researcher's methodology. After reviewing Kruigt's methods, the researcher asserted that within the research timeframe, it was best to adapt the methodology of Hou and Lien's participatory methods in De la Peña et al.'s Design as Democracy, a sourcebook by professionals that lays out various "techniques for collective creativity."

Tao Wu, a landscape architecture PhD candidate at the University of Connecticut, has developed an approach for cultivating social resilience through landscape architecture, by integrating incoming refugees with existing communities in need of revitalization (Hancock, 2018). Wu's research addresses the concerns of host countries, regarding a perceived increase in crime rate in correlation with taking in more refugees. Her consultation with the University of Connecticut's Human Rights Institute indicated that crime rates in refugee communities are in fact, comparatively lower.

This perception of refugees was important for Wu to address, given the current political climate around the discussion of refugees and migrants. Currently, the political leadership and several media outlets in the United States have "ignored research by denouncing [refugee] resettlement, despite statistics indicating that refugees [do not pose] a threat to [Americans] (McBrien, 2017)." This rhetoric is reflected in the Trump administration's policy, including Trump's now infamous Muslim Ban, which went through three iterations since January of 2017, and was ultimately upheld by the Supreme Court in June 2018 (ACLU, 2018). Furthermore, Trump's administration aims to cap the number of resettled refugees in 2019 to 30,000, a record low for the refugee program since its inception in 1980 (Hirschfeld Davis, 2018). By addressing misconceptions about refugees and other migrants in the United States, Yu highlights the significance of her work in understanding these communities. In Yu's research, she found that refugees have a desire to integrate into their new surroundings. This information led Wu to "find a new way to approach refugee settlements, and to find a way to enable the refugees to integrate and be a positive power in the communities where they are living." Wu's proposal calls for the integration of refugees into a local community in Naples, Italy with a pre-existing need for revitalization. Her design proposal lays out a plan for the remediation of an adjacent brownfield site, with a vision for the refugee community to directly collaborate with the existing

community. The design aims to accelerate the remediation of the brownfield, while creating opportunities for cultural exchange and the creation of economic value. In addition to the remediation, the design calls for the creation of key amenities to serve the needs of the transitioning refugee community, including a community center, art gallery, science center, schools, hospitals, offices, and a variety of greenspaces, including a wetland, an agricultural area, and a buffered woodland. Wu's work received a 2018 CELA Fellows Award of Excellence.

Since 2014, Elizabeth Brabec, ASLA, a landscape architecture professor at the University of Massachusetts, has been studying the phenomenon of refugee gardens around the world (Schuler, 2018). Brabec highlights that such spaces are essential for both refugees in refugee camps, and those in resettled communities. She stresses that such places play a critical role in continuing cultural connections for displaced communities, while providing a sense of security and control over their unfamiliar environments. Brabec emphasizes the importance of gardens in the "emplacement" process, in which refugee communities find and create meaning in their new surroundings. Gardens have become so significant in refugee communities that organizations like the Lemon Tree Trust, a nonprofit based in the United Kingdom, have dedicated themselves to "[supporting] gardening initiatives in refugee communities as a way to restore dignity, purpose, and cultural identity (Lemon Tree Trust, 2018)." The Lemon Tree Trust does this

through providing materials and resources for urban agriculture in refugee camps and communities and hosting annual garden competitions.

Moving forward, landscape architects and landscape designers pursuing work or research with refugee communities (resettled or otherwise), would benefit from reviewing the existing literature and current research about this topic. Designers can apply the following in their work and develop mindful strategies to serve refugee communities:

1. Highlighting individuality and making room for flexibility (Yu, 2015),
2. Encouraging ownership through participatory methods (Kruigt, 2014),
3. Supporting social connections and resiliency (Wu, 2018), and
4. Facilitating emplacement through cultural connections (Brabec, 2018).

2.7 Landscape as a Healing Tool

The emotional and psychological impacts of post-traumatic stress disorder (PTSD) on victims, such as refugees and war veterans, has an influence on every aspect of their lives. In 2016, Poulsen, et al. conducted a 10 week nature therapy study with Danish veterans suffering from PTSD. Through qualitative interviews, their research examined and analyzed the effects of outdoor forest therapy on the veterans' emotional conditions. The study's results showed that exposure and experience of nature improved the veterans' PTSD symptoms and equipped them

emotionally for dealing with stressful situations (Poulsen, et al. 2016). While such longitudinal studies have documented reduced PTSD symptoms, nature therapy "does not cure the condition (Poulsen, et al. 2016)." In addition to exposure to nature, exercise and sociability within the landscape can have a positive impact on people's social development, as "walking together is found to have a significant impact on social interaction (Doughty 2013)." This indicates not only the importance of nature exposure for relaxation and introspection, but also the importance of landscapes that facilitate engaging group physical activities.

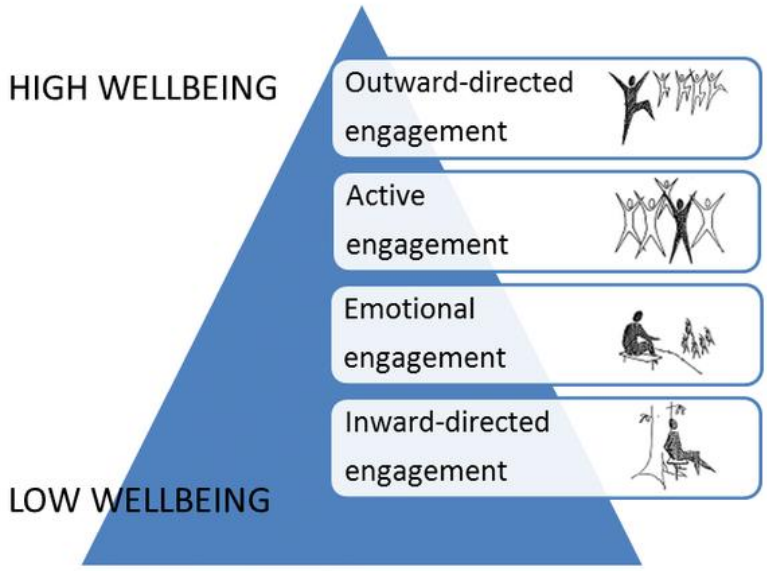


Figure 2.3: Triangle of supportive environments (Bengsston, Grahn, 2014).

As indicated by Poulsen, et al.'s study, an engaging landscape is essential to the restorative process of PTSD affected populations. In his unpublished

manuscript on critical regionalism, David Hopman, ASLA, articulates the importance of acknowledging the past cultural context of a place, while incorporating the influences of the present and staying relevant for the future. In terms of placemaking, Hopman emphasizes the significance of designers establishing order within a landscape, while also striving for a level of defamiliarization that "provokes original experience (Hopman, 2015)." Hopman defines defamiliarization in design as "seeing the world in new and unforeseen ways through a renewal of conscious perception." To be restorative, a landscape experience must be comprehensible to the participants, while being powerful enough to allow the users to escape their mental state and be consumed with some sense of sublimity, an "immediate perception (Hopman, 2015)." At the same time, the defamiliarization needed for such an experience should not be so intense as to "alienate" the participants—thus, context and user perceptions are important for the designer to keep in mind (Hopman, 2015).

In the researcher's work with resettled refugees in Dallas, TX, she kept in mind the importance of exposure to nature for the reduction of PTSD symptoms, the different roles of active and passive spaces, and the significance of an engaging and immersive landscape for such vulnerable populations. Nature exposure can serve a variety of user needs by providing opportunities for introspection via relaxation, while also facilitating physical activities that

encourage social interaction (Poulsen, et al. 2016; Cervinka 2014). Creating a place that provides enough defamiliarization to bring forth a sensation of transcendence is key for a restorative experience, while also being sensitive to the perceptions and needs of the affected populations (Hopman, 2015).

2.8 Basic Theories About Human Responses to Outdoor Environments

Researchers have examined the impact of restorative outdoor environments on the emotional health of sensitive populations, such as healthcare patients and mentally stressed populations. These findings can be useful in the application of landscape architecture as a healing tool for displaced refugee communities.

To effectively pursue the design of restorative physical environments for traumatized communities, it is imperative to have an understanding of some basic theories about human responses to their physical surroundings, and what the implications of those responses are. Three important theories that will inform the methods of this research are: Attention Restoration Theory (ART) (Kaplan and Kaplan, 1989), the psycho-evolutionary theory (Ulrich, 1984; Ulrich et al., 1991), and the biophilia hypothesis (Wilson 1984).

Attention Restoration Theory (ART)

In Kaplan and Kaplan's ART, humans have two states of attention: direct attention and indirect attention. Activities that require mental effort and concentration require our direct attention, and this is heightened in situations of stress and trauma. Indirect attention is what occurs when one is experiencing softer experiences, such as outdoor phenomena, including feeling a breeze, smelling herbs, etc. ART posits that those suffering from mental trauma and challenging transitions, can restore their mental health and reduce stress and anxiety, through experiencing more situations that enhance their indirect attention. The act of gardening is one such experience that engages multiple senses through indirect attention.

In their work, Kaplan and Kaplan have documented that people often devote time to participating in gardening activities "even when their most basic requirements of living were unsatisfied (Helphand, 2006)." Notably, Helphand points out that Kaplan and Kaplan's work challenges Maslow's hierarchy of basic human needs, which posits that "basic" needs such as food and shelter must be met before "higher" needs can be considered. This indicates that Maslow's standard definition of "basic needs" may not be sufficient in addressing all the needs of the human condition, especially for those in a distressed state. Kaplan and Kaplan's work suggests the need for a more holistic view of human needs.

Keeping ART in mind, designing for a multi-sensory experience that encourages and facilitates one's indirect attention through natural phenomena, is critical when designing for vulnerable populations.

The Psycho-Evolutionary Theory

Ulrich's Psycho-Evolutionary Theory, or stress reduction theory, suggests that exposure to natural elements (such as vegetation and water) has restorative influences on individuals recovering from injury (Ulrich, 1984). In his 1984 study at a suburban Pennsylvania hospital, Ulrich examined and compared the influences of views of vegetation and water (and lack thereof) on the recovery of patients who had undergone "cholecystectomy, a common type of gall bladder surgery. (Ulrich, 1984)." The study's findings indicated that patients with natural vistas within view of their windows had shorter post-surgery hospital stays, and gave less negative evaluations of hospital staff. The patients exposed to views of vegetation and water had a comparatively more therapeutic experience than the patients exposed to a view of a brick wall, indicating nature's effect on psychophysiological stress recovery (Ulrich, 1984). In 1991, Ulrich, et al. conducted a study to examine stress recovery in response to exposure to both natural and urban settings (Ulrich, et al. 1991). During this study, 120 participants viewed a "stressful movie," after which they were exposed to videotapes of natural or urban settings. Natural scenes were defined as being "dominated by

vegetation or water," whereas urban scenes contained "little to no vegetation and lacked water." The findings showed that subjects recovered more quickly and completely after exposure to natural scenes. These results supported Ulrich's prediction that nature can have a "[restorative influence on individuals suffering from stress], by [shifting them] towards a more positively-toned emotional state, [while also supporting] positive changes in physiological activity levels (Ulrich et al., 1991)."

The Biophilia Hypothesis: Urgent Biophilia and Creating Resilience Through Nature

According to Wilson's biophilia hypothesis, humanity has an "innate" tendency to gravitate towards other forms of life, including the outdoor environment and other humans (Wilson 1984). This hypothesis is significant for the purposes of restorative gardens because "it traces the roots of our response to nature," which has consistently shown itself to be uniquely capable of "[restoring] us to [a physiological]" and perceived state of tranquility (Gerlach-Spriggs, et al. 1998). The concept of "urgent biophilia" articulates the importance of humans seeking out engagements with natural environments as a coping mechanism in post-disaster contexts (Tidball, 2012). Tidball suggests that humanity's affinity for nature and pursuit of restorative environments "may confer resilience across multiple scales," particularly after a high stress event such as a natural disaster, or

displacement from violence or persecution, as is the case of political refugees. According to Gerlach-Spriggs, et al., the garden is a place of "pure refuge," in which "nature stimulates the physiology of serenity" and facilitates healing both physically and mentally.

In his book Defiant Gardens, landscape architect Kenneth I. Helphand examines the significance of gardens cultivated during wartime during the twentieth century. While exploring and documenting the meanings of gardens in the midst of war and conflict, Helphand suggests that under the extremities of difficult situations, the meanings of such gardens become more powerful, as "they are a connection to home, [and] they embody hope (Helphand, 2006)." Indeed, the cultivation of hope is inherent in the cultivation of any kind of garden, and the progress of even one plant can have positive impacts on a person's mood and sense of happiness (Helphand, 2006). This cultivation of emotional resilience and its connection to the pursuit of meaningful relationships with physical surroundings are significant to consider for refugee populations going through displacement and PTSD.

2.9 Significance of Cultural Connections to Agriculture

The importance of "[honoring] cultural systems and values to foster [the] recovery and resilience processes" must be accounted for in addressing the needs

of resettled refugees (Murray, et al., 2010). For transitioning refugee communities in new settlements, losing their sense of identity and feeling disconnected from their origins is a common issue (Chan 1987). Over the course of history, displaced populations have found ways to preserve their culture through various means, including sharing and growing food. Having this kind of cultural connection can positively impact refugees' mental health and foster a sense of community in a new environment (Williams-Forson 2014). Facilitating these processes can play an important part in the resettlement of refugees.

Additionally, there is research that supports the positive effectiveness of highly participatory outdoor environments (such as food gardening) on the mental health of users suffering from mental stress. Engaging people in their outdoor environment can be beneficial for refugee communities because cultivation engages users directly with their physical environment and fosters a sense of attachment with the land—thus, the activity of horticulture can help people with integration into a new society (Relf, 1999). Collaboration between local communities and resettled refugee communities "[encourages] cultural exchange and social resilience," which are both important in integrating refugee communities within their new communities (Hancock 2018).

2.10 Methods for Evaluating Emotional Effects of Physical Surroundings

Post-Occupancy Evaluation

A post-occupancy evaluation is "a systematic evaluation of a designed and occupied setting from the perspective of those who use it" (Cooper Marcus and Francis, 1997). Such a method can be valuable in the development of therapeutic or healing landscapes, because POE "concentrates on the needs of [users] and their response to their environment, providing insight into past design decisions, which results in evidence that can benefit both users and designers (Marcheso Moreno, 1989). Understanding the relationship between people and their physical surroundings, and how those physical surroundings impact people's experiences, is especially imperative in designing healing landscapes (Tyson, 1998). In a POE, the researcher "[identifies] features that are successful and unsuccessful," and can use their findings to inform "revisions to the particular project assessed," as well as recommendations for "future similar projects" (Tyson, 1998). The following case studies of the post-occupancy evaluation method in related studies of therapeutic landscapes will inform the procedure for this research.

2.11 How Veterans With Post-Traumatic Stress Disorder Experience Nature-Based Activities in a Forest Therapy Garden

In 2016, Poulsen, et al. conducted a 10 week nature therapy

intervention study with Danish veterans affected by PTSD. Through a phenomenological approach, the study's aim was to gain a deeper insight of participants' experience of nature-based therapy (NBT) and nature-based activities (NBA). In Poulsen, et al.'s study, the context was defined as a forest therapy garden called Nacadia, located within the Hørsholm arboretum. The design of Nacadia (the forest therapy garden) was based on an evidence-based health design process--both Nacadia and the arboretum were used in the study. The study classified Nacadia as a forest garden because of how it makes use of plants as "floors, walls, and ceilings that enhance the feeling of being immersed in nature." The phenomenon examined by the study was the participants' experience in the nature-based therapy. Over the span of 10 weeks, the participants' experience included 3 hours of therapy once a week, which consisted of nature-based therapy and individual therapeutic talks with medical professionals, while sitting or walking within the garden. The nature-based therapy included: walking through the arboretum to the forest garden, gathering in the forest garden, guided mindfulness activities (breathing and yoga), independent garden exploration, and prescribed physical nature-based activities with a gardener, which included planting trees, splitting wood, and gardening. All the participants signed written forms of consent, were informed about the details of the study, and were also given the chance to participate in the treatment without taking part in the study.

Additionally, the participants could opt out of the research at any time during the study.

The primary method for collecting data was post occupancy evaluation, in the form of semi-structured interviews. To evaluate the effectiveness of the participants' experience, Poulsen, et al. conducted four semi-structured, open-ended personal interviews throughout the study. To ensure a safe atmosphere for the participants, the settings of the interviews were determined by the participants, which ranged from the participants' homes, the interviewer's office, the military barrack, and the intervention setting. The timeline of the interviews is shown in Figure X.

In analyzing the results of the interviews, Poulsen, et al. proceeded based on recommendations by Smith and Osborne (2008) and Smith et al. (2009). This domain analysis began with a repeated reading of the interview transcripts, in which the researchers noted key sentences central to the participants' experiences.

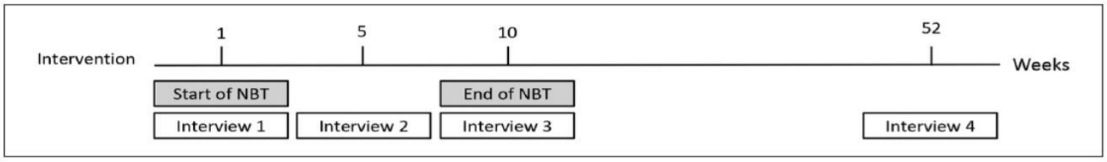


Figure 2.4: Flowchart of Poulsen, et al.'s study timeline.

Subsequent readings were conducted, in which researchers recorded key words and identified emerging superordinate themes, sub themes, and the connections between them. The researcher applied this domain analysis method in her data

analysis, discussed in Chapter 4.

Poulsen, et al.'s analysis resulted in the identification of three superordinate themes:

1. Taking nature in,
2. NBA as an initiator to a therapeutic process, and
3. Nature as a part of life with PTSD.

The relationship between the superordinate themes and sub themes are summarized in Table 2.1, below (Poulsen, et al. 2016).

Superordinate themes	**Subthemes**			
Taking nature in	Finding the places that feels right	Sensing the nature	Nature seems inclusive	
NBA as an initiator to a therapeutic process	Meaningfulness by doing things in and with nature	The therapeutic settings of NBA	Knowledge increases fascination about nature	Getting things done by oneself
Nature as a part of a life with PTSD	Transferability of features from the therapy garden to one's own environment			

Table 2.1. Poulsen, et al.'s overview of the superordinate themes and the corresponding subthemes.

The first subordinate theme, taking nature in, articulates the experiences of the veterans within the therapy garden. As the study progressed, the veterans identified the locations they felt most comfortable in. Generally, their preferred locations changed from secluded, sheltered spots, to more open spaces, conducive to gathering. The researchers found that the participants' choice of locations correlated with their current mental states. Through their experiences in the therapy garden, the veterans' sensory experiences of nature were heightened over time, and varied depending on their preferred locations at different times. Early in the study, participants expressed their preference of seeking the feeling of security and shelter within the garden, and they found such sensations under trees. Throughout the study, participants noted more sensations, such as the scents of plants and soil, the movement of the sun and clouds, and movement of water on the lake. The veterans expressed how seasonal changes affected their own moods. Participants came to understand that in order to experience the fascination of nature, they needed to focus on the present. They stated that the calmness felt inside during moments of mindfulness helped decrease their PTSD symptoms of anxiety and stress, and helped them reflect on various parts of their lives.

