Networked Playscapes

Redefining the Playground

by

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Submitted to the Program in Media Arts and Sciences,School of Architecture and Planning, in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Media Arts and Sciences at the Massachusetts Institute of Technology

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Abstract

In recent years the world became mostly urban, communication untethered and objects surpassed humans connected to the Internet. We are being shaped by the intersection of urbanization and ubiquitous computing. "Smart Cities" offer an efficiency-driven solution by "programming" the city, but this centralized approach forgets that it is the people that make the city and that playing is central to being human. Digital or physical, play is an act of creation and appropriation, a respite in a world geared towards consumption, efficiency and technological determinism.

Simultaneously, playgrounds are suffering abandonment. Poorly designed, they are deemed childish and boring, the streets insecure and parents too busy. Portable computing devices have taken over most of the playtime and confined it to human-screen interaction. With less time spent outdoors, social networks and video games have become important hubs where we converge to play—mediated, across distance, with people we might never meet.

This dissertation proposes that the advantages of connected play need not be exclusive to the indoors, and that playgrounds today need no real estate. Additionally, it hypothesizes that connected play in the public space enhances the social integration function that playgrounds as architectural constructs have previously served.

Drawing from research in play, cognitive development, ubiquitous computing, architecture, telepresence and urban planning, this dissertation posits the redesign of playgrounds into Networked Playscapes. Grounded in the public space, they take existing urban affordances and add largely invisible technological underpinnings so as to support connected play.

Deployed in Mexico City, Networked Playscapes is illustrated through three experiments: Triciclo, Andamio and ListenTree. Placed at highly marginalized areas and designed with a broad definition of play, they provide infrastructure for connection at different scales while centering on ludic interaction as the purpose to come together across social and geographic divisions.

Space informs play as much as play can inform space. This thesis will discuss design guidelines driven by local idiosyncrasies and physical affordances for grounding and place making, and proposes taking the telepresent quality of imaginative play as the parameter to make congruous use of physical computing embedded in architectural constructs and nature itself.

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Orçun Göğüş, Orçunum... Aşkım birtanemsin, seni *çok* seviyorum.

"Look, look!"

To Edith Ackermann, with deep gratitude.

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1. Introduction

What is a "playground"? Is it slides, swings and see-saws on a concrete floor? What about a sheet fort in the living room? A hammock in the garden, sidewalk chalk? Perhaps it is the patch of forest behind those houses, or the parking garage of the building next door where the neighbors children play safe from cars. What about the shopping mall as seen by teens, the handrail as used by skaters, the basketball court? Is it the fenced plastic slide and swing set around the corner you take your toddler to? Is the cantina a playground, the fountain in the plaza with its dancing water jets? Is a playground a place you go to or a space you make? It seems to be that play, like water, will find its way. So what *is* a playground? And what *grounds* for play?

Play emerges between people, objects and places, but also in our minds, without much need for the body. No longer simply an analog and physical affair, play has taken computational power, networking technologies and screens and used them as portals to take us from couches, traffic, toilets, meetings and train rides to spaces we can fly in, build worlds in or even kill at. We can escape from the drab and dull to the imaginary and illusory, but also to the mediated, misleading and distorted — led by a golden thread that is merely gilded to a magic circle made by someone other.

Where play used to be free and public, and act more akin to creation than consumption, it is slowly moving towards the private, personal and commoditized, as is reflected by the infrastructure we grant it in the public space. Take a stroll around town or do a quick search for the term "playground" on the web — mass manufactured plastic sets designed mostly for toddles, with fear of litigation and serving little to the imagination — a far cry from decades past when children, designers, architects and artists took over the streets through play.

The unifying nature of play once made playgrounds an effective tool for integration — by design. Yet presently, as we enter a future were cities become home for most of humanity, we are relying on "smart technologies" to make them more livable when it is inequity and disparity that root most social ills. Contrary to helping, these technologies have mostly increased the gaps. Public play as common ground on the other hand, has been a bridge for intercultural exchange, served a space for expression and offered a tool for appropriation. We need to bring play back onto the streets, but to do so playgrounds need to be re-considered, re-imagined and re-designed to better reflect the way in which people engage in play today. Having ceased to be an analog affair and becoming

more and more mediated and networked, there is an opportunity to increase the breath and reach of play in the public space. For example, in addition to designing more varied play equipment, digital systems could let us design prompts for play or think of the environment as the playground itself while networking play could enhance the community building aspect of playgrounds by extending the range and breath of interaction in ways that physical play alone cannot.

Furthermore, the current ease of access to tools for personal fabrication, design and code repositories and DIY electronics present an opportunity to create grounds-up, idiosyncratic *playscapes* that integrate a wide range of skill and craft. Playgrounds are richer if diverse in form and function and the city wins when giving people a say in the creation of public space.

This dissertation posits that playgrounds are something more than places for children's play and that play is something more than a child's activity. We explore ways in which we can reintroduce play as a tool for integration in the cities-to-be by designing grounds-up, locally informed, networked, hybrid playscapes for we believe that networked play is better served when grounded in material form and serves us better when it is free, shared and happens in the open, public space.

Thesis Overview

Following the Introduction, Chapter 2: *Foundations* begins by discussing in which ways we have perpetuated segregation by design and posits play as a bridge between divisions. This comes through distillations of readings on urban planning, sociology and cognitive development.

In Chapter 3 and Chapter 4 — *Play to Ground* and *Grounds to Play*, I examine play as an activity that happens between and across realms and mediums. We start by examining play as a mental and physical activity and move on to exploring the political aspect of play, play in the city, and the mostly salient approaches taken at designing spaces for play in the public space.

In Chapter 5: *Towards a Design for Networked Playscapes*, we gather the insights of such approaches, review what we have learned through the workshops we have conducted, examine the need for networked veracity when applied to play and craft the guidelines for creating idiosyncratic Networked Playscapes.

Chapter 6: *Deploy: Mexico City* offers an overview of Mexico City, its most pressing social ills and how they manifest spatially in the city. It then looks at how play has changed through time and at the current state of play in the city. It then posits ways in which networked play might help relieve segregation among neighborhoods.

In Chapter 7: *Networked Playscapes* we start examining how a playscape is or is it not collaborative art or public art and offer a way to evaluate it as an aesthetic intervention with a social aim. We then present the three interventions that took place in Mexico City: Triciclo, Andamio and ListenTree.

Finally Chapter 8: *Conclusions*, we posit Networked Playscapes as a paradigm shift in the evolution of playground design, review their features and breakdown the challenges of working in the public realm and conclude with the contributions this dissertation brought forth.

2. Foundations

With most of the world's population living in cities, urgent planning debates are concerned with the creation of more habitable urban environments with a stronger sense of community among people with different cultural and socio-economic backgrounds. While this is not new, the ways in which cities are created today and the way we inhabit them has undergone great changes due to the intersection of ubiquitous computing and global urbanism. Far removed from the communities they serve, the principal actors designing the cities we live in and the tools we use to engage with the world and one another operate at a scale that ceased to be local or even human. For the most part, this systems have widened gaps rather than built bridges. We are growing physically apart under the idea that technology alone will bring us together.

Too much credit has been given to the Internet as the ultimate equalizing tool while we have undermined the power of the built environment to promote democracy. We are beginning to understand that laying down digital infrastructure alone does not guarantee meaningful interaction, and that it works more effectively when paired with social mechanisms. To do this we need to reconsider the basic moral and social contracts that bind people within a society and examine which means, what tools and in what spaces do we actually move beyond exposure into actual engagement.

Play is so ubiquitous, natural and free that we have underestimated its power. Yet look around: where did *free* play in the public place go? If the presence of children playing in public spaces is one of the hallmarks of a vital, inclusive city, we need to seriously consider it as a crucial part of urban planning and create occasion for play in the public space. If playing is the basis of creativity and in the creative act lies the discovery of the self, we need to consider it as much as we consider ventures for profit. If play overcomes self-assertive tendencies and provides a way to communicate in equal terms, we need to seamlessly integrate it into the urban fabric rather than confine it to child-centered playgrounds or have it commodified and mediated through screens. Free and universal, play is a powerful tool for engagement, integration, appropriation and learning (rather than educating) — and this makes play political. Play questions authority by letting us think and test alternatives to the social order's status quo. Play is dangerous if set free since it lets us be, yet it can be highly profitable when its access is controlled. We need to reclaim play in the public space and make it hold as much power as it does in the digital public sphere. Ultimately, play has

always been our best ally when it comes to learning who we are and how to cooperate, understand and respect one another.

Segregation: Physical, Digital ...and Play as the Bridge

Physical Segregation

In 2014, the United Nations reported that more than half of the people in the world will be living in urban areas, up from only a third in 1950 (United Nations 2014). By 2050, it is presumed that two-thirds of the population worldwide will live in towns or cities and although birthrates are expected to decline, many of those urban residents will be children. Migration to cities is not always voluntary. The resources needed to maintain the living standard of a few creates a huge toll on the many. Today there are 247 million people who have been displaced due to conflict, climate change, poverty and political oppression — Saskia Sassen adds loss of habitat to the list (Sassen 2016).

Anticipating the added burden brought about by the influx to urban populations, the "Smart City" has emerged as a top down alternative that proposes "programming" the city, gathering and distributing data to streamline the management of the city's assets from a centralized command center. The idea of a "Smart City" is the product of engineers, system analysts and technocrats. The companies leading the race—IBM, Siemens, Cisco Systems and General Electric—laid down the wires for census tabulations, electricity, telegraphs and the Internet, easing the traffic of global supply chains over the course of decades (Townsend 2013). It was not illogical then to think that this same model could be retrofitted onto cities, helping local governments ease and monitor their own "traffic" and making the city more efficient. Or better yet, that new cities could be designed as Smart Cities from the start, to not only predict but actually avoid anything unwanted. But focusing on efficiency alone ignores the fact that a city is the complex result of its geography, its people and the social conditions established between them. As retrofitted systems or as cities created from scratch, what remains true is that never before have large-scale commercial actors (IT companies) been so deeply involved with the building-up of a city's ideology (Greenfield 2013).

According to Sennett, the fundamental problem with the notion of Smart Cities and the consequent involvement of IT companies is that they create "closed systems." Several factors contribute to this issue (Sennett 2006). The principal source of development funding is core

investment. As opposed to opportunity investment where local potential drives opportunity, core investment relies purely on the availability of space. To core investment, China and India, the coast of Thailand or Nicaragua are all the same. This leads to homogenous environments imposed from outside and meant to benefit whomever can afford them, while excluding anything and anyone who cannot. This model only perpetuates social inequality where only a minority live in a dynamic economic situation— all by design. Sennett notes that while "closed systems" are not new, nor solely a consequence of Smart Cities, it is the first time that the segregation these closed systems creates is not endogenous—that is, it has not emerged from within but rather has been imposed from outside and conceived by major technology monopolies (Sennett 2006). Of bigger concern is that the selling point of "efficiency" usually entails delegating citizens' capacity for inductive reasoning to someone else and that centralizing control further skews power dynamics by making it easier to suppress and control communication.

The complexity of a city cannot be simplified to a finite number of interrelated systems and solutions will likely fail if imposed from outside and above with no foresight for integration. As it stands, Smart Cities widen the gap between haves and have nots: in model cities by hand-picking the inhabitants, in retrofitted cities by advancing segregation, and globally by creating a market of "smart technology" as an easy and glossy fix rather than mining local solutions.

Another concern regarding segregation in cities is their privatization. There has been a massive national and international acquisition of property by corporate investment as of late ($1 trillion as of 2015 - a figure which only includes acquisitions of $5 million at minimum) (Sassen 2015). The large-scale privately funded re-development of cities threatens the diversity that has made cities survive, presenting significant implications in terms of equity and democracy in the cities-to-be. New constructions and re-development force the foreclosure of more modest properties, pushing lower-income households out and replacing the once diverse mix-use neighborhoods with luxury buildings, creating virtual walls and gated communities hidden in plain sight. With the small and public becoming large and private, the distances we need to traverse in order to find something other than the same become larger, the socio-economic gap wider, and the common places were we would find others, are visited mostly by others just like us.

Digital Segregation

The Internet has removed traditional obstacles to information, people and resources. Because of that, it has been hailed as a tool for democracy, an equalizer of people and a platform for

communication and expression. Yet it seems that regardless of how vast and varied the amount of information we have at our disposal, we tend to limit our interactions to people we already agree with. While the tools we use to communicate give us access to a wealth of information, access alone does not guarantee exposure, just as exposure does not guarantee interaction and interaction does not necessarily lead to meaningful engagement.

The digital space segregates as easily as the physical one. danah boyd contends that self-segregation (in the US) is not new, nor is it exclusive to the Internet (boyd 2013). The trend has been going on for decades. In her view, unless we chose to use them otherwise, the tools credited with the power to bring people together will likely just further enable our tendency to self segregate.

