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Participatory Research with Children in Informal Settlements:

Understanding Child Perspective Through the Use of Drawing

Exercises in Los Platanitos, Dominican Republic

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Participatory Research with Children in Informal Settlements:

Understanding Child Perspective Through the Use of Drawing

Exercises in Los Platanitos, Dominican Republic

by

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Thesis

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Dedication

"What are you cooking? It smells horrible. Let me take some so that I may check it for poison. I'd better take two bowls to check it well and some bread too. You're very lucky you have me here to test it for you."

The Papas, Sleeping Bull

"Ok, who was it!? I mean really, who does something like that? No one is leaving this table until we all know who bit the butter and believe me, I have my suspicions."

The Mamas, Whispering Life

"Are you looking for something? Whatever it is, I have hidden it in a secret place that you will never find. I have hired goons, trained wild beasts, and ninjas with very impressive resumes to protect that secret place. I may not know what it is you are searching for, but you will never find it."

The Gubs, Animal Defender

"If the Olympic sized pool had platforms and vines hanging from the ceiling, your giant gorilla would still be no match for my giant squid. Sure, one gorilla punch might make my squid into salad, but you are forgetting something very important; the beak of a giant squid can bite through steel. You're gorilla is out gunned."

Nel Pastel, Brother's Keeper

These narratives will exist even after time has stopped; my light in the dark.

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Abstract

Participatory Research with Children in Informal Settlements: Understanding Child Perspective Through the Use of Drawing Exercises in Los Platanitos, Dominican Republic

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The University of Texas at Austin, 2011

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Inadequate solid waste management is a principal cause of risk and vulnerability in informal settlements in Latin America. Failure of municipalities to provide proper waste disposal and maintenance of public spaces can lead to flooding, cause public health problems, increase crime, and produce a sense of abandonment. Accumulation of garbage is particularly hazardous for children, since they engage more intimately with their environment through play and other activities. Planners can draw on participatory activities to document children's perspectives and activities, and in so doing, better integrate children and youth into the planning process. This paper presents the results of drawing exercises conducted with children in Los Platanitos, Dominican Republic, and

discusses the implications of these methods for more participatory planning approaches in informal settlements.

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Introduction

"A child who does not play is not a child, but the man who doesn't play has lost forever the child who lived in him and who he will miss terribly" – Pablo Neruda

I.   In the Beginning

In 2010, I was one of a group of University of Texas at Austin (UT) students from the Program in Community Regional Planning, Department of Geography and the Institute of Latin American Studies, who conducted a study of waste management in the informal settlement of Los Platanitos, Santo Domingo Norte, Dominican Republic. The purpose of the study was to document the social, environmental and health consequences of solid waste accumulations in the community, and to design a participatory/sustainable solid waste management plan (Sletto ed. 2010).

Inadequate solid waste management is a principal cause of environmental and social risk and vulnerability in informal settlements in Latin America, including in Los Platanitos. Failure of municipalities to provide proper waste disposal and maintenance of public spaces can lead to flooding, cause many public health problems, place children at risk, increase crime, and produce a sense of abandonment among those living amidst growing mounds of garbage. In Los Platanitos, residents suffer from massive accumulations of garbage caused in part by inadequate municipal trash management, which in turn is causing severe contamination and flooding problems.

Municipalities throughout Latin America are looking into creative partnerships with the private sector, non-profit organizations, and residents to develop "community-based" solid waste management programs. However, for such community-based solutions to be effective, they must be grounded in local, social and environmental

realities. Additionally, they must integrate community-based educational programs that are based in local knowledge while furthering the consciousness of residents about solid waste management.

As I worked with my fellow students to conduct focus groups with men, women, and children in order to better understand what their community was facing and needing, I realized that children's perspectives were not sufficiently considered in our research design. As the focus groups continued, I grew increasingly interested in understanding role of children within this study and urban planning. It seemed to me that the perspectives held by these children could not only aid in this study, but had the ability to provide creative child and youth participatory approaches.

It was during the first days of the focus groups where the drawing exercises first started to take form, and where my research methodology for my thesis began to develop. Many adults brought their children to the focus groups and curious children who happened to be around the area would also join us. The room that was being used for the meetings was relatively small and the children alone were enough to fill it. Even before the meetings started, adult conversations, music, and children's laughter filled the rooms to the point were it impeded the workshop from starting. To help the workshops get started, I decided to take the children outside and engage them in drawing activities.

There were 12 children present the very first time I did this. Without having any model or methodology to follow at the time, I merely attempted to entertain them long enough so that the other team members could carry out their workshops. I first began by giving them each a piece of paper and asking them to draw me their favorite things. Their drawings ranged from Sponge Bob to flowers, kites, schools, fruits, animals, and

people. Within the span of an hour, the number of children doubled and all of a sudden I was being handed drawing after drawing. Once the workshops had broken for lunch, I decided to hang up the drawings on the walls inside of the room where the workshops were taking place. It was then that I started to notice that some children had drawn dark lines representing dirty water, sad faces of people, and maps of their community. At this point, they weren't simply making drawings: these children were telling me stories and it was at this moment that I recognized children's narratives as a strong voice from the community.

During another early round of children's drawings, I noticed a boy was not drawing, and I asked him if there was anything wrong. He replied, "No, I just don't feel like drawing today." I asked him if he knew how to make paper boats and he shook his head. So I proceeded to show him how to make them. His face lit up once it was finished and he took the paper boat to see if it could navigate well in water. I went to look for him to see where he planned to sail it and found him a few moments later, crouched over the *cañada*[1] along with other children, who were making toy fishing rods. Before I could do anything, the boy had placed the boat in the *cañada* and began to follow it as it drifted downstream. He kept saying to the boat as he walked away from me, "You don't belong here. This isn't a good place for you. Go on, you can make it out of here! Sail away from here."

Meanwhile, the other boys were already throwing their lines into the *cañada*. I watched them "fish" for a while, then curiosity gripped me once again and I asked them what they were fishing for. One of the boys replied, "We're fishing for treasure! "When I

looked down into the *cañada*, all I could see was solid waste particles and plastic flowing by in the murky, bubbling black water.

At this point I sat down and let my thoughts wander around these events for a while, and then it hit me. To the children, more than just garbage is sunken in the creek. They also see shimmers of hope within these murky waters. It was then that I decided to conduct this study: I needed to see and understand what they saw. I needed to understand how children in Los Platanitos interacted with and perceived their environment and how their lives are influenced by the physical realities, including the accumulations of garbage that surround them. As a result of my observations, my goal is to argue that such a deep understanding of children's engagements with and perceptions of their environment can, and should, inform planning practice and environmental education in informal settlements such as Los Platanitos.

III.   *Children's Perspectives in Planning and Drawing*

Many planners use participatory strategies to engage citizens in planning processes, including strategies to improve or develop public places. In informal settlements such as Los Platanitos, where environmental hazards pose great public health risks, such participatory approaches have a potential to greatly assist planners to remedy such risks, especially the risks facing the most vulnerable citizens, including children.

However, such participatory planning approaches must build on a thorough understanding of how children are being affected by their environment. Children possess a unique perspective and outlook regarding their environment, in part because they are

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[1] The term "*cañada*" is a Dominican term for "creek" and will be further explained in Chapter 3

often experiencing things in their environment for the very first time. Because of this, their experience is less biased or more pure than the experience of adults. By documenting children's experience and perspective, planners can develop a more extensive understanding of how children are being affected by their environment.

Many planners have benefited from youth participatory approaches because it not only involves youth in planning initiatives, but sheds light on how youth are experiencing the city. But it is perhaps even more challenging to involve younger children who have a different relationship with their environment: the older the youth are, the more cognizant of their environment they are. Younger children do not offer the level of engagement that older youth may have, but they do offer a more organic form of experience. One of the best ways to better understand children's interaction and their perspective regarding their environment is to develop creative and aesthetic exercises, including drawing exercises. Drawing exercises, which will be further discussed in Chapter 2, can provide planners with a visual representation of how children recognize their environment.

I first began my research in Santo Domingo by working with residents, non-profit organizations, and municipal leaders to (1) document the consequences for children of the lack of solid waste management in the community, (2) record how children interact with their environment, and (3) then begin the design of a children's drawing exercise. I then conducted a series of interviews with parents, youth, and teachers to further understand local knowledge regarding solid waste and public space in the community, as well as residents' perspectives on these issues. Once the design for the drawing exercises was ready, I spent 2 months with children from Los Platanitos to capture their perspective and consciousness regarding their environment. The last step during the research was to

organize observational notes, interviews, and findings. In addition, I used GIS (Geographic Information Systems) to map out the community and drawing locations. These mapping points contained the areas in which children gathered, played, and route to school.

The research questions for this study were as follows:

1. How do children in Los Platanitos perceive and interact with garbage in their immediate environment?

2. What are children taught and exposed to in schools in regards to their environment and what perspectives/expectations do teachers have?

3. How do parents educate their children regarding their contaminated environment and what do parents know about their immediate environment?

4. How can drawing exercises help city planners understand children's perspectives and knowledge regarding their environment?

5. What can planners learn from creative approaches/strategies like drawing exercises?

In Chapter 1, I discuss the importance of understanding and incorporating children's perspectives in public space planning. I review current planning theories, practices, and case studies regarding the integration of children and youth in participatory

planning. In Chapter 2, I discuss the role of symbolism and iconography in participatory approaches to planning involving youth. This includes exploring how researchers, authors, and professionals understand and interpret symbolism within art. In Chapter 3, I further elaborate on the history of Los Platanitos as well as the daily life and activities of the children from the community. This includes understanding how they perceive public space, how they are at risk, and how they are protected. In Chapter 4, I present the methods I developed in preparation for conducting and analyzing the drawing exercises with children. These methods include the use of symbology and the categorization of themes that emerged through these exercises. Finally, in the conclusion I further discuss the importance of children's knowledge and children's perspectives for public space planning in informal settlements such as Los Platanitos.

Chapter 1: Children and Youth Participation in Urban Planning

"True stability results when presumed order and presumed disorder are balanced. A truly stable system expects the unexpected, is prepared to be disrupted, waits to be transformed" – Tom Robbins

I. Introduction

Participatory action plays a pivotal role in civic engagement and is a crucial tool for city planners. Participatory action enables planners to extend the barriers of understanding in order to include local knowledge, perspective, and civic engagement for the purpose of avoiding linear planning. As studies regarding participatory action continue, more of these types of programs are sought out. These types of studies are in distinction to top-down, one-size-fits-all technology–transfer models (Ison & Russell, 1999). Similarly, linear planning functions in the same manner as the top-down models in that it does not extend to reach or support everyone; particularly youth (Frank, 2006). As planners, we cannot assume that adult-oriented style of planning will automatically serve youth (Frank, 2006; Terrible, 2000; Talen and Coffindaffer, 1999). It is understandable that not every plan or program will be able to reach everyone, but rather than planning for everyone, it is more effective if everyone participated in planning. By engaging community members, governmental entities, officials, children and youth; planners are able to better understand local knowledge. Of particular importance to this study, participatory models include the important role of children and youth.

In this chapter, I will review the literature regarding child and youth perspectives on the urban environment, and discuss how important it is to consider these perspectives in public space planning. It is important to understand not only the relationship children

and youth have with their environment, but also how they are impacted differently than adults by environmental hazards. While adults already have the experience and means of dealing with negative environmental impacts, children do not. This means that adults are disconnected from the "organic youth experience." I refer to the organic youth experience as the way in which children and youth first perceive and the deal with such environmental impacts.