The nature-based activities were aimed to initiate a therapeutic process and correlate with the emotional needs of the veterans, according to their various levels of mental and physical energy throughout the study. The researchers found

that at the beginning of the study, participants were drawn more to restful solitude, but throughout the study, they felt more comfortable participating in more activities, such as weeding and chopping wood. The participants found meaning and peace in these tasks, and many stated that such activities gave them relief from their inner struggle with stressful, intrusive thoughts. All participants expressed their appreciation of the research staff, who encouraged the veterans to listen to and pursue their personal needs, which helped foster a sense of self-sufficiency. Through learning more about nature after working with the gardener, the veterans expressed that their relationships with the outdoors improved and expanded. Finally, a significant outcome identified by the researchers was the "transferability of experiences from the therapy garden" to the participants' everyday environment. In the final interviews conducted one year after the study, most veterans expressed that they find themselves seeking peace in outdoor environments, planning to grow vegetables, as well as practicing the mindful breathing exercises in stressful situations. Most of them applied their nature therapy experiences to their everyday lives, with the exception of one veteran, whose anxiety was too high for him to continue nature-based activities outside of the therapy garden.

After reporting the analysis of their findings, Poulsen, et al. discussed the subordinate themes, in relation to relevant theories and research. They concluded

that their study resulted in a better understanding of how veterans affected by PTSD experience therapy gardens, and how those experiences can empower veterans in their everyday life.

2.12 Evaluation of Hospital Gardens and Implications for Design

In 2014, Cervinka, et al. conducted a study that aimed to assess potential users' perception of the restorative qualities of hospital gardens. From this assessment, the researchers developed recommendations for designing future healing gardens, as well as improving existing hospital gardens, evolving them into healing gardens.

Cervinka, et al. (2014) used a "transdisciplinary approach [that combined] environmental psychology with landscape planning and management of healthcare facilities." Their methodology was divided into three phases: the first being literature review and on-site observations of four hospital gardens, the second being an online survey to evaluate said gardens, and finally the third phase was carried out through workshops with hospital staff at the hospitals. To avoid ethical considerations, the researchers did not use current patients and visitors for the second phase of data collection--instead, they surveyed a community sample of potential patients and visitors. Cervinka, et al. identified several key qualities that healing gardens must possess (Grahn, et al., 2010; Stigsdotter and Grahn,

2002):

1. provide a restful feeling of being away
2. allow for relaxation
3. be serene/peaceful/silent
4. free from disturbances
5. rich in animal and plant species
6. coherent
7. safe, secluded
8. accessible to all users

In the first phase of data collection, the researchers documented and assessed four existing gardens, noting their sizes, character, and users. From this initial documentation, they captured photos of each garden (from 12 different angles each), to be used in photo elicitation in the second phase of data collection, which employed the method of semantic differential (SD), a method commonly used in environmental psychology, which can is visualized in Figure 2.5. Photo elicitation is a method of information gathering in which participants are asked to respond to photographs during a research interview. In this case study, participants were asked to respond to photos by rating them using the semantic differential method. Adapted from the Likert scale, the semantic differential method is based on a 7-point bipolar rating scale, in which participants rate an

object's various qualities (Lavrakas, 2008). Generally, the left side represents the positive side of the spectrum, while the right side represents the negative (for example: from left to right, ugly to beautiful). After the ratings are complete, the participants' responses can be mapped by the researcher to visualize the participants' experience or opinion of said object (see Figure 2.5). For the second phase, Cervinka et al. had participants complete a subjective restorative experience assessment. For this assessment, the researchers created a semantic differential survey to represent characteristics of spaces, made of 25 contrasting

pairs of adjectives, which were rated by participants on a seven-point Likert scale (see Figure 2.5). At the beginning of the second phase, participants were asked to use this SD system to rate an "imaginary ideal hospital garden," defined by the researchers, as the reference or control. Then participants were asked to look at two of the real hospital gardens (using the photos) and evaluate them based on appearance and their perceived qualities (see figure below). In addition to the SD ratings, participants were also asked to rate four statements about the gardens (measuring key qualities: levels of fascination, being away, likelihood of

restoration, and preference), using a 10-point Likert scale (0 = does not apply, 10 = applies completely).

The adjectives in this semantic differential were generated by Cervinka, et al. after their literature review, and consultation with a landscape planner and students studying environmental psychology (Cervinka, et al. 2014).

For the final phase of data collection, the researchers hosted three workshops with hospital staff, where the staff used the same garden photos and the "ideal imaginary garden," to rate their experiences of the gardens and the

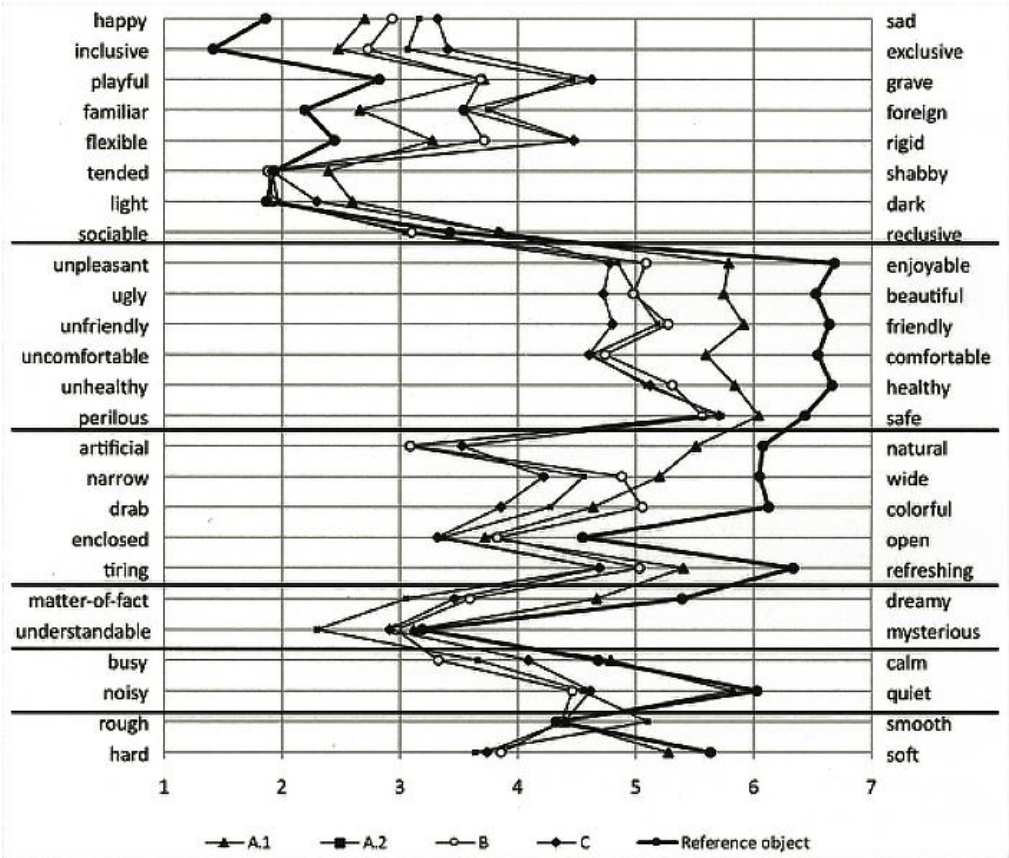


Figure 2.5: Patterns of the four hospital gardens and the reference garden. Typically, the adjectives or concepts go from negative to positive, left to right, but Cervinka et al. reversed the values for each category. The categories shown here are: mood, well-being, nature, relaxation, tranquility, and sense of touch.

restorative potential of each in reference to the reference garden, using SD and a questionnaire. Then, the researchers presented to the staff their findings from the potential users' subjective restorative experience assessments. Using the findings from all data collection phases, the researchers and employees collaborated to come up with design recommendations for future garden improvements.

Cervinka, et al.'s results indicated significant differences among the hospital gardens' restorative experience. For three of the four gardens, the SD

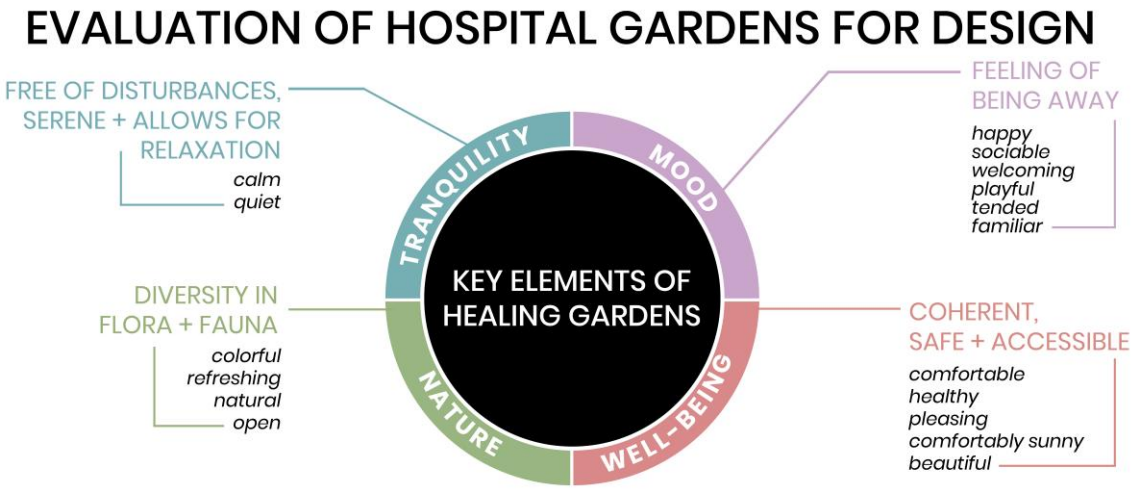


Figure 2.6: Cervinka's key factors for restorative environments, adapted from Cervinka et al.'s semantic differential methodology and findings.

patterns and subjective restorative experience of participants were "[significantly different] from the reference object (Cervinka, et al., 2010)." The researchers concluded that their findings highlighted the necessity of redesigning existing gardens in healthcare settings, to meet the therapeutic needs of users (Cervinka, et al., 2010). The key factors for such healing gardens, as identified by Cervinka (see Figure 2.6), as well as the application of the semantic differential method (Figure 2.5), were both instrumental in forming the researcher's methodology and criteria for the design process. The researcher summarized and visualized the key factors that informed Cervinka's semantic differential in Figure 2.6 below.

Literature Review Conclusion

There is a growing body of research and work related to refugee communities and landscape architecture, in the realms of refugee site planning and integration of refugees in existing urban fabrics. However, there is not much documented work that addresses the intimate impacts of the physical environment on the emotional well-being of refugee populations that are resettling. Drawing from restorative nature theory and research about restorative environments for PTSD populations, it's evident that in designing to meet the emotional needs of resettled refugee communities, a combination of both passive and active spaces with multisensory experiences are needed. Additionally, refugee participation in the design process (Kruigt, 2014), emphasizing cultural values (Murray, et al., 2010) and facilitating a sense of control for the participants (Tidball, 2012) in such interventions is of equal importance.

CHAPTER 3

METHODOLOGY

During July of 2018, prior to the research process, the researcher collaborated with the local Dallas chapter of the International Rescue Committee (IRC), to design the first phase of a community garden for resettled refugees, as a part of the IRC's New Roots community gardening program. The researcher designed the first phase based on programming needs and feedback from both he IRC and the local church hosting the site (Central Lutheran Church in Dallas, Texas). Participants for the research were recruited from this gardening program, with facilitation and translations provided by the IRC.

Drawing upon established theories about nature therapy and case studies that have employed various methods for measuring emotional data, the researcher took an integrated approach of gathering data from the IRC garden participants. The data collection was scheduled after the completion of the first phase of the community garden installation, which was completed in September of 2018. The researcher relied on applied and action research, which depended on the following research methods of post occupancy evaluation: observing environmental behavior, subjective restorative assessment methods, and co-generative workshops. Finally, using the insights from the literature and data from the post occupancy evaluation, the researcher developed design recommendations for

future phases of the garden, and collected feedback from the gardeners using photo elicitation. The researcher's overall methodology can be found in Figure 3.1.

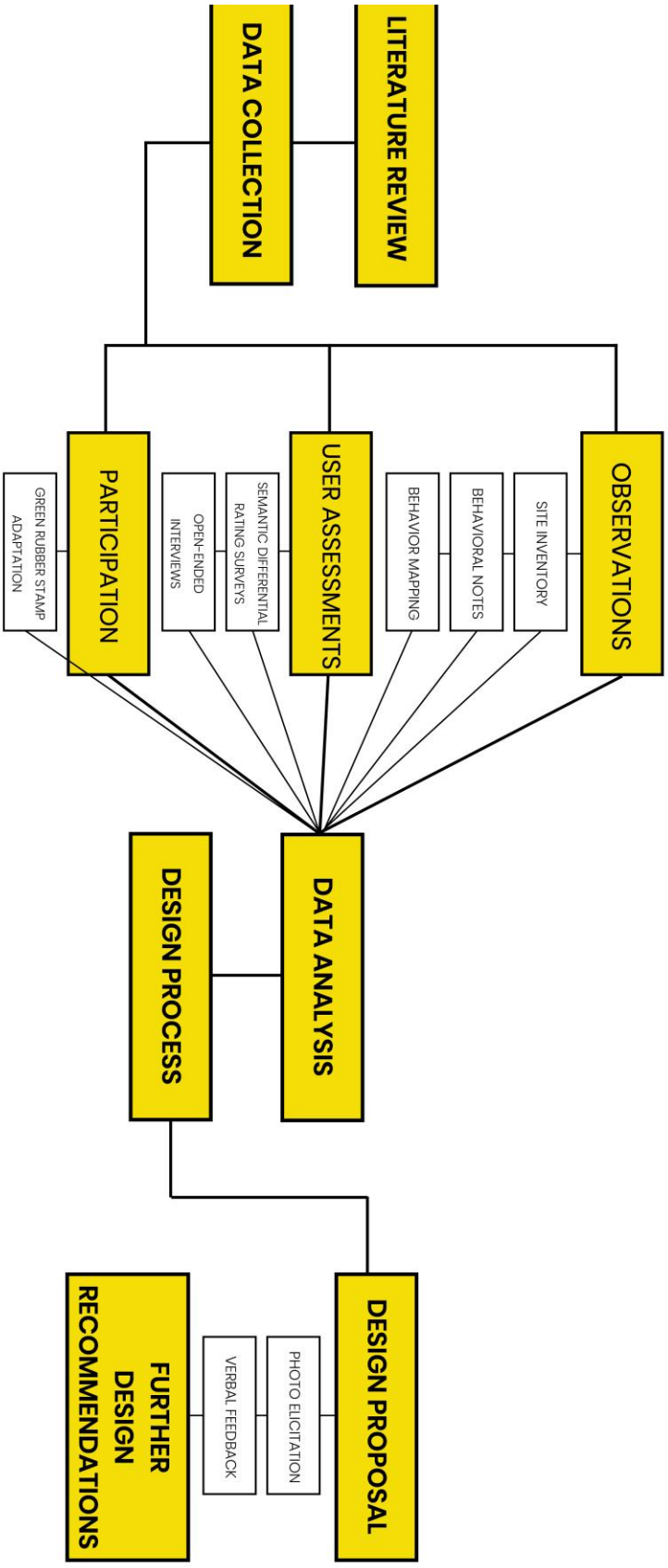
3.1 Observing Environmental Behavior

Using descriptive behavioral notation and behavior mapping (Zeisel 2006) the researcher observed activities at the garden over the course of one month, as a recognized outsider. To make note of the participants' behavior and activities, the researcher recorded field notes, and used behavior mapping. Behavior mapping involves mapping participants movements on a map of the space, to record activities in relation to the physical surroundings. This visual method of observation is particularly useful, as it "gives investigators a better sense of how a whole place is used at once," as opposed to tables and charts (Zeisel 2006). The researcher carried out these observations from a hidden vantage point inside the church on site, so as not to disturb or affect the behavior of the participants.

3.2 Subjective Restorative Assessment Methods

The ***semantic differential method***, or SD, is a method rooted in environmental psychology, in which users used a Likert scale rating to evaluate their perceptions of the space.

Figure 3.1: The researcher's overall methodology for this research.



Attributes of the garden space were used in this method, adapted from Cervinka, et. al.'s methodology, with feedback from the IRC, to generate a rating system that would apply to the refugees and their experiences in the garden (per the IRC's advice, the typical seven point scale was reduced to a five point scale). Refer to Subjective Restorative Experience Assessment #1 (Semantic Differential) in Appendix A (page 100).

The researcher conducted ***surveys*** adapted from Cervinka, et al.'s methodology, in which the users assessed their personal experiences within the garden by rating statements about key qualities of the space and their perception of the garden (Cervinka, et al. 2014). Additionally, after reviewing Kruigt's work and understanding the significance of participant feedback in the design process, the researcher added a statement about the participants' perceptions of their influence within the garden space (Kruigt, 2014). These statements were also reviewed by the IRC to ensure relevance and conciseness. Refer to Subjective Restorative Experience Assessment #2 (Garden Experience Rating) in Appendix A (page 100).

The researcher also conducted ***open-ended interviews***, in which users provided feedback about emotional and cultural benefits (if any). Participants were also encouraged to verbally express their needs and wants for future phases

of the garden space. Refer to Semi-Structured Interview Questions in Appendix B (page 105).

3.3 Participatory/Feedback Workshops

Since participation was highlighted as a key component to creating solutions with impact (Kruigt, 2014), participatory methods were employed in this research, also known was co-generating. ***Co-generative workshops*** engage "community members…[to] generate designs through active collaboration and critical exchanges," allowing for multiple solutions to be examined and allowing for various perspectives to be expressed in the context of design (De la Peña, et al. 2017). The researcher organized and facilitated charrette workshops for future design phases, in which users identified areas of the garden that were successful or unsuccessful, and identified potential areas for desired future activities or designations. The researcher adapted two methods: the "Design Buffet" method by Jeffrey Hou, and the "Green Rubber Stamp" method by ChenYu Lien.

Hou, department chair of the landscape architecture program at the University of Washington, developed the Design Buffet Method to involve "community stakeholders" to share their input for a project using the analogy of a buffet meal to guide the workshop. In Hou's method, participants are asked to create designs using "food items" (landscape design elements), and then asked to share their designs with each other, to understand the various perspectives within

their community. This exercise is useful because the buffet metaphor is well understood, making it easy to involve the audience to engage with the design process.

The “Green Rubber Stamp” method was developed by ChenYu Lien, professor of landscape architecture at ChungYang Christian University in Taiwan. Lien’s method calls upon participants to use “prearranged [to-scale] stamps that represent features, such as trees, hedges and planters” to visually express their ideas on several perspectives of the site in its existing condition (Lien, 2017). This technique is useful because it “allows for quick and direct designs from the participants themselves.”