The digital space is highly mediated, much more so than the physical is now. Following Sunstein's "echo chamber" theory, which claims that the digital world lacks the serendipity and happenstance of the physical one thereby reducing our chances to encounter and engage with difference, Pariser's "filter bubble" blames technology companies' use of algorithms to refine our search results (Sunstein 2007) (Pariser 2011). Pariser fears that, veiled as personalization, the surveillance of our every click is leading us to an act of "auto-propaganda, indoctrinating us with our own ideas," or even worse, that this all could turn into a tool for censorship, unbeknownst to the user. Ethan Zuckerman, meanwhile, says that homophily, or the tendency to "flock together," "makes you dumb." For all its potential, the Internet creates an echo chamber that reflects what you already think you know (Zuckerman 2013).

Making an even more troubling claim, Cathy O'Neil emphasizes that our blind trust in algorithms as "objective math" allows Big Data to increase inequality (O'Neil 2016). Far from being objective, algorithms are an oversimplification by design, lacking the nuance required when making life-changing decisions. Their widespread use affects an increasing number of people and their opaqueness is disconcerting. Rarely are those tracked aware of how, when, or where they are being "scored," making it hard to hold anyone accountable.

While Internet might be an open forum, it is not a public forum in that it does not provide dedicated spaces for open discussion and debate (Sunstein 2007). And while it makes coming together easy, it also does coming apart. For better or worse, the places we gather in physically do not have kill switches like spaces we gather in digitally.

Play as a Bridge

> *"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete." — R. Buckminster Fuller*

There is plenty of suggestions offered for how we might be able to tackle these issues and start rebuilding systems based on trust and connection. Some suggest dedicating more time to face to face interaction (Turkle 2015), suggest better ways to move beyond passive communities to active cooperatives (Sennett 2012), while some address ways in which we might design better interfaces that prompt us to take "the less traveled road" or that allow for richer, more varied input (Zuckerman 2013) (Donath 2014). But ultimately we are talking about curiosity and attention which lead to wider vision, care and respect — behavioral changes which require more than tweaking the tech. Interest in things foreign to us comes more naturally when we are exposed to cultural products that are tacitly cross-cultural and cross-generational, such as music, food and sports to name a few — products we usually share with friends and which, as acts of production rather than consumption demand willful active participation and are more than a passing trend — *play.*

Play is not a simple thing to be reduced to a certain set of activities. It is even hard to define which activities constitute play: throwing a ball? Feeding your doll? Swinging high? Communal eating? Dancing? A video gaming session? Play takes a myriad of forms, but certain aspects of it are true of all. Play is enjoyable, voluntary, has no extrinsic goals and involves active undertaking from the player. Furthermore, play is not only physical, but a mental, simulative engagement. Play is defined mostly by what it is not play and requires players to understand that what is done is not what it seems to be. Otherwise play would be a fact, an oddity mostly concerning childhood.

Play is one of the few ways in which we become fully engaged, deeply engrossed in what we are doing and attentive to what is happening presently, wether mediated by technological means or not. And what is play if not an expression of our innate capacity to engage as equals? Play overrides assertive tendencies and differentials in power. We see it clearly in the animal world where play happens between unlikely species whose differences are much more substantial, defining prey from predator. Through play, animals —and humans — establish the basis of trust (Brown 1995).

Physical play, social play, imaginative solo play, object play — all help us strengthen our sense of belonging, become socially adept and better collaborators, skillful problem solvers on and on. The cognitive, emotional and physical benefits of playing is long. Moreover, humans are biologically the most neotenous of species — that is, we retain childlike characteristics through adult life — and play is the primary expression of this, yet...

> *"Play has not, in my opinion, been properly factored into our species' survival or incorporated into contemporary mythology. Play has not been prioritized into our educational and family systems and certainly has not permeated the child development/child-rearing mainstream." (Berry in conversation with Brown)*

Play provides common grounds by either overlooking at differences when these are obtrusive or making the most of them when it serves the cause. If learning how to live with people with whom we differ is an urgent need to address, there is much we could learn from play, from using it as a design tool and from designing spaces and places for it to emerge. For when understood as a common language, it is easy to see how play is deaf to dichotomies, public/private, analog/digital, young/old, human/animal, art/science — an expert hijacker, play will use any medium to convey its message and therein lies its power — ours is to invoke it.

Networked Playscapes

Playgrounds were more than spaces for play — they were spaces for community building and integration, a canvas where artistic practice meet social good. That today they are mostly top-down, mass manufactured, child-centered provisions that attempt to integrate play in the public space needs to change and there is a huge opportunity in rethinking how to better do that. Play in the public space needs to address in its design our current dual existence as digital beings in physical spaces and physical beings in digital spaces, as well as the fact that artistic practice has ceased to be solely an analog affair. This is a good thing since it opens many opportunities to embed playfulness where there was none, network play where it was local, and free play were it was grounded. And to bring back, in a current form, the creation of opportunities for play in the public space as a bottom up, idiosyncratic, cross-cultural and cross-generational affair again.

Digital Space for Physical Natives

As constructs in the public realm used throughout history as spaces for integration, how can the location of "spaces for democracy" better assist their mission? Richard Sennett, a sociologist concerned with urban planning, considers edges, natural and man made as spaces of heightened

activity by promoting the adjacency of unlike elements and goes on to define the differences between edges that are borders and those which are boundaries (Sennett 2006). In Sennett's terminology, borders, unlike boundaries which are hard and impermeable, are akin to membranes, porous and flexible — they protect while remaining open. He suggests making borders from edges, safe spaces which prompt encounters and interactions, where we can acquire new information and combine it with pre-acquired knowledge, expose and be exposed to different ways of being and doing. Sennett's reasoning resonates as a spatial metaphor for Piaget's concept of adaptation. Piaget believed that intelligence is a form of adaptation, wherein knowledge is constructed by each individual through the two complementary processes of accommodation and assimilation, stability and change. He theorized that as children interact with their physical and social environments, they organize information into groups of interrelated ideas called "schemes". When children encounter something new, they must either assimilate it into an existing scheme or create an entirely new scheme to deal with it (Wadsworth 1996).

> *"People can only understand novel situations in terms of what they already know—imposing their order upon things. It is their ability to navigate between globalizing constructs and local stances that allows for a viable balance between closure and openness, stability and change, or, in Piaget's words, between assimilation and accommodation (Ackermann 1996)."*

Without connection people cannot grow, yet without separation they cannot relate. In many cities, the spaces divided by borders, as understood by Sennett, are becoming larger and larger and the border further and further away. In order to be functional, these borders need to be reachable. If the border is made by promoting the adjacency of unlike elements, the adjacency need not be physical. Creating spatially situated networked mechanisms for social solidarity in urban environments could foment interaction among truly diverse cultural and socio-economic backgrounds while remaining grounded in their own context. This way a connection is established without the need for it to rely on border real estate — the border condition does not need to be physical.

Physical Space for Digital Natives

Shifting between realms, physical, digital, virtual has its own cost. Multiplied or divided, with our minds seldom where our bodies are, we are rarely fully present or mindfully engaged. While it is

true that so-called digital natives interact differently with one another and with the world than previous generations, the displacement to which we are subjected sees no difference between "digital natives" and "digital immigrants"—the need for grounding pertains to our still-physical nature, which remains the same regardless of to which generation we belong.

> *"As 'Homo mobilis' we will need a handful of humanized and populated spaces... places to dwell in, leave from and return to." (Ackermann 2015).*

Architectural constructions concretize social, ideological, cultural and mental order by giving them metaphorical, material form. Architecture also strengthens our experience of the real in the realms of perception and experience, of cultural and social interaction. With play happening more and more outside of the physical realm and more and more in the digital, how can opportunities for free play be re-introduced in places where play has lost its own ground?

First we need to understand that designing for play is not limited to designing spaces for play. Play enables play — we would be less limited if we thought of designing prompts for play instead. Since play traverses the physical, digital and virtual, play is an ideal form of social engagement were to base the design of hybrid analog/digital infrastructure. The "magic circle" where play takes place does not need permanent demarcation, opening up a whole world for designers, where digital tools, physical infrastructure and networked technologies all can converge and be put to the service of play.

In terms of implementation, Anthony Townsend contends that the computation needed to create

> *"...places where information technologies are combined with infrastructure, architecture, everyday objects and even our bodies to address social, economic and environmental problems." (Townsend 2013)*

is readily available in most of our pockets. Smartphones, social software, open source hardware and cheap bandwidth are all within reach. The "data computing" could go beyond sensing infrastructure and onto creating new ways of interacting between people, places and things, enabling play in unsuspected places by freeing it from the need of designated grounds. Ideally,

these solutions would be ground-up, while remaining scalable and adaptable, feeding a repository of best practices which any city could tap into.

But what is it about play that makes it such a desirable design practice and mentor? In the next chapter I will try to emphasize why play deserves more consideration than what we currently give it.

3. Play to Ground

> *"We play not to entertain ourselves or to learn or be alienated: we play to be, and play gives us, through its characteristics, the possibility of being."*
> - Miguel Sicart

As the quote above suggests, play grounds us in ourselves. Considered to be older than culture, a way to hone practical skills and pass on social codes, a release of surplus energy—to name a few—play has been described in a myriad of ways by theoreticians, psychologists, sociologists and educators alike mostly by "showing" the purpose and benefits play offers (Huizinga 1955) (Piaget 1962) (Caillois 1961). Yet play has eluded a concrete definition, perhaps because the one aspect of it that is commonly agreed upon is that play is a mode of being, not tied to objects but an attitude brought on by experience. It is commonly misunderstood as fun—and it can be fun, but its nature is more complex than that. Miguel Sicart, for example, deems it pleasurable, rather than fun, allowing the possibility for participants to derive pleasure from pain and hurt (Sicart 2014).

Perhaps its most defining characteristic is that it can only be engaged in at will.

D.W. Winnicott was a highly influential psychoanalyst and pediatrician who, by virtue of dwelling both in the body and the mind, was able to conjure both and understand their relationship like few did (Winnicott 1971). For him, a better world started with "good enough"—not perfect—caregiving. He claimed that happiness and personal satisfaction are contingent to proper parental provision, while societal ills were the symptoms of poor childhoods voided of play. Failing to express one's needs, or on the contrary, suppressing our own wishes in the presence of others (especially elders, authority figures, and parents) for the sake of being compliant and pursuing acceptance leads to developing a "false self."

For Winnicott, we all need to be listened to and respected for who we are—we need to be adept at surrendering the ego and putting aside our own needs and assumptions for the sake of close, attentive listening to another whose uniqueness we respect. And nowhere was this ability better practiced than in play:

> *It is in playing and only in playing that the individual child or adult is able to be creative and to use the whole personality, and it is only in being creative that the individual discovers the self (Winnicott 1971).*

To be able to function in the world one has to have the capacity to play. This, to Winnincott, was absolutely vital. In attending to over 20,000 children in his lifetime, he came to use play as a diagnostic marker. Children who did not exhibit the capacity to play often showed symptoms of mental illness. At the same time, play served as a therapeutic technique, a way to engage and facilitate further play. Play leads to creative apperception, an antidote to the compliance and futility exerted by consumerism. At a time when even "creativity" has been commodified, designing for play, for non-purposeful engagement, might be a way to regain much-needed subjectivity. But this is not to be confused with purposefully searching for the self in creative work — since the discovery of the self requires a "non-purposive" activity, searching for the self as a purpose will render both creative work and search futile. Play is not pretentious!

Catherine Garvey in her book *What is Play?* asks what is it that makes undefinable but identifiable play *play* and not *not-play*, given that play shares, at least partially, many of its defining characteristics with other activities not considered play (Garvey 1990). Garvey states: "We can only speak of play when we contrast it with other orientations or states (of mind)."

The similarities between play and ritual and their power through enactment and personification as solvents of the ego, for example, is a concept that can be found in the writings of Johan Huizinga, Joseph Campbell, Victor Turner and Arthur Koestler. In comparing play to ritual, I'd like to address the concepts developed by such authors: Turner's "liminality" as transcending mental zone, Garvey's "controlled repetition" as guide, Huizinga's "magic circle" as space, and Koestler's "self transcending principles" as objective (Huizinga 1955) (Campbell, Moyers et al. 1988) (Turner 1982) (Koestler 1964) (Garvey 1990).