II. Children's Urban and Environmental Perspectives

The role of a city planner includes developing plans that will improve the quality of life for its citizens. The quality of life of a city requires policies that are focused on the safety and well being of residents, and planners need to develop flexible, long term plans that can anticipate constant, new challenges. In particular, planners should create long term flexible plans for the future of children--but this is difficult to do, especially since adults experience the world differently than children. In particular, children experience the environment in a much more intimate way than adults, and are often unaware of possible environmental dangers (dangerous hazardous, physical, and ecological spaces for example) that may pose serious health risks.   For example, if an adult passed by a sand box, they might perhaps think about the bacteria present within, or what animals have also played in it. A child would probably see it as a space of play, or let their imagination take over when they begin to create something out of the sand. Adults at one point have experienced this type of play space, yet, over time their youthful perspective on space begins to change, or it is forgotten.

For more than 40 years, research regarding the relationship between children and the built environment have centered on children's uses of their environment. These studies indicate that the difference between adults and children derives from their activities. "In general, the thrust of all these studies has been on the children's perception of the built environment, as it is reflected in maps, drawings or other graphic representations" (Golombek 20; Andrews, 1973; Maurer and Baxter, 1972; Van Vliet, 1983; Hart, 1979; Kritchevsky, 1969). Golombek (1993) indicates that Jean Piaget's (1952) theory of cognitive development based on his research of children's perceptions and interpretations of their built environment has been very influential in urban studies.

> According to Piagetian theory, intelligence evolves in a succession of stages and so does the child's relationship with the world around him or her. Younger children tend to be more self-centered, and are also under greater adult control. Their graphic representations and their perceptions in general tend to be more incomplete, lack detail and include the elements with which the child is familiar on an everyday basis (for example, home, school and the street that connects both) (Golombek 1993: 20).

City parks provide a useful example of this differentiation between child and adult. Parks are constructed and landscaped for the safety of the general public, specifically for children. Adults perceive of this space as a fixed and controlled environment and recognize it as a safe place for children. Parks contain paths for joggers to take, play areas such as swings and slides, and they open spaces for visibility. However, although parks may be areas deemed by adults to be safe, children do not always choose these safe areas to play in. "The places where children choose to play are those vibrant, challenging and enticing places that meet their need and desire for fulfilling play opportunities. Beaches, urban streets, back alleys, woods, cemeteries, churchyards, doorsteps, construction sites and quarries all offer something that children often opt for

over what is officially provided for them" (Casey 1). For planners, a park may be a creative and innovative public space designed for safety, but to children, so are the streets, neighborhoods, and buildings.

Therefore as adults and planners, understanding children's point of view helps us better address their needs and safety, especially because children are more directly impacted by the environment. According to Satterthwaite et al., (1996) the dangers to children within the built environment include the physical, chemical, and biotic conditions which directly impact their health and development: "The influence of environmental factors on child health and development can be contrasted with influences arising from children's own human biology, 'lifestyle' (i.e. individual, household or societal decisions in regard to lifestyle) and the health care system" (7). In this regard the home environment is characterized by the quality of housing (including materials), water quality, electricity, climate, and living space.

For many populations, these resources are accessible, accommodated, and provided for, but for many under resourced populations this is not the case. In many cases, poverty and inequality shape the environment, and their influence can be traced from low economic activity to the inadequate development and access of natural resources. "Those with low incomes, few economic assets and the least political power are almost always those who suffer most from environmental problems because the lower the income, the poorer the quality of the housing that can be afforded and, in most instances, the more deficiencies there are in provision for water, sanitation, drainage and health care" (Satterthwaite et al. 16). These resource deficiencies directly impact populations on the household level. In other words, families living in such circumstances

find it difficult to provide the essential needs for themselves and their children. Like children, parents are also vulnerable to environmental hazards, but they have the additional burden of maintaining the household's income and caring for those that are injured or sick. A good home environment minimizes the level at which environmental hazards can affect children; the same is true for adults. Although poverty and inequality can be a means to measure hazardous environments, it is difficult to asses the actual health impacts from such studies. One of the criteria for measuring poverty and inequality has to do with income levels, which are good to measure poverty and inequality, but not the effects of environment and illness on families (Satterthwaite et al. 1996). Yet, focusing on the household environment and the relationship children have with it helps to address a gap within current poverty studies; especially in rural/informal settlements in Latin America and the Caribbean.

Rural poverty is characterized above all by the deficiencies in available resources for families such as quality land, financial/technical support services, the displacement of crops, and the loss of livelihood (Harris and Nef, 2008). These deficiencies carry serious health risks for these populations. The lack of access to basic goods and services in these rural/informal settlements often means residents are exposed to serious chemical pollutants. In the case of Los Platanitos where their waste management services are hindered by the topography, residents have no recourse to dispose of accumulated garbage effectively. In particular, children within this community are affected by chemical pollutants and levels of exposure, which has serious implications or children's health.

According to Larsen (2010), there is evidence that exposure to hazardous environments can increase the number of children diagnosed with physical, cognitive, and behavioral disorders/impairments. "Evidence is also strong that environmental health risks disproportionately affect children. Their nervous, immune, digestive, and other bodily systems are still developing while they receive disproportionately greater exposure to pollutants. They eat more food, drink more fluids, and breathe more air in relation to their body weight than adults do" (21). While we need to study how these environmental characteristics affect children's physical and cognitive development, there is also a need to understand how these children perceive their environment. Therefore, participatory approaches involving children are crucial for planners to take into account their heath and safety; a list of chemical pollutants which are present in the environment as well as hazardous to human health are listed in Figure 1.

Chemical Pollutants within the Human Environment which are Hazardous to Human Health

Chemicals which can be found in food and water:

- Lead (in food, in drinking water, especially where there is a combination of lead water pipes and acidic water);
- Aflatoxins and other natural food toxicants;
- Nitrates in drinking water (and their conversion into nitrites in the body);
- Trace pollutants in water supply, many from agro-chemicals (for instance various halogenated organic chemicals);
- Aluminium (food and drinking water);
- Arsenic and mercury

Chemicals commonly found in the indoor environment (home/workplace):
- Carbon monoxide (incomplete combustion of fossil fuels);
- Lead (paint – ingested by children);
- Asbestos (usually from roofing insulation or air conditioning conduits);
- Smoke from combustion of coal and wood (or other biomass fuel);
- Tobacco smoke;
- Potentially dangerous chemicals used without health and safety safeguards (by home-workers and in occupational setting);
- Formaldehyde (mostly from insulation; also some wood preservatives and adhesives).

Chemicals found outdoors in urban areas in the air (ambient):
- Lead (exhausts of motor vehicles using gasoline with lead additive, from external paint, some industrial emissions);
- Sulphur dioxide, sulphates and smoke/suspended particulates (mainly from coal or heavy oil combustion by industries, power-stations and, in some cities, households);
- Oxides of nitrogen (in most cities, mostly from motor vehicle emissions; also some industries);
- Hydrocarbons (motor vehicles, petrol stations, some industries);
- Ozone (secondary pollutant formed by reaction of nitrogen dioxide and hydrocarbons in sunlight);
- Carbon monoxide (incomplete combustion of fossil fuels, mostly by motor vehicles);
- VOC's (Volatile Organic Compounds): there is a considerable range of such compounds, that are, or may be, hazardous.

Chemicals which may contaminate land sites:
- Cadmium and mercury compounds and other heavy metal compounds (industrial wastes);
- Dioxins, PCBs, arsenic, organochlorine pesticides (industrial wastes).

Also in both indoor and outdoor settings:
- Micro-pollutants;
- Mixtures each at trace level (with possible additive effects).

Figure 1 Chemical Pollutants Hazardous to Human Health. (Source: Satterthwaite et al., (41) 1996)

III. Public Space Planning and Children

Planning has had a tendency to prioritize the needs of adults; thus marginalizing children and youth populations from public space planning (Frank 2006; Gurstein 2003; White 2001, Tonucci and Rissotto 2001; Lennard and Lennard 2000; Meucci and Redmon 1997). The marginalization of children and youth from public space planning not only isolates them from participating, but makes them feel unappreciated in the planning process. Caraveo et al. (2010) indicated that many adults "see young people stereotypically as apathetic, unreliable and moody, and not sufficiently discerning for decision making" (144). According to Frank (2006), marginalization effects that occur during an individual's youth can carry into adulthood: "The size of the youth population and their feelings of social isolation are two of several compelling reasons for planners and the field of planning to pay greater attention to youth. Because youth are rapidly developing-physically, psychologically, and socially-public decisions about city design, economic development, social services, and environmental quality affect youth to a large degree, and the effects carry over into adulthood (Frank 351; Lennard and Lennard 2000). As a result of these findings planners have begun to incorporate youth in their processes.

One of the pioneers in the research of children and youth perspectives was Kevin Lynch with *Growing Up in Cities (1977)*. Along with Lynch, Colin Ward (1978) and Roger Hart (1979) continued the progression of studies and research within the planning field (Frank 2006). However, prior to the work of these authors, two important declarations emphasized children's protection, care, and rights: the Geneva Declaration

of 1924 and the Declaration of the Rights of the Child of 1959 (Bartlett et al. 1999; Frank 2006). It was through these declarations that one of the most cited and internationally accepted treaties came to be formed: the Convention on the Rights of the Child of 1989. The treaty greatly expanded civil and political rights, while including children and youth as active participants within their community (Bartlett et al. 5; Driskell 2002; UNESCO 1989).

> Since the mid 1990's, children's participation has become increasingly popular among child rights and child development agencies. Children are being involved in research, assessments, monitoring and consultations. They work as peer educators, health promoters and young journalists. In many countries, children's clubs, parliaments and youth councils have been formed and in some cases children have been able to influence public decisions and resource allocations (Theis 343).

The uses of participatory methods are versatile. Involving children and youth within the planning process can increase this versatility by creating a welcoming environment (Gurstein 2003).

III. Children's Participation in Planning in the United States: Practice and Use

According to Frank (2006) "A quarter of persons in Western nations, and 30 percent worldwide, are under the age of eighteen years old, yet this significant stakeholder group is one of the least considered in community and environmental planning" (351). Over the years, many planners have tried various types of approaches to encourage youth to participate. In hopes of eradicating the effects of marginalization youth experience within planning approaches, planning entities are implementing various types of measures to facilitate youth participation. According to Gurstein (2003), the use of youth participation in planning is

....part of a critical thinking, problem-solving and experiential approach to learning. Through this approach, young people learn how to make sound decisions, collaborate with others, negotiate procedures of group organization, and consider multiple perspectives on controversial issues. They gain their own understanding of citizenship and develop roles for themselves as part of a democratic society, which subsequently promotes a conscious sense of responsibility and stewardship to the community (252).

Some of the theories behind youth participatory approaches grew from studies in cognitive science, particularly studies in spatial knowledge. "The general assumption is that an individual's permanent knowledge structures provide the basis for interpreting objects, actions and events in the external environment. They guide the decisions and actions of the individual in response to perceptions and interpretations of self and environment" (Golledge et al. 125). These studies gave insight into the spatial habits/behaviors one generally partakes in on a daily basis (route to school, work, daily activities etc.). These studies later emphasized the idea that spatial habits represented something more within an individual's daily life, but it questioned how these habits were being represented. This then led to what Golledge et al. (1985) formulated as 'cognitive representation,' which refers to a person's knowledge, experience, and interpretation of their external world (126). These spatial habits can be interpreted with a phenomenological/psychological approach that can reveal a type of code or symbology within the habits of an individual's daily life. Yet the question still remained: How do children experience their environment in their daily habits?

Research conducted by Blaut et al. (2003) regarding cognitive mapping with preschool children showed that children engage in complex mapping behavior before the age of school entrance. This indicated that children have the ability to cognitively understand and map their surroundings (although not to the extent of an adult).

This opens the door to a potentially very significant and, in many ways, new approach to learning for children in the first years of school, an approach that will enhance and enrich (and enliven) the content of substantive education in social science, microbiology, and earth science. Children at the kindergarten and first-grade levels can learn important exciting concepts about large-scale reality—about entire cities, transportation and communication networks, ecosystems, landforms, hydrological systems, and so on… (180).

Not only do children have the ability at a very early age to cognitively map out their environment, but they show the ability to have complex and nuanced understanding of their environment.