Both exercises engage users with the design process, while generating valuable discussion among participants and designers. In both cases, the workshop results helped inform the design preferences and programming for the respective sites.

The researcher adapted elements from both techniques using ten scale (1” = 10’) stickers that represent features (trees, hedges, planters, benches), and a ten scale site plan of the existing site. Participants were also encouraged to draw or write in their suggestions for the garden. Their ideas were compiled by the researcher to be used as the foundation for the design proposal of the future

garden phases, which will be discussed in the next two chapters (Findings and Analysis, and Design Recommendations).

After using the findings from the above methods of data collection, the researcher synthesized the findings in a design criteria matrix (Figure 4.1), which informed the researcher's development of proposed design recommendations for future phases of the garden (discussed in Chapter 5). These design recommendations were presented to the participants for an additional feedback session, in which the researcher used the method of ***photo elicitation.*** This method involves participants responding to and/or rating visual graphics in a research interview or feedback session. Compared to words, "images evoke deeper elements of human consciousness," and using them in interviews results in richer data and conversations between the participants and researcher (Harper, 2002). Thus, this method facilitates "triangulation between different information sources," which elicits various insights, increases depth, and brings up new perspectives, while increasing rigor in the research (Bignante, 2010). The design proposal was presented to the participants in a series of visual graphics, including a labeled plan and several photo-realistic renderings. The participants verbally responded to the design proposal and gave their additional input for future phases of the garden. As the design process is iterative, this additional step of feedback collection helped inform the researcher about what adjustments to the design

needed to be made, in order to respond to the needs of participants in the best manner.

CHAPTER 4 FINDINGS AND ANALYSIS

4.1 Project Context + Study Area

Previously, the IRC's community gardening program relied on re-purposing existing community gardens for resettling refugee communities. In early 2018, the IRC formed a local partnership with the Central Lutheran Church in Dallas, Texas, in which the church offered a sizable plot of their land to be used as part of the IRC's New Roots gardening program. The IRC had never considered working with a landscape designer or landscape architect, partly because at the time, their refugee community garden network was comprised of re-purposed existing community gardens, and partly because they were not aware of the field. The researcher reached out to the IRC and was offered this opportunity to help shape the future of the garden site at the Central Lutheran Church, which will be used by both the church and the IRC's resettled refugee participants.

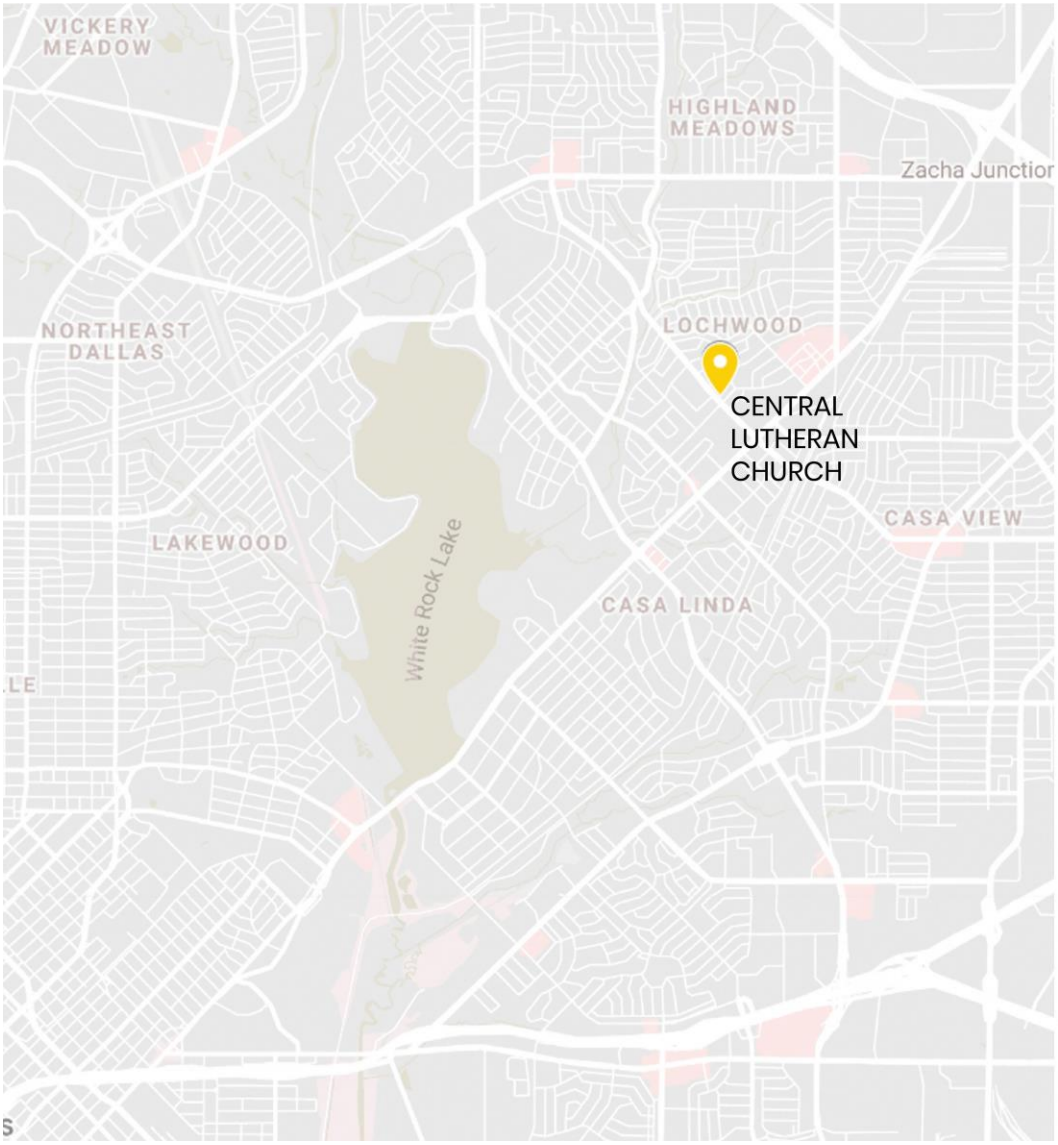


Figure 4.1: The project site is located behind Central Lutheran Church, located at 1000 Easton Road, Dallas TX 75218, in a residential area. Map adapted from GoogleMaps.

Located in a residential area, the church is less than two miles from White Rock Lake. The church is accessible via Dallas North Central Expressway from the west, Interstate-635 from the northeast, and Interstate-30 from the south. The site of the garden is in a plot of land in the back of the church property.

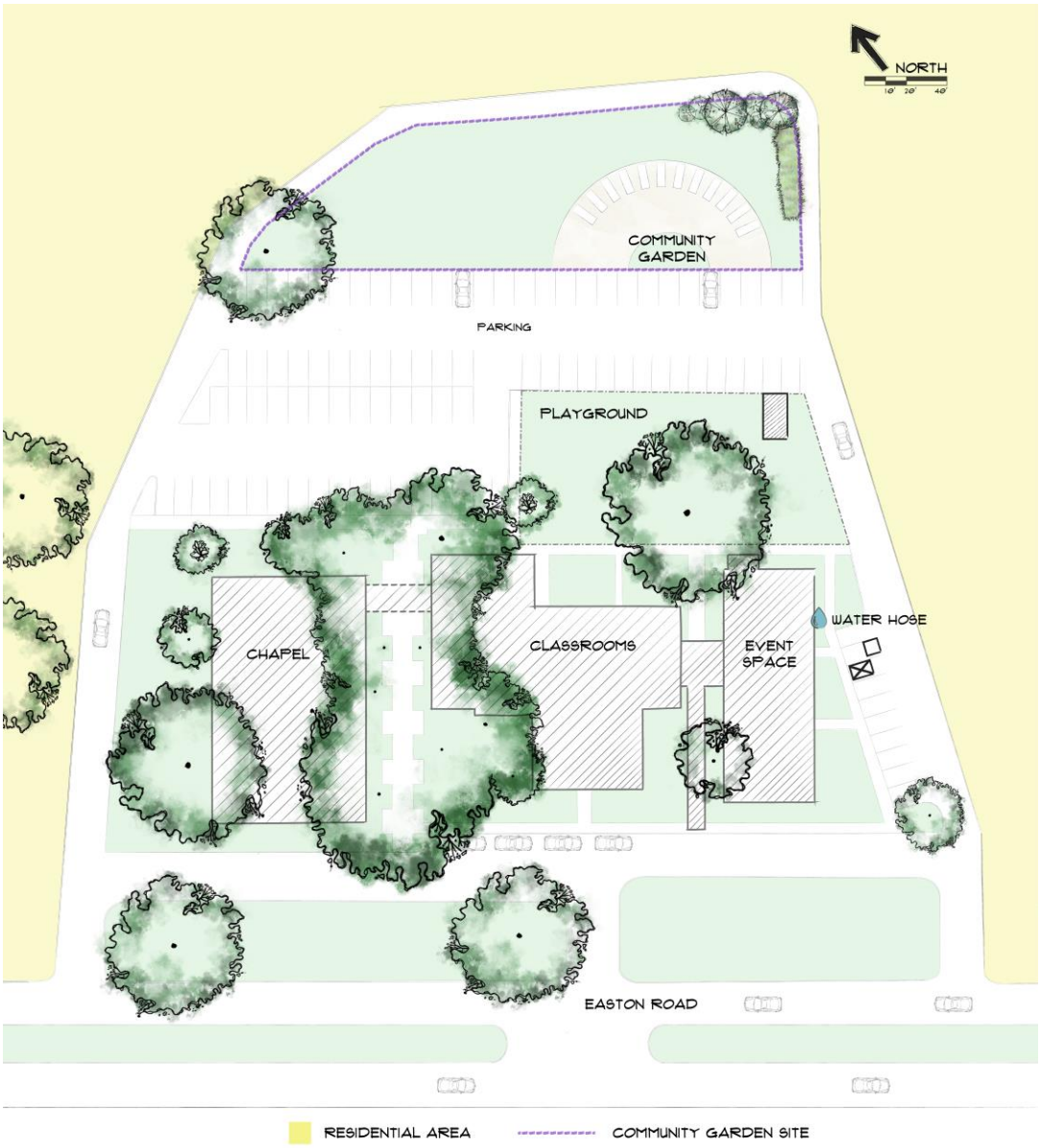
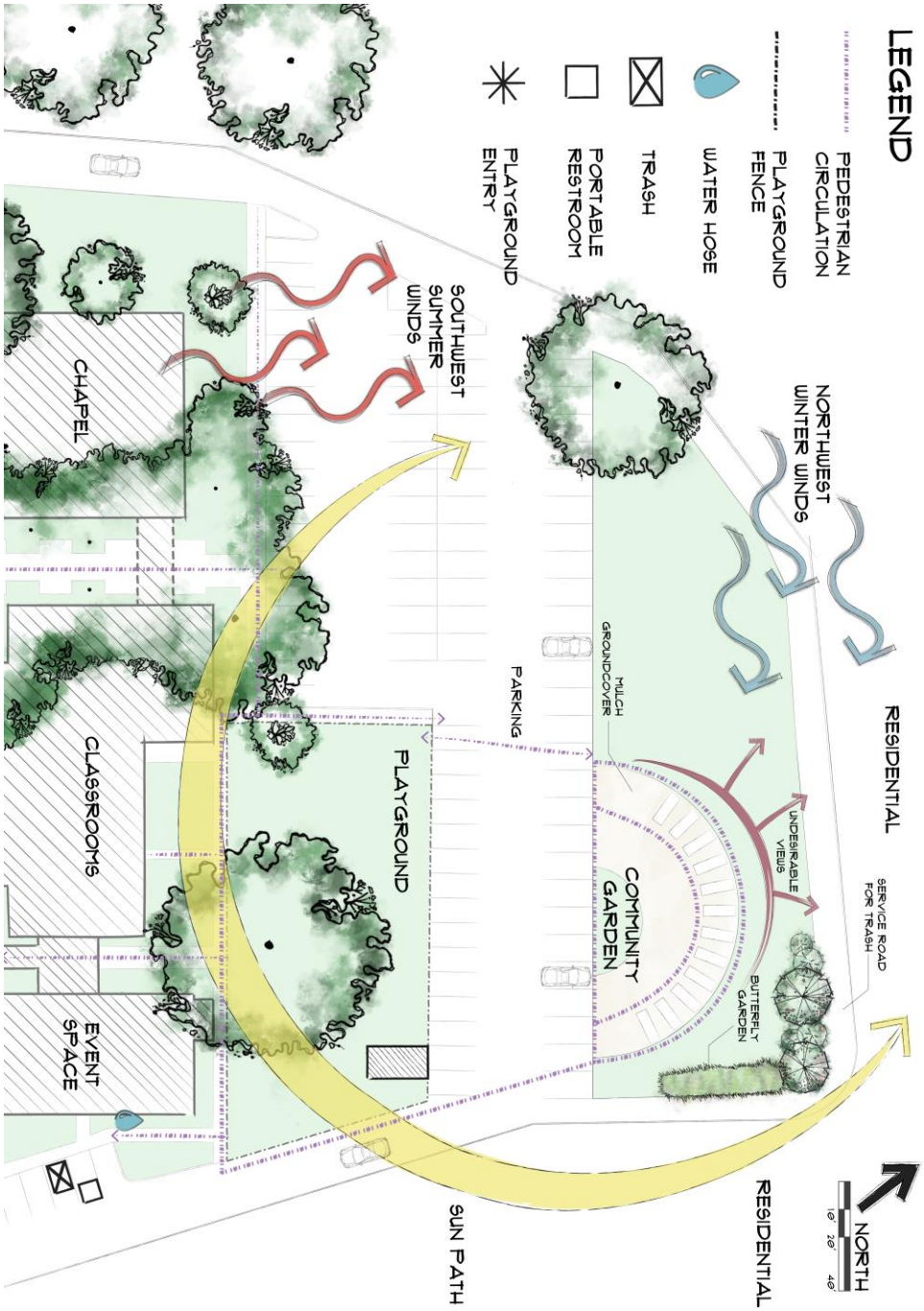


Figure 4.2: Contextual map of Central Lutheran Church and the community garden site (the research site).

The garden site faces a trash collection alley that services the surrounding fenced residential properties. Currently there are no defined boundaries between the garden site and the parking lot. In terms of topography, the garden site is

relatively flat, making it accessible for a community garden program and flexible for future programming.

Figure 4.3: Site analysis of the garden location, showing existing conditions, including the community garden layout, sun path, winds, pedestrian circulation.



The garden site currently consists of a few existing trees, a butterfly garden planted by homeschoolers from the church, and the first block of community garden beds that were constructed and installed by local boy scouts volunteering with the church.

Figure 4.4: Photos of the garden site at Central Lutheran Church, Dallas, TX.

Site photo descriptions:

1. One of the garden beds of a Bhutanese gardener.
2. A Chinese gardener stands directly in her garden bed to work.
3. A Bhutanese gardener working on one of his garden beds with his daughter.
4. The view from the community garden beds, facing east.
5. The view from the playground located across from the garden site, overlooking the parking lot.
6. The view from one of the church pathways, towards the garden site.
7. A view of the playground located across from the garden site.
8. The view from the parking lot, facing the constructed gardening beds and beyond.
9. The view from the top of the gardening beds, facing the parking lot.
10. The view from the garden beds, facing the northwest corner of the site, where the leftover mulch from the first phase has been allocated. The IRC plans for this area to turn into a space for larger crop cultivation (planting in rows).

4.2 Participants

Gardeners for the garden were recruited by the IRC from their English as a Second Language (ESL) courses. By October of 2018, the IRC was able to recruit eight resettled refugees from the following countries: Bhutan, China, and Mexico.

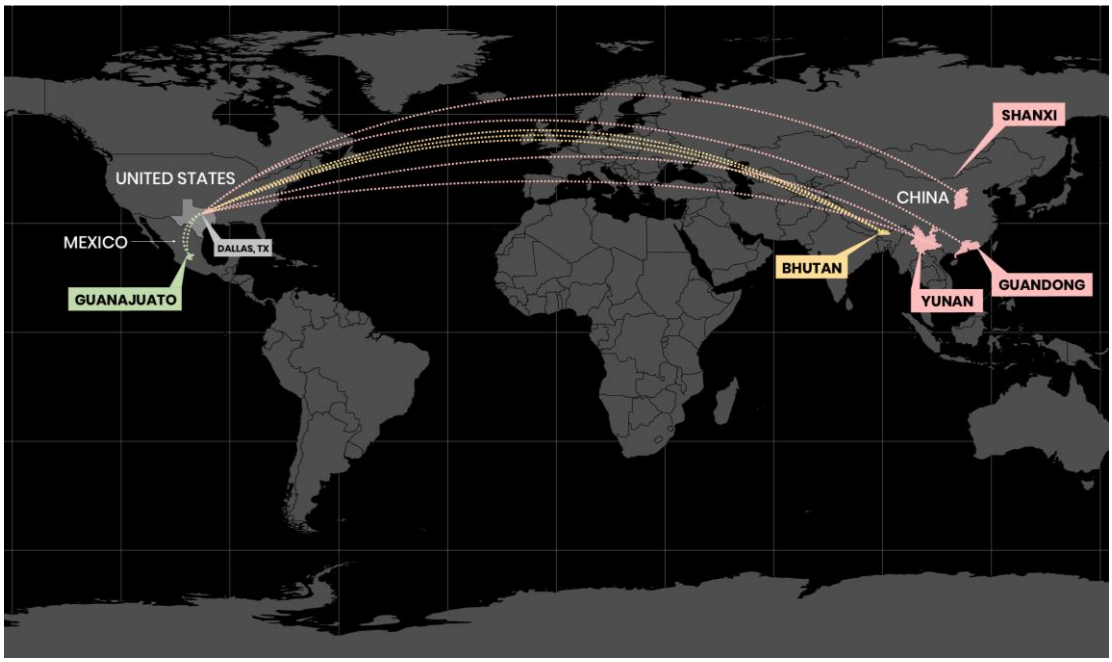


Figure 4.5: The research participants came from three different countries: Bhutan, China, and Mexico.

All the gardeners agreed to participate in the researcher's study. However, the Bhutanese group, due to life circumstances, were unable to participate in the interview and workshop portions of the study. Thus, the Bhutanese group was only available to participate in the subjective restorative assessments (semantic differential, garden experience rating), and the photo elicitation in response to the

researcher's design proposal.