In relation to ritual and play, Garvey talks about the "controlled repetition" aspect of rituals, as a characteristic also found in spontaneous play. In both cases it serves as a sort of golden thread

that guides the player through the "trip" of play and ensures her return. Huizinga in turn, in his book Homo Ludens, talks about the space and time that play occupies, defining play as a free activity that stands outside of "ordinary" life but that absorbs the player intensely and utterly and that takes place in a "play-ground," be it an arena, a temple, a movie screen, or court of justice. In short, a consecrated spot or "magic circle":

> *"All are temporary worlds within the ordinary world, dedicated to the performance of an act apart" (Huizinga 1955).*

One of the aspects of play that ties directly to its relevance in creating more inclusive cities is that as lived, embodied experiences, play and ritual delineate what Koestler would call "self-transcending tendencies": participation, identification, and belonging, overriding "self-assertive" emotions.

> *"The need for participation remains something more imperious and intense, even among people like ourselves, than the thirst of knowledge and the desire for conformity with the claims of reason. It lies deeper in us and its source is more remote. During the long pre-historic ages, when the claims of reason were scarcely realized or even perceived, it was no doubt all-powerful in all human aggregates. Even today the mental activity which, by virtue of an intimate participation, possesses its object, gives it life and lives through it finds entire satisfaction in this possession." (Koestler 1964)*

The magic circle offers a space where, through a change of lens, scale, or mask, a liminoid, embodied "self-transcending experience" can take place, while repetition, through the rhythm of song and dance, or the sequences found in hand games and many other types of play, contain and ensure a safe return.

In play we decouple, interpret, enact and simulate, granted creative freedom to step out from things as they are to not only invent, but perform and test what they could be. Play, in other words, gives us the space and time to test what we know to be real in order to inform what is it that we want to be real. Waking life is richer and better grasped when it is informed by the experiences obtained in the magic circle of play.

Play is play, and as long as it takes place something is gained. Nonetheless, the medium we choose to play through dictates the type and consequentially the benefits that play will provide. As of late, play has moved from being an exclusively analog affair to be mostly experienced digitally by many. Unfortunately, a lot of the research on digital play has unfairly cast it under a negative light, when digital play has not only expanded the repertoire but provided many benefits that physical play simply cannot.

Digital Play

> *"Let me be clear—I am not arguing that video games are as good for kids as the physical spaces of backyard play culture. As a father, I wish that my son could come home covered in mud or with scraped knees rather than carpet burns. However, we sometimes blame video games for problems which they do not cause—perhaps because of our own discomfort with these technologies which were not part of our childhood." (Jenkins 2006)*

Studied mostly for their negative impact, from causing child obesity to making players more violent, video games have suffered from claims that are not entirely true (Ferguson 2007). Though they do count for many of the hours children spend in front of a screen, sedentary lifestyles have more causes than video games. From cars to escalators, we live in a society that moves us without requiring us to move. Furthermore, we are not physically engaged when reading either, yet no one relates books to obesity.

As for the other evils, in his article "Reality-Bites: Eight Myths About Video-Games Debunked," Henry Jenkins makes some compelling observations in contrasting the public perception of video games (isolating, propitiating youth violence and aggression, not a good means of expression) with reality: video games motivate players to enact and work out challenges that can be applied to real life concerns, as they offer the same magic circle/displaced reality advantages that physical play does (Jenkins 2006). As for meaningful expression, modern video game design can give players unprecedented opportunities to become world-makers and decision-takers by providing an open-ended canvas with multiple building tools in a cooperative multiplayer setting.

Video games allow people to play across vast geographical distances, cultural boundaries and generational gaps and have been credited as having the potential for treating and preventing

mental health issues in youth (Granic, Lobel et al. 2014). But for all their virtues, video games are mediated play with a price tag. Without purchasing power, children are subjected to their caregivers' willingness and capacity to provide them with playing devices. Where physical play was free, digital play brings about an imbalance between wants and haves, and between those who have and those who have not. Digital play has also freed many parents' minds from the worries of their children being out and exposed to the dangers of the streets, or to the potential falls playgrounds. Nonetheless, digital play as much as physical play requires a sense of autonomy and freedom that gets easily compromised by being mediated.

Free to Play Free

Over the past decades and mostly in developed nations, opportunities for children to engage in free play, especially outdoors with other children, have dramatically declined. By free play I refer to play that is engaged with at will, unstructured and with no intrinsic goal. The change has been so dramatic and has happened in such a short period of time, that simply asking current parents to compare the way they used to play with the way their children play reveals a huge difference in breadth, in time and in space. A study at the University of Michigan compared how children spent their time in 1981 and in 1997 by asking their parents to keep a log of their children's activities on days randomly chosen by the researchers. The results not only showed a decrease in play, but in free self-directed time in general (Sandberg and Hofferth 2001). While technology has played a major role in keeping children indoors — with television, video games and the Internet being the most alluring culprits, screens are not the only cause.

Another reason for the lack of children on the streets is an increased fear in the parents of kidnapping and predators. Twenty-four hour news cycles and real-time media have set insecurity free from the closet of ignorance—the risk of child abduction has declined since the early 1990s, but as our awareness has increased, so has our fear (*www.freerangekids.com/crime-statistics/*). We seem quick to forget that if it is "strangers" we are afraid of, they do not live exclusively in the physical world—feeding off of emotional vulnerability, bullies and predators thrive online for the same reason they would fail face-to-face. In an ironic twist, danah boyd points out that the only risk to children's physical safety that has increased is the chance of being hit by a car, not due to there being more cars, but to children being distracted by their phones while on the street (boyd 2014).

Being "allowed to play" does not only mean giving permission, but also giving the child the right to free time, to be alone and to play with other children. Another theory regarding the decline of free

play is that the social and economic change that has given rise to "non-traditional" families and households with both parents working, has caused parents or caregivers to micromanage their kids' time by enrolling them in after-school activities, emphasizing schooling and academic performance.

In addition to this, parents are handing children smartphones at an ever younger age — average age is 11 (secondary school) and while many do it for safety reasons, it is also because it has become the primary means for teenagers to relate and play with each other. This "always on/ always on you" device has nonetheless created an unprecedented tethered relationship between parent and child, intertwining the child's time and space for free play with dependance on the purchasing power and monitoring of their care giver.

To illustrate this, here are the first few of a set of 18 rules that went viral by Burley Hoffman, author of *iRules: What Every Tech-Healthy Family Needs to Know About Selfies, Sexting, Gaming and Growing Up*, to her 13-year-old son (Hofmann 2014).

1. It is my phone. I bought it. I pay for it. I am loaning it to you. Aren't I the greatest?

2. I will always know the password.

3. If it rings, answer it. It is a phone. Say hello, use your manners. Do not ever ignore a phone call if the screen reads "Mom" or "Dad." Not ever.

4. Hand the phone to one of your parents promptly at 7:30pm every school night & every weekend night at 9:00pm. It will be shut off for the night and turned on again at 7:30am. If you would not make a call to someone's land line, wherein their parents may answer first, then do not call or text. Listen to those instincts and respect other families like we would like to be respected.

The rest of the rules dealt with the moral use of the technology: what and how many pictures not to take, no pornography, hours of use, etc., and end with the acknowledgement that:

18. You will mess up. I will take away your phone. We will sit down and talk about it. We will start over again. You and I, we are always learning. I am on your team. We are in this together.

In other words, rather than building your own moral code through self-guiding principles, follow this list of rules. It's okay if mistakes happen because your parent is "on your side." There are rules, but there is no real way of breaking them!

Furthermore, the emphasis that schools and parents alike have placed on digital literacy as being a key skill to "succeed" in the 21st century misunderstands what literacy actually means. Digital literacy is not the same as knowing how to browse the Internet, download and upload media or be an avid player of video games. A child who knows how to use a tablet is not a computer whiz. Those are the skills of the proficient consumer. Literacy, competency, requires messing around, assembling and disassembling, resourcefulness, imagination. It requires appropriation, which comes through playful interaction.

As Andrew "bunnie" Huang says (Huang 2017),

> *"If you can't hack it, you don't own it."*

A child who comes home with a broken lip after attempting to build a structure robust enough to climb on and who wants to go back the day after to make it better should inspire as much (if not more) parental pride as one who figured out how to personalize a playlist.

It is of utmost importance to understand that play is an act of production, not of consumption, and that it is crucial for healthy physical and mental development. Psychologist Peter Gray believes there is a causal connection between the decline of play and the rise of psychopathology in young people, namely anxiety, depression, narcissism and materialism (Gray 2011). Both the decline of play and the rise of psychopathologies have occurred simultaneously and mirrored each other linearly since the last decades of the 20th century. Although correlation does not prove causation, Gray argues that there is reason to believe the two are interrelated. To explain the rise in psychopathologies, Gray refers to Jean M. Twenge's extrinsic vs. intrinsic goals model. Intrinsic goals are those related to the activities that achieve them and are perceived to stem from the self, while extrinsic ones are less related to the activities that achieve them and are frequently perceived as imposed from outside the self. Twenge argues that the mass marketing produced through television and media has shifted values from intrinsic toward extrinsic goals, and as extrinsic, we have less control over achieving them. So rather than developing intrinsic interests, practicing decision making, exerting self-control, regulating emotions, making friends and experiencing joy though active play, we are constantly looking at ways to fulfill ever changing and never fulfilled extrinsic goals, getting evermore anxious, depressed and compromising our mental health.

It is up to us to decide which opportunities for play we provide and through which means. Children are, for the most part, not afraid to go out and play — given the opportunity to play on the streets,

children would do so. It is their parents who are afraid of letting their kids go far from their sight, grasp, voice, command. Cities themselves have not been very good at providing apt spaces for play that make both parents and children feel safe. Confining play in playgrounds tends to be counterproductive and only a handful of urban planners and architects seem to take or have taken children and play seriously in their practice. The spaces provided for play are in many cities afterthoughts — the prevailing playground model of today speaks volumes, they are designed with little care for the complexity of play and designed mostly with fear of litigation in mind.

Recovering free play is a societal change that requires renewed trust in each other, in children and in our streets. Making safer communities in turn requires trusting our neighbors. This acquaintanceship and communal care is hard to achieve when people do not engage with each other in person in common grounds. Ironically, free play happening in our streets helps achieve just that. A technology enhanced city should be able to provide a level of safety that would ease our minds about being outdoors, while playing outdoors with our neighbors serves to reinforce the trust in each other. A networked playscape might help parents trust their child's safety more than a merely analog one by providing a way to be informed without being intrusive or even there, returning children the joy and self reliance that only free play allows.

4. Grounds to Play

> *"Architecture is always the ultimate achievement of intellectual and artistic evolution, the materialization of an economic stage. Architecture is the final point in the achievement of any artistic endeavor because the creation of architecture implies the construction of an environment and the establishment of a way of life." — Asger Jorn*

Before grounds there is play. From the archetypal agora and pnyx of the ancient world, to public squares and children's playgrounds, ludic spaces have been redefined and adapted to serve the society's current standard. The interpretation of the physical shared environment as a playground, a place were fair play is acquired and collectively rehearsed and were public opinion can be expressed, has evolved to encompass from the sporting arena and bull fighting ring to parkour and geocaching games. In this chapter we will consider play in conjunction with aspects of the wider context of "the public sphere." I will begin by focusing on the political power of play to inform the city and endow civics back to its people and then move on to the varied morphology of the architectural constructs we have devised to enable play. I will focus on the history of playgrounds, especially the playgrounds of the post-war as an example that merged social concern, art and urbanism and move on to the playgrounds of today as physical constructs but also as spaces made places through digital augmentation. I will also expand to include spaces which while not intentionally designed for play have been used for play nonetheless, even when they are far from meeting any safety requirement. The revision of the ways we have placed play in the city and made the city through play, will culminate in the guidelines used to device Networked Playscapes.

Play is Political

> *"Freedom would be not to choose between black and white but to abjure such prescribed choices." — Theodor Adorno*

By its very nature, play is a form of critical inquiry. When we play, we imagine and appropriate a new order, a different system, a reconfigured power dynamic. We play as equals or we concede to be something other than what we are used to being. We see it in ritual and theatre, in art and in

children. Through play we identify and reconfigure our value systems to reflect the time and space we live in. This is a direct threat to any kind of authority that benefits from trying to impose a permanent order based on static relativistic terms. Play lets us build beyond what we are told is right and wrong and instead build something out our selves that better reflects our inner wholeness.

When we talk about play, it is common that it would be considered opposite to work.