Due to developmental differences, youth are able to participate and integrate themselves more within their environment. It is important to indicate here that the ideal combination in participation planning approaches would be one that includes children and youth. The work of Gurstein et al. (2003) for example, examines the effects of youth participation. In 1999, they gathered information in the Lower Mainland of British Columbia (Vancouver) from four youth group organizations to strengthen the argument that youth have the ability to redefine "…practices of participation through organizations that are developing critical strategies for community development work" (250). The aim of their research was to offer four distinct case studies that showed how a number of participatory approaches engaged youth in community work that benefited their communities (271). They conclude by recommending approaches for planners to follow:

Within the realms of research and practice, youth voices must be given the space to emerge as forces of change. The youth that we have profiled in this study are among the thousands of young people who are strategically working on community development issues of great importance. They seek to proactively address power imbalances and reorient the contemporary issues on which society places value. By their very nature, these organized youth might be considered as young *critical planners*. Most importantly, they have a great deal to teach youth and adults alike about participation, which whole communities will recognize

when they begin to perceive their younger citizens a assets and resources – agents of change who bear valuable tools that can illuminate new paths of community development (Gurstein et al 2003: 272).

IV. Children's Participation in Planning Internationally: The Latin American

Experience

Youth participatory models in the U.S. are also used internationally. Albeit the model does not change structurally the approach is culturally different. As mentioned in the beginning of this chapter, a one-size-fits all planning approach may not cater to everyone; the same applies when using participatory methods internationally. When applying a participatory approach, one of the most important aspects is understanding local knowledge and culture. This not only applies to the vast population, but particularly to children and youth. Many researchers, authors, educators, and specialists within the planning field, first begin by developing an understanding of local, social, political, and cultural characteristics prior to the planning process.

Caraveo et al. (2010) indicate that youth would be more likely to be interested in participatory work or community work if they were taught at an early age to participate. Furthermore, youth can develop stronger identities by being around youth that share similar interests. By being a part of the planning process and strengthening the relationship between youth and adults, youth "acquire various skills and knowledge, which provide benefits far beyond the aims of the project itself and eventually become a way of life" (145). In essence, youth develop their own perspectives and realities that are cultured within their own population that leads to collaborative work with adults. Through this collaboration, both youth and adults can share their experiences for the

greater good of their community. After all, it is the youth of the community that will

eventually inherit the roles of the adults within their community. For this to happen,

adults need to understand youth needs and perspectives in order to be involved in the

planning process. A good example of this can be seen with the work of Hardoy et al.

(2010) in *Barrio San Jorge*.

Barrio San Jorge is a low-income settlement located in the municipality of *San*

Fernando in the Buenos Aires Metropolitan Area. The work conducted here by Hardoy

et al. (2010) involves three adult researches that work for the *Instituto Internacional de*

Medio Ambiente y Desarrolo-America Latina (IIED-AL) with the participation of three

youths from *Barrio San Jorge* (371). In short, *Barrio San Jorge* is an informal settlement

that was founded in 1961 as a resettlement for about 60 families who had been living in

areas prone to flooding. Although no infrastructure or basic services were provided, the

vacant land and the low possibility of eviction attracted many families (372). Many long

term projects have attempted to improve basic services since the 1990's, but few include

children and youth in their considerations (375). Hardoy et al. (2010) provide a brief

summary of this collaboration:

> The municipality of *San Fernando*, acknowledging the vulnerability of this group,
> asked the national government to include an extension of "*Promeba Joven*"
> *(Iniciativa de Fortalecimiento de Capital Social y Humano* – Strengthening Social
> and Human Capital Initiative), which aims to coordinate existing resources (of the
> municipality, of NGOs and other entities working with youth) with the actual
> needs of youth, and to build a plan of action in partnership with these young
> people. The programme launched in March 2010, is developing a series of
> activities with the *Promeba* II team. Initially, all the energy is being placed on
> developing trust and on training community leaders who are themselves young
> people or have an especially good connection with them, so that they can act as
> facilitators and promote youth involvement and integration, both within and
> outside the *barrio* (Hardoy et al 2010: 375).

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For youth in this *barrio*, the community has a dangerous reputation. Youth are stigmatized as being the cause of danger. "They are the group with conflicts, whether with other youth, with neighbours or with the law; and they are marginalized not only by those outside the *barrio*, but also by the adults and neighbours within *Barrio San Jorge*" (ibid.: 375). Many of the youth within this community gather in open spaces such as sidewalks or in this case, *las esquinas* (street corners) and thus they are called *pibes de la esquina* (kids of the corner). So whenever someone in the community refers to them by that name, they are implying those youth that "don't go to school or work, and who spend their time doing nothing" (ibid.: 376). These street corners are used by everyone and not just youth; these spaces are social spaces where everyone gathers to socialize. Even though some of these spaces are dangerous, it is youth that carry the burden of being part of the problem and not the solution.

One of the difficulties that Hardoy et al. (2010) encountered besides the stigma carried by youth, was the behavioral pattern that reinforces it. The stigma increases hostility between youth and adults, which often creates a problem for youth who try to disassociate themselves from this negative behavior pattern. Many youth activities have been implemented to get youth motivated and involved in community work, but have found it difficult to reach out to the majority of youth. Youth projects such as the designing of plazas and vegetable gardens were implemented, but the projects met with some difficulty (Hardoy et al. 2010: 383). One of these difficulties was the attitude adults took towards children in these spaces, particularly by not allowing them agency; as a result many youth reported not wanting to participate and the collaboration fell apart (ibid.: 386):

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We realize that we have to be particularly cautious, and open to youth. They have a very low threshold on frustration and patience, and when answers and actions are not quick enough they immediately feel let down. Our capacity to help transform their reality is probably tied to being able to offer a space that is open to all of them, where they can discuss and negotiate, with rules, roles and responsibilities, but that is also sufficiently flexible to adapt to their needs. Youth perceive and live the *barrio* differently, and this reality should be taken into account in any programme that aims to improve social conditions and inclusions. It presents both an opportunity and a challenge (Hardoy et al. 2010: 386-387).

V. Conclusion to chapter

Including children and youth perspectives is a necessity, not just a benefit, for public space planning. In order to plan for the next generation, it is important to understand not only the relationship children and youth have with their environment, but also how they are impacted differently than adults by environmental hazards associated with poverty.

On the other hand, in the Latin American context, as seen in the work of Caraveo et al. (2010) and Hardoy et al. (2010), it is also important to understand how children and youth are perceived within the community in order to successfully integrate them in the planning process. For Caraveo et al. (2010), children were being integrated into community planning processes at a young age. This made children feel the urge to participate in community processes. Yet, the age gap between youth and adults can leave both groups feeling insecure about each other. Youth felt that the adults simply did not understand them, while adults felt that youth were not mature enough to handle community concerns. In the case of Barrio San Jorge (Hardoy et al. (2010), youth were stigmatized when gathering in public spaces even if they weren't given alternative spaces

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to converge. Both of these case studies emphasize that the need to understand youth and child perspectives, particularly the ways in which they understand public space.

In the next chapter, I will examine how aesthetic techniques, such as drawing exercises, can further strengthen the participation of youth in planning processes by providing documentation of children's perspectives on their environment. Through drawing exercises, planners can capture children's understanding of their environment, what they perceive to be important, and how they interact with each other and their environment. For communities such as Los Platanitos, which suffer from poverty and environmental hazards, drawing exercises can prove to be a powerful tool to facilitate participatory planning processes.

Chapter 2: Symbolism, Iconography, Youth Participation, and Urban Planning

"For our house is our corner of the world. As has often been said, it is our first universe, a real cosmos in every sense of the word." – Gaston Bachelard, The Poetics of Space

"An artist does not create the way he lives, he lives the way he creates." – Jean Lescure

Everyday life in an informal settlement can appear to be a constant struggle. However, while adults are able to critically comprehend their socio-economic conditions and can see beyond their lived environments, children's perspectives are limited to their immediate neighborhood. It is through their interactions with each other and the environment that children and youth begin to learn the parameters of their society or culture. (Blaut et al 166). "The neighborhood both creates and restricts individual and social interactions. Different social relationships occur that allow for different learning opportunities. It is through these relationships, between children and/or youth and the rest of the neighbors or society at large, and how solid these relationships are built, that children and youth get to learn and know the meanings, rules and values of their community" (Hardoy et al. 377). For urban planners, understanding children's ways of learning through interaction and relationship building within their environment can help plan the physical space for children and youth.

I. *Theorizing Public Space*

When one thinks of 'space', one also has to understand the role of 'time' and its relationship with 'space'. It is understandable that 'space' can incorporate many different

definitions, but for the purposes of urban space planning I am referring to 'space' as the built environment within which an individual exists. Within this conception, 'time' serves as the catalyst for growth within 'space'. One manifestation of the growth that occurs in the relationship between 'space' and 'time' is what Bachelard (1964) recognizes as memories. "We think we know ourselves in time, when all we know is a sequence of fixations in the spaces of being's stability…memories are motionless, and the more securely they are fixed in space, the sounder they are" (8-9). Memories in this regard are the effects of growth secured within a fixed space, and are the building blocks of who we are. It can then be said that every 'space' contains memories, which can belong to those who grew up in that 'space'. Experiences within these 'spaces' vary and are perceived differently depending on differences of geography and culture.

Memories within space can then be said to be the points in time that mark one's growth. Growth, in turn, can be thought of as the relationship one has with the built environment one grew up in. The fact that 'space' is a part of one's own nature indicates a relationship between a particular individual and the knowledge they gather through experience with the surrounding 'space' in time. David Harvey (1990) indicated that space

> …gets treated as a fact of nature, 'naturalized' through the assignment of common-sense everyday meanings. In some ways more complex than time – it has direction, area, shape, pattern and volume as key attributes, as well as distance – we typically treat of it as an object attribute of things which can be measured and thus pinned down. We do recognize, of course, that our subjective experience can take us into realms of perception, imagination, fiction, mirages of the supposedly 'real' thing. We also discover that different societies or sub-groups possess different conceptions (203).

Michel de Certeau recognized space by not only time variables, but by vectors of direction. These vectors of direction are based on pathways of mobility such as streets and sidewalks that shape the way we navigate our environment:

> A *space* exists when one takes into consideration vectors of direction, velocities, and time variables. Thus space is composed of intersections of mobile elements. It is in a sense actuated by the ensemble of movements deployed within it. Space occurs as the effect produced by the operations that orient it, situate it, temporalize it, and make it function in a polyvalent unity of conflictual programs or contractual proximities. In short, *space is a practiced place.* Thus the street geometrically defined by urban planning is transformed into a space by walkers. In the same way, an act of reading is the space produced by the practice of a particular place: a written text, i.e., a place constituted by a system of signs (de Certeau 1984: 117).

Thus, there exists within any created space a system of signs similar to that of a written text. It is these signs within space that create distinct locations, produce memories within built environments, differ geographically and culturally, and educate us about our own personal spaces. In other words, the experience of space is a relationship between the individual and the signs within a given space.

II. *Planning Urban Space*

Physical space is not experienced universally the same way across populations. However, a particular physical space, depending on location and cultural environment, may express patterns in experience across a particular group. By "physical space" I am referring to the built environment (parks, downtown, neighborhoods, etc) which a particular population is consistently exposed to or familiar with. Any given population creates a relationship with their physical space through interaction with it, an interaction which can be conceived of as communication. By "interaction" I am referring to the

cognitive and emotional reaction or experience that one has within one's own physical space. Communication and interaction between the environment and children is varied and nuanced. For planners, understanding this interaction and experience is one of the first steps in understanding the relationship between children and youth and their environment.