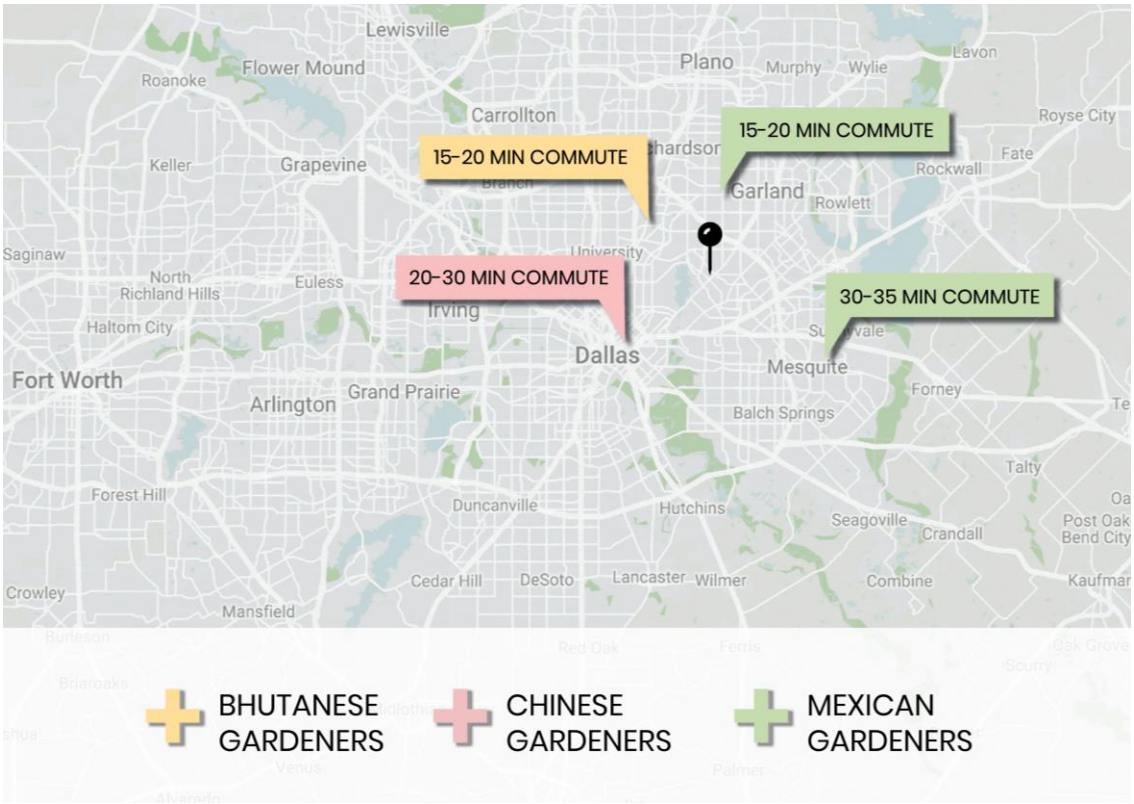


Figure 4.6: Through the interview portion of the methodology, the researcher learned that the gardeners all lived within commuting distance of the garden site.

4.3 Behavior Mapping Results

After observing the garden participants over the course of a month, the researcher gained insights about how much time the users typically spent at the garden, their movement patterns throughout the space, and their activities and interactions with other gardeners. From these observations over the course of the month, the researcher confirmed activities the participants mentioned in the

interview portion. The gardeners were observed visiting the garden with family members, especially their children, who were observed running back and forth between the community garden space and the existing playground attached to the church. In addition to weeding and harvesting at their own plots, most gardeners were observed walking around and admiring the garden beds of their fellow gardeners. Most notably, the researcher observed gardeners shielding their eyes from the sun while chatting and using the edge of the garden beds as makeshift seating. The latter was especially noteworthy as the width of the garden bed edges is about 4 inches, and therefore does not adequately support seating for long periods of time. On average, the gardeners spent about an hour at the garden each visit. The full behavior maps and field notes can be found in Appendix C (page 108).

4.4 Semantic Differential Results

In the first subjective restorative assessment of the garden, the semantic differential method was used (refer to Appendix A). The results of the Semantic Differential method showed the gardeners' general attitudes and perceptions about the garden and their experience of the space thus far. This chart presents the overall attitudes and perceptions of the garden, with a visual compilation of all respondents' answers. At a glance, one can see the general trends of the

gardeners' attitude leans and perceptions towards the garden and their experience of it. For the mapping of each individual's responses to the semantic differential, please refer to Appendix D (page 112).

In standard fashion, the scale ranges from negative to positive, going left to right. Red bars towards the left indicate a need for improvement in the respective categories. The researcher found that the Bhutanese group had the most negative perceptions about the safety of the garden, compared to the majority of the participants. The Bhutanese group also rated the garden as enclosed, busy, noisy, and strange, whereas the Mexican and Chinese groups generally felt positive or neutral about those aspects.

While the Bhutanese group was unavailable for interviews during the middle phase of the research, the researcher asked the IRC for insight about these varying perceptions. According to the IRC, the Bhutanese group had previously participated in a community garden with a locked gate. Additionally, the researcher learned that the Bhutanese group came from a rural background, where landscapes were expansive, and neighbors were further spread out. This could explain the Bhutanese group's perception of the space feeling unsafe. The garden, while located in a quiet neighborhood, is located within visual distance of the immediate surrounding residential properties.

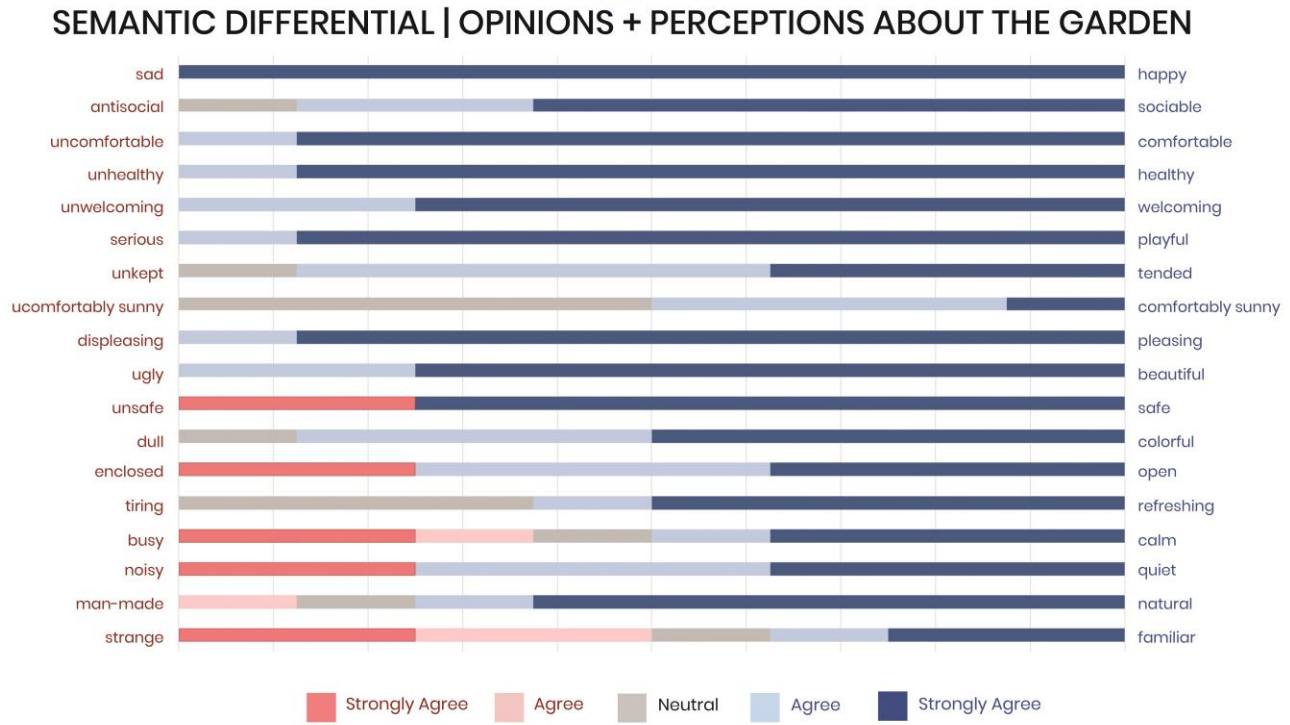


Figure 4.7: The composite Semantic Differential results, showing the gardeners' range of perceptions about the garden.

As the garden is not contained by any buffers or fencing, and has no overhead enclosure available, the space may feel overly exposed. This lack of enclosure could also contribute to the Bhutanese group's experience of noise within the garden, as there are no secluded areas to provide relief from the potential noise of kids playing in the playground across from the garden.

On that note, half of the respondents expressed that they felt neutral about the garden's refreshing qualities, and almost half of the respondents rated the garden as a busy place, rather than a calming place. While the activities of the garden as a community space will naturally lead to a busy atmosphere, from the literature review, providing both active and passive spaces, are especially important for vulnerable populations, with the latter principally for seclusion and introspection (Cervinka et al., 2014; Poulsen 2016). The results from the semantic differential led the researcher to conclude that the design solution must address the following issues:

1. Increasing the perception of safety of the space,
2. More opportunities for tranquility with an emphasis on soft fascination (Kaplan and Kaplan, 1989), and
3. "Emplacement" opportunities for the participants to make the garden feel more familiar to them and thus create their own meaning of the place and what it means to them (Brabec, 2018).

4.5 Garden Experience Rating Survey

The gardeners were also asked to participate in another subjective restorative assessment, in the form of a garden experience survey, in which they rated statements about the garden's characteristics and their experiences, as displayed below.

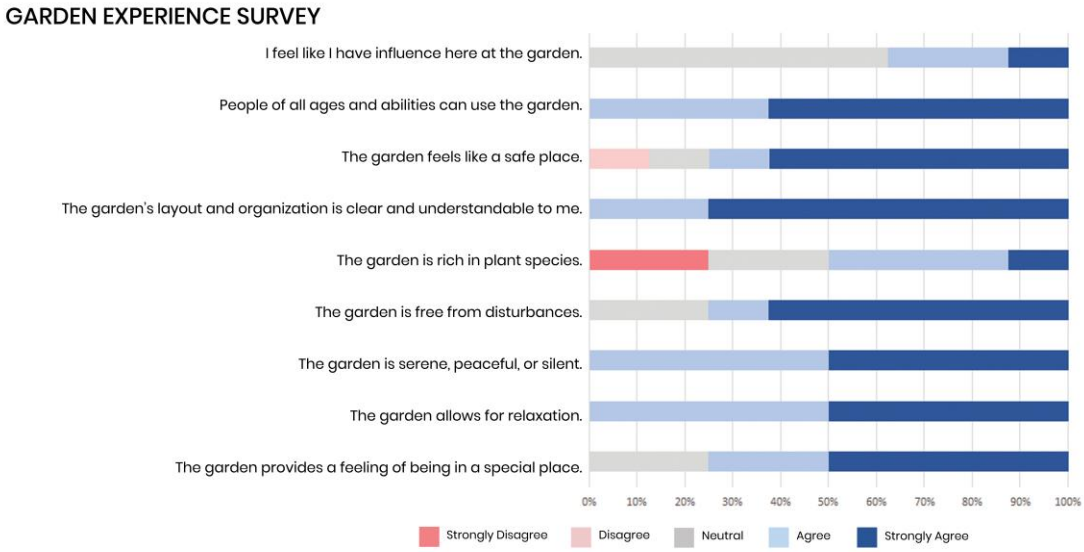


Figure 4.8: The gardeners rated these statements about their experiences and perceptions of the garden.

Overall, the respondents rated these statements positively, but there were a few trends that are notable, which the researcher will address in the design process. Over half of the respondents rated that they felt neutral about their influence at the garden—showing a need for programming that facilitates empowerment and self-expression, also indicating a need to involve the participants in the planning and design process for future phases of the garden.

Once again, the Bhutanese group expressed that the garden did not feel like a safe place, meaning safety and security should be prioritized. Half of the respondents were less than positive about the garden's level of plant diversity, with 25% feeling strongly that the garden lacked biodiversity, while another 25% felt neutral about the variety of plants. This lackluster response to the plant variety in the garden demonstrates a lack of the nature factor identified by Cervinka, et al., which is significant because a restorative environment ideally should be rich in plant species that can offer more prospects to engage the participants' indirect attention and sense of being away (Cervinka, et al., 2014; Kaplan, 1989). Lastly, the lack of biodiversity could be part of what motivated 25% of respondents to express that they had no strong opinions about the garden being a special place for them. This garden experience survey further highlighted the participants' perceptions of the garden and the areas in need of improvement from the semantic differential exercise, such as the need for safety and a perceived lack of plant species.

4.6 Semi-Structured Interview Results

During the interview portion of the research, the researcher gained more in-depth insights about the Chinese and Mexican gardeners' previous experiences with the environment in their home countries, as well as the ways in which they are preserving their culture with their activities in the garden space. Many of the

participants came from a rural background, and grew up farming or gardening with family members, while a few did not have many opportunities for gardening back home. The participants emphasized the importance of spending family time in the garden. All of the gardeners who are parents talked about bringing their kids to the garden for the experience, which can act as an effective way to keep their family connected to the traditions of the past. Growing food from their home countries was mentioned by every participant as a prime motivator, and all the participants noted their appreciation for the variety of plants they grew back in their home country. Participants also noted their preference for a larger planting area reminiscent of their experiences back home, which the researcher considered for the proposed design. The researcher used Dedoose to code the interview data and used the results to generate word visualizations to show the sub-themes in participants' answers, color-coded by subordinate themes, as shown below.

Figure 4.9: The participants' outdoor experiences in their home country, contrasted with their methods of preserving their culture in their resettlement area.

The interview answers also gave the researcher more insight about how the gardeners are relating to each other within the space, and what kind of activities in the garden facilitate feelings of empowerment and encourage social cohesion. The gardeners talked at length about taking turns with each other and sharing the responsibilities at the garden, including rotating garden visits. Gardeners within the same ethnicity group were more easily able to coordinate responsibility sharing of weeding and harvesting, but both the Mexican and Chinese groups affirmed that they will often water or rinse each other's garden beds for each other. While both groups noted that they don't see other fellow gardeners often, unless there is an event, they enjoy talking when they do meet at the garden. The gardeners also enjoy watching the progress of not just their own plants, but the plants of others, which was observed during the environmental observation portion of the study. In addition to building social relationships, the garden provides a way for the gardeners to adapt to their new environments in both fresh and familiar ways, in that they are trying new vegetables, while also planting crops from their home country, and experimenting with plants in a new place. Gardeners also mentioned the pride they feel in growing their own vegetables, and the joy they find in sharing their harvest with others. The word cloud below visualizes the subordinate themes, identified as trends in which the gardeners are empowering themselves, adapting to a new place, and building

social connections with each other. The words below are sub-themes, color-coded by the subordinate themes.

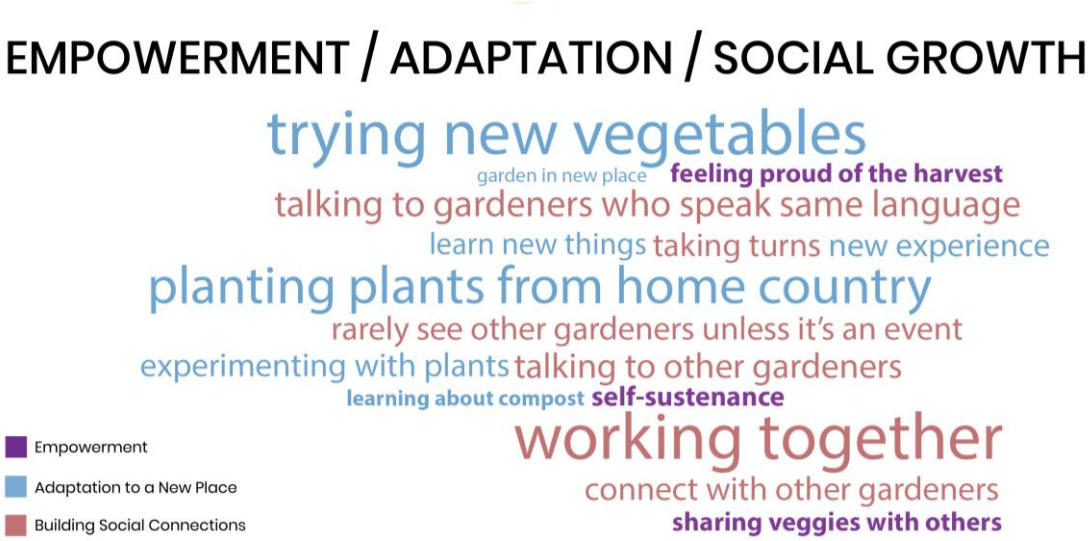


Figure 4.10: Participants' responses provided insight about their adaptations to a new place, the empowerment opportunities they've experienced in the garden, and their social relations in the garden.

The participants shared their sensory experiences within the garden and were then asked to speak freely about issues they are facing in the garden, and to suggest ideas for improvements. The following word cloud illustrates the main sensory experiences that the gardeners expressed during the interviews, sub-themes, color-coded by subordinate themes. The size of the word or quote indicates the frequency of mentions by various gardeners.

Figure 4.11: Participants' interview responses about their sensory experiences in the garden and the moods it evokes for them.

It's evident that the gardeners find the garden to be a positive experience in their lives, and that a variety of activities and sensory experiences must work together to cultivate this experience in which they create the value for themselves. Comparing this word visualization to the word cloud below (visualizing the participants' constructive feedback for the site) helped inform the researcher about addressing the issues on site while enhancing the desire for the positive sensory experiences as expressed in the interviews.

Figure 4.12: The gardeners' responses about the issues in the garden, contrasted with their suggestions for improvement.