> *"Work while you work, play while you play. This is the way to be cheerful and gay."*

Adorno adds:

> *"Work while you work, play while you play - this is a basic rule of repressive self-discipline."*

Brown (Brown 1995) suggests a different take: play as opposite to the depression brought about by the inability to live a life that integrates our inner values with the world around that, as we have seen before, brings about the psycopathologies Gray referred to. Theodor Adorno, in his essay "Work and Pleasure" reminds us that keeping separate spheres is limiting to our humanity:

> *"Work completely severed from the element of playfulness becomes drab and monotonous, a tendency which is consummated by the complete quantification of industrial work. Pleasure when equally isolated from the "serious" content of life, becomes silly, meaningless and sheer "entertainment" and ultimately it is a mere means of reproducing one's working capacity, whereas the real substance of any non-utilitarian activity lies in the way it faces and sublimates reality problems: res severa verum gaudium [true joy is a serious thing]."*

Many have been the ones who have questioned the divisions under which we operate physically and mentally. Whether manifested as division of labor, the compartmentalization of cities or the specialization of skills, the unconformity of living a life where the external environment does not reflect our inner values and where the creative impulse has been either repressed or oppressed,

has led multiple movements to try and transcend the distinction established between play and ordinary life. Below I offer two different approaches with two different purposes that took the city as the stage where play was the main actor. While Unitary Urbanism wanted to roll back the functional approach of modernism by looking at the city anew from a human dimension, the strategies for civics of Mockus tried to elicit back in citizens a sense of responsibility through playful active participation.

Unitary Urbanism and Psychogeography

> *"The atmosphere of a few places gave us a few intimations of the future powers of an architecture that it would be necessary to create in order to provide the setting for less mediocre games."*
> - From Guy Debord's 1959 film "Sur le passage de quelques personnes à travers une assez courte unité de temps. "

The end of the fifties and beginning of the sixties were not that dissimilar to what we are experiencing today. There was an acceleration in urbanism—new cities were created and older cities were overflowing—creating a forlorn feeling that cities were loosing their human dimensions (Lefebvre 1996). Advanced capitalism had infiltrated every aspect of human life and, creating extrinsic wants, had shifted the fulfillment of intrinsic needs and desires to that of consumption of commodities instead. The functional approach to architecture and urbanization, the mass media turned "spectacle," the dichotomy between work and leisure and the specialization of labor were blamed for creating a uniform, conforming society (Debord 1977).

The Situationists International was an artistic and political movement which sought in youth revolt and agitation a return to playful affirmation, an antidote to the apathetic modern urban life brought about by advanced capitalism. The Situationists sought to negate "the spectacle" of mass media and the commercialization of art by "realizing it"—making of the every day a continuous creative, playful experience.

> *"The spectacle is not a collection of images, it is a social relation between people that is mediated by images."*

The Situationists created the concept of Unitary Urbanism and Psychogeography as ways to bring attention of the effects the environment had on the emotion and behavior of individuals. Guy Debord, founding member of the Situationists International, defined Psychogeography as:

> *"The study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals."*

Psychogeography could help create new situation in the city, for example, by linking parts of the city which where spatially separated. Constant Nieuwenhuys for example, did one of the fist experiments in Amsterdam, linking people in different parts of the city with walkie-talkies while they practiced "dérive" (Nieuwenhuys 2001). Through playful drifting, "dérive" sought to make you see the city you lived in anew. The idea was to wonder through the city without plan or destination, simply letting yourself be pulled by attraction or repulsion and encounters, discovering why you hated what you hated and why you loved what you loved. Nieuwenhuys went on to create models for the anti-capitalist city "New Babylon"—inhabited by Homo Ludens, the city would physically reconfigure to accommodate the constant re-creation of the playful human.

When everything that was directly lived was seen as having receded into a representation, the Situationists International was a project of communication seeking intrinsic speech.

Changing Software Rather than Hardware

Antanas Mockus' biggest lesson was that he proved that reasoning and responsible behavior at a large scale was possible if you engage people through playful tactics (Mockus 2002).

Mockus was the former rector at the National University of Colombia at a time when drug cartels had a hold of the country. Corruption and murder rates soaring earned Bogota the onerous title as "the worst city on the planet." At a protest staged by the discordant students of the university, Mockus, known for his unorthodox methods for conflict resolution, "mooned" a packed auditorium —an action that subsequently forced him to resign. When reflecting on his reaction Mockus, a professor of philosophy and mathematics commented:

> *"What I did, was connect two extremes, extreme contempt and extreme submission -- it was probably a very bad example, but I can*

guarantee you, that what the students saw was a sign of peace, they saw white."

While perhaps distasteful, his action resonated amongst a population deeply distrustful of their political leaders. Story goes, that while taking a walk a left-wing congressman encountered a farmer and asked him: who do you think should be mayor? To which the farmer answered: "that crazy guy, Mockus." After running as an independent candidate with no political affiliation nor expertise, Mockus became a symbol of honesty among the general public, earning him the title of mayor of Bogota in 1995. In charge of a city in complete urban decay and having no political affiliations, Mockus saw the city as a social experiment. By focusing on human behavior, he sought to change people's morality as the first and most sustainable way to change the city at large.

His most effective weapon against violence was auto-regulation through playful interventions. Where Bogota's citizens had lost all respect for authority, play would create the disposition to be corrected. His attempt to create civic culture necessitated active participation. Rather than the passive spectator, the citizen was to be an active actor, a legislator through playful interaction, turning the citizen into what Augusto Boal coined as the 'spect-actor' (Boal 1979). One of his most impactful and best known tactics was employing mimes to regulate traffic. After handing "thumbs-up" and "thumbs-down" cards to drivers to flash each other whenever good or bad driving happened, he became convinced that people were more prone to feel shame than to obey rules:

"Motivation for behavior based on respect for the written law, for how it is drawn up and applied can be differentiated from motivation based on gratifying one's own conscience and the latter from motivation based on social recognition" (Mockus 2002).

He then hired mimes as traffic cops and subsequently trained traffic cops as mimes. Making fun of people breaking rules promoted better behavior than enforcing rules.

Rather than deeming someone as intrinsically good or bad, he tapped on people's ability to change. Mockus continued his use of symbolic campaigns for peaceful conflict resolution, such as his "violence vaccine" which treated violence as an urban disease requiring a cure. He replaced physical violence with symbolic violence by having people draw the faces of their aggressors on a balloon and popping them. Over 50,000 people participated in his act of self-medication.

In his 3 years as mayor corruption was drastically reduced, the economy rebuilt and the trust of foreign investment regained. His "ciudad coqueta" secured the financial resources needed to reconstruct a city that had gained a new sense of civics but remained rundown. Mockus paved the way for Enrique Peñalosa, also an independent candidate who having been handed a city with its "software bugs fixed" could focus on the "hardware."

Debord and Mockus used play as a tool and as an attitude, creating a play-ground ideologically demarcated. Let us now move into the ways that we have materially, physically demarcated play and given it grounds in the city and, while at it, question if play serves us better when it has allocated real-estate.

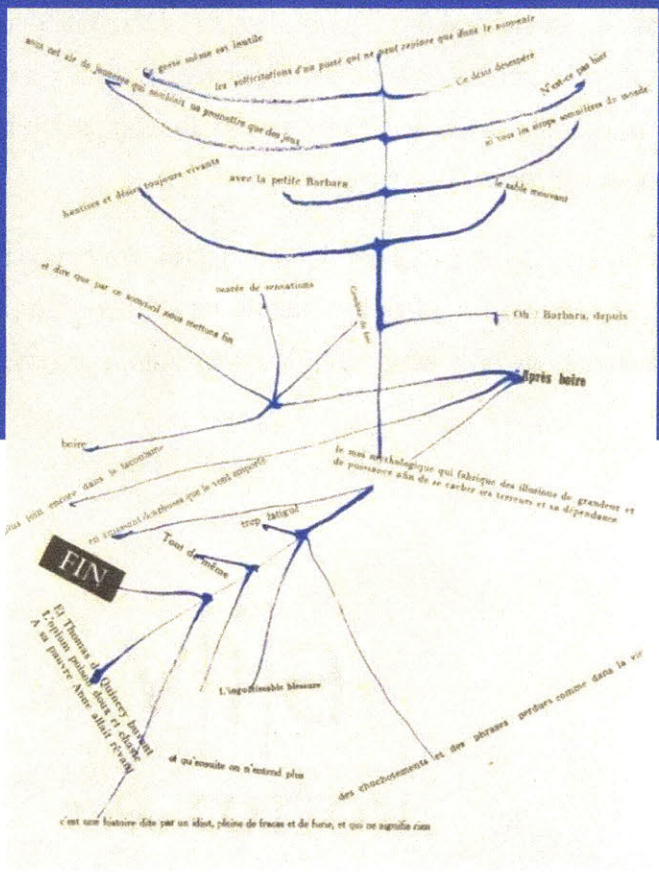


Fig.1. Detournement technique. Page from "Memoires." Guy Debord and Asger Jorn, 1959.

Fig.2 Conference of the SI at Antwerp, Belgium, 1962. Photo: www.notbored.org

Fig.3 Antanas Mockus. Photo: El Tiempo, de Bogotá.

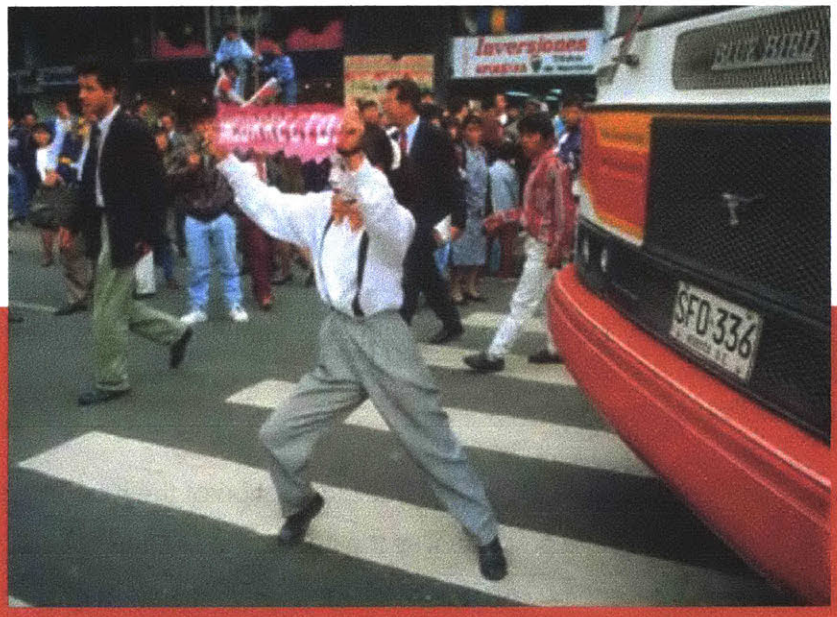


Fig. 4 Traffic mimes, Bogota, 1998. Photo: El Tiempo de Bogotá.

Playgrounds

> *"All play moves and has its being within a play-ground marked off beforehand either materially or ideally, deliberately or as a matter of course. Just as there is no formal difference between play and ritual, so the "consecrated spot" cannot be formally distinguished from the play-ground. The arena, the card-table, the magic circle, the temple, the stage, the screen, the tennis court, the court of justice, etc., are all in form and function play-grounds, i.e. forbidden spots, isolated, hedged round, hallowed, within which special rules obtain, All are temporary worlds within the ordinary world, dedicated to the performance of an act apart." (Huizinga 1955)*

Playgrounds as we know them are symptomatic of modernity, of cities built as demarcated territories. A delimited but open space, playgrounds emerged as a control mechanism that nonetheless keeps getting reinvented. Seen as designated spaces for play, a playground segregates rather than integrates. Colin Ward, anarchist author of "The Child in the City" termed playgrounds "ghettos for children" and in the vein of Van Eyck argued that we were missing out by driving children away from the urban fabric (Ward 1978). Their design reflects the conflict between the spontaneity and the standardization of play, of its position between mind and body, of its entanglement with and questioning of reality. In the best of cases, their material form serves at once as the vessel and canvas of a generation's imaginary, in the worst of cases, they are a thoughtless answer aimed at fulfilling a need. Their design history is rich with lessons to be learnt, from designing playful spaces to designing spaces for play. Below I offer a resumed history of playgrounds and then draw lessons from insightful approaches to playground design.

Brief History of Playgrounds

The german pedagogue Froebel, known for the introduction of the Kindergarten and his educational toys or "gifts" was a proponent of the importance of free play and play in nature for child development. To support the use of natural materials, he incorporated a sand pit into the design of Kindergartens (O'Shea 2013). During a visit to Berlin in the late 19th century Dr. Marie Zakrsewska saw children playing in heaps of sand in the public parks. Convinced of the benefits, she managed to persuade the city of Boston to adopt the idea. The hugely successful sand pit

became popular and in demand and more heaps started appearing across the city. In less than 15 years, there were a total of 22 pits mostly in poor, immigrant neighborhoods of Boston as a way to enrich their otherwise poverty stricken life.

Industrialization led to urbanization and streets became the domain of cars. The need for spaces that would keep children safe from the dangers of the open streets emerged, and with it, the Playground Association of America in 1905. Up until the First World War, and exacerbated by it, the role of a playground was tightly linked to physical fitness, with team sports and equipment for exercise turning playgrounds into outdoor gyms to make strong healthy war ready youth. Playgrounds and outdoor fitness equipment became one and the same.