In planning a particular physical space, one has to understand both the physical and socially constructed characteristics of a particular space. Planners are required to understand the materiality of the space, since not all stratagems work for every environment, but they must also strive to understand how a particular planning strategy will affect social relationships. A child's neighborhood for example, has been described by De Visscher (2008) as a "social-pedagogical" context that has an impact on socialization. "It can be seen as a …vector of social change and social relationships…a material carrier of social and cultural meanings" (Hardoy et al. 377). It is through this particular relationship with space that children and youth understand "meanings, rules, and values of their community". Understanding this relationship, in particular how it relates to children, helps planners and policy makers fully understand their needs (Hardoy et al. 377, Driskell 2002).

III.   Urban Semiotics and Iconography

Each and every one of us interprets our environment differently, from our favorite places to areas we specifically stay away from. In large part, our interpretations are triggered by memories of our experiences in a particular environment. Such images can include the house we grew up in, the favorite places where we used to play, and so on.

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Such mental engagement with our environment implies a type of communication, where symbolism plays an important role.

Umberto Eco (1986) suggested that a sign is the union of a sign vehicle and a culturally codified signification. He also distinguishes between two layers of signification: a denotative signification, the 'primary function,' which refers to the function of these objects, and the connotative signification, the 'secondary function,' which is of a symbolic nature (Gottdiener 56). Within Eco's construct, we understand that each object or sign has a literal function and a symbolic reference; it is this symbolic reference which constructs a unique meaning for each of us. Eco (1986) later describes architecture (which he uses in a broad sense to refer to urban and industrial design) as communicative. The overall architectural design, over time contains a series of denotative and connotative meanings that develops through social processes.

The way we build a relationship with our environment involves the architecture of the built environment as well as social elements. The social element of an environment is how communities make use of the architecture of the space in order to meet particular social and cultural needs. This requires a particular communication between populations and their environment. Such communication is based on "iconography;" i.e. a combination of signs and symbols. The study of iconography with regards to physical space thus can be seen as the study of the "semiology" of the built environment. There is much debate regarding the definition of a "symbol," and this term is often confused with other terms such as "sign", "signal", "comsign", and "significant symbol" (Gillespie 28). However, regardless of the debates over definitions of terms, semiology is useful in understanding the complexity of space.

"Semiotics" has been termed the study of "signs" (Lidov 4, Womack 37). One reason for this is because the concept of a "sign" or "symbol" has many different meanings. One of the prime differences between a "sign" and a "symbol" is that a sign has "…only one possible meaning, whereas symbols, by definition, convey multiple levels of meaning at the same time" (Womack 3). The use of these symbols can change for any given individual and can vary greatly depending on the environment. For the sake of interpreting iconography within a particular urban environment, the concept of urban semiotics is therefore a useful tool.

The concept of urban semiotics allows us to interpret the communicative elements or iconography we can locate within our built environment. Signs and symbols in this case take the forms of architecture that are familiar to us such as houses, churches, schools, roads, and parks. For children, when asked to draw a picture of their neighborhood for example, they draw representations of these familiar signs and symbols. If every child draws a house, or a school, then these are defined as themes. These themes contain what Eco (1986) defines as primary and secondary functions. In other words, the art created by children is not just a visual representation of their environment in the literal sense, but an interpretation of their environment as well. Each school for example, is not merely a building, but a place where they go to learn. How they draw and capture the school building reflects their own unique interpretation of the building.

Art, in its many definitions, is said to be the embodiment of captured essentials, which represent our own perception and reality. "Ching Hao, a painter in China, wrote that the ultimate goal was not to obtain the true likeness of an object or to create beautiful

things, but to 'fathom the significance of things and try to grasp reality'" (Rawley 2005: 11). For psychologists, children's art is seen as a reflection of their cognition and intelligence. "Altschuler and Hattwick (1947) used drawings as indications of personality structure; Goodenough (1926) used drawings as measures of intelligence; Piaget (1963) used drawings as reflections of the child's concepts; and recently Freeman (1980) and Goodnow (1977) have made use of drawings to reveal the child's cognitive strategies such as planning and sequencing" (Rosenblatt and Winner 3). Drawings are methods of gaining direct access to children's interiority, in particular their interpretation of space (Freeman and Vass 22 2010, Hardoy et al. 2010, Colledge et al 1985).

Drawings may also be complemented by mapping exercises. When children map their environment, they are actually drawing mobility maps, or, in other words, maps indicating the routes they take and are familiar with. When they map, they are capturing their urban environment, or in this case, the communicative relationship they associate with in the routes they take. The iconography that children use in their drawing thus helps us understand the hierarchy of needs they communicate. Similarities that run across a number of children's drawing indicate a general theme, which can then be interpreted to be of importance to the entire community, and not just to an individual child. In regards to the map itself, Freeman and Vass (2010) indicate that the "…quality of the map as a spatially accurate representation is not important. It can be reflective on the developmental level of one of the children's "multiple intelligences" as not indication of their real knowledge, views, or understanding. Consequently, planners should not be distracted by the spatial accuracy and representational skills evidenced on the map but should rather seek to penetrate the social and environmental information the map is

portraying" (Freeman and Vass, 22, 2010). Children's mapping or drawings are therefore

not only useful in furthering our understanding of how they perceive their environment,

but they can also serve as useful tools for planners. In the next chapter, I will discuss the

geographical characteristics of Los Platanitos, how this contributes environmental

hazards the community, and how these hazards put the health and safety of children at

risk.

Chapter 3: The Children of *Los Platanitos*

"Don't judge each day by the harvest you reap but by the seeds that you plant" – Robert Louis Stevenson
"The air of ideas is the only air worth breathing" – Edith Wharton

I.   *Los Platanitos*

Los Platanitos[2] is an informal settlement located in the Los Guaricanos district of the Municipality Santo Domingo del Norte. Los Guaricanos is a low-income district that is home to between 2,200 and 3,000 residents. Los Platanitos was constructed by community members in the late 1980's and early 1990's in a steep canyon, also known as a *cañada.* "*Cañada*" is a Dominican term for "creek", but it also has several meanings, including an informal settlement which is characterized by unplanned "self help" housing. The *cañada* spans from the outskirts of Parque Mirador Norte near the river Isabela, and runs through the entire community reaching Avenida Emma Balaguer. Many of the residents from Los Platanitos are actually from other districts, but decided to settle there for various reasons, such as access to work, a better quality of life, or to be closer to their families (Sletto ed. 2008, 2010).

One of the main characteristics of Los Platanitos is that the territory was originally a landfill. Over the years, residents brought in soil, gravel, and cement to create housing foundations. It is important to indicate that this centrally located *cañada* is just one of more than 30 such settlements in Santo Domingo Norte. Settlements such as these are termed informal due to the nature of living standards for residents: a lack of land titles and of basic services such as electricity, sewage systems, fresh water supply, and plumbing. Over time, settlements such as these become incorporated into the fabric

of the city by default. One of the many problems regarding the incorporation of these settlements into the city is that they are not regarded as "normal" neighborhoods. In turn, receiving aid or services from the government can be quite difficult to organize.

A previous study conducted in 2008 in Los Platanitos identified several social problems such as "…lack of access to education, high crime rates, and pervasive unemployment, which forces the vast majority of residents to rely on irregular income from informal and extremely low-paying jobs. However, the study found that the lack of regular, municipal infrastructure services poses the greatest challenge to the health, well-being, and development of the community" (Sletto ed. 2010: 3). The most immediate challenge the community faces are the frequent floods that impact the area. Not only do these floods prevent natural drainage systems, the high increase in water volume carries various forms of solid waste. The lack of municipal solid waste services makes it difficult for the community to properly dispose of their waste. Additionally the steep topography, narrow passageways, and lack of access roads make proper disposal even more difficult. Solid waste then begins to take the form of heaps of accumulated garbage that collect in various areas; in other cases, the garbage is thrown into the *cañada.* In particular, when it rains, many community members throw their garbage into the *cañad*a in hopes of washing the garbage downstream.   Residents who live on higher ground toss their garbage onto those residents that live below them. A large bottleneck occurs downstream. This bottleneck traps plastic, organic and non-organic waste, and water to form an environmental hazard.

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[2] The introduction for Los Platanitos derives from previous experiences and work conducted by two groups of University of Texas students (Sletto ed. 2008, Sletto ed. 2010).

These combined characteristics affect the lives of those in the community. The *cañada* becomes the option of choice for the community to dispose of their solid waste. Not only does this action influence others to do the same, but it creates an environmental hazard within close proximity. The accumulated solid waste becomes a magnet for infectious diseases, and affects vegetation, animals, and the health and safety of children in particular. These social and environmental impacts influence the way that children perceive, interact, and educate themselves about solid waste. Not only does this waste pose a serious health risk for children, its presence has become a part of their daily life.

II. *Impressions of Public Space and Everyday Life in Los Platanitos*

It has taken me quite some time to explain the feeling I had when I walked into the community from the surrounding neighborhood. Finally, I realized that I associated the culture, social behavior, and people with hugs. Hugs are like blankets. They give you a sense of security, warmth, and nostalgia that is never forgotten. I was always greeted with a hug, whether it was from community members, collaborators, professionals, guides, or strangers. This embrace was not only a welcome, but gave me a sense of home. Yet it's not only the community members who hug those who enter Los Platanitos: the built environment does as well.

The entrance to Los Platanitos begins at the metro stop which is located to the north of the community. There were two primary ways I used to get into the community; the first would be to walk down Avenida Emma Balaguer up until I'd reach El Faro then begin the decent into the community. The second way is to start off at the metro stop and walk down Calle Progreso, which would be the equivalent of taking the back entrance.

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Regardless which route I chose, I had to descend into the community, since Los Platanitos is built along the slopes and on the bottom of a canyon. When you reach the bottom of the community, the homes along the slope of the canyon seemed to be stacked on top of each other, and the sense of being hugged is even stronger.

Descending into the community meant taking one of a number of narrow pathways, which spread through the entire body of the community like veins. As you walk through the narrow pathways, you are able to see how active and full of life the community is. Convenience stores known as *colmados* are spread throughout the community, offering general goods from food items to technical equipment and also serving as gathering places. The owners play amplified music to try and get members of the community to enter into its space, and adults gather to sit and drink while playing a game of dominos with friends and strangers, while children gather to watch them, run errands, or simply play with other children. As you walk the paths through the community, you see men and women working, running errands, cooking, washing, and visiting friends or family. Some homes have added a small stand were they sell food, coffee, even medicinal tea. People relax in front of their homes and loud music seems to be playing everywhere. Animals such as chickens, dogs, and cats can also be seen roaming the streets as if they also have errands to run. On any given day, water pipes can be seen spurting water across these pathways so that the community can wash, cook, and clean.

The faces of community members in Los Platanitos are very animated as they are constantly engaged in some form of communication or other. Friends and family will visit one another or get together to simply talk about anything and everything, always

smiling and sometimes even dancing. On many occasions, they will share various types of foods from vendors, to local cuisine prepared from someone's home. Like the hugs, food is shared not just with family and friends but also with perfect strangers.

III.   Children of Los Platanitos

The men and women of the community have their daily routines, and so do the children of Los Platanitos. Like the adults, children also interact with their environment; from choosing where to play to carrying out errands they have been assigned. However, children will interact differently with their environment than the adults. In particular, adults do not play, touch, or enter places they know are dangerous or contaminated, but children do.

The first thing children do in the morning is eat. Many parents wake up around 4 or 5 in the morning (especially the women) to prepare breakfast. For the most part, children will wake up around 6 to 7 to prepare for school or do morning chores. Children who do not get something to eat at home in the morning can be seen eating food from home or from street vendors. In many cases, children sit on steps, floors, walls, in front of homes, or right next to the *cañada.* Many children attend school in the community, either in the morning, afternoon, or evening. Regardless of their schedule, the time before school is spent on homework, to run errands, or to play.

Many of the younger children, particularly infants, are taken care of by parents, family, or friends who volunteer to care for them. Children who are not old enough to attend school, but old enough to carry out errands, can be seen throughout the entire day

hustling about. For these children specifically, their time is spent at home, with family, or most likely, outside playing with other children.