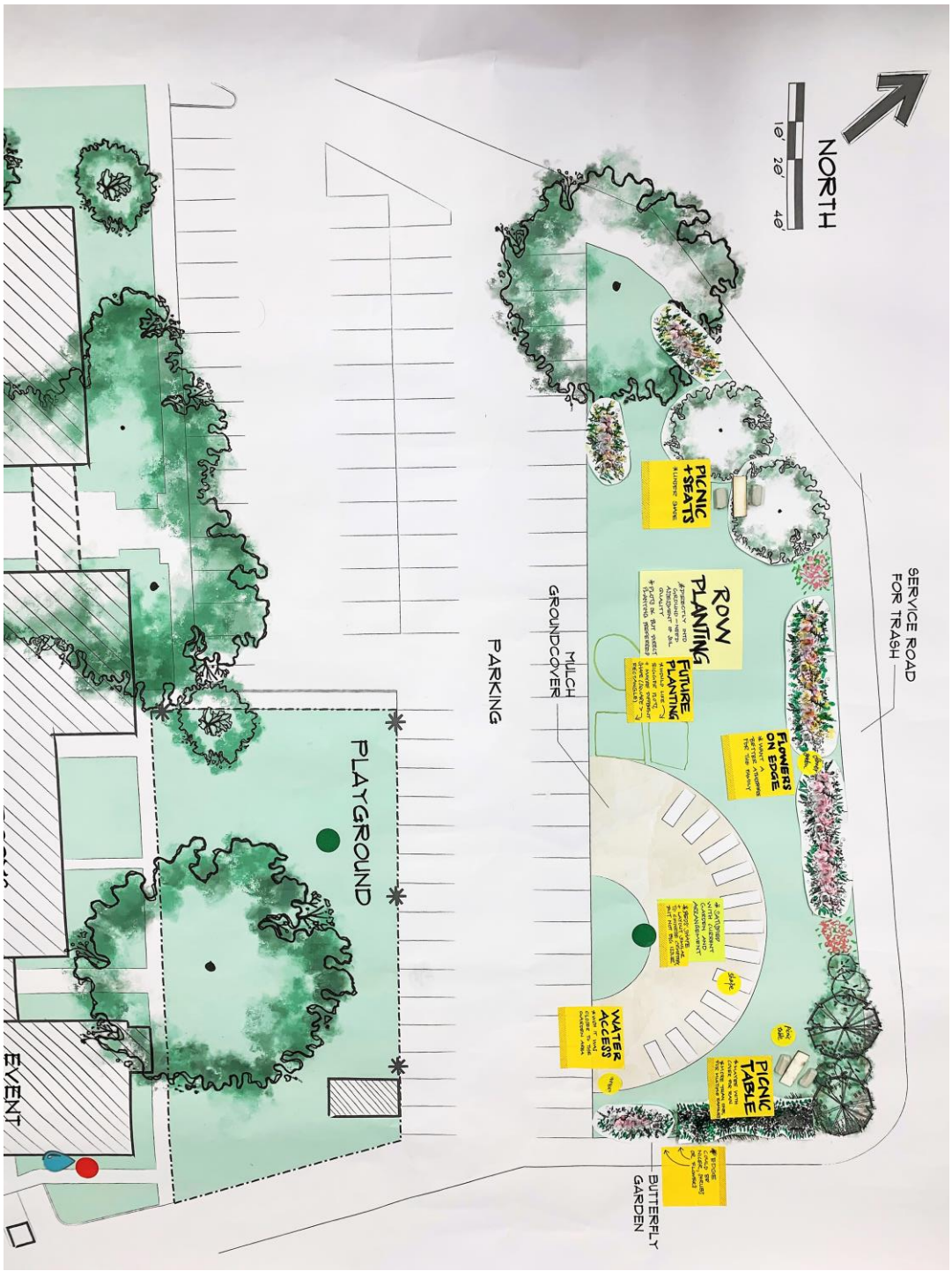
The discussion of the issues/challenges, with direct feedback from the gardeners, was imperative for the researcher to keep in mind while facilitating the co-generative workshop later in the research process. As the current water facilities are located at the church, the biggest concern/suggestion from the gardeners was the request for an additional water hose closer to the garden site. Other top concerns were a need for a picnic and sitting space, a need for more beauty in the garden (flowers, plant diversity), and the fact that the garden will need more shade in the summer. Also notably, all the Chinese participants noted that the garden form (raised beds) reminds them of a Chinese graveyard, as Chinese coffins are not buried underground. At the time of planning out the first phase of the garden, when the garden form and materials were decided, the IRC and the researcher didn't have prior knowledge of the incoming users. Ideally,

knowing the user population and understanding cultural norms and connotations would ensure a better designed space. The Chinese gardeners also expressed a desire for more free-flowing, soft forms, as opposed to the current rigid form of the raised beds. All these ideas and suggestions have been combined with the participatory workshop results, summarized in Table 4.1.

4.7 Participatory Workshops Results

The participatory workshops with both the Chinese and Mexican groups yielded perhaps the richest part of the data collection thus far. The participants were encouraged to represent their suggestions for improvements for the garden spatially on a 10-scale map of the garden site. This resulted in multiple discussions between participants and the researcher about potential features and programming for the garden, as well as current issues about the space. This exercise allowed the participants to express their ideas more clearly and the participants were visibly enthused about imagining possibilities for the future of the garden space. Figure 4.12 shows the Chinese group's suggestions for the garden.

Figure 4.13: Participatory workshop results with the Chinese gardeners.



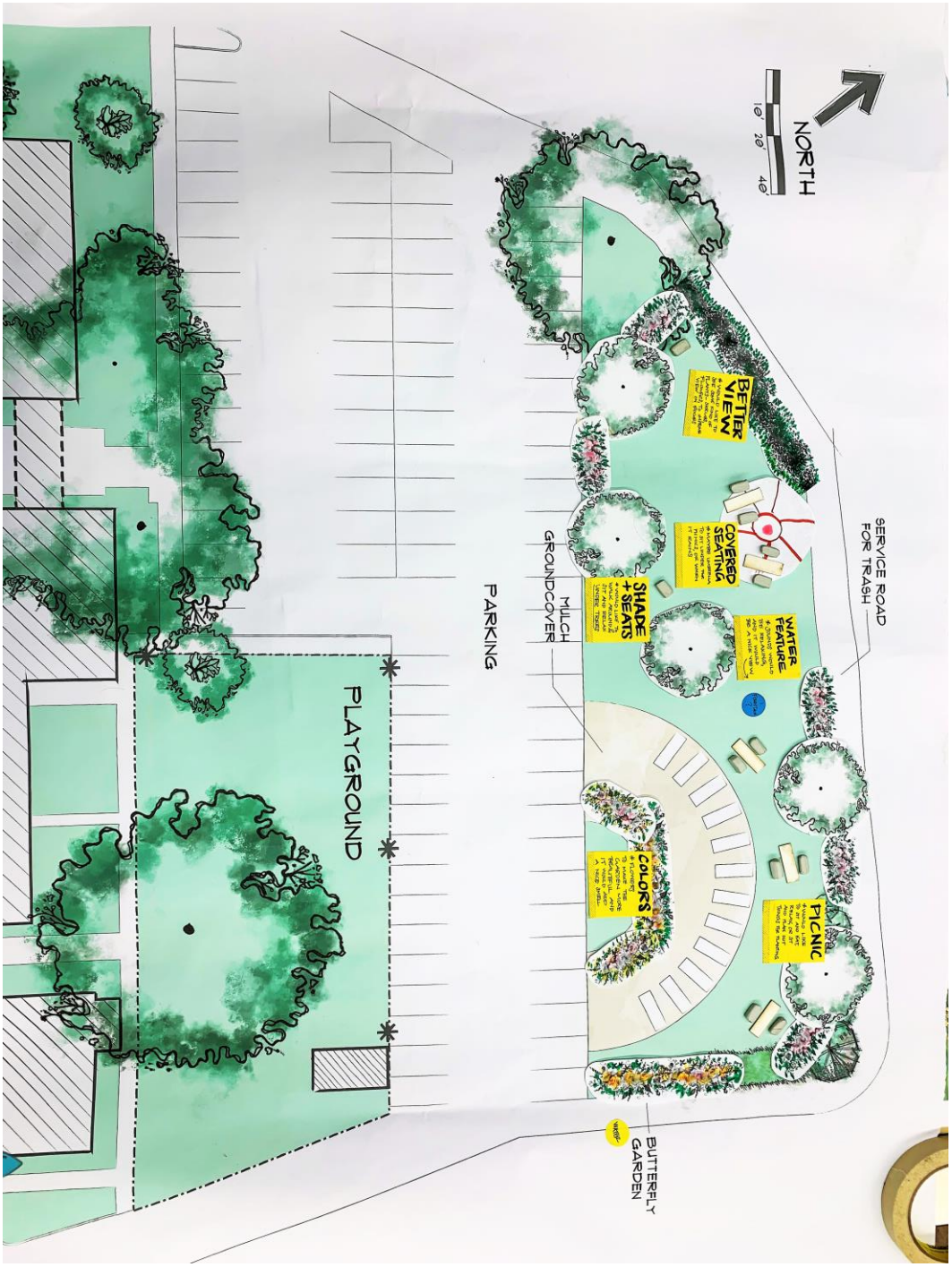
The Chinese group's main programming results were as follows:

1. More spaces to plant (directly into the ground if possible).
2. Shaded areas for relaxing.
3. Seating.
4. Picnic areas.
5. Better atmosphere around edges of the garden.
6. Water closer to the garden area.

The Mexican group's main programming results (Figure 4.13) were as follows:

1. Walking area under shade.
2. Shaded picnic area.
3. Seating.
4. Water feature.
5. More colorful planting.
6. Better atmosphere around edges of the garden.

Figure 4.14: Participatory workshop results with the Mexican gardeners.



Both group workshops resulted in several common programming themes: seating, common gathering areas, shade, picnic areas, and a better atmosphere around the edges of the garden. While both groups did not initially verbally express their desire for the garden to be surrounded by an edge, both groups subconsciously placed elements along the edges of the garden space to contain it (shrubs, flowers). When asked about their motivations, both groups responded that the view would be improved and that a defined edge around the garden would improve the atmosphere of the garden. While the Chinese gardeners' primary concern was the addition of more planting areas (direct planting) and the addition of a water hose closer to the garden, the Mexican gardeners mostly focused on suggestions for shaded seating and walking areas, as well as an emphasis on more colorful planting within the garden. This contrast could be due to the fact that the Chinese families live in apartments, where there is not much space for gardening, whereas both the Mexican gardeners stay in houses with their families where they have their own gardens. The Mexican gardeners expressed that while they have land at their homes for gardening with their families, they were interested in participating in the IRC's community gardening program in order to connect with other people and try new experiences.

The resulting programming from this workshop guided the researcher's design process.

4.8 Design Matrix + Design Process

After categorizing and analyzing the data collected from all of the above methods, the researcher synthesized the findings in a design proposal with design recommendations based on user feedback. The researcher developed a design matrix (Figure 4.1) to cross-examine the design elements suggested by the participants with spatial criteria (design patterns) for restorative environments from existing literature. This matrix helped determine the priority levels of the various design elements and programming. A detailed list of such criteria with illustrations of the design patterns can be found in Appendix E (page 116). The patterns, derived from Alexander, et al.'s A Pattern Language (1977), were selected by Tyson (2007), "based on environmental and behavioral characteristics" that support a healing landscape. The researcher identified 12 main patterns from Tyson's selection of 25 that are applicable to the refugee garden.

The researcher assigned each group's ideas and suggestions into elements, or correlating design patterns, which were then assigned to relevant categories based on the literature review. Many elements overlap categories.

Table 4.1: This design criteria matrix was developed based on the literature and participants' feedback. Weight was assigned based on respondents' interest. 0 = did not mention; 1 = interested; 2 = very interested.

CATEGORY	DESIGN PATTERNS	CHINESE GARDENERS	MEXICAN GARDENERS	PRIORITY
	PROSPECT REFUGE	2	2	4
	COMMON AREA	2	2	4
	SUNNY PLACE	2	2	4
	SEATING (SECLUDED)	2	2	4
	ACTIVITY POCKETS (PICNIC TABLES)	2	2	4
	VEGETABLE GARDEN	2	2	4
	FLOWERS OR PERRENNIALS	2	2	4
	PROTECTION FROM ELEMENTS	2	2	4
	SEATING CIRCLES (MOVABLE FURNITURE)	1	2	3
	TREE PLACES	1	2	3
	GARDEN WALL	2	1	3
	ALCOVES	1	2	3
	CLOSER WATER HOSE	2	1	3
	POSITIVE OUTDOOR SPACE	2	1	3
	PATHS + GOALS	0	2	2
	ORGANIC FORMS	2	0	2
	WATER FEATURE	0	2	1

COHERENCE SAFETY SENSORY NATURE

TRANQUILITY SOCIAL CULTURE EMPOWERMENT

Based on the literature, the categories identified and assigned to the elements/design patterns are the major key factors to creating restorative environments for displaced populations. Many design elements can be associated with multiple categories, as they serve different needs.

CHAPTER 5

DESIGN RECOMMENDATIONS

After developing the programming and determining the priority of the programs and design patterns, the researcher developed a design proposal to share her design recommendations with the garden participants. As shown in the matrix in Table 4.1, all the design elements were influenced by gardeners' feedback and supporting literature about restorative outdoor environments for vulnerable populations. The resulting site plan is represented in Figure 5.1, and the perspectives are represented in Figures 5.2 - 5.7. For the photo elicitation portion of the research, the researcher shared the site plan and several perspective renderings to the gardeners to get their verbal feedback. From this feedback, the researcher further developed the design recommendations and consulted with the IRC and members of the Central Lutheran Church to discuss steps moving forward for the future phases of the garden.

5.1: Design Proposal

The proposed design (Figure 5.1) calls for the addition of a 7' fence around the entire back perimeter of the site, not only to address the safety concerns of the Bhutanese refugees, but also to screen the view of the trash collection alley and to help define the space's boundaries.

Figure 5.1: The rendered site plan based on participants' responses and suggestions.

The front of the site will be defined with a smaller, 3’ picket fence, to create a visual boundary and prevent cards from driving into the garden site. Three entrances to the garden will be marked with arch trellises, to create a sense of arrival upon entering. Arches were chosen as a response to the Chinese gardeners’ suggestion of incorporating more organic shapes in the garden to balance out the rigid structure of the constructed garden beds.

Figure 5.2: Bird’s eye view facing northeast of the community garden from the parking lot, with the multicultural crosswalk mural in view.

Within the community garden, concrete or gravel pathways will help make the garden feel more coherent and will provide a sense of purpose in the circulation.

To promote social interaction and give the gardeners more of a sense of control on their surroundings, as well as providing physical comfort, the researcher proposed the addition of movable furniture and shaded picnic areas, with the addition of one tree on the north east side of the site, adding to the existing cluster of smooth sumac in that corner of the site.

Figure 5.3: View of the proposed picnic seating adjacent to the existing community garden beds, facing east.

In the raised bed area, additional garden beds will be shared by church members (as proposed by the IRC and the church), and the proposed row planting area will be available for all garden participants to use. These spaces are where each gardener can connect with their cultural roots with the plants they choose to cultivate, and in the methods by which they plant them. Directly below the new

garden beds, the researcher has proposed a cutting flower garden, featuring plants that gardeners can take cuttings to bring home.

To address the concerns about shade and seating at the garden site, the researcher has proposed a few new trees, most notably in the northwest side of the site, near the existing tree adjacent to the parking lot. These trees will frame the secluded seating area (Figure 5.4, 5.5) that offers gardeners a place to rest under the shade, away from the hustle and bustle of the garden. This restorative experience will be enhanced with the addition of a solar powered water fountain and the soft textures and scents of the surrounding perennial herb garden.

Figure 5.4: View from the shaded relaxation area facing the perennial herb garden and the rest of the community garden.

Figure 5.5: Bird's eye view of the shaded relaxation area, a serene spot enhanced by the textures and aromas of perrennial herbs.

Because of the garden's multi-cultural users, the design proposes a creative way to celebrate each of those cultures with the addition of a multi-cultural crosswalk mural leading from the garden space to the playground. This mural can be a collaborative effort that allows the gardeners to express their culture, and each family could engage their children in the process. Additionally, the researcher proposed a collaborative tile border alone the seating wall on the north side of the site, in which the tiles can be decorated and colored based on the refugees' preferences. This colorful band on the seating wall will express the various cultures of the users of the garden.

Figure 5.6: View of the proposed row planting area, facing the perennial herb garden and the shaded relaxation area.

Figure 5.7: Bird's eye view of the proposed row planting area, facing south, with the parking lot and multicultural crosswalk mural in view.

5.2: Participant Feedback

Note: The researcher has substituted initials for the participants' names, to ensure anonymity.

The researcher first talked to the Bhutanese family, DK and RP, to get their feedback about the proposal images and additional feedback about the garden. Overall, the family found the proposal to be satisfactory, and their first response was expressing approval of the 7' fence around the garden perimeter. After that, their top concern was, similar to the Chinese group, the addition of a water facility near the garden beds. Upon seeing the perspective of the secluded seating area, DK expressed that she would love to sit there to relax after working in the garden. In response to the perspective showing the picnic area with movable chairs, RP told the researcher that he could bring chairs from his workplace if needed. The Bhutanese family also expressed interest in planting directly into the ground, and in a bigger planting area. They are eager to see how the garden progresses and to possibly see these concepts come to fruition, and they expressed an interest in sharing more vegetables with the church members. They expressed interest in participating in the crosswalk mural with the other gardeners. The family also expressed their concerns about restoring the soil before proceeding with any future planting plans in the garden. They have been testing different plants on the balcony of their apartment in different types of soils, to see

what kind of soil they may need at the garden site. In the future, the Bhutanese family hopes to grow more vegetables in order to sell them, and they have been ordering seeds from their home country, including Bhutanese cucumbers.

Before continuing with the participant feedback sessions with the Chinese and Mexican groups, the researcher received constructive feedback from her chair about a potential alternative garden bed made from brick or concrete masonry units (CMU), in response to the Chinese gardeners' responses about the current beds being reminiscent of Chinese coffins. In the subsequent photo elicitation sessions with the Chinese and Mexican gardeners, the researcher presented the groups with renderings of the design proposal, accompanied by photos of raised garden beds made out of CMU blocks or bricks (Figure 5.8), as opposed to the current model developed by the boy scouts (raised beds made of wood and corrugated metal). The researcher explained to participants that these beds can be formed in softer shapes that are less rigid than the current rectangular formed beds. The participants' responses to this alternative are discussed below.

Figure 5.8: Alternative garden bed examples using bricks. Photo sources: vegetable-gardening-online.com; Josh Graciano on Flickr.

The researcher than spoke to the Chinese gardeners (LL, AC, TC) for their feedback about the proposal. Their response was also positive overall, and lead to some discussion about what other improvements could be made to the garden. LL's first reaction was one of enthusiasm regarding the additional garden beds for the church members. The proposed street mural on the plan was met with similar enthusiasm from everyone—AC commented that it was a great idea to get the community involved, and that his kids would likely enjoy it. Figure 5.8 garnered interest in garden beds made of CMU or bricks, and the gardeners expressed interest in switching to such beds. However, TC said for the sake of convenience and practicality, the rectangular bed shape is not a serious issue if most others in the garden have no opinions about it. In response to the bird's eye perspective (Figure 5.2), the group particularly appreciated the addition of the 7' fence around the perimeter, noting that during the workshop they tried to improve the edge conditions of the garden space by placing a border of shrubs and flowers along the perimeter. They agreed the fence would add a more private feeling to the garden. AC expressed that it may also add a sense of security for the surrounding neighbors—as their backyard properties are somewhat in view from the garden. Pointing at various areas along the fence adjacent to the neighborhood, the group suggested that it would be even better if the fence around the perimeter had a few doors, to welcome the neighbors to also visit the garden. AC noted that he has

seen one of the neighbors using her service alley fence door to get to Central Lutheran Church, so providing entrances to the garden adjacent to the surrounding residential properties might be well received. Everyone was receptive to the idea of a cutting flower garden. Upon seeing the perspective of the flexible seating area adjacent to the garden beds (Figure 5.3), TC said that the proposal made the garden look like a place where she could stay a while to relax and bring her family for a picnic. Reviewing the site plan and the bird's eye perspective of the proposed large planting area (Figure 5.7), Chinese gardener group concluded that the top priority improvement would be the addition of a water hose at the garden site, followed by the addition of the larger planting area, and seating under shade. In reviewing the images, particularly Figure 5.4 and 5.5, the Chinese gardeners also discussed the possibility of a water feature in the place of the proposed perennial herb garden—with TC suggesting a shallow pond with lilies, with some kind of small bubbling fountain, and some stepping stones. The gardeners explained that in Chinese gardens, ponds with stepping stones are common, and they expressed that it might add to the tranquility of the garden, while also adding some more interest for their children. The group still expressed interest in some kind of herb garden (especially as mint is key for several of their traditional dishes from southern China), and suggested an herb garden on the side or surrounding their proposed shallow pond. TC asked if the proposed path would be concrete or

gravel, and the researcher responded that it would depend on the IRC's budget. While on the subject of pathways, TC brought up the issue that the current mulch area is unevenly graded in some areas, saying that hopefully the future path can be more level. LL thanked the researcher and said the images were helpful for them to imagine the future of the garden together. The group is eager to find out when these changes will be implemented (and to what capacity).