The first standard 4S playgrounds (swings, slides, sandpits and see-saws) appeared in between wars. Ironically, at the time the concern was that of creating spaces that would be resist the use of children, making steel and concrete the chosen materials, while today the concern is in children being playground-proof with rubber and plastic prevailing (Solomon 2005).

Theodore Roosevelt, a naturalist at heart, was a strong supporter:

> *"I have been pleased to see also that there is a new interest in play and playgrounds all over the country, and that many cities that have not previously taken up the movement in a systematic way have made a beginning. ...City streets are unsatisfactory playgrounds for children because of the danger, because most good games are against the law, because they are too hot in summer, and because in crowded sections of the city they are apt to be schools of crime. ... children who would play vigorous games must have places especially set aside for them, and, since play is a fundamental need, playgrounds should be provided for every child as much as schools." (Playground and Recreation Association of America 1907)*

And so the model playgrounds of the 1920's proliferated.

Depression and war efforts staunched the development of playgrounds, with metal being diverted to the creation of weapons. But the interest came back with more force than ever in the decade that followed. After the war, the child was hailed as the mirror of humanity, the promise of an uncorrupt future. Urban planning agendas, architects and artists designed with and for the child in

mind—as an inspiration, as a driving force, as the ultimate proof of worthiness. During the 50's and 60's, architects and artists saw playgrounds as an artistic medium and started what was a golden period in playground design. Going far and beyond the standard 4S playgrounds, they incorporated new materials and experimented with form, creating new interaction possibilities. This was deemed the "Golden Era" of playground design. I will go further in depth on the Modernist Playgrounds, for there are plenty of lessons to be drawn from there.

A few freak accidents, condoms and needles in the 70's-80's made playgrounds be seen as dangerous spaces. Accidents and the lawsuits that followed them made park departments in the USA decide to remove equipment and use rubber flooring, giving way to what are now called cookie-cutter playgrounds or playground kits: plastic sets that offer no challenges, no thrills, no sweats (Rosin 2014). Television played an important role as well by diverting attention from the hygienic new playgrounds to the indoors. Meanwhile news cycles incremented fear — the case of a kidnapped child moved from radio, printed news and milk cartons onto constant televised broadcasting. Parents felt better by having their kids within sight, and lured by television themselves, it just became easier to spend time indoors than engaging outside.

> *"Just as TV becomes an electronic babysitter, so do our existing play facilities become great, gray outdoor nannies, incarcerating children and protecting them from experience and involvement. The air may be fresh, but the play is stale."* — *Paul Friedberg*

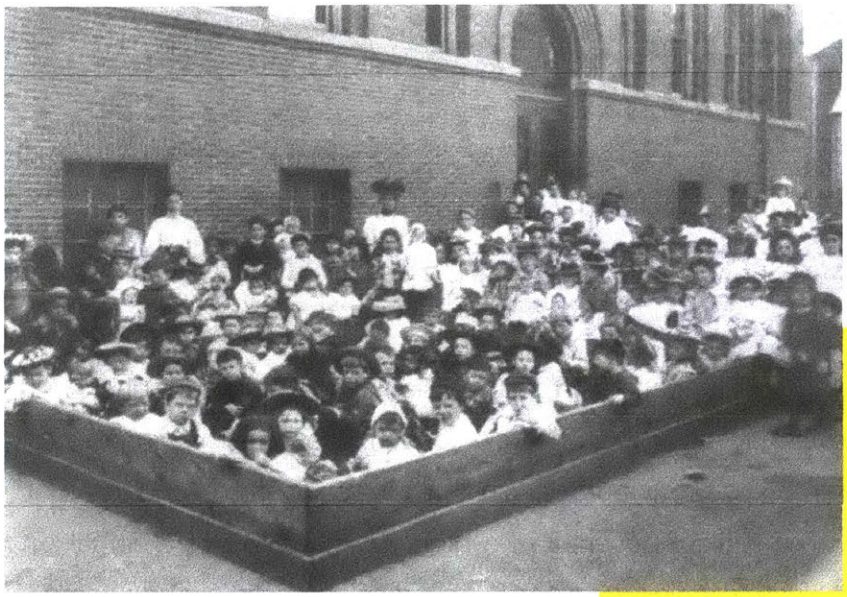


Fig. 5 An early sand garden in Boston. Photo: Boston Public Library.

Fig.6 Trinity Park in Dallas, Texas, 1920. Photo: Dallas Public Library.

The Playgrounds of the Post-War

Playground design saw a remarkable boom during the post-war, not surprisingly since the child represented that which was uncorrupted, the future. Children's play, with its construction and destruction, with its bricolage, use, reuse and reinterpretation of materials and the world around, served to question social assumptions.

The playgrounds of the post-war stand out in that they were the vision of artists and designers attempting to inscribe art into the everyday rather than the vision of equipment manufacturers and administrators. Two movements originated during the post-war that differed vastly on one account: whose imagination was put to play. The Junk or Adventure Playgrounds, made to be perpetually reconfigured by children, favored the child's imagination and imposed no aesthetic agenda, while artists and designers saw playgrounds as an opportunity to inscribe art into the everyday by integrating play and sculpture giving it a ludic and pedagogical purpose.

While Adventure Playground proponents argued that the imagination at stake was the one of the children and not of the architects, their hazardous and haphazard nature was not an easy sell. Architects in turn, had the sensibility to make spaces that were easily adopted by the city at large, ensuring their longevity and use.

Function Before Form: Adventure Playgrounds

During the German Occupation of 1943, Carl Theodor Sørensen, a landscape architect, tested his "junk playground" in Emdrup, Copenhagen. Sørensen's proposal was to create a space that would allow the imagination of the child and the child alone to define it. With the assistance from play leaders, children would use the tools and materials provided to build (and destroy!) at will. It was the first attempt at designing a playground that parted away from the conventional 4 S's equipment and was less concerned with the motion and kinetic gratification they provided, and more with play as an act of appropriation, construction and destruction. One of the biggest supporters of junk playgrounds was Lady Ellen of Hurtwood, who took upon importing them to her native UK — renaming them "Adventure Playgrounds" for good measure and implemented them in spaces destroyed by The Blitz (Allen 1974). With the motto: "better a broken bone than a broken spirit" she reasoned that an engaged child was less likely to suffer an accident than the child who uses prescriptive equipment in ways that it was not intended for. The movement spread to the US,

where although briefly lived, there were up to sixteen official Adventure Playgrounds at one time and which saw plenty of community involvement.

The Adventure Playground was a sort of perfect little anarchic society where nothing was pre-established and in which equilibrium emerged from an ever-changing push and pull of needs and desires. It was avant-garde in it anti-art aesthetic and anti-bourgeois ideal, and Dada in that the unmediated act of building was seen as a direct expression of the values and desires of its users.

The purpose of the play leader was to guide, not to instruct or direct. This interaction with an adult was of social and political significance. It provided the child an adult to have a sympathetic friendly relation with, which she might lack at home, while creating an egalitarian relationship rather than a hierarchical one by allowing children to operate the space themselves (Kozlovsky 2008).

To Allen providing a space for children was beneficial not only to them, but to society at large. Adventure Playgrounds prevented delinquency, since she claimed much delinquency could be traced to boredom (Kozlovsky 2013).

> *"Children who have never known the joy of being engrossingly occupied become emotionally starved and unstable... If children are denied opportunities for adventure and creative play we cannot hope to reduce the army of delinquent children that marches into the juvenile court."* — Lady Ellen of Hurtwood

Once strict safety standards for playgrounds were passed, Adventure Playgrounds became unsustainable since their unpredictability made them uninsurable and the derelict unstructured landscape was hard to adopt for long. The need to finance the employment of a "play leader" as a requisite did not help either. Nonetheless, Adventure Playgrounds did not completely die and have gained considerable attention in the past few years. Their influence lives up to this day: the responsive configuration of the "Junk Playground" informed Price's never built "anti-building" Fun Palace which in turn inspired Rogers' and Piano's Centre Pompidou and "The Shed" in New York (Mathews 2005).

"Of all the things I have helped to realize, the junk playground is the ugliest; yet for me it is the best and most beautiful of my works"

- Theodor Sørensen

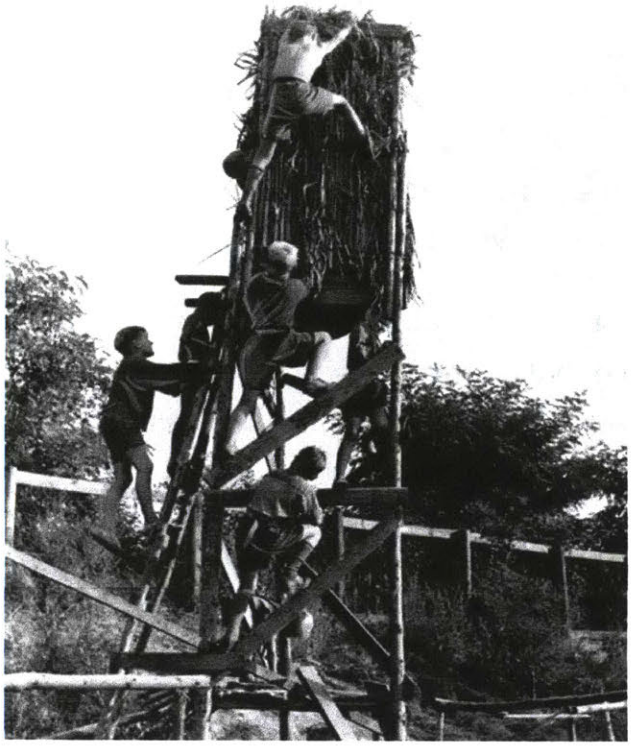


Fig.7 Junk Playground, Emdrup, Denmark 1952. Photo: The Royal Library, Copenhagen.

"Better a broken bone than a broken spirit."

- Lady Ellen of Hurtwood

Fig.8 Notting Hill Junk Playground, 1960's. Photo: University of Warwick Library.

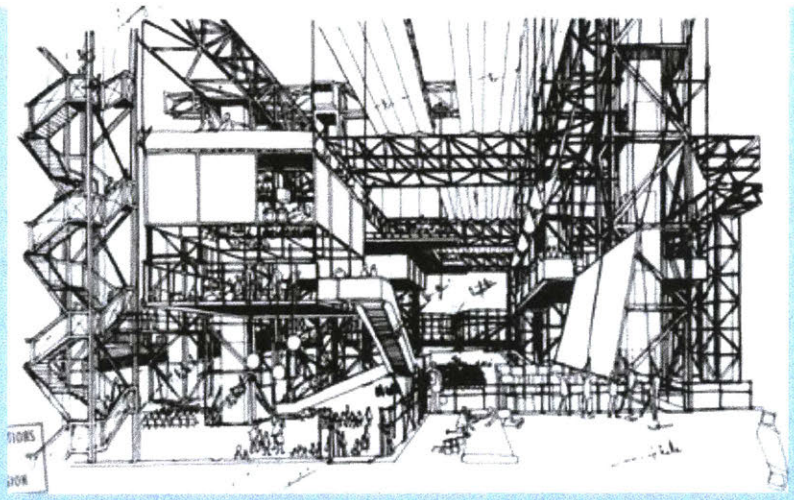


Fig.9 Cedric Price, Fun Palace, section, circa 1964.
Image: Joan Littlewood.

Fig.10 Rogers and Piano, Centre Pompidou, Paris, France.
Photo: Centre Pompidou.

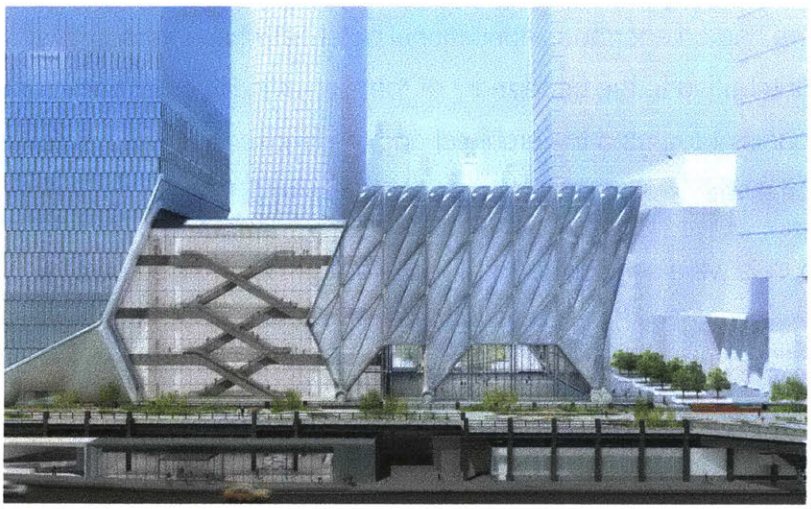


Fig.11 Diller, Scofidio + Renfro, The Shed, New York City, NY, 2017.
Photo: Diller, Scofidio + Renfro.