Whether children are running an errand, walking to school, sitting down eating, or playing, they are exposed to garbage or other hazards, such as broken glass, heavy vehicle traffic, and contamination. The risk from such exposure is exacerbated by children's propensity to play just about anywhere, regardless of what types of environmental dangers are present. Some children will travel to the end of their community, to the upper part of the canyon, to areas in which many parents and other adults warn them not to go to. Children also like to play in open areas, such as empty lots known as *solares* which are spaces allotted for the building of a home. Other open areas that children like to play in are streets with very little traffic, parks (such as *Parque Mirador*, which borders Los Platanitos to the southwest), and open spaces that have no construction. Children can also be found playing in areas that have limited spaces such as pathways in front of homes (as well as inside), on the steps climbing the sides of the canyon, and in the *cañada* itself.

When children are playing alone they will usually bring out a toy they have in their home such as an action figure, a car, or a ball. In some cases, children will also make their own toys such as paper boats, paper airplanes, or kites, using materials they find in their environment. For example, many children in the community will grab a plastic bag, tie a string to it, and try to fly it as a kite. Other children will grab sticks, rocks, glass, straws, cups, plates, cardboard boxes, discarded pieces of metal, and even building materials. The problem is that children will pick up just about any item, from any place, even if that place is dangerous or contaminated, for the sake of using it as a

toy.

Two examples of the types of resources available to children for play are those found in parks and those found in their neighborhood. In the first example, I took children to Parque Mirador.[3] During this trip, two guides, about 16 children, and myself were granted permission by the park administrator to visit the park for an environmental study. The goal of this visit was to begin the first mapping exercise and to inspect the resources available for children to play with. Some of the resources available in the park include bicycles, paddle boats, (which could be rented by the hour), swings, slides, and see-saws. The children had a surge of energy, like any child at any park, as they ran to access the resources made available to them. By pooling our funds together, we had rented one bicycle and the children shared it by taking turns. Yet this resource was available to them for a limited amount of time. This meant that if children wanted to use these types of resources, they would have to find a way to get money to use them. Not only was it difficult for these children to access funds, but enjoyment of the resource were limited.

The second example was when I decided to teach the children how to make paper boats, but this turned out to be counter productive. Once I taught them how to make the boats, they quickly put them in the *cañada* to race them. This incident made me realize that if the resource was free and available, such as the sheets of paper I had, then they were quick to use it to play with. I also realized that they would directly place the resource in a contaminated area and then interact with the object that had come into

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[3] *Parque Mirador* forms part of the Green Belt of Santo Domingo, and protects ecological resources that are of great benefit for public schools and universities. The park is rarely utilized by residents of Los

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contact with contamination. In other words, children didn't regard contamination as a health hazard. Because these children were born and raised in Los Platanitos and only know this environment, over the years, they have interacted with their environment so long that they are not aware of the danger they are being exposed to. These dangers are not only immediate: by being exposed from such an early age, these children may also suffer prolonged mental and physical health effects.

Despite the unhealthy conditions in Los Platanitos, the nearest clinic is at least a 15-minute car ride away. When I asked one of the psychologist/nurses at the clinic about the health of children from Los Platanitos, she indicated that they suffered greatly from respiratory problems, dehydration, and skin rashes. Of all the children who come to the clinic from the various surrounding areas, most who suffer from these conditions are from Los Platanitos. Further, as the nurse suggested, hazardous environmental exposure can not only impede cognitive development in children, but can also lead to more serious conditions. According to this nurse, chemical pollutants and biological pathogens have been present within the community for years, and these environmental hazards are the primary reason why these children suffer from poor health conditions.

Another example of environmental risks facing children is their constant interaction with the *cañada*. As mentioned before, the *cañada* runs through the middle of the community and empties into Parque Mirador. Garbage floats through the *cañada,* it places it accumulates; nowhere is the water clean. In places where the garbage has accumulated, the surface formed by trash seems solid—but if children were to stand on it, they might sink and drown. These pockets of trash and standing water pose deadly health

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Platanitos because of the cost of admission. A local clinic is also located within the park itself and provides

and environmental hazards. And as the amount of garbage accumulates, so does the effect of its pollutants, spreading contamination throughout the environment and community.

Parents, teachers, city, and national governments are trying to protect children from these hazardous environments, but resources are lacking. Parents in Los Platanitos are the primary source of protection and education for children. My interviews with parents in the community revealed that many understood that their environment was contaminated, but did not know to what extent. For example, one parent indicated that she would tell her children not to play close to the *cañada* because of its lack of cleanliness and she did not want them to catch a cold. Another parent told their children not to play in the *cañada* because she thought the insects located there could give them various types of diseases. In both examples, the parents understood the dangers of the space and attempted to encourage their children not to interact with the polluted environment

Parents, like teachers, educate children about the dangers of their environment. The teacher interviews in the community indicated that almost all teachers will lightly cover topics regarding the environment, and will do their best to effectively inform their students of environmental dangers.   During an interview with a local teacher, he mentioned that environmental decay causes various types of health hazards and that these environmental risks spread throughout urban and ecological spaces. He indicated that this would serve as a good example to teach students about their relationship between themselves and their environment. Along with parents and teachers, government branches

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medical services for the community (http://www.parquemiradordelnorte.com/)

such as the Ministry of Education, Regional Urban Planning, and non-governmental organizations (NGOs) also play a part in environmental education. The Ministry of Education is in charge of developing, constructing, updating, and implementing school programs and curriculum for school districts. They are currently conducting a 20 year curriculum update, which will catch them up to national and global standards in education. The Environmental Education division is in charge of environmental education curriculum within the school system. The curriculum update will include and empower teachers with new resources for them and their classrooms.

VI.   Summary

This chapter has provided an overview of the infrastructural, social, and environmental conditions faced by children in Los Platanitos. Children have no choice but to interact with their environment, whether it's playing in their favorite location or simply walking to school. Even though many children do avoid dangerous areas, they still live surrounded by various types of hazards. However, children who live in poor communities such as Los Platanitos can also provide unique perspectives to assist in the improvement of their community. By initiating and nurturing a dialogue between planning entities and children, planners can begin to understand and adapt strategies based on these localized perspectives. One of the many tools planning entities can utilize to access such knowledge is drawing exercises, which can be used to further understand and capture children perspectives. In the next chapter, I describe the methods I used in my research in Los Platanitos to capture children's perspectives through drawing

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exercises, and discuss what these drawings tell us about their perceptions and

interpretation of their environment.

Chapter 4: Children's Perceptions and Interpretations of Public Space is *Los Platanitos*

"Poetry remembers that it was an oral art before it was a written art." – Jorge Luis Borges

I. *Introduction*

Children are the most vulnerable citizens in cities, whether they live in informal settlements such as Los Platanitos or in our own neighborhoods. Children also hold a unique perspective or consciousness towards their built environment, which is characterized by their daily interactions with it. One approach to help planners understand their point of view is by using drawing exercises, which have the ability to capture expressed emotions and perspectives. For the children in Los Platanitos, this approach assisted them in conveying their own personal narratives and interpretations of their environment, thus allowing for a semiotic analysis on the part of those conducting the study. This type of analysis allows for an understanding of the cognizant relationship between the artist and their environment. These visual stories have the capacity to not only show how children are being impacted and how they make sense of their environment, but how their health and safety is jeopardized.

II. *Methods*

My first step was to determine the locations where children loved to gather and play, and the second, to determine the primary route they took to school from these locations. I worked with two local guides during my project, and we would meet the children at *Pica's Colmado* at 9 am every day to begin the drawing exercises. On the first day of the exercise, we sat on plastic chairs and asked adults who were passing by to

tell their children that we were having a drawing activity and to come out and participate. I informed the guides that we would need a minimum of 10 children between the ages of 4 and 16 to begin the exercise. Within minutes of telling the adults, 5 children appeared and were ready to be a part of our activity. We then asked these 5 children to go out and find other children that they knew to come out and be a part of the activity. After several minutes, the number of children increased from 5 to 13. Once we had reached our target number, we began to ask the children where their favorite areas to play were located. I then marked these locations on a map before we went to the field to complete the mapping exercise. By the end of my field work, I had conducted drawing exercises at 8 points selected by the children.

There were three reasons why I decided to allow the children to determine which locations were important, rather than have pre-selected locations. First, as an outsider I would not know where these children gathered. Secondly, I did not want to assume I knew where they gathered and perhaps pick the wrong areas. Finally, I needed to understand the logic behind the routes they usually take, and spots they avoid[4]. Also, by mapping location points with the children, they became self-aware of their navigation patterns. They made it a point to show me important locations, such as where their friends and family lived, which indicated to me these were areas of focus for children. As a result, children were able to explain to me why these areas were important to them, as well as broaden their perception of their environment.

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[4] Avoidable spots are those spots indicated by parents that children were warned about. These spots are also areas in which children themselves do not venture into. The reasons regarding the avoidance of these spots concern environmental factors such as gang violence, drug activity, environmental contamination, and dangerous zones (primarily heavy vehicle traffic).

Before bringing children to these locations so that they could begin drawing, we gathered together the drawing materials. The materials selected for these exercises included a box of 24 crayons, 16 washable markers, 24 coloring pencils, and 8/11" white sheets of paper. These materials were selected based on quantity and price; more expensive materials would have meant fewer materials for children. The maximum amount of children for a given drawing exercise was approximately 20, yet as we walked to a drawing point, more children would gather. The need for quantity over quality in materials was of great importance. Regardless, the children understood that everyone needed to share and care for the materials and put them back in their proper place once we were done.

Next we walked the route to a particular drawing point. This allowed me to map the route, while absorbing and making note of the impact the environment had on me directly (how it made me feel and how I experienced interactions with residents). I was also able to make observations about the environment, including the living conditions along route, working conditions, and daily life). When we arrived at a drawing location, I provided children with guidelines for the activity. The purpose of the drawing was to understand how children understood, perceived, and interacted with their environment. As children drew what they perceived to be important to them, they often wanted to show me "why" any particular features were important to them.

In order for children to freely express themselves and also to better understand their perspective, children needed to feel comfortable, knowing they were not constrained by too many rules. Instead, I told the children simply to draw what they saw, and specifically, what they liked and didn't like. Once the guidelines were given, I would ask

the children to repeat the instructions to make sure they understood, and to create amicability between artists. For example, if one child was lost or perhaps did not understand the instructions, then another child would be able to help them. Once everyone understood the task at hand, several children would help me pass out the drawing materials.

The second lesson I learned quickly was to remember which child had which color. The reason for this was because once the child would finish using a selected color, they would ask me to borrow another color; this meant that I was expected to provide it for them. Rather than be the color negotiator between children, I decided to put that responsibility on them. As a result, children became responsible for obtaining their color while allowing me the opportunity to focus on the exercise.

As they drew, children would sit on the ground, sidewalk, on chairs, and back to back. Other children used building walls to support their paper and draw, while other children drew on their knee or the floor. In some cases, I would tape their paper to the wall so that they may be able to better concentrate and draw easier. I was not able to provide drawing boards for the children because of the lack of funding. Similarly, the very few drawing utilities had caused a commotion on whose turn it was to use them. Instead, every child had the opportunity to come up with a way in which to render their drawings.

The number of children who participated was approximately 33. Children would come and go throughout the exercises; for example, the first drawing day started off with 6 children and within 30 minutes, 10 more children gathered. Even as we walked towards the first location, new children joined us while others left to do chores. By the

time we arrived at the location, the amount of children had changed to 15. On another occasion, there were a total of 39 children present, which made keeping track of drawings and materials difficult.

The total number of drawings produced was 267, of which 183 were used in this analysis, while 84 were not. These 84 drawings were eliminated from my analysis because they had minimal rendering: some only had the child's name and age; others included stick figures of themselves, my guides, and my self smiling. Since they were not renderings of the environment, they were not usable for this particular analysis.