Lastly, the researcher met with the Mexican gardeners (AG and AB) for their feedback and responses to the images of the proposed design. In response to the plan, the gardeners expressed much enthusiasm for the proposed trees and cut flower garden, as well as the path leading to the shaded seating area by the proposed perennial herb garden. Both gardeners were interested in participating in the cross walk mural. In response to Figure 5.2, AB told the researcher she loved the idea of expanding the butterfly garden, and both gardeners expressed appreciation for the entrances marked by overhead trellises. Continuing the discussion of Figure 5.2, AG remarked that it would be a beautiful experience to walk under the trellis while flowering vines bloomed overhead. AB said they could possibly plant flowering vines for the trellis entrances. Responding to the shaded flexible seating options pictured in Figure 5.3, both gardeners commented that these additions would greatly improve the garden experience, with AB noting happily that she had proposed an umbrella for the shaded seating. They both

recalled that sitting for prolonged periods of time on the edges of the beds was not comfortable. Returning to Figure 5.2, AG remarked that while she appreciated the shallow 3’ fence along the border of the garden and the parking lot, it didn’t seem necessary because of the general lack of vehicular traffic at the garden. AB responded that the vehicular traffic could increase over time as the garden becomes more established and potentially hosts events or markets. Both gardeners enjoyed Figures 5.4 and 5.5’s depictions of the secluded, shaded seating area, and stated that seating under shade would be much appreciated. Figures 5.6 and 5.7 elicited surprised expressions from the gardeners, who said that they didn’t realize there was so much space available for various activities at the garden. Returning to the plan, AG expressed much interest in the selection of a few fruit trees, suggesting peaches or pecans. AG explained that she had recently brought her grandfather to the garden, and reminisced about her grandfather’s fruit trees in her hometown in Mexico. The researcher shared the Chinese gardeners’ ideas with AB and AG, which were met with intrigue, followed by eagerness. The Mexican gardeners agreed that the addition of a shallow pond would enhance the garden, with AG noting that the sound of any kind of water would really heighten the experience. They also agreed on the idea of providing entrances for the neighbors to enter the garden. While the Mexican gardeners were initially not as concerned about the inconvenient location of the current water hose (See Figure 4.3), during

the photo elicitation session, upon seeing the proposed location of a second water hose, they both declared that should be the top priority for improvements, followed by shade. Lastly, going back to Figure 5.2, AG expressed concern for the site's tidiness, stating that a trashcan would be necessary if the garden were to become more populated with incoming refugees, neighbors and church members.

CHAPTER 6: CONCLUSION

6.1: Further Design Recommendations

After the rich discussion with all groups during the photo elicitation portion, the researcher concluded that the design proposal for the garden should prioritize the following elements first:

1. A water hose near the planting areas, in the middle, preferably.
2. Movable picnic furniture with umbrellas and adjacent trees for shade.
3. Fence around the perimeter.

The researcher also concluded that the following elements need to also be considered in the design proposal:

1. Shallow pond with stepping stones, and water lilies
2. Entrances for neighbors along perimeter fence
3. Alternative bed shapes made from CMU blocks or bricks (for the Chinese gardeners).

In May 2019, the researcher met with a church member (Alesia Pearson) and the IRC's New Roots Dallas coordinator and their urban farm training specialist, Yui Iwase and Leala Rosen, respectively. During the meeting, the researcher shared the results of the study and the design proposal, and discussed future steps, keeping the above priority list in mind. This generated a plentiful discussion about the future of the space. After seeing the list of priorities, Iwase and Rosen agreed that the water was the biggest concern from their experience working with the refugees, followed by a need for shade, and a need for creating a place to gather and relax after working in the garden. After viewing the work, Iwase expressed that throughout the meeting, the potential future of the space was totally transformed in her imagination. Pearson informed the group of many boy scouts seeking to earn their Eagle Scout status through volunteering opportunities within the next two years—an important resource for collaboration on this project's future. From the discussion with the IRC and the church, the following were determined to be the next steps for the garden:

1. The addition of a water hose from the existing playground (currently more feasible than installing a new water line in the garden space).

2. Eagle Scout project: Construction of picnic seating with shade umbrella, must be durable enough to not be stolen, but the option for movable chairs is important to keep in mind.
3. Eagle Scout Project: Construction of entrance trellises for the garden.
4. Eagle Scout Project: Construction of additional garden beds, potentially with alternative materials/an alternative shape from the existing beds. Before the construction, it will be important to consult the Chinese gardeners again to see if they would strongly prefer to switch their beds to alternatively shaped beds made with different materials.
5. Cutting flower and perennial garden space can be initially implemented as a small planting area.
6. Soil testing for the row planting area, then preparing a cover crop to build up organic matter to create good soil for planting.

While everyone agreed that the fence around the perimeter would define the garden space better, it was also agreed that it was not an urgent need, compared to other priorities listed above. The IRC also noted that while the addition of the path would also greatly transform the space, it would most likely

need to be constructed by professionals, since the path would require a significant amount of work.

The IRC staff and the researcher agreed on the importance of pursuing grants to help fund the future phases of the garden and other prospective projects. The discussion motivated the IRC staff to consider pursuing similar applications in their other New Roots gardens. Everyone especially appreciated the engagement of the refugees in the design process, and the IRC also expressed how this project has deepened their interest in pursuing the creation of more healing and restorative environments in conjunction with the New Roots community gardening program. Iwase noted this project has stimulated more questions and ideas about how landscape architecture can be used as a tool for refugee communities.

Thus, the IRC strongly expressed interest in future collaborations with the researcher, also envisioning a potential partnership with UT Arlington's landscape architecture program. The researcher was also invited to share her study and findings with the IRC's national network of New Roots coordinators, which will likely yield more interest in collaborations between the IRC and landscape architects and designers.

6.2: Conclusions and Discussion

Based on the findings of the observations, surveys, workshops, and the photo elicitation feedback method, the researcher developed a more concrete understanding of the garden's specific restorative and emotional impacts on the participants. The results identified which aspects of the garden were successful or unsuccessful. This direct feedback from participants, combined with the findings from the literature review identifying design criteria for restorative environments, were the guiding principles of the researcher's approach to the design process. These findings informed the development of a richer, evidence-based design proposal for the second phase of the garden, which addressed physical comfort, provided spaces for introspection, social interaction, and ideally, the celebration of multiple cultures through an ongoing process of placemaking, as other refugee gardener groups will come to participate in the garden. The experiences of the gardeners and their perceptions of the garden and what it means to them, are what will shape the garden as a place in the future.

What defines the distinction between a space and a place? A space becomes a place when people form an attachment to it (Tuan, 2001) and give it value (Harvey, 1996)—places are the manifestations of "the experiences and aspirations of [people] (Tuan, 2001)." To understand the garden's meaning as a place, the researcher had to explore and "understand [the garden] from the

perspectives of the [refugees] who are [giving it meaning]" through their actions in the space and their subsequent attachments to it (Tuan, 2001). According to Harvey (1996), placemaking must entail the "recovery of roots," and this holds especially true for displaced populations (Griffin, 2017; Brabec, 2018). For resettled refugees, re-establishing their roots and creating a sense of place can serve as stable reaffirmations of their identity in a chaotic new environment (Massey, 1994). Along with food, shelter, and job security, the process of emplacement ought to be considered as an important part of the adjustment process for resettled refugees.

The genius loci, or spirit of a place is "a composite of" the environment's existing conditions and the "human modifications" applied to the place over time (Tuan, 2001). In the refugee garden at the Central Lutheran Church in Dallas, TX, this spirit of place will be cultivated by the refugee groups and the church members they will share the garden with. As demonstrated through the research of others in the field and the researcher's work, landscape architects and designers have both the technical and creative capacity to play a significant role in facilitating this kind of collaboration in placemaking for resettled refugee communities and host communities. This capacity can be explored in a variety of ways.

Landscape architects and designers have the capacity to assess and provide recommendations for restorative and therapeutic environments for refugees. Additionally, professionals possess the tools to interpret, conceptualize and execute the spatial preferences and needs of such populations. Landscape architects and designers can empower refugee communities, by giving them the tools and facilitating the setting, to conceptualize and articulate their ideas about the future of their shared community space. The workshops in the methodology were essential for co-generating ideas about the space, but the photo elicitation after the design process was equally important for the designer to understand if the interpretations of the ideas were well-executed. The photo elicitation process initiated more conversations that gave way to more specific ideas about the space, and helped the participants further visualize and articulate their ideas about placemaking in their community garden. There is no doubt that landscape architecture can be a powerful tool to communicate and advocate for these visions to decision makers. With the field's understanding of the natural and cultural elements of places, and the implications of various spatial patterns for uplifting the human condition, landscape architecture professionals are well-positioned to use their unique skill set to engage with issues surrounding displaced and resettled refugee communities in a variety of contexts.

6.3: Future Research

There are many implications for the field's engagement with refugee communities in the future. While the workshops and photo elicitation sessions in this particular study were done in separate groups (Bhutanese, Chinese, Mexican), it would be worth exploring how the design ideas would have developed differently, if the sessions were done in tandem with each other, facilitating cross-cultural collaboration. Additionally, it would be worth exploring how the ideas would have evolved differently had the photo elicitation method also been employed during the conceptual design development stage. The field of landscape architecture can be a powerful approach to addressing issues refugee communities face, and as shown in this research, there is much potential for professionals to collaborate with organizations such as the International Rescue Committee for future endeavors. This research has raised a few other questions worth investigating:

1. How could these methods be applied at other garden sites with different groups and settings?
2. Is there an accessibility issue with the locations of the IRC's New Roots garden locations and how can it be addressed?
3. In addition to responding to the needs of refugee communities, how can landscape architects facilitate more understanding and

social cohesion between the host communities and the refugee communities?

4. Research indicates nostalgia's potential for improving the mental well-being of vulnerable groups (Routledge, 2013). How can landscape architects and designers harness and explore this concept in their interventions of restorative landscapes for refugee populations?

Appendix A: Survey Materials

Subjective Restorative Experience Assessment #1 (Semantic Differential)

Please rate your perception of the garden and your experience below.

1. How does the garden make you feel?

Happy __ __ __ __ __ Sad

Sociable __ __ __ __ __ Antisocial

Uncomfortable __ __ __ __ __ Comfortable

Healthy __ __ __ __ __ Unealthy

2. How do you perceive the garden?

Welcoming __ __ __ __ __ Unwelcoming

Playful __ __ __ __ __ Serious

Tended __ __ __ __ __ Unkept

Uncomfortably Sunny __ __ __ __ __ Comfortably Sunny

Pleasing __ __ __ __ __ Displeasing

Ugly __ __ __ __ __ Beautiful

Safe __ __ __ __ __ Unsafe

Dull __ __ __ __ __ Colorful

Open __ __ __ __ __ Enclosed

Tiring __ __ __ __ __ Refreshing

Calm __ __ __ __ __ Busy

Noisy __ __ __ __ __ Quiet

Man-Made	__	__	__	__	__	Natural
Familiar	__	__	__	__	__	Strange
Drab	__	__	__	__	__	Colorful
Enclosed	__	__	__	__	__	Open
Tiring	__	__	__	__	__	Refreshing
Matter-of-Fact	__	__	__	__	__	Dreamy
Understandable	__	__	__	__	__	Mysterious
Busy	__	__	__	__	__	Calm
Noisy	__	__	__	__	__	Quiet
Rough	__	__	__	__	__	Smooth
Hard	__	__	__	__	__	Soft

Subjective Restorative Experience Assessment #2
(Garden Experience Survey)

Please rate the following statements in relation to the garden, by circling the numbers (0 = does not apply, 10 = applies completely).

1. *The garden provides a restful feeling of being in a special place.*

0 1 2 3 4 5 6 7 8 9 10

2. *The garden allows for relaxation.*

0 1 2 3 4 5 6 7 8 9 10

3. *The garden is serene, peaceful, or silent.*

0 1 2 3 4 5 6 7 8 9 10

4. *The garden is free from disturbances.*

0 1 2 3 4 5 6 7 8 9 10

5. *The garden is rich in plant species.*

0 1 2 3 4 5 6 7 8 9 10

6. *The garden's layout and organization is clear and understandable to me.*

0 1 2 3 4 5 6 7 8 9 10

7. *The garden feels like a safe place.*

0 1 2 3 4 5 6 7 8 9 10

8. *People of all ages and abilities can use the garden.*

0 1 2 3 4 5 6 7 8 9 10

9. *I feel like I have influence here at the garden.*

0 1 2 3 4 5 6 7 8 9 10

Appendix B: Semi-Structured Interview Questions

Semi-Structured Interview Questions

1. Why did you decide to participate in this garden?

2. Did you enjoy going outside in your home country?

   a. What activities did you like to do outside?

3. Did you grow plants in your home country?

   a. Where/how did you grow them?

4. What do you think about this garden?

5. Have you gained anything from your experiences in the garden?

   a. If so, what? What is it about the garden that makes you feel this way?

6. Have you talked to or worked with the other gardeners?

   a. How often?

   b. What was it like? Positive or negative?

7. How do you feel after spending time in the garden, compared to before spending time in the garden?

8. What do you particularly like about the garden? Why?

9. What do you particularly dislike about the garden? Why?

10. How do you feel about the amount of sun and shade in the garden? Are you comfortable?

11. What would make the garden be a more comfortable place for you?

12. Considering all of your senses (touch, smell, sight, hearing), what is your overall sensory experience of the garden?

For example, sounds of the garden that stand out to you, how things feel when working or walking around?

13. How do you feel about the shape of the garden? Do you like it/not, and why or why not?

14. How often do you go to the garden?

15. Do you go to the garden as often as you like in one week?

If no, what could be added to the garden to motivate you to visit more?

16. How has your use of the garden changed over time?

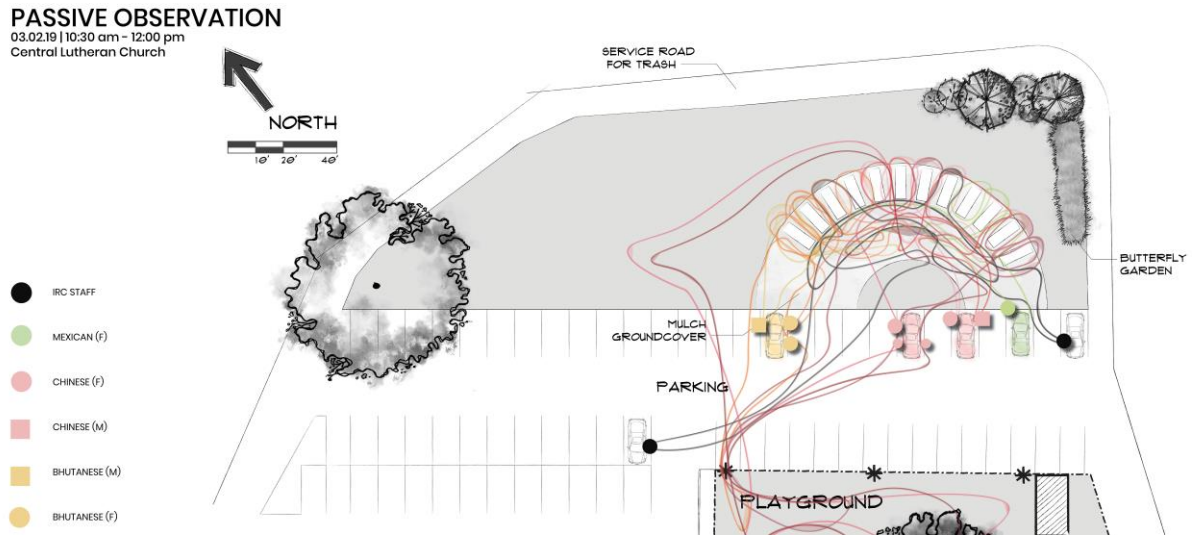
For example, did you visit the garden more in the beginning and visit less now, or less in the beginning and more now? And why?

17. What would you like to see in the garden in the future?

18. What are you planting in the garden?

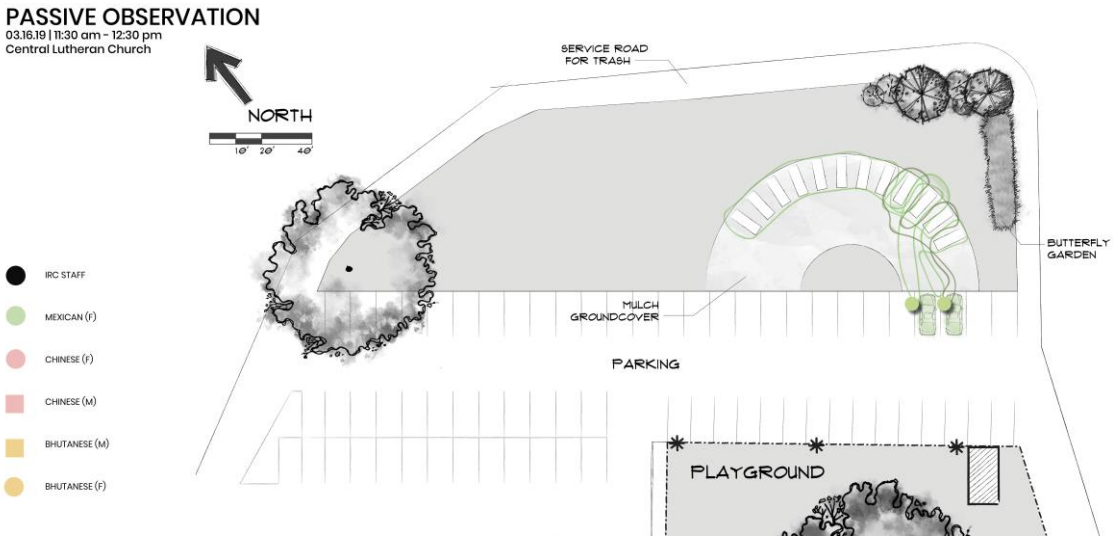
a. Why did you choose to plant this?