Form before Function: Van Eyck and Noguchi

Sharing the Modernist call to blur art and life, Van Eyck and Noguchi saw it a life mission to design spaces that integrated the child into the city. To date, they are arguably two of the most influential playground designers yet the difference between their rate of "success" at implementation was drastic— Van Eyck shepherded over 700 in Amsterdam alone while Noguchi spent every year of 10 years trying to get one built in New York. The reason was not only the differing vision of the mayors of their respective cities, but of their scale and ambition—Van Eyck had an ambition of quantity, Noguchi of scale.

Where Noguchi conceived playgrounds as sculptural landscapes, Van Eyck used abstraction as the key to appropriation. Their stories and approach differ significantly, yet there is much to learn from each as both yielded thoughtful and beautiful renditions.

Isamu Noguchi's Sculptural Playgrounds

> *"In the existence of a piece of sculpture, individual possession has less significance than public enjoyment."*
> - Isamu Noguchi

Isamu Noguchi was variously a sculptor, furniture designer, set designer, painter, landscape architect, playground designer, on and on. A firm believer that art had to be integrated into the everyday and serve a purposeful and social end, Noguchi found in playgrounds the perfect place to investigate the potential of plastic and spatial arrangements in the public space. He was convinced sculpture had an enormous educational potential when interacted with by children and was capable of contributing to the betterment of the lives of individuals, communities and societies in general. Playgrounds integrated the architect and the landscapist, the painter and the sculptor into a single outcome with multiple social purposes (Larrivee 2011).

Noguchi's playgrounds were sensible to the integral child—he shunned away from prescriptive shapes and endorsed imagination instead, designing spaces that sought to encourage open exploration and promote self-directed learning through play. Brancusi's mentorship deeply informed his approach to materials and craft, his work with choreographer Martha Graham allowed him to explore the relationship between objects as extensions of the body in movement, and his

friendship with Buckminster Fuller reinforced his vision of sculpture as having a functional pedagogical purpose, strengthening his commitment to pursue art as a social cause.

Noguchi saw playgrounds as cohesive sculptural landscapes. This though made his visions depend on allocation of space, permits and budgets. Coupled to that was the designs themselves — his playgrounds were so unconventional when compared to the 4 S's model playgrounds of the time, that they posed a big risk to take for Robert Moses at the time.

Attempting to get his ideas off the table and into the ground, he moved onto the design of equipment. Sculptural and beautiful, he believed that as much as sculpture could inform play, play had much to teach sculpture:

> *"I wished to show my long-held belief that play could lead to a new appreciation of sculpture."*

Tragically, the tend towards specialization that he regarded as the death sentence to our creative beings, was partly what killed his playgrounds. As a non "landscape designer" but an artist designing playgrounds, he was seen as being less qualified than an equipment manufacturer company that has "successfully" implemented hundreds of model playgrounds.

Too dangerous or too provocative and in spite of gathering considerable attention and support from the artistic community—he partnered with architect Louis Kahn under the spoken promise of a commission on which they worked on for years— most of Noguchi's playgrounds died a slow and painful bureaucratic death.

Arguably, no artist concerned with public space fought more uphill battles and faced more disappointment at the time than Noguchi did trying to make his playground designs a reality in New York City. Yet his vision lived through his breathtaking models and the few playgrounds and equipment still standing, making him one of the most influential playground designers to date.

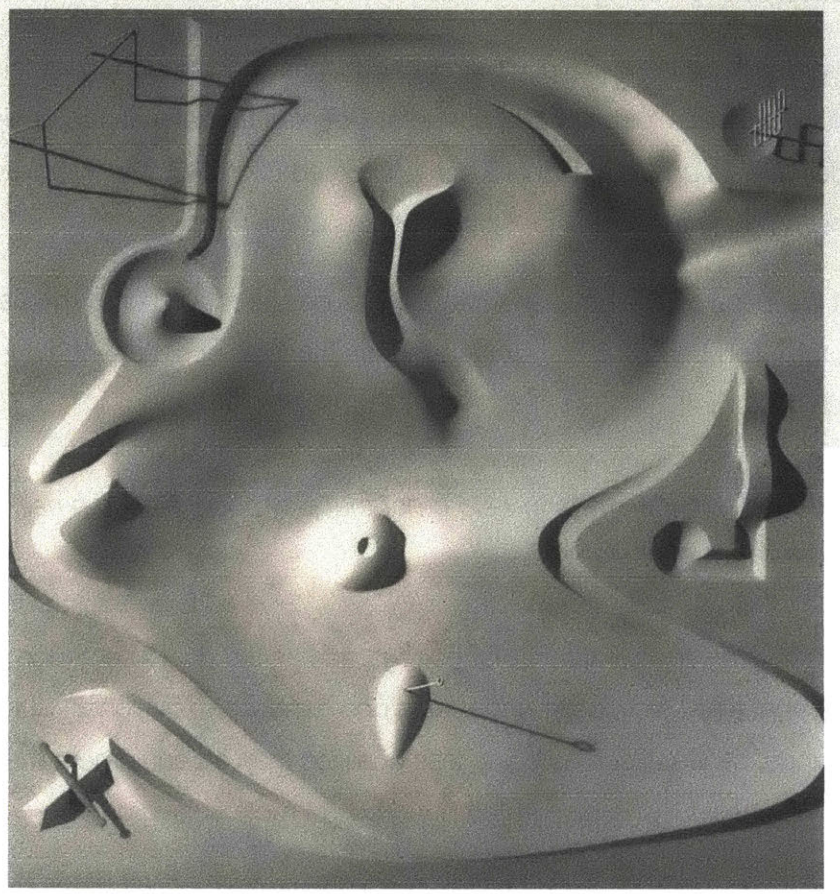


Fig 12. Isamu Noguchi, Contoured Playground, 1941.
Photo: The Noguchi Museum.

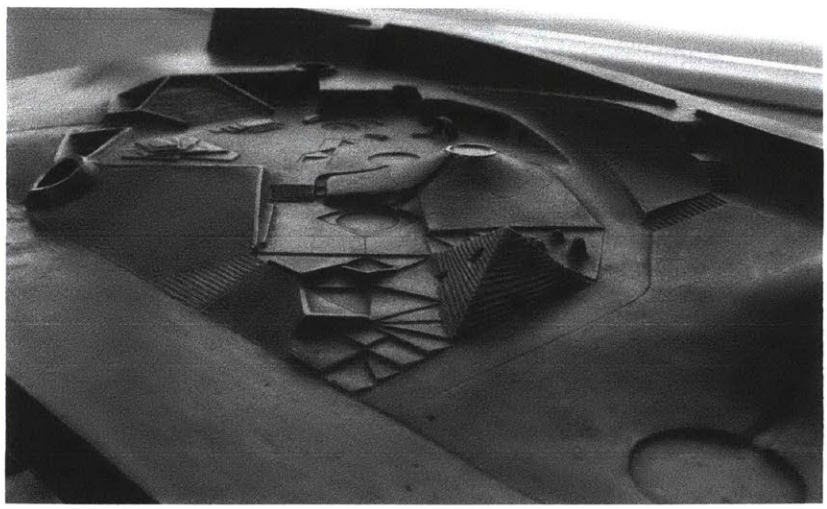


Fig. 13 Isamu Noguchi, Louis Kahn, model for the 'Adele Levy Memorial Playground' 1961. Photo: The Noguchi Museum.

— PARENT AND CHILD —

Playgrounds That Are Something More

By DOROTHY BARCLAY

WE stopped in at the Museum of Modern Art one day recently to see a small model of a new kind of children's playground, designed by the Japanese-American sculptor and designer Isamu Noguchi and architect Julian Whittlesey. The museum is exhibiting the model—which will remain on display in the Young People's Gallery through Tuesday—"as a particularly striking illustration of the possibilities of stimulating the child's sense of space and form through a playground designed as architectural sculpture."

As we looked at this model—much talked about in art circles—with its strange dips, sweeping curves and built up construction of triangular, varicolored blocks, we overheard the comments of two young matrons. "Arty, arty," one said. "And what will they think of next?"

This airy dismissal of the Noguchi-Whittlesey design echoed, in spirit at least, an earlier rejection of the plan by officials of the Department of Parks, for the model was originally presented to officials of the United Nations along with an offer of funds for its construction at the U. N. site for the use of young visitors to the world's capital as well as children of the neighborhood. The play area to be set up there eventually will follow instead the standard format for such facilities in parks throughout the city.

THESE areas with their fences and black paving, their swings and seesaws and jungle gyms are characterized by skillful engineering, careful planning and well-conceived commercial equipment. They are safe and easily supervised. They can take hard use. For youngsters bent on having a good time they certainly beat crowded streets and sidewalks. But perhaps they could do more. Childhood is a time for developing muscles and physical coordination, it's true, but it is also a time for developing the imagination and an awareness of and sensitivity to beauty. At a time when more and more youngsters are being reared in cities—and most of these in the least beautiful neighborhoods—such considerations are more than "arty." They are of basic importance.

Items we've been collecting for some time on playgrounds in other parts of the world—particularly Sweden—indicate that something more than a kind of assembly-line efficiency may quite reasonably be sought for and achieved. The young mothers we heard so lightly tick off the Noguchi-Whittlesey design would be among the first to agree, we're sure, if they examined—as we recently did—some of their best remembered play experiences.

Born in New York, we think of ourself as a product of the city but none of our most exhilarating memories has anything to do with a playground. Instead we remember especially the tunnel we built with a group of other youngsters in a long snowbank that lined the curb in front of our apartment house and the fun of squeezing through it on hands and knees, now playing Eskimo, now Arctic explorer. There was the exciting week when a supply of pipes, perhaps a yard in diameter, lay waiting for construction crews and the local children ran along them and hopped back and forth from one to another with the pleasure, if not quite the skill, of Canadian lumberjacks. There were rocks to be climbed on in a dozen vacant lots and we remember with a special thrill the first time we managed, with the aid of sneakers and a running start, to claw our way to the top on one whopper that presented an almost smooth surface set at about 45 degrees to the ground.

Friends whose memories we tapped recalled similar unorganized pleasures. There was a game called "Bunker Hill" (a Bostonian was reminiscing in this case, of course), in which one youngster at the top of a grassy knoll exerted every effort to keep others from reaching his vantage point. There was the excitement for another of walking over the shallow waters of Biscayne Bay at Miami on shaky piles which were all that was left of an old fishing pier. A Middle Westerner told us of the "cave" in her backyard, an underground hut (like a cyclone cellar as we got the picture) which changed its character with every game the youngsters thought up.

We are not indulging in these reminiscences only to rekindle the glories of lost youth but to make a point about equipment as exemplified in the Noguchi-Whittlesey playground model, and other equipment now in use locally in some New York City Housing Authority playgrounds. In these there are long smooth logs set close to the ground that can serve as horses for a dozen wild Indians and cowboys or as a rocket to the moon.

THERE are large sections of concrete pipe to climb over, crawl through or hide in. There are low sections of wall providing corners for playing house, forts for mock battles or just the simple pleasure of ledges to walk on—pirate planks, perhaps. There is a sort of turret for King of the Castle—or a citified "Bunker Hill." Shapes which are meaningless to the eyes of unimaginative adults can thus be used by children just as are the snowbanks, the natural rocks and grassy knolls of a more friendly environment.

TO these values for imaginative play Noguchi in his model set out to add pleasure for children in form and color and appeal to touch—the rough, the smooth, the highly polished. Those who know both children and art agree the young are more conscious of these matters than adults realize. Furthermore, they are more attuned to and appreciative of the "modern" in both art and music than are their elders. Sculptured forms by serious artists for children to play on and crawl through, "outlandish" as they may seem to some at first thought, are in use in Stockholm.

Every one knows that children like to climb on monuments. Instead of decrying such "delinquency," Mexico City has erected a spiral stone monument intended for just this purpose in line with the point of view among adult citizens that children are pleasant beings whose play can be a joy to look upon.

Providing the best possible play opportunities for youngsters is a responsibility of each community. A great deal of help is available for groups interested in setting up playgrounds, and standardized equipment has proved its worth. Building on this sound foundation, individuals and groups would do well to think again about what more can be done.

PARENTS make up a large part of that segment of the community most interested and concerned with this matter. In various cities and towns throughout the country they have already used their own imaginations and ingenuity in producing unusual playgrounds that will challenge youngsters to put the same kind of imagination and ingenuity to work in their play. The Noguchi-Whittlesey playground model with its added consideration of color, space and form points up the growing importance of considering beauty as well.