III. Theoretical Background for the Visual Research Methods

It is safe to say that the shared world of adults and children is one planet, but two different worlds. The world of children is filled with freshness, exploration, imagination, and anticipation; the unfamiliar world in which they grow to experience is new to them. Unlike adults, whose world has grown with time and extensive experience, children have a fresh and unique experience with their environment. In time, children eventually grow and experience their world and enter adulthood, but along the way, some experiences are locked away in memory. These experiences contain the organic perspective or perception of the interaction they had with the world; we all had this at one time. It is this organic relationship children have with their environment that becomes the primary reason for us to understand how they are interacting with their environment. The interaction they have has two different experiences: the perception of their world and the effects of their world. For the purposes of this study, two types of approaches and

methods have been used to in order to describe, interpret, and provide meaning through their experiences with drawing exercises; phenomenology and visual content analysis.

Phenomenology began as a philosophical approach, as a tool to dig deep into the consciousness and sub-consciousness. The discipline was introduced by Edmund Husserl (1859 – 1938) and was expanded upon by Kant and Descartes whom later gave various perspectives/variations of the discipline. Phenomenological approaches are rooted in the principle of investigating the inner workings of one's mind in order to determine a shared perspective/meaning. Tom Danaher and Marc Briod (2005) provide a description of this approach in relation to children:

> Phenomenology's task is to capture in everyday language distinctive qualities in a child's emerging world, qualities that may not be remembered, or seem quite foreign to adults. To accomplish this aim research investigates those experiences of wonder and intentional meaning that are at the core of concrete existence, and provides the experiential 'stuff' for all that is truly empirical. A phenomenological study of children aims to clarify, describe and interpret their unique forms of 'intentionality' that constitute a child's way of attending to the world. A sound beginning asks the questions: What is it like to *be* a child? What does it mean to live in the special manner of a child? (Danaher and Briod 2005: 218).

Understanding these two questions posed by Danaher and Briod (2005) are, a means to "…thematize (that is, to structure meanings) through descriptive methods, and so strengthen our sense of what it means to *be* a child, to live in the world *as* a child" (219). Drawing exercises are one of the many visual phenomenological approaches that have the ability to visually represent the lived internal world of children. Phenomenologist such as Maurice Merleau-Ponty (1964) pointed out, that by using creative methods such as getting children to draw can allow for non-verbal ways to describe an experience as well as understand their meanings. Thus, I choose to use the

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phenomenological approach for the study of the drawing exercises and content analysis to provide a deeper perspective.

Visual content analysis is typically used to analyze mass media images found in television, magazines, and newspapers. This method is broken down into several stages: Gathering content (images), hypothesis building, coding (building categories), and interpretation. The first step is gathering the content for investigation. Secondly, after reviewing content, one is able to build a general hypothesis of any trends the researcher is noticing. Third, the researcher separates the images and places them into categories. The final stage of the content analysis approach is the interpretation of these categories. Not only is content analysis a quantitative approach that is replicable, but like semiology, it offers analytical precision. "Content analysis offers a clear method for engaging systematically with large numbers of images. And it is not simply a quantitative method; clearly, every stage of content analysis, from formulating the research question, to developing coding categories, to interpreting the results, entails decisions about meaning and significance" (Rose 2007: 71).

One of the other reasons why visual content analysis is used in this study is because "…it provides clear guidelines for dealing with large numbers of images consistently and systematically. But it has no way of dealing with those sites at which meanings of images are made other than that of the image itself. Nor, apart from its methodological explicitness, does it demand reflexivity on the part of the researcher" (73). Once having conducted a visual content analysis, "…the researcher can then interpret the images or the imagery in qualitative ways" (Bell 2001: 27). This method is also in part, a dual observational method where a hypothesis can be formulated as to how

media represents society and how society sees itself. For this study, understanding how society (in this case, children) see themselves in their community is the basis for using this method.

IV. Thematic Analysis of Children's Drawings

I began my analysis by recording the number of individual "images" or features found in the drawings, such as people, flowers, and houses. Interestingly, although animals such as chickens, cats, and dogs are always seen in streets, they are rarely or never depicted in these drawings. I have included them in the "miscellaneous" category in the figure below (Fig. 2):

Image	Total Number of Appearances	Number of Differences
Water	50	37 classified as 'dirty'
Vegetation	63	43 trees and 20 flowers
People	40	31 smiling, 4 sad, 5 w/o expression
Cars	25	
Homes	58	
Structures	25	Other buildings besides homes
Miscellaneous	79	Such as hearts, stars, and flowers

Figure 2: Results of quantitative image analysis.

After quantifying the frequency of certain features, I qualitatively analyzed the drawings in order to define "themes." I did this by assessing how each of the features above were represented in children's drawings; for example, whether a person was drawn as "happy" or "sad," or whether the water was drawn as "clean" or "polluted." Based on

this analysis, I determined that the drawings could be categorized into the following themes defined by types of space: Polluted Space, Pleasant Space, Envisioned Space, Proud Space, Dangerous Space, and Stated Space. In the following, I describe each of these spatial themes that emerged from the children's drawings and provide an example of each.

Polluted Space

The theme "Polluted Space" emerged through children's depictions of contaminated locations. These representations include dirty water, garbage, unclear objects indicated by the artist to be some type of garbage, and direct statements made by the artist that refer to contamination. I observed children informing other children why the area was contaminated, thus influencing each others perspective in the drawing process.

An example of this theme is the following drawing (Fig. 3), which depicts the artist's home next to a polluted water source. This theme is characterized by various depictions of garbage, as in this drawing. The water contains multi-colored wavy lines which the artist verbally described as "*agua negra*" (black water). Furthermore, the artist emphasizes, in his written text, that the space is an area recognized by children as contaminated.

Figure 3: Example of polluted space theme.

On many occasions the children would show me their finished drawings and explain to me why they drew certain things. What caught my attention right away was the fact that even though a location was painted as contaminated or littered with garbage, the artist sometimes still indicated to me that it was a "good" place for him. Many of these drawings included images where the artist drew themselves smiling, flying a kite, or playing with other children while depictions of contamination were present. Two types of artists seemed to be producing drawings that fell into this theme: the conscious artist and the sub-conscious artist. The conscious artist communicated to me that even though they knew the area was contaminated, they still regarded it as a fun place, as well as a place where other children gathered. The sub-conscious artist simply indicated to me that the area was a fun place to play and gather, yet did not mention the contamination present. One of the reasons for this was explained to me by one of the parents. She said, "You have to understand that for many of these children, this is the only environment they have ever known – the garbage they drew is more of a detail in their drawing – they probably aren't even aware of what it is exactly." One of the reasons why the children conceived of the space as pleasant was because of this fact: they didn't know any better. Even though the area might be contaminated, the attraction to the location is what made the area pleasant for them; regardless of any contamination present.

For example, in the following drawing (Fig. 4), the artist drew himself flying a kite next to a water source that he recognized as contaminated. There is also a bridge that crosses the water source that leads to a pile of garbage. The artist recognized the space as

a contaminated area, though since he favored the space, he chose to draw himself
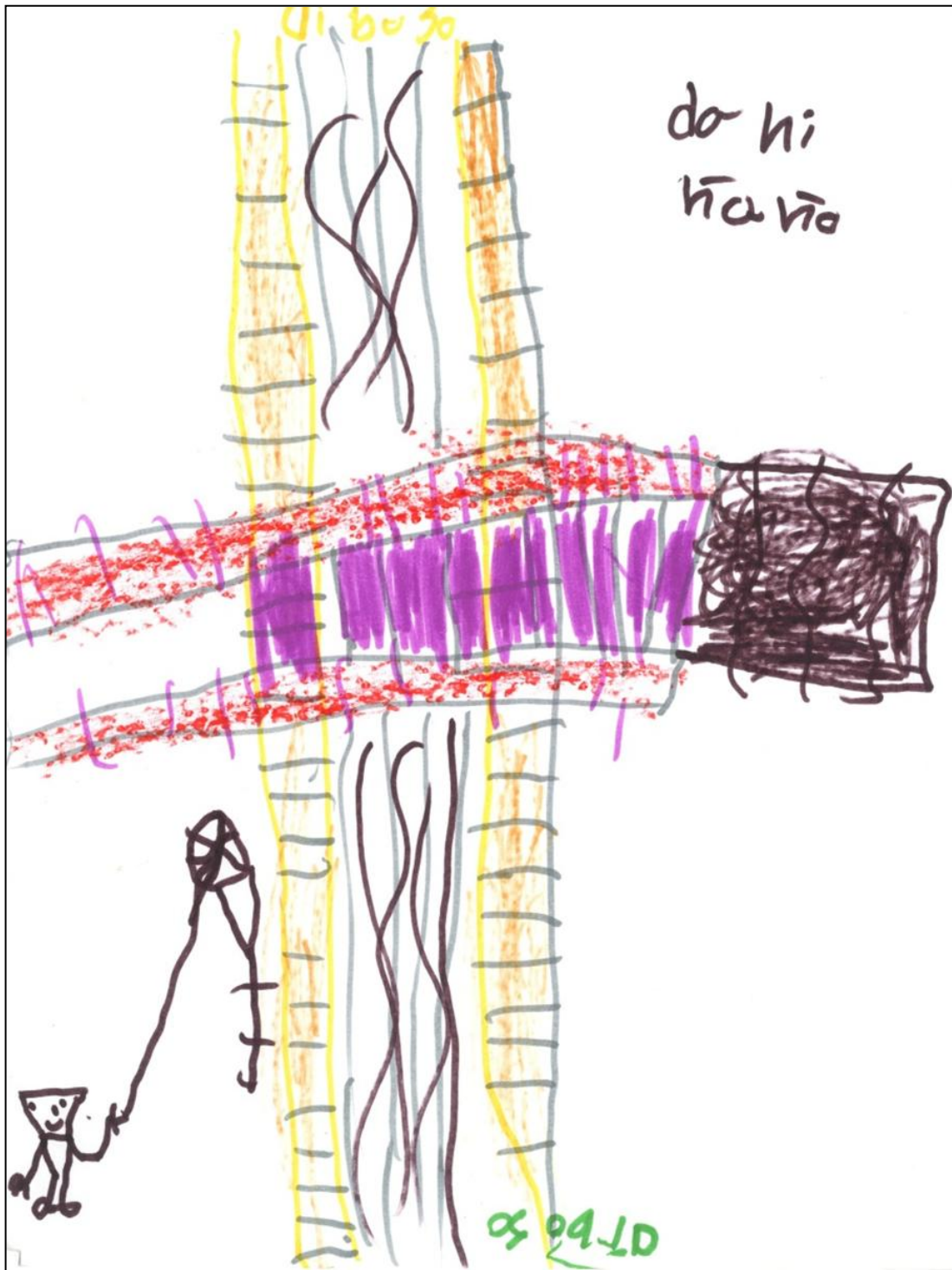
smiling. This child exemplifies the conscious artist.

Figure 4: Example of drawing of pleasant space.

Envisioned Space

I was able to categorize images within this theme through direct communication with the artist, and through content analysis. When some of the artists would give me a very beautiful image of a location that was littered with garbage, I asked them why they painted such a beautiful image. Their response was, "Because this is how we would like to see this place." Instead of drawing the pollution or trash in a contaminated space, some children instead chose to depict what they thought the space should look like. These drawings therefore represent a future or envisioned space. For example, some include smiling suns, clouds, and hearts; others include building structures such as schools; some depict a clean stream, flowers, and trees.

In the subsequent illustration (Fig. 5), the artist drew what the space looked like and juxtaposed an image of what the space should look like above it. On the bottom, we see a contaminated area; on the top, we see lush vegetation, reflecting what she envisions for the future.

Figure 5: Example of envisioned space.