Appendix C: Behavior Mapping + Ethnograms

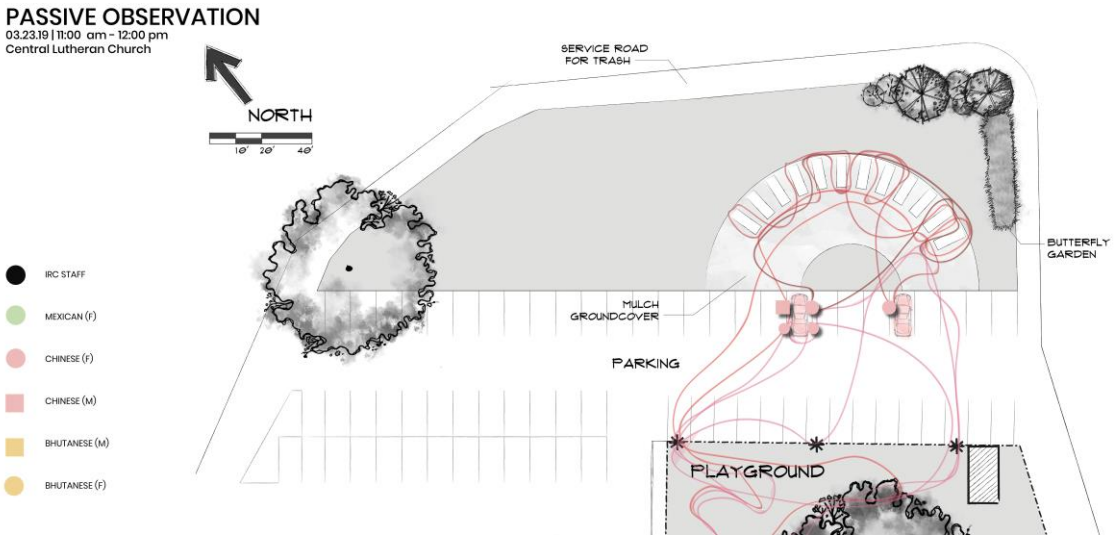


Behavior map showing movement of participants on the garden site.

USER	GENDER	ACTIVITY	LOCATION
Leala (IRC)	F	Greeting gardeners, passing out seeds.	Garden bed area, patch of grass in front.
Andrea (IRC)	F	Passed out breakfast, helped pass out seeds.	Garden bed area, patch of grass in front.
AG	F	Weeded her plot, walked around to look at others, collected seeds. Chatted.	Garden bed area.
LL	F	Walked around to look at all the plots, harvested veggies, collected seeds.	Garden bed area.
AC	M	Examined plants in his plot, collected seeds from Leala, chatted with other gardeners.	Garden bed area.
TC	F	Took kids to playground, collected seeds, harvested veggies, talked to Ana.	Playground area, garden bed area.
TC's kids (2)	F	Ran around and played. Sat on edge of Tina's garden beds.	Playground area, grass, garden bed area.
RP	M	Harvested mustard greens, collected seeds from Leala.	Garden bed area.
DK	F	Chatted with Leala, weeded plot.	Garden bed area.

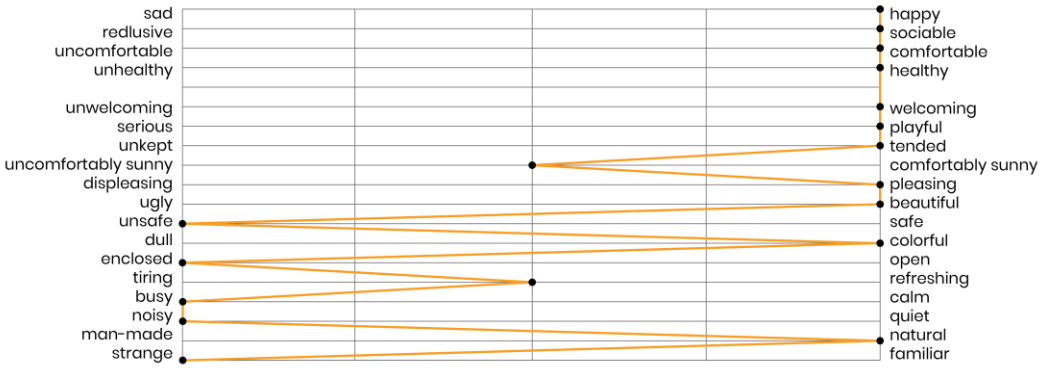


USER	GENDER	ACTIVITY	LOCATION
AG	F	Weeded her garden plot, walked around other plots in the garden. Harvested vegetables, chatted with Anabelle. Sat down on edge of raised bed planter.	Garden bed area.
AB	F	Helped Ana weed garden, chatted. Frequently shielded eyes from sun.	Garden bed area.

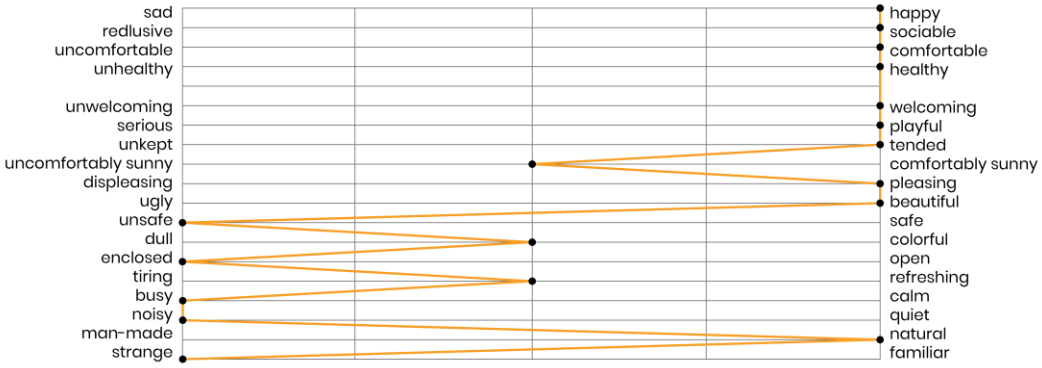


USER	GENDER	ACTIVITY	LOCATION
TC	F	Went to talk to Linda, looked at other garden beds, weeded her garden beds and harvested veggies. Sat on edge of planting bed to rest.	Garden bed area.
TC's husband	M	Walked around looking at other garden beds, helped Tina weed and harvest.	Garden bed area.
TC's kids (2)	F	Played in playground, helped Tina with harvesting, ran around and returned to playground.	Playground.
LL	F	Went to work on her garden bed and walked around to look at other garden beds, went to Tina's garden bed to chat, sat on edge of planting bed.	Garden bed area.

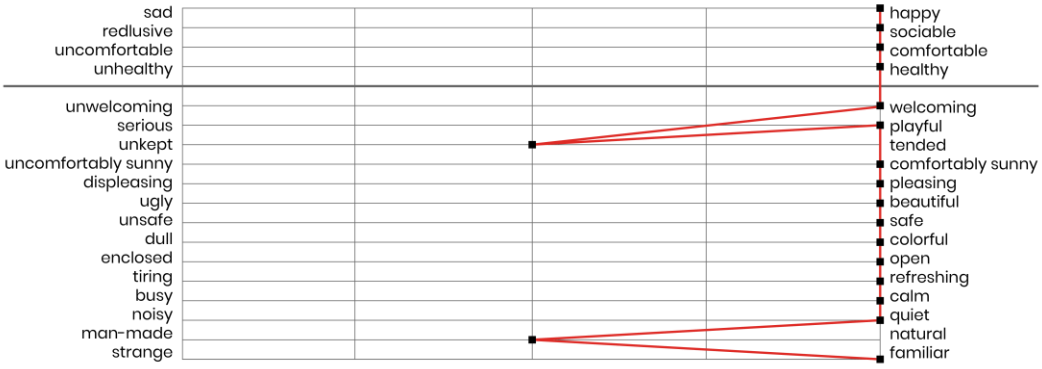
Appendix D: Individual Semantic Differential Ratings



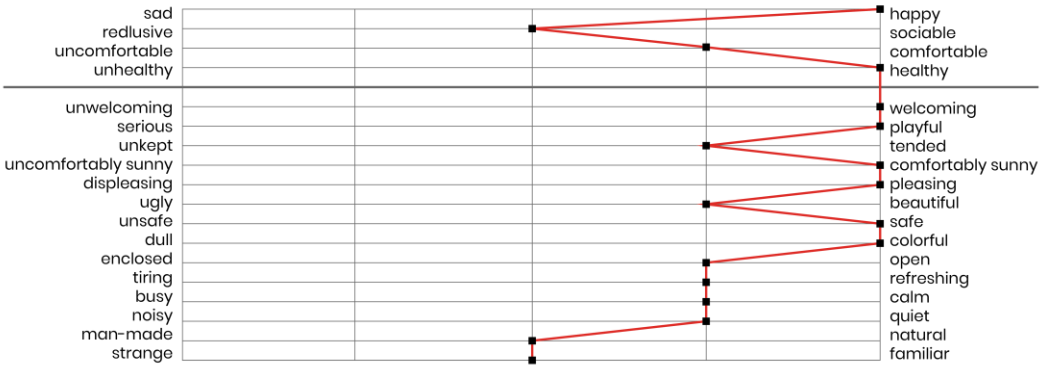
Semantic Differential results from one of the Bhutanese gardeners.



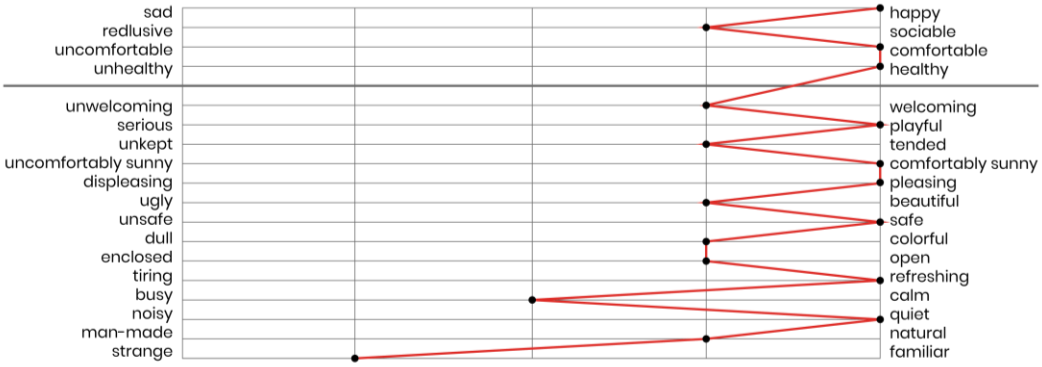
Semantic Differential results from one of the Bhutanese gardeners.



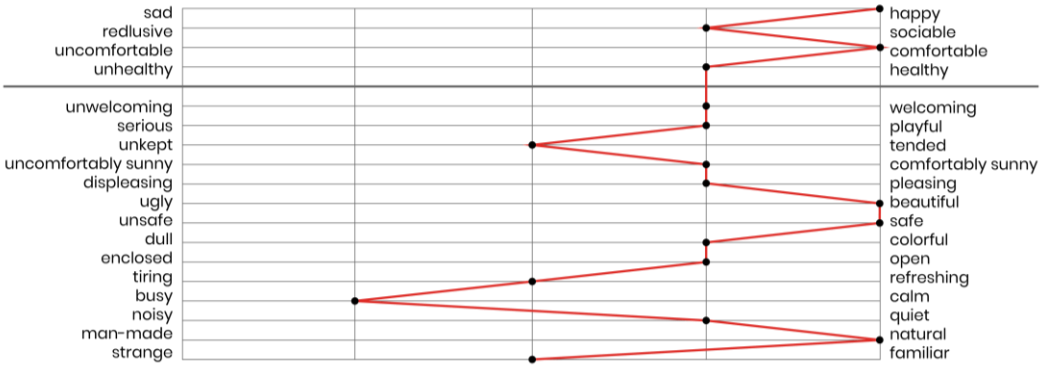
Semantic Differential results from one of the Chinese gardeners.



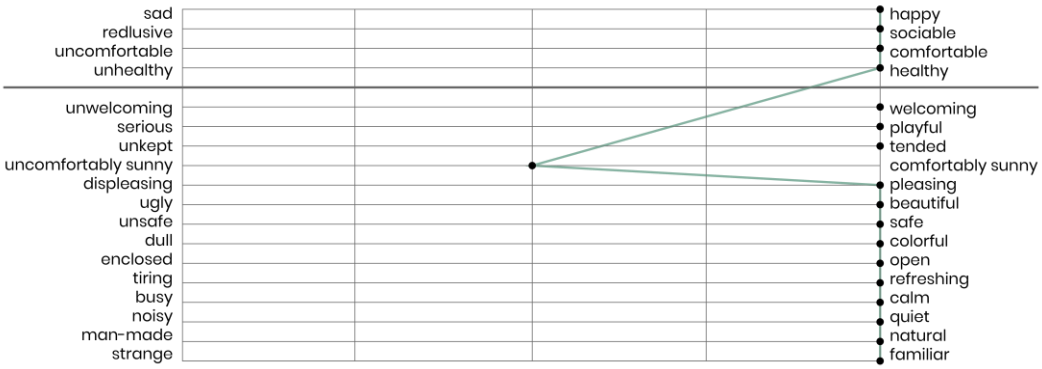
Semantic Differential results from one of the Chinese gardeners.



Semantic Differential results from one of the Chinese gardeners.



Semantic Differential results from one of the Chinese gardeners.



Semantic Differential results from one of the Mexican gardeners.

Appendix E: Design Patterns that Support Restorative Environments

Design patterns that address therapeutic goals, adapted by Tyson (2007) from Christopher Alexander's A Pattern Language (1977).

Pattern 106

Positive Outdoor Space**

"Make all the outdoor spaces which surround and lie between your buildings positive. Give each one some degree of enclosure; surround each space with wings of buildings, trees, hedges, fences, arcades, and trellised walks, until it becomes an entity with a positive quality and does not spill out indefinitely around corners." *Alexander et al., 1977, p. 522*

A sense of enclosure.

DESIGN OBJECTIVES

Person: Individual's Needs
Provide for safety and security.
Allow for heightened sensory awareness.

Place: Physical Environment
Create comfortable microclimate.
Provide interesting walking paths.

Interaction: Behavior
Maximize spatial orientation.
Encourage social and environmental interaction.

Pattern 114

Hierarchy of Open Space

"Whatever space you are shaping—whether it is a garden, terrace, street, park, public outdoor room, or courtyard—make sure of two things. First, make at least one smaller space, which looks into it and forms a natural back for it. Second, place it, and its openings, so that it looks into at least one larger space. When you have done this, every outdoor space will have a natural "back," and every person who takes up the natural position, with his back to this "back," will be looking out toward some larger distant view." *Alexander et al., 1977, p. 559*

A place to sit and think.

DESIGN OBJECTIVES

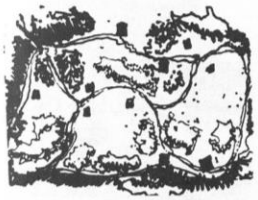
Person: Individual's Needs
Provide for safety and security.
Allow for privacy.

Interaction: Behavior
Maximize spatial orientation.
Provide a variety of seating choices.

Pattern 120

Paths and Goals*

"To lay out the paths, first place goals at natural points of interest. Then connect the goals to one another to form the paths. The paths may be straight, or gently curving between the goals; their paving should swell around the goal. The goals should never be more than a few hundred feet apart." *Alexander et al., 1977, p. 587*



Events along the way.

DESIGN OBJECTIVES

Person: Individual's Needs
Provide for safety and security.
Promote independence.

Place: Physical Environment
Provide interesting walking paths.

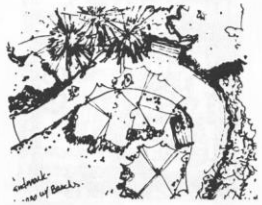
Interaction: Behavior
Create interactive environment.
Consider a range of abilities.
Maximize spatial orientation.

Pattern 121

Path Shape*

"Make a bulge in the middle of a public path, and make the ends narrower, so that the path forms an enclosure which is a place to stay, not just a place to pass through."

Alexander et al., 1977, p. 591



A place to stop and rest.

DESIGN OBJECTIVES

Person: Individual's Needs
Promote independence.
Allow for privacy.

Place: Physical Environment
Provide interesting walking paths.

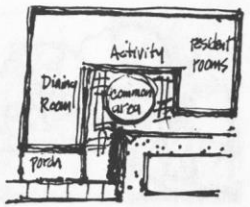
Interaction: Behavior
Create interactive environment.
Maximize spatial orientation.
Provide a variety of seating choices.

Pattern 129

Common Areas at the Heart**

"Create a single common area for every social group. Locate it at the center of gravity of all the spaces the group occupies, and in such a way that the paths which go in and out of the building lie tangent to it."

Alexander et al., 1977, p. 621



A centrally located patio.

DESIGN OBJECTIVES

Person: Individual's Needs
Provide for safety and security.
Promote independence.

Place: Physical Environment
Create residential character.
Provide interesting walking paths.

Interaction: Behavior
Create interactive environment.
Maximize spatial orientation.

Pattern 124

Activity Pockets**

"Surround public gathering places with pockets of activity—small, partly enclosed areas at the edges, which jut forward into the open space between the paths, and contain activities which make it natural for people to pause and get involved."

Alexander et al., 1977, p. 607

An invitation to come inside.

DESIGN OBJECTIVES

Person: Individual's Needs
Promote independence.

Place: Physical Environment
Provide interesting walking paths.

Interaction: Behavior
Create interactive environment.
Provide a variety of seating choices.

Pattern 142

Sequence of Sitting Spaces*

"Put in a sequence of sitting spaces throughout the building, varying according to their degree of enclosure. Enclose the most formal ones entirely, in rooms by themselves; put the least formal ones in corners of the rooms, without any kind of screen around them; and place the intermediate ones with a partial enclosure round them to keep them connected to some larger space, but also partly separate."

Alexander et al., 1977, p. 674

A pathway alcove.

DESIGN OBJECTIVES

Person: Individual's Needs
Allow for privacy.

Place: Physical Environment
Create residential character.
Provide interesting walking paths.

Interaction: Behavior
Create interactive environment.
Maximize spatial orientation.
Provide a variety of seating choices.

Pattern 161

Sunny Place**

"Inside a south-facing court, or garden, or yard, find the spot between the building and outdoors which gets the best sun. Develop this spot as a special sunny place—make it the important outdoor room, a place to work in the sun, or a place for a swing and some special plants, a place to sunbathe. Be very careful indeed to place the sunny place in a position where it is sheltered from the wind. A steady wind will prevent you from using the most beautiful place." *Alexander et al., 1977, p. 759*

Enjoying the sunshine.

DESIGN OBJECTIVES

Person: Individual's Needs
Promote independence.
Allow for heightened sensory awareness.

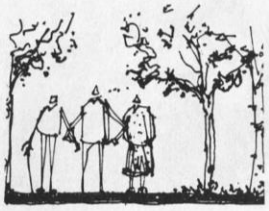
Place: Physical Environment
Create residential character.

Interaction: Behavior
Create interactive environment.
Consider a range of abilities.
Continue familiar tasks.

Pattern 171

Tree Places**

"If you are planting trees, plant them according to their nature, to form enclosures, avenues, squares, groves, and single spreading trees toward the middle of open spaces. And shape the nearby buildings in response to trees, so that the tree themselves, and the trees and buildings together, form places which people can use." *Alexander et al., 1977, p. 800*



Shady walking.

DESIGN OBJECTIVES

Person: Individual's Needs
Allow for heightened sensory awareness.

Interaction: Behavior
Create interactive environment.
Maximize spatial orientation.

Pattern 173

Garden Wall*

"Form some kind of enclosure to protect the interior of a quiet garden from the sights and sounds of passing traffic. If it is a large garden or a park, the enclosure can be soft, can include bushes, trees, slopes, and so on. The smaller the garden, however, the harder and more definite the enclosure must become. In a very small garden, form the enclosure with buildings or walls; even hedges and fences will not be enough to keep out sound."