The New York Times
Published: April 20, 1952

Fig.14 Dorothy Barclay "Playgrounds That Are Something More" New York Times, 1952 article after a visit to MOMA's exhibit of Noguchi's playground models.

Aldo Van Eyck's Amsterdam Playgrounds

> *"Whatever space and time mean, place and occasion mean more."*
> - Aldo Van Eyck

Van Eyck is arguably the most prolific playground designer ever, with over 700 playgrounds under his name in Amsterdam alone (Lefaivre, de Roode et al. 2002). Entrusted to build his first playground by his then boss Jacoba Mueller, his first playground was a commission from the Town Planning Department, who hoped to expand the benefits of "Play-Gardens" to non-members by making sure there was one in every neighborhood.

His first playground, in spite of its bare simplicity, was a complete success. A sand pit, a couple of round stones and a climbing frame in a plot of no more than 30sq. meters proved to be enough. This was the first of a many to come, each informing the next, turning into a career that spanned for over 30 years.

Van Eyck was enmeshed in the art movements of the post-war, he had a close relationship with the artists of CoBrA group and took inspiration from Brancusi, Hans Arp and Sophie Tauber to name a few. It was fitting that he would see in the Dada movement and in the Primitivists ideological and plastic affinity; they are easy to spot on his simple compositions, choice of materials and anti-bourgeois, anti-capitalist undertakings.

Van Eyck's approach to playgrounds was one of integration. He saw playgrounds as the space rightfully due to children and saw in them a way into integrating them fully into the city as active participants. For him, it was a loss to not have an exposure onto the ways a child has to inhabit space (Van Eyck 1969).

> *"Cities can only be human if they are also designed for children. If they are not meant for children they are not meant for citizens either. If they are not meant for citizens—ourselves—they are not cities."*

His design approach was careful of integrating playgrounds architectonically in the city by using a language that was not discordant. Rather than adapting the city to the child—an approach which solution usually meant isolating the child by providing confined dedicated spaces—he proved that

by designing playgrounds that were harmonious with the surrounding architecture, one seamlessly integrated the child into the city.

"The child discovers its city, and the city its children."

Steering away from the childishness of figurative shapes, Van Eyck made the child understand the playground as hers by thoughtful placing abstract shapes of a range of textures together with a variety of materials. Aware of the importance of offering a diverse range of vehicles and levels of thought, he opted for abstract forms to stimulate the imagination while leaving room for interpretation rather than designing figures which he thought were didactic and architecturally incongruent. He rightfully anticipated that the city would accommodate and assimilate these shapes with less resistance and that adults would find them appealing as places for rest and encounter in the after-hours.

That the number of playgrounds was in the hundreds was premeditated. Rather than centralizing the space for play, a dense network secured multiple entry points where the child's energy could be perceived. Children could scaffold their neighborhood wanderings, exploring further playgrounds as they became older.

As an architect of the "in-between" Van Eyck understood the subtleties of play like few did. He was deeply interested in the new reality developed by the avant-garde and conducted a patient investigation of the interrelation between subjects, space and time, seeking to re-evaluate time in terms of duration as the means to interiorize time, and to gain a sense of presence in the present.

"Space to be a place must include duration."

For Van Eyck, it was the artist who, pushed to the fringes just as the child, had the call to make this happen.

When snow falls on cities. The citizen has forsaken his identity.

He has become and onlooker instead of a participant, an isolated soul amid millions of isolated souls.

But the child withdraws from this paradox. It discovers its identity against all odds, damaged and damaging, fouled and fooling, edged towards the fringes of collective attention, the child survives, and emotional and unproductive quantum.

Look Snow! A miraculous trick of the skies — a fleeting correction.

All at once, the child is lord of the city. The child is everywhere, rediscovering the city whilst the city, in turn, rediscovers the child, if only for a while. Yet what it needs is something more permanent than snow.

- Aldo Van Eyck

Fig.15 Aldo Van Eyck, Dijkstraat Plaza, Amsterdam 1954. Photo: Amsterdam City Archives.

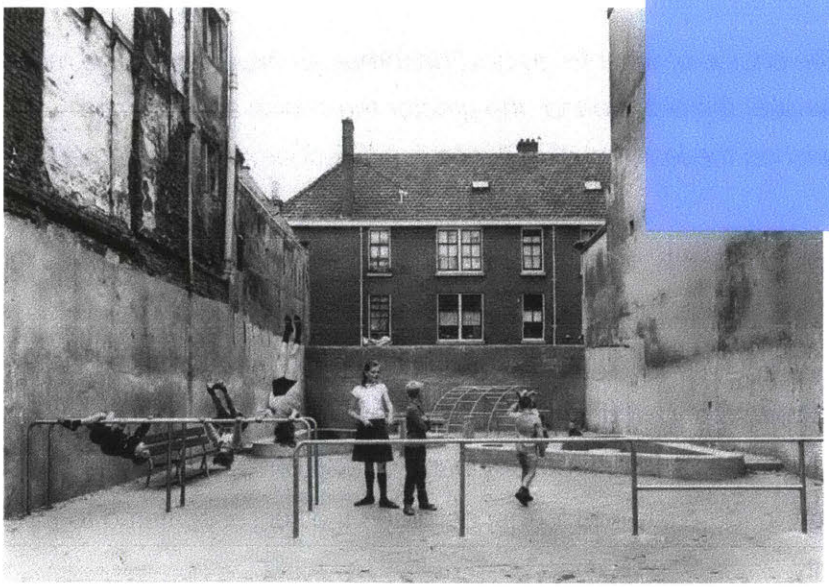


Fig.16 Aldo Van Eyck, Amsterdam 1950's.
Photo: Amsterdam City Archives.

Modernist Playgrounds

Radical Designers: Dattner and Freidberg

> *"An environment that provides only the familiar challenges that already have been overcome countless times, will never call forth any new learning." — Dattner, Design for Play*

Influenced by the playground movements that preceded them, architect Richard Dattner and landscape designer Paul Friedberg spearheaded much of what is today known as the "Modernist Playground" movement. Friedberg and Dattner were interested in the relation between exploration, imaginative play and cognitive development, and influenced by Adventure Playgrounds, Modernist architecture and cohesive planning of Noguchi's "sculptural landscapes," they realized some of the most iconic playgrounds of the 60's and 70's.

One of their biggest contributions to playground design came from observing children at play and realizing that much of what they do is choreograph their movement around space. Their design moved away from solely designing sculptures for a plot of land and rather took a much more "landscaped" approach, providing plenty of choices for how to transition between one element and the next and designing playgrounds as spaces where play is a fluid, continuous activity rather than a circuit of playground equipment.

> *"The choice of what to do next becomes an experience. The more complex the playground, the greater the choice and the more enriched the learning experience." — Friedberg, Play and Interplay*

Paul Friedberg designed plenty of smaller pocket parks in derelict lots, but was famously known for being the mastermind behind the beautiful playground for Jacob Riis Public Housing Plaza. He set of by getting rid of any fencing, finding it confining and cage-like, and proceeded to connect an amphitheater, fountains, stepped gardens to play areas outfitted with stone igloos, wood-timber, pyramids, sand gardens, labyrinths, monkey bars, on and on — open venues for people of all ages that offered a variety in materials and forms, delighted the senses, catered to the imagination and challenged dexterity.

Noguchi was not the only inspiration, Adventure Playgrounds made an impression, and although the circumstances were not as prime in the US as they were in the UK, Dattner took it upon himself to try and create a similar experience.

> *"The next best thing to a playground that children design themselves is a playground designed by an adult but incorporating the possibility for children to create their own places within it."*

Dattner masterminded Central Park's Adventure Playground, built in 1967, creating a beautiful and thoughtfully designed playground that incorporated loose and reconfigurable parts with climbing walls, slides, and abstract shapes carefully laid out on a sand landscape. There were figurative elements as well, but as Freidberg, he used igloos and pyramids, mazes and tunnels elements taken from different cultures and charged with connotations of exploration, mystery and discovery.

Sadly, the period of designer built playgrounds was short lived, and of the playgrounds they designed almost none exists today. In spite of efforts to renovate, many of the structures which were built in the "pre-code" era had to be removed to comply with current safety regulations, eroding much of their original spirit. Reflecting on the way they designed, landscape architect and designer of California's Mitchell Park comments:

> *"Codes? We never had any rules and regulations, we had common sense!"*

Nonetheless, Dattner and Friedberg's influence traveled far and wide, as could be seen in the playgrounds built by Luis Barragán and Mathias Goeritz and is quite explicit on the landscaping of the "Parque Hundido" and "Parque Sullivan" in Mexico City, to mention but a few.

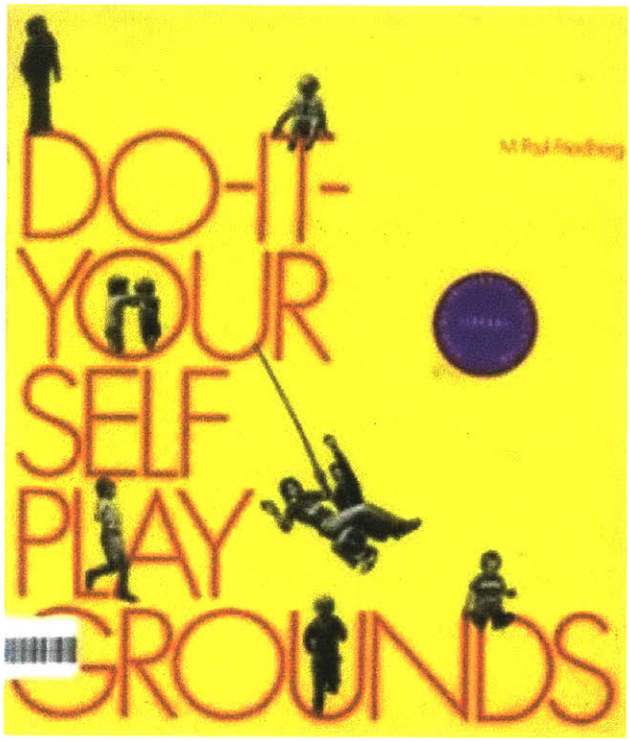


Fig.17 Friedberg, M. Paul. Do-It-Yourself Playgrounds.

Fig.18 Dattner, Richard. Design for Play. MIT Press. 1969

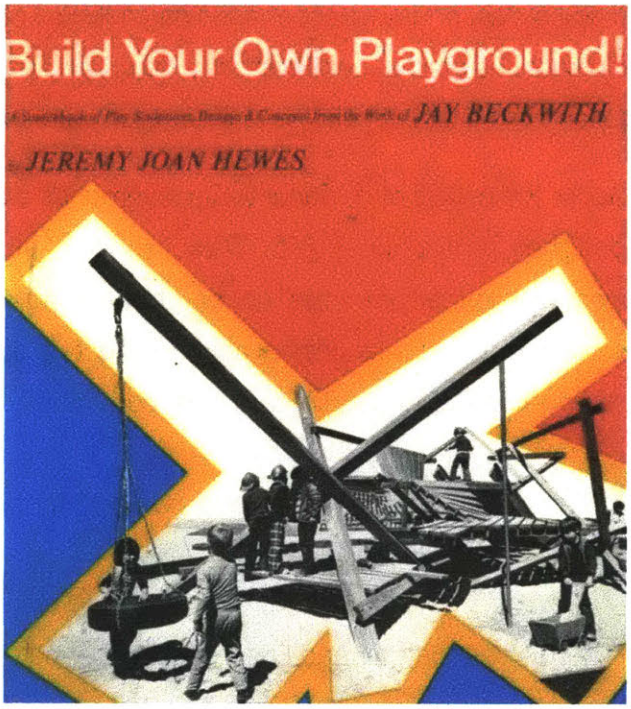


Fig. 19 Hewes, Jeremy Joan. Build Your Own Playground: A Sourcebook of Play Sculptures. Houghton Mifflin Company. 1974