Proud Space

These drawings emerged as a theme partly through my conversation with children, who told me they were proud of certain images in their drawings. Many of these drawings depicted images such as their house, friends, favorite places, and most importantly, a specific event important to them. Some of the artists drew themselves smiling next to their house, even though they surrounded themselves with images of contamination. Other images showed the artist flying a kite right next to garbage or dirty water, or standing next to her house with a pile of garbage directly next to them. When I asked the artists to explain their drawing to me, many of them replied, "This is my house and where I live," or "This is where I learned how to ride my bike." These conversations became the basis for the formation of this category; even though the artist drew a type of contamination, they were very proud of what these places and images meant to them.

In the drawing below (Fig. 6), the artist shows the school as a structure that she is proud of. She also chose to place miscellaneous images such as stars and flowers in and outside of the school to emphasize its importance to her. There's also a smiling flower in the center of the school, which the artist indicated represented her bond with the school.

Figure 6: Proud Space

Dangerous Space

Very much like the Proud Space, this theme emerged through conversations I had with the artists. When I asked the artist what made these areas so dangerous, many of them responded in a similar manner: these were places parents warned them about or areas they knew bad people (drug dealers and gang members primarily) gathered. Additionally, many they had had bad experiences in the places they depicted. For example, one of the artists drew a gun in their drawing. When asked why they drew a gun, the artist replied, "One day me and my friends were playing here and we found a gun. When I told my mom, she said not to touch it because the bad people might come back to look for it." In another drawing, one artist drew two people looking down at someone who appeared to be crouching in a hole. When asked about this, the artist replied, "Someone fell in the hole a long time ago and they died." Even though this theme does not directly involve areas of contamination, they are areas children and youth recognize and experienced as being very dangerous.

In the illustration below (Fig. 7), the artist depicts a car accident which occurred because of a giant hole in the middle of the street. The artist drew the hole with items inside indicating garbage as well as drawing several "x" marks to show that the hole was dangerous. Furthermore, the artist drew themselves at the top left-hand corner to indicate they were witness to the accident, as well as well as a way to warn others of the dangers of the space.
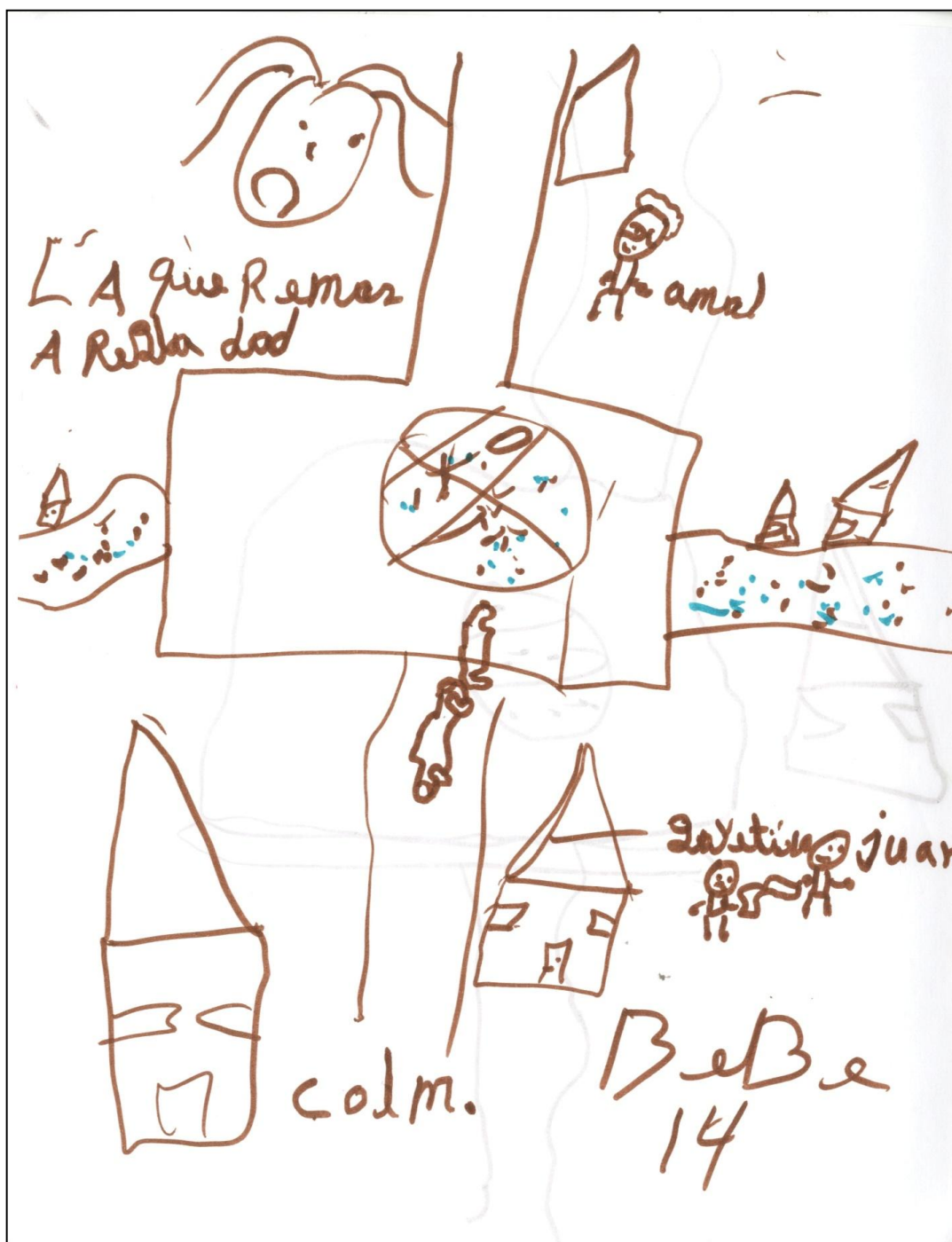
Figure 7: A child's depiction of "dangerous space."

Stated Space

This theme came about through the various types of statements that the artist wrote alongside their drawing. Many of the drawings included text, but were not counted as stated spaces, because they labeled what things where in a way that didn't seem significant in terms of the space, such as the artist's names or names of images. These drawings were primarily characterized by the statements the artist chose to make for one particular space. Statements such as, "This is contaminated" were followed by arrows drawn to focus on what they wanted the observer to see. One of the artists drew themselves with a sad face, while having their friend next to them smiling and standing next to dirty water saying, "We can't play here." Out of all the themes, I believe this one contains the strongest message, and clearly shows how observant and conscious these children are. When I showed these drawings to one of the parents, they reflected on the drawing and told me, "You see, they know very well of the dangers present here – we need to do something." The figure below (Fig. 8) contains images that the artist chose to best represent the collective action needed for this space to be fixed. The artist placed the message at the top right hand side of the drawing, stating, "we want this fixed".

Figure 8: Example of drawing that reflects the theme, "stated space.

V.   Analysis of Symbology Used in Children's Drawings

Although further study is still needed to fully analyze these drawings, the themes I discussed above suggest that children do understand dangers in their environment, that they are affected by hazards in their environment, and that they are capable of envisioning a different future for their environment. In the following section, I offer an analysis of symbology used by children in their drawings. I refer to "symbology" here as the methods children used to represent elements in their drawing, including: color,

texture, text, and icons. Their use of symbology is an indication of the children's cognizance of the realities of their environment.

Color Use

Out of all the trends, I consider this one to be one of the strongest. Prior to the drawing exercises, a colleague of mine was curious about the coloring materials I was going to use for the exercises. It was obvious that I would need to take plenty of colors, because I wanted the children to have the choice to select the color they felt was most appropriate. But if a color was not available, would they resort to using any random color, or would they wait until they found the color they needed? I realized that children not only waited for their color to be available, but they required specific colors to capture exactly what they wanted to draw. On many occasions, children found out who was using a certain color and then trade colors. In other words, children associated meaning with colors and were cognizant that particular colors were needed to represent particular things.

Natural landscapes such as trees, flowers, and wildlife for example are usually drawn using vibrant and light colors. Colors such a yellow, orange, red, pink, green, purple and even blue were used in combination in many of the drawings to depict a fun, or safe environment. I associated these colors with positivity and naturalness. Darker, less vibrant colors such as grey, black, and brown were used to show contrast, as well as to represent images that were dirty (contaminated). For example, clean and dirty water was represented by differently colored, squiggly lines. If the water was clean, then lightly curved blue lines were used. If the water was dirty or flowing slowly, then children would use dark, black, grey, or brown curved lines were used to indicate dirty;

these color use characteristics are seen below (Fig 9). In Figure 9, we see a boy who is smiling, right after he had fallen into the dirty water. As indicated by the artist, he used his arms and legs so that he would not get the rest of his body dirty.

Figure 9: Color Use

Texture

I refer to texture here in two ways: the use of geometric shapes (circles, squares, etc.), and the level of contrast used (sharp jagged lines, concentrated squiggly lines, etc.). Using water as an example again, many of the children used geometric shapes such as circles, ovals, squares, and rectangles to symbolize either garbage or objects in water. Since garbage has no specific shape or form, many of the children used colors to represent various types of waste. It is important to indicate here that the uses of geometric shapes were also used to make houses, cars, vegetation, and miscellaneous objects. The geometric shapes used to depict these images were more structured and uniform, whereas the geometry of images depicting contamination was more abstract in nature. Children specified differences between waste and other images by color use and texture, as well as the explicit use of text. Children also used excessive color to add texture and to depict accumulated waste or heavily contaminated areas. Heavy use of color included using multiple objects, squiggly, jagged, heavily colored, and thick lines to represent these areas containing contamination. These characteristics can be seen in the drawing below (Fig. 10).

Figure 10: Texture

Text

Many drawings included two different types of text: text that labeled images and text used to make a statement. The first type of text is used throughout the drawings to indicate the names of people, objects, the artist's age, and places. The second type of text is used as a statement to indicate something the child believes in, or something they would like to express. One of the main correlations between statement and image is that the child is reflecting on something they perceive in their environment. Some of these statements include, "Help Please," "We want to fix this," or "We want solutions." Other statements are also directly made by drawing a self-portrait, or a character that is making a statement with arrows used to indicate who is making the statement. The drawing below is a good representation of text use in the children's drawings (Fig. 11). In Figure 11 the artist drew himself with an arrow pointing to a statement he is making, "We want this fixed". Under this statement, there is another phrase saying, "We want solutions," and a character of a woman saying, "Help please" and "Water".
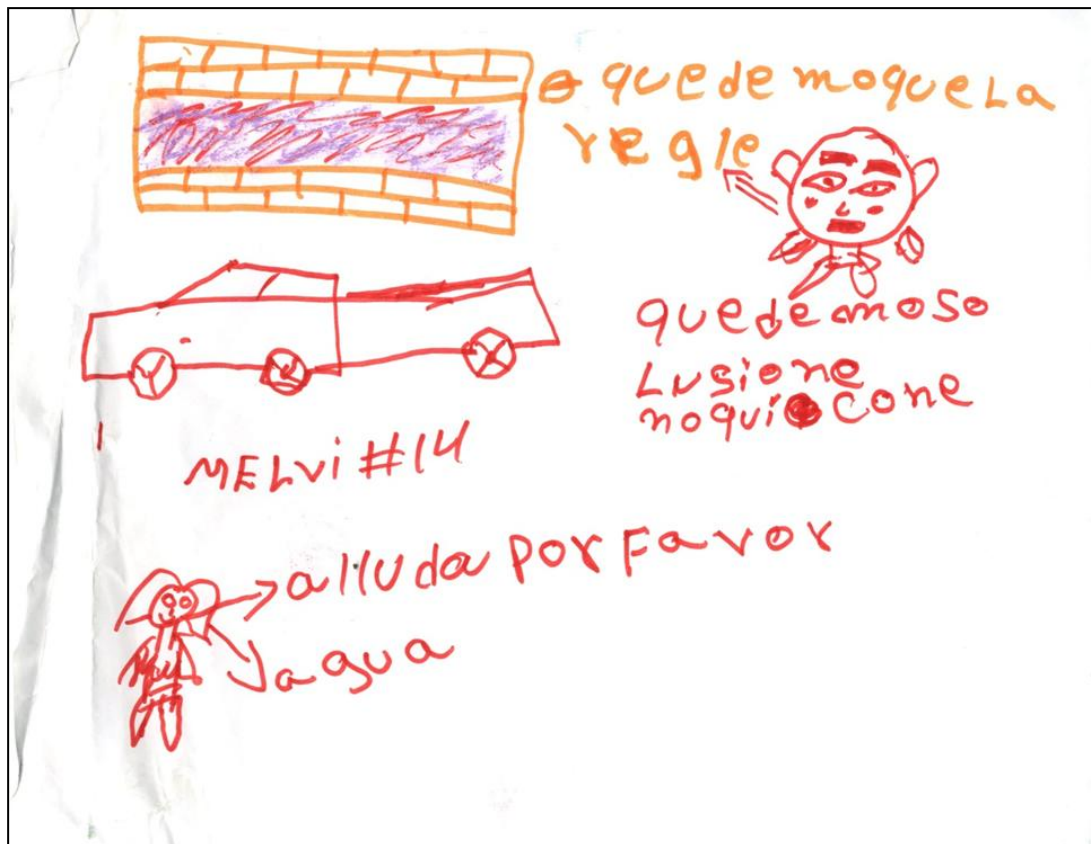
Figure 11: Text

Icons

I was able to observe a particular iconography within the drawings through reviewing statements made by the artists, and reviewing trends within drawings. For example, when there is a drawing of a car, this means that the area depicted contains a certain amount of vehicle traffic. When there is a child flying a kite, this means that this is an area of play, as well as a favorite spot of the artist. Even most favored toys such as kites can be seen to represent freedom or brief escape within the sky and clouds.