Alexander et al., 1977, p. 807

A sense of arrival.

DESIGN OBJECTIVES

Person: Individual's Needs
Provide for safety and security.
Allow for privacy.

Place: Physical Environment
Create comfortable microclimate.
Create residential character.

Interaction: Behavior
Create interactive environment.
Provide a variety of seating choices.

Pattern 176

Garden Seat

"Make a quiet place in the garden—a private enclosure with a comfortable seat, thick planting, sun. Pick the place for the seat very carefully; pick the place that will give you the most intense kind of solitude."

Alexander et al., 1977, p. 817

A quiet resting place.

DESIGN OBJECTIVES

Person: Individual's Needs
Allow for heightened sensory awareness.
Allow for privacy.

Place: Physical Environment
Create comfortable microclimate.
Create residential character.

Interaction: Behavior
Create interactive environment.
Maximize spatial orientation.
Provide a variety of seating choices.

Pattern 179

Alcoves**

"Make small places at the edge of any common room, usually no more than 6 feet wide and 3 to 6 feet deep and possibly much smaller. These alcoves should be large enough for two people to sit, chat, or play and sometimes large enough to contain a desk or a table."

Alexander et al., 1977, p. 832

A place to visit.

DESIGN OBJECTIVES

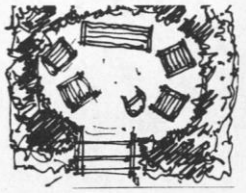
Person: Individual's Needs
Promote independence.
Allow for privacy.

Place: Physical Environment
Create residential character.
Create interesting paths.

Interaction: Behavior
Consider a range of abilities.
Maximize spatial orientation.
Provide a variety of seating choices.

Pattern 185
Sitting Circles*

"Place each sitting space in a position which is protected, not cut by paths or movement, roughly circular, made so that the room itself helps to suggest the circle—not too strongly—with paths and activities around it, so that people naturally gravitate towards the chairs when they get in the mood to sit. Place the chairs and cushions loosely in the circle, and have a few too many." *Alexander et al., 1977, p. 859*



Group discussions.

DESIGN OBJECTIVES

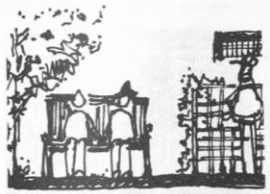
Person: Individual's Needs
Allow for privacy.
Encourage personalization.

Place: Physical Environment
Integrate indoor and outdoor spaces.
Create comfortable microclimate.
Create residential character.

Interaction: Behavior
Create interactive environment.
Provide a variety of seating choices.

Pattern 241
Seat Spots**

"Choosing good spots for outdoor seats is far more important than building fancy benches. Indeed, if the spot is right, the most simple kind of seat is perfect. In cool climates, choose them to face the sun, and to be protected from the wind; in hot climates, put them in shade and open to summer breezes. In both cases, place them to face activities."
Alexander et al., 1977, p. 1120



A sunny sitting place.

DESIGN OBJECTIVES

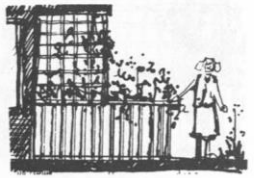
Person: Individual's Needs
Promote independence.
Allow for heightened sensory awareness.

Place: Physical Environment
Create interesting paths.

Interaction: Behavior
Consider a range of abilities.
Maximize spatial orientation.
Provide a variety of seating choices.

Pattern 245
Raise Flowers*

"Soften the edges of buildings, paths and outdoor areas with flowers. Raise the flower beds so that people can touch the flowers, bend to touch them, and sit by them. And build the flower beds with solid edges, so that people can sit on them, among the flowers too."
Alexander et al., 1977, p. 1134



Growing flowers.

DESIGN OBJECTIVES

Person: Individual's Needs
Allow for heightened sensory awareness.
Ensure personal privacy.

Place: Physical Environment
Create familiar character.

Interaction: Behavior
Create interactive environment

References

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). *A pattern language: Towns, buildings, construction*. New York: Oxford University Press.

August, Lynn R., and Barbara Gianola A. "Symptoms of War Trauma Induced Psychiatric Disorders: Southeast Asian Refugees and Vietnam Veterans." *International Migration Review* 21.3 (1987): 820. Web. 8 Oct. 2016.

Bang, Megan. "A Case Study: Learning Gardens in an Urban Indigenous Community: Expanding the Scope of Learning." *Sowing Seeds in the City* (2016): 257-68. Web. 7 Aug. 2018.

Bignante, Elisa. “The use of photo-elicitation in field research.” *EchoGeo*, 2010.

Chan, Kwok B., and David Loveridge. "Refugees 'in Transit': Vietnamese in a Refugee Camp in Hong Kong." *International Migration Review* 21.3 (1987): 745. Web. 6 Sept. 2016.

"Chapter One. Introduction: Palestinian Refugees." *Landscape of Hope and Despair Palestinian Refugee Camps* (n.d.): 1-33. *JSTOR*. Web.

Chiang, C. Y. "Imprisoned Nature: Toward an Environmental History of the World War II Japanese American Incarceration." *Environmental History* 15.2 (2010): 236-67. *JSTOR [JSTOR]*. Web. 6 Sept. 2016.

Cooper Marcus, Clare and Carolyn Francis (1998). "Post-Occupancy Evaluation." Chapter 8 in *People Places: Design Guidelines for Urban Open Space*. 2nd ed., New York: John Wiley & Sons, Inc.

Crisp, J. "A State Of Insecurity: The Political Economy Of Violence In Kenya's Refugee Camps." *African Affairs* 99.397 (2000): 601-32. *JSTOR [JSTOR]*. Web. 6 Sept. 2016.

Doughty, Karolina. "Walking Together: The Embodied and Mobile Production of a Therapeutic Landscape." *Health & Place* 24 (2013): 140-46. *JSTOR [JSTOR]*. Web. 20 September 2016.

Everstine, Diana Sullivan, and Louis Everstine, *The Trauma Response: Treatment for Emotional Injury*, New York: Norton, 1993. Print.

Francis, M., and L. Griffith. "The Meaning and Design of Farmers' Markets as Public Space: An Issue-Based Case Study." *Landscape Journal* 30.2 (2011): 261-79. Web. 31 July 2018.

Gonçalves, Miguel M., Marlene Matos, and Anita Santos. "Narrative Therapy and the Nature Of “Innovative Moments” in the Construction of Change."

Journal of Constructivist Psychology 22.1 (2009): 1-23. *JSTOR [JSTOR]*. Web. 15 Sept. 2016.

Griffin, M. (2017). *Reconstructing Identity With Urban Community Agriculture: How Refugees Confront Displacement, Food Insecurity, and Othering Through Community Farming*(Unpublished master's thesis). University of North Texas.

Hancock, Elaina. "A New Approach to Social Resilience through Landscape Architecture." *Phys.org*, 10 May 2018, phys.org/news/2018-05-approach-social-resilience-landscape-architecture.html. Web. 15 Jun. 2018.

Harper Douglas. "Talking about Pictures: a Case for Photo Elicitation." *Visual Studies*, vol. 17, no. 1, 2002, pp. 13–26.

Helphand, Kenneth I. "Defiant Gardens: Making Gardens in Wartime." 2006.

Hirschfeld Davis, Julie. "Trump to Cap Refugees Allowed Into U.S. at 30,000, a Record Low." *The New York Times*, 17 Sept. 2018.

Hopman, David. *Critical Regionalism*. University of Texas at Arlington, 18 Aug. 2015 (Unpublished manuscript).

Hou, Jeffrey. "Co-Generating: Design Buffet" *Design as Democracy: Techniques for Collective Creativity*, by David De la Peña et al., Island Press, 2017, pp. 178-181.

Hume, Susan E., and Susan Hardwick W. "African, Russian, And Ukrainian Refugee Resettlement In Portland, Oregon." *Geographical Review* 95.2 (2005): 189-209. *JSTOR [JSTOR]*. Web. 9 Sept. 2016.

Hyndman, Jennifer. "The Geopolitics of Migration and Mobility." *Geopolitics* 17.2 (2012): 243-55. *JSTOR [JSTOR]*. Web. 4 Sept. 2017.

International Rescue Committee. (2018, December 11). Migrants, asylum seekers, refugees and immigrants: What's the difference? Retrieved from https://www.rescue.org/article/migrants-asylum-seekers-refugees-and-immigrants-whats-difference. Web. 1 Apr. 2019.

Jiang, Shan. "Therapeutic Landscapes and Healing Gardens: A Review of Chinese Literature in Relation to the Studies in Western Countries." *Frontiers of Architectural Research* 3.2 (2014): 141-53. *JSTOR [JSTOR]*. Web. 20 Sept. 2016.

Kaiser, Tania. "Between a Camp and a Hard Place: Rights, Livelihood and Experiences of the Local Settlement System for Long-term Refugees in Uganda." *The Journal of Modern African Studies* 44.04 (2006): 597. Web. 10 Oct. 2016.

Khattak, Saba Gul. "Living on the Edges: Afghan Women and Refugee Camp Management in Pakistan." *Signs: Journal of Women in Culture and Society* 32.3 (2007): 575-80. *JSTOR [JSTOR]*. Web. 10 Oct. 2016.

Kruigt, Robert. “Rightful Landscape: A Response to an Unexpectedly Long Stay in the Zaatari Camp.” *Wageningen University*, 2014.

Lavrakas, Paul J. “Semantic Differential Technique.” *Encyclopedia of Survey Research Methods*, Sage Publications, 2008.

Lemon Tree Trust, lemontreetrust.org/.

Lien, ChenYu. “Co-Generating: Green Rubber Stamp” *Design as Democracy: Techniques for Collective Creativity*, by David De la Peña et al., Island Press, 2017, pp. 173–177.

Llorens-Monteserin, Nicole, and Howard Rosing. "A Case Study: Growing Community through Gardens in Chicago’s Southwest Side." *Sowing Seeds in the City* (2016): 269-77. Web. 25 July 2018.

Malkki, L. H. "Refugees and Exile: From 'Refugee Studies' to the National Order of Things." *Annual Review of Anthropology* 24.1 (1995): 493-523. *JSTOR [JSTOR]*. Web. 5 July 2018.

Marcheso Moreno, E. 1989. The Many Uses of Postoccupancy Evaluation. *Architecture*, April, pp. 119-121.

McBrien, Jody L. “Refugees, Asylum Seekers, and Other Immigrants: Help for Teachers with Problematic Definitions.” *Social Studies Research and Practice*, vol. 12, no. 2, 2017, pp. 113–124., doi:https://doi.org/10.1108/SSRP-03-2017-0001.

Melcher, K. "Equity, Empowerment, or Participation: Prioritizing Goals in Community Design." *Landscape Journal* 32.2 (2013): 167-82. Web.

Milburn, L.-A. S., and B. Vail A. "Sowing the Seeds of Success: Cultivating a Future for Community Gardens." *Landscape Journal* 29.1 (2010): 71-89. Web. 10 Oct. 2016.

Milton, Martin. "Coming Home to Roost: Counselling Psychology and the Natural World." *Counselling Psychology Contributions to Therapeutic and Social Issues Therapy and Beyond* (2010): 293-308. *JSTOR [JSTOR]*. Web. 20 Sept. 2016.

Minter, S. (2005). *The healing garden: A practical guide for physical & emotional well-being*. London: Eden Projects Books.

Montgomery, M. A., Jackson, C. T., & Kelvin, E. A. (2014). Premigration harm and depression: Findings from the New Immigrant Survey, 2003. Journal of Immigrant and Minority Health, 16(5), 773-780. doi:10.1007/s10903-013-9810. Web. 7 July 2018.

Murray, Kate E., et al. “Review of Refugee Mental Health Interventions Following Resettlement: Best Practices and Recommendations.” *American Journal of Orthopsychiatry*, vol. 80, no. 4, 2010, pp. 576–585., doi:10.1111/j.1939-0025.2010.01062.x. Web. 12 September 2018.

Napawan, N. Claire. "Production Places: Evaluating Communally-Managed Urban Farms as Public Space." *Landscape Journal* 34.1 (2015): 37-56. Web. 5 July 2018.

Okvat, Heather A., and Alex Zautra J. "Sowing Seeds of Resilience: Community Gardening in a Post-Disaster Context." *Greening in the Red Zone* (2013): 73-90. *JSTOR [JSTOR]*. Web. 20 April 2018.

Peterman, Jerusha Nelson, et al. "Food Insecurity Among Cambodian Refugee Women Two Decades Post Resettlement." *Journal of Immigrant and Minority Health*, vol. 15, no. 2, 2012, pp. 372–380., doi:10.1007/s10903-012-9704-5.

Poulsen, D. V., U. Stigsdotter K., D. Djernis, and U. Sidenius. "'Everything Just Seems Much More Right in Nature: How Veterans with Post-traumatic Stress Disorder Experience Nature-based Activities in a Forest Therapy Garden." *Health Psychology Open* 3.1 (2016): n. pag. *JSTOR [JSTOR]*. Web. 20 Sept. 2016.

"Refugee Camps Are the "Cities of Tomorrow", Says Humanitarian-aid Expert." Interview by Ralia Radford. *Dezeen.com*. Talia Radford, 23 Nov. 2015. Web. 10 Oct. 2016.

Relf, P.D., 1999. The role of horticulture in human well-being and quality of life. J. Ther. Hortic. 10, 10–14.

Gurumurthy , Ravi, et al. “Refugee Resettlement: Perspectives from an IRC Caseworker.” *Displaced*, 5 Mar. 2019, www.rescue.org/displaced-season-2/refugee-resettlement-perspectives-irc-caseworker. Accessed 23 Mar. 2019.

Sampson, Robyn, and Sandra Gifford M. "Place-making, Settlement and Well-being: The Therapeutic Landscapes of Recently Arrived Youth with Refugee Backgrounds." *Health & Place* 16.1 (2010): 116-31. Web. 9 Sept. 2016.

Schuler, Timothy. “Far From Home.” *Landscape Architecture Magazine*, 6 Sept. 2018, pp. 22–24.

Schramm, Katharina. "Introduction: Landscapes of Violence: Memory and Sacred Space." *History and Memory* 23.1 (2011): 5-22. *JSTOR [JSTOR]*. Web.

Segal, Uma A., and Nazneen S. Mayadas. “Assessment of Issues Facing Immigrant and Refugee Families.” *Child Welfare League of America*, LXXXIV, no. 5, 2005, pp. 563–568.

Shannon, P. J., E. Wieling, J. Mccleary S., and E. Becher. "Exploring the Mental Health Effects of Political Trauma With Newly Arrived Refugees." *Qualitative Health Research* 25.4 (2014): 443-57. *JSTOR [JSTOR]*. Web. 20 April 2018.

Shannon, Patricia, Hyojin Im, Emily Becher, Jennifer Simmelink, Elizabeth Wieling, and Ann O'Fallon. "Screening for War Trauma, Torture, and Mental Health Symptoms Among Newly Arrived Refugees: A National Survey of U.S. Refugee Health Coordinators." *Journal of Immigrant & Refugee Studies* 10.4 (2012): 380-94. *JSTOR [JSTOR]*. Web. 20 April 2018.

Smith, David Woodruff, "Phenomenology", *The Stanford Encyclopedia of Philosophy* (Summer 2018 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2018/entries/phenomenology/>.

Smith JA and Osborne M (2008) Interpretative phenomenological analysis. In: Smith JA (ed.) *Qualitative Psychology: A Practical Guide to Research Methods*. London: SAGE, pp. 53–79.

Smith JA, Flowers P and Larkin M (2009) *Interpretative Phenomenological Analysis: Theory, Method and Research*. London: SAGE.

Sommer, R., & Sommer, B. B. (2002). *A practical guide to behavioral research: Tools and techniques*. New York: Oxford University Press.

Tamura, A. H. "Gardens Below the Watchtower: Gardens and Meaning in World War II Japanese American Incarceration Camps." *Landscape Journal* 23.1 (2004): 1-21. *JSTOR [JSTOR]*. Web. 5 July 2018.

Tidball, K. G. 2012. Urgent biophilia: human-nature interactions and biological attractions in disaster resilience. *Ecology and Society* **17**(2): 5. http://dx.doi.org/10.5751/ES-04596-170205

Tuan, Yi-Fu. (2001). *Space and Place: The Perspective of Experience*, (5th ed.). University of Minnesota Press. Web. 14 April 2019.

Tyson, M. M. (2007). *The healing landscape: Therapeutic outdoor environments*. Madison, WI: University of Wisconsin-Madison Libraries/Parallel Press.

United Nations. "Global Issues at the United Nations." *UN News Center*. United Nations, n.d. Web. 8 Oct. 2016. <http://www.un.org/en/globalissues/briefingpapers/refugees/>.

United Nations High Commissioner for Human Rights. "Convention and Protocol Relating to the Status of Refugees." 2010. Web. 18 Sept. 2018. <www.unhcr.org/protect/PROTECTION/3b66c2aa10.pdf>.

Velarde, Ma.d., G. Fry, and M. Tveit. "Health Effects of Viewing Landscapes – Landscape Types in Environmental Psychology." *Urban Forestry & Urban Greening* 6.4 (2007): 199-212. Web. 10 Sept. 2016.

Watters, Charles. "Well-Being of Asylum-Seeking and Refugee Children." *Handbook of Child Well-Being* (2014): 3143-158. *JSTOR [JSTOR]*. Web. 9 Sept. 2016.

Williams, Lewis, and Laura Hall. "Women, Migration and Well-being: Building Epistemological Resilience through Ontologies of Wholeness and Relationship." *Global Change, Peace & Security* 26.2 (2014): 211-21. *JSTOR [JSTOR]*. Web. 5 July 2018.

Williams-Forson, Psyche. "“I Haven't Eaten If I Don't Have My Soup and Fufu”: Cultural Preservation through Food and Foodways among Ghanaian Migrants in the United States." *Africa Today* 61.1, Special Issue: Narratives of the African Landscape: Perspectives on Sustainability (2014): 69-87. *JSTOR*. Web. 28 Sept. 2016.

Wilson, Edward O. (1984). *Biophilia*. Cambridge: Harvard University Press. ISBN 0-674-07442-4.

Winterbottom, D., & Wagenfeld, A. (2015). *Therapeutic gardens: Design for healing spaces*. Portland: Timber Press.

Winterbottom, Daniel M. "Developing a Safe, Nurturing and Therapeutic Environment for the Families of the Garbage Pickers in Guatemala and for Disabled Children in Bosnia and Herzegovina." *Greening in the Red Zone* (2013): 397-410. *JSTOR [JSTOR]*. Web. 5 July 2018.

Yu, Helen. “A Landscape Framework for Refugee Camps.” *Http://Worldlandscapearchitect.com*, 18 Oct. 2015,

worldlandscapearchitect.com/student-project-a-landscape-framework-for-refugee-camps-helen-yu/#.W7minadKiUm.

Zeisel, John. “Observing Environmental Behavior.” *Inquiry by Design*, W.W. Norton & Company, 2006, pp. 200–202.

Zimring, C.M., Reizenstein, J.E., 1980. Post occupancy evaluation. Environ. Behav. 12 (4), 429-450.