Other icons such as the Dominican flag and schools are represented in a variety of ways. For example, these icons are sometimes drawn together, or on their own to indicate a level of pride. Many of the artists indicated that every school had a Dominican flag that represented the Dominican's pride in their schools. So the Dominican flag not only represented the pride of the artist, but it also represented an understanding of identity. Schools also represented a 'safe' place. Additionally, miscellaneous images such as hearts, stars, and flowers were usually drawn next to schools or homes to indicate how important these images were to the artist. Schools and homes represented images that the artist recognized and felt to be safe within their community.

Other icons such as couples or groups of people depicted areas where people congregate. In some drawings, images of people holding items indicated areas where adults would get together for a drink. Images that were crossed out by an 'X' for example referred to dangerous areas they should avoid, or areas where accidents occurred (domestic violence, car accidents, death etc.). Yet one of the most important icons within these drawings is the image of a character making a direct statement. These images not only represented the artist's consciousness, but were also a way to engage the observer. This engagement represents a dialogue between the artist and the observer in such a way that that the artist brings you into their world. This icon or dialogue also represents something very important to the artist; the call for help and assistance. These characteristics can be seen in the illustration below (Fig.12). The artist in Figure 12 drew themselves smiling while flying their kite by their school.

Figure 12: Icons

Summary

       This chapter focused on the relationship between children and their environment. When framing complex questions regarding neighborhood and community and other factors that influence children's lives, the call for new methods and approaches is needed. The purpose of this chapter was to recognize that a child's environment directly influences their health and cognitive development. Whether children live in informal contaminated neighborhoods such as Los Platanitos or within our own neighborhoods, their perspective of their environment is key in addressing these complex questions. Drawing exercises such as the ones conducted in this study are not only channels through which children can express their opinions, but a means to understand their role in planning better communities. Participatory approaches such as these help to yield results regarding community effects, but also help to develop new strategies that encompass multi-level approaches. It would be these approaches and children's narratives that would indicate that children in this community are not only the most directly impacted, but the most vulnerable of citizens.

Conclusions and Implications: Public Space Planning in Informal Settlements

" ...the concept of dwelling assigns importance to the forms of consciousness with which individuals perceive and apprehend geographical space. More precisely, dwelling is said to consist in the multiple "lived relationships" that people maintain with places, for it is solely by virtue of these relationships that space acquires meaning. As numerous as they are both singular and specific, and fully realizable across great distances, relationships with places are lived whenever a place becomes the object of awareness. In many instances, awareness of place is brief and unselfconscious, a fleeting moment (a flash of recognition, a trace of memory) that is swiftly replaced by awareness of something else" – Martin Heidegger (Wisdom Sits in Places, Keith Basso 106).

I have shown how drawing exercises can help further our understanding of the relationship children have with their environment. Not only did children render their experiences on paper, but they showed how they interact with their environment. Children identified contaminated space, but more importantly, communicated the different types of danger levels present. They also differentiated between areas perceived to be "safe and clean" from areas which they considered to be "dangerous and dirty". Additionally, they showed that they valued certain structures based on features that were important to them, such as schools, for example. Additionally, many of these drawings included direct statements in written form, asking for change or help. Therefore, the drawings allowed the children to represent their emotions visually as well as verbally.

In public space planning, planners must keep children and youth in mind. Unlike adults, children and youth will explore their environment to the full extent, absorbing and seeing every part of it; the exposure to the built environment can easily affect their health and safety. However, understanding how children and youth are impacted by their

environment is crucial when applying a participatory approach. Creative participatory approaches such as drawing exercises can be utilized to engage children and youth in the planning process, but also serve as a guideline for setting priorities and integrating the public to engage in community activities.

The first steps in any type of participatory and collaborative approach are to raise consciousness, and then organize a collaborative effort, in many cases through a neighborhood association. In the case of Los Platanitos, following the class project in January 2011, community members formed an organization to start tackling the solid waste problem. I recommend that the community organization meet with other organizations to form a network of such groups, and to also learn from their experiences. In many cases, newly formed organizations lack resources or awareness of resources available to them. In order to support this new organization, governmental entities such as the ministry of education, public health, environmental science, and the solid waste department should assist by providing capacity building, technical assistance, and helping the community in applying for local, national, and international funding.

In the case of the children in Los Platanitos, I recommend that the ministry of education integrate environmental education into their curriculum beginning at the earliest grade level and continue this education throughout the length of a child's education. This environmental curriculum should include information on recycling practices, proper hygiene practices, environmental hazards/impacts, diseases, and environmental global health. I would also recommend that the city assist the community by providing basic waste disposal service. Even though the community is located in an area that is difficult to access with trucks for trash removal, there are still ways of

assisting the community. By providing trash bags, carts, and light motor vehicles that can assist with the transportation of trash, the community would have an avenue with which to transport garbage out of their environment.

I would also recommend that the public health sector work in collaboration with the ministry of education to create outreach programs for communities such as Los Platanitos. If these sectors were to form a collaborative effort, I believe that their influence would vastly improve the safety of the environment. Although due to a lack of resources, some of these recommendations may not be able to take root for some time, continued efforts to reach this goal would be of great benefit to the community members of Los Platanitos. This is because in Los Platanitos, children roam in dangerous areas without fear for their personal safety, and are exposed to hazards on a daily basis. The danger extends beyond self injury to the spreading of infectious diseases (such as dengue and cholera) due to a child's contact with the biological dangers in la *cañada*.

Ultimately, children possess an organic perspective that can be corrupted by internal and external factors. Their experience is rooted, nurtured, and molded by their environment. They are constantly learning and changing with their surroundings. In time, children will forget these organic experiences and their youthful memories will be locked up in the far reaches of their mind; only to surface when environmental triggers set them loose. We must never forget these memories, nor should we ever overlook their significance. Every moment, a child is learning from their environment, and it is they alone who posses the power to change the world.

Appendix A

Parent Interview

Parent Name:
Age:
Occupation:
Residency in Los Platanitos:
Residency in other neighborhood:
Number of people in the household:

Number of children in the household:

What are their ages?

How many children do you have?

Do they attend school? If so, what grade level are they in school?

Are your children vaccinated? If so, which vaccinations have they received?

What do you do when your children are ill? What type of medical aid is available to you?

How many times have your children been sick this past month? Year?

In case of an emergency, where is the closest clinic or hospital?

Do your children mainly play indoors or outdoors?

If indoors, what do they usually do?

If outdoors, what do they usually do?

Do you know any of the outdoor areas where you children like to play?

Do you warn your children of areas they should not play in? Which ones? If so, what do you tell them?

What worries you the most about your children playing in these areas?

Could you describe these areas? Are they dangerous?

Are these areas contaminated, polluted, or diseased? What do you think are the possible risks that your children encounter in these areas?

Do you feel that your children know a lot, a little, or nothing about their surrounding environment?

Do you feel that your children know a lot, a little, or nothing regarding contaminated, polluted, or diseased areas?

If there was an environmental education program for children, would you like for them to attend or be a part of?

What should this environmental education program include for children?

If there was an environmental education program for adults, would you attend?

What should this environmental education program include for adults?

Who would provide this environmental education program?

Comments:

Appendix B

Teacher Interviews

Name of School:
Type of School:
Name of Teacher:
Subject Teaching/Taught:
How long teaching:
How long teaching at this school:
How many students in your classroom:
How many students attend this school:

Which districts, neighborhood, or area does this school service?

How do you begin to prepare your course curriculum for each coming year?

Where do you receive your course materials from? Does this school create its own course materials?

If these course materials are provided to the school; do you feel that the course material is adequate or do you find that the material needs to contain more specific criteria?

Does the course curriculum cover topics such as the environment, recycling, pollution, or public health?

Do you cover any of these topics within your classroom? Do you include it in your curriculum?

If not, do you think the course curriculum should add these topics?

In your opinion, how relevant are these topics within the school curriculum?

From what you have observed, do these topics need to be included in the curriculum? Why or why not?

Do you think these topics need to be discussed in your or any classroom?

Do you think that an environmental education program would be beneficial in the curriculum? How so?

Comments:

Appendix C

Adolescent Interview

Name:
Age:
Occupation:
School Attending:
Grade Level:
Residency in Los Platanitos:
Residency in other neighborhood:
Number of people in the household:

How many children do you have?

Do they attend school? If so, what grade level are they in school?

Are you vaccinated? If you have children, are they vaccinated?

What do you do when you get sick? Is it regular or normal for you to be sick?

How many times have you been sick this month? How about this past year?

In case of an emergency, where is the closest clinic or hospital?

When you are with friends, where do you go?

How about when it is just you? How do you pass the time?

Are there any regular hang out spots where your friends or youth hang out?

Are there areas where you or your friends don't hang out? What worries you the most about these areas?

Are these areas contaminated, polluted, or diseased? What do you think are the possible risks that you or your friends face?

School Experience

Do you receive any type of environmental education such as solid and toxic waste, diseases from contaminated areas, all types of pollution, (noise, air, water, etc) at school? If so, what does it cover?

Do you feel that the material (if any) is sufficient or do you feel that you need more information regarding this type of education?

What do your teachers tell you about contaminated environments or how do they explain pollution in class?

Home Experience
When you are at home, do your parents talk about the environment? If so, what do they say?

When you were younger, do you recall your parents teaching you about the environment or warning you about the dangers of contaminated areas?

If there was an environmental education program for children, would you like for them to attend or be a part of?

What should this environmental education program include for children?

If there was an environmental education program for adults, would you attend?

What should this environmental education program include for adults?

If there was an environmental education program at school, for all grade levels even, what would it include?

Who would provide this environmental education program?

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Vita

Omar grew up along the El Paso/Juarez border and earned a dual Bachelors of Arts from the University of Texas at El Paso in Electronic Media and Creative Writing. His experiences with border life and culture have inspired him to understand the relationship created between border towns, as a continuous dialogue between neighbors. It would be this relationship which would later influence the idea of border narratives, which exist to tell the life story of one self and of a geographical place. His current interests include children's border narratives, environmental education curriculum in public schools, and story telling. He currently lives in Austin, Texas and enjoys, cooking, painting, and extending his cactus collection.

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