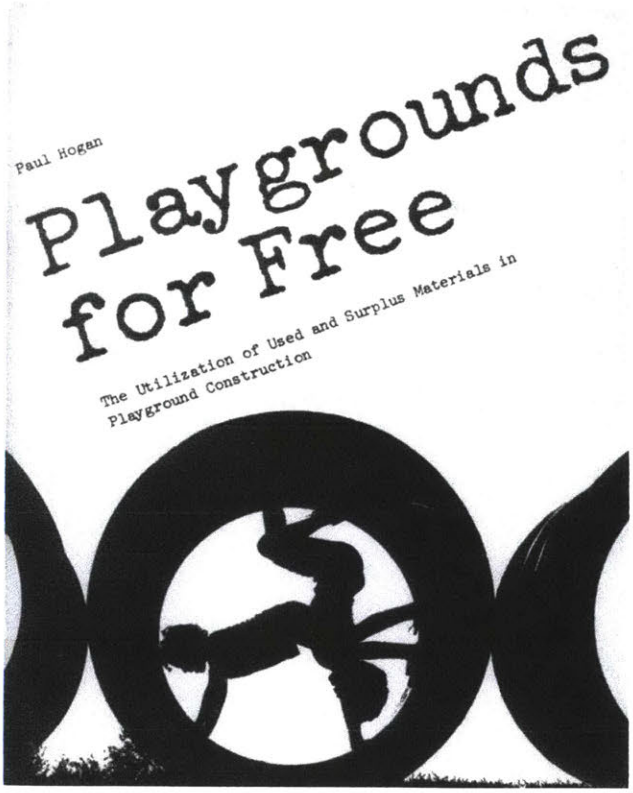


Fig. 20 Hogan, Paul. Playgrounds for Free. MIT Press. 1974

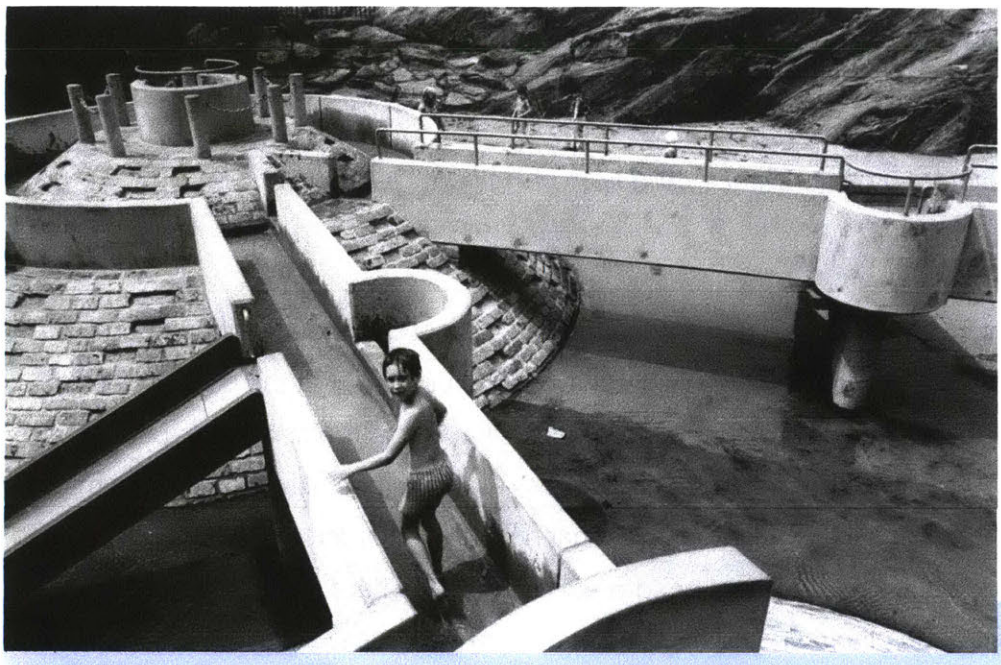


Fig. 21 Richard Dattner "Water Playground," Central Park, 1972

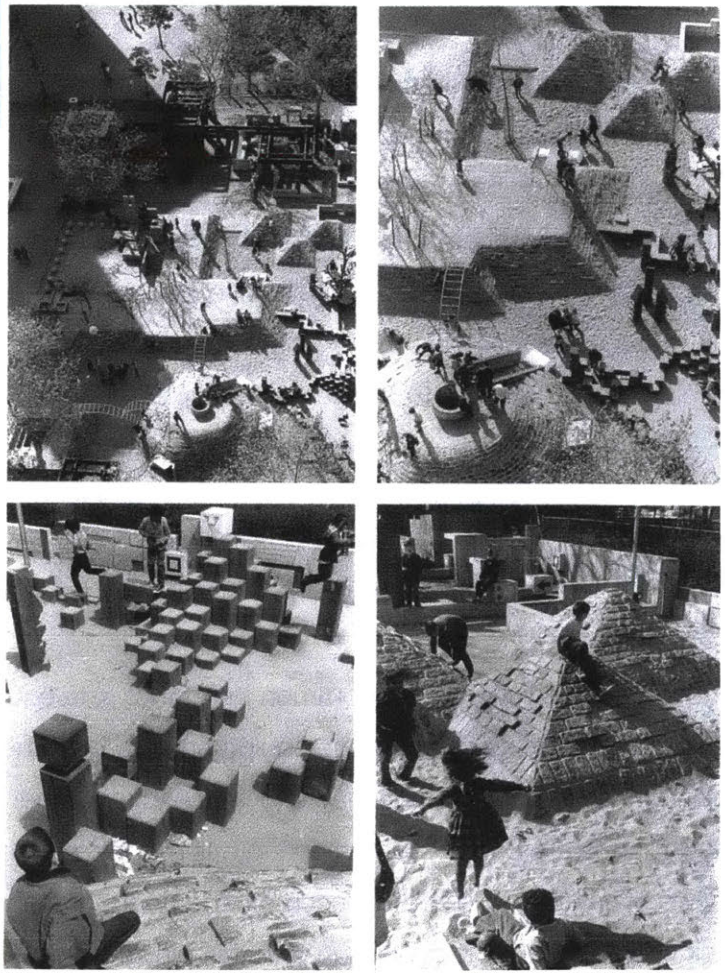


Fig. 22 Paul Friedberg "Riis Park Plaza" 1965

"McPlaygrounds" or Modern Day Playgrounds

> *"No playground can prevent a child from being hurt." — Richard Dattner*

State laws, personal injury lawyers, lack of maintenance and budget changed the playground landscape into a safer and more "educationally interactive" environment, if at the cost of design. Where playgrounds were made from galvanized steel pipes, chains and metal ladders, poured concrete and wood — easy to fix, hard, common materials — today most playgrounds are made from molded plastic and composites, safer materials that hold up better under the hot summer sun and the cold winter months, cause no burns or splinters and have no hard edges. Mass produced, these plastic playgrounds took the task of designing away from designers, architects, artists and neighbors and turned it into a profitable market for companies that offer cookie-cutter playgrounds guaranteed to abide by strict safety regulations.

There is an ongoing debate regarding how safe is safe since much of the thrill and challenge that playgrounds presented is gone. Too safe a playground makes for a boring playground and a boring playground is an abandoned playground. Offering nothing to master, a playground might stunt emotional development — something harder to fix than a broken bone. As counterintuitive as it might seem, there are reasons that prove that a safer playground might not be as safe on the long run. Studies have shown that a child who got hurt from a fall is less likely to be afraid of heights at an older age. Exposure to danger helps children (and adults) conquer phobias.

> *"We posit that our fear of children being harmed by mostly harmless injuries may result in more fearful children and increased levels of psychopathology." (Sandseter and Kennair 2011)*

Another contradiction is the common belief that safe equipment makes for less accidents. Children tend to overrate the safety of the equipment and become less mindful of what they are doing, making the rate of accidents have no noticeable decline. While not all the features of these playgrounds are bad —rubber flooring has made many falls be less consequential — the balance between safety and challenge seems to be tipped too far to the safety side. Yet poor design and lack of thrills is not the only issue with this playgrounds. Maintenance becomes an issue when the

provider is a foreign company that mass manufactures playgrounds and has no local offices to service them. As a molded composite, when it breaks there is no easy way to fix it. Usually one needs to contact the maker in order to replace a part, making the upkeep of these turn into an expensive problem which is rarely a priority for city officials.

Lastly, the morphology of these sets offers little variance to the landscape of play. At most one can choose parts from a catalogue to make up a kit, but that is a pretty limited range of options. Added to this is the fact that most government officials in charge of providing adequate play opportunities, tend to be more concerned with the quantity of play spaces than with the quality of play provided, so buying kits that require no planning, are guaranteed to be "safe" and come in a box results much easier and effective to their purpose than commissioning designers.

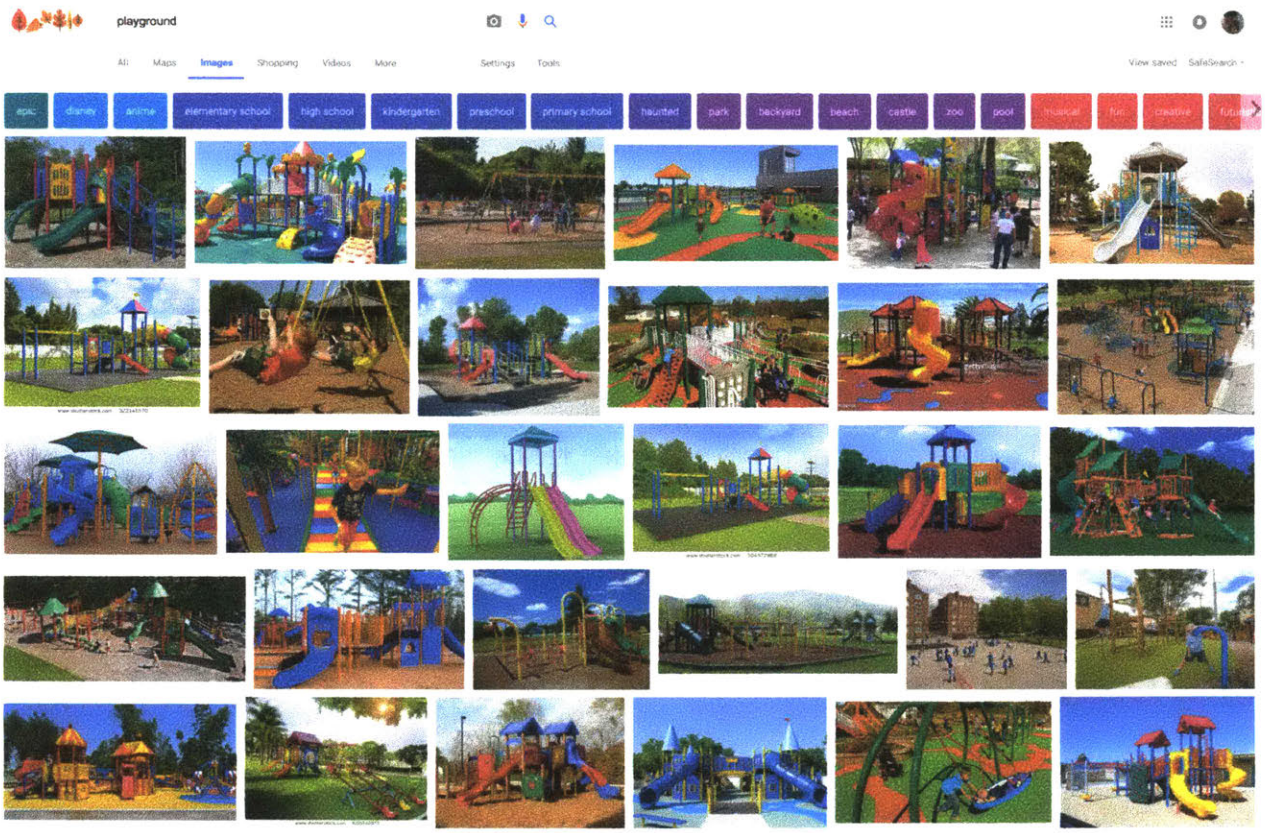


Fig. 23 Google search: “playground.”

Fig. 24 Wikipedia image for “Playground” entry.

New Takes on Playground Design

Aware of the limitations that playground kits offer and of the dire state of urban play in general, there have been a few companies who have championed the redesign of playgrounds that push the boundaries of risk taking, imaginative play and appropriation while remaining safe. By no means an exhaustive or comprehensive sample, I will mention two examples whose origins are traceable — one has taken from the Adventure Playgrounds of the past its morphology, while the other has kept very much in line with figurative playgrounds but have done so with much skill.

Imagination Playgrounds: a take on Adventure Playgrounds

Inspired by the Adventure Playgrounds, Imagination Playgrounds come as a set of loose parts for children to create their own play spaces. Sold as playgrounds in a box — they come as kits of different sizes of blue foam parts which fit together and can be configured in a myriad of ways *(www.imaginationplayground.com)*.

Designed by David Rockwell, Imagination Playgrounds can be used indoors or outdoors, transforming the space they are placed at into a play space which costs much less than what a traditional playground would. Imagination Playgrounds address the imaginative, fantasy and socio-cooperative aspects of play by scaling up traditional block play, this way children are incentivized to cooperate in order to create bigger, more complex structures. The kit is quite versatile, the parts include chutes, channels and hinges and the holes in them have a standardized size so that they can accommodate other found parts and materials, such as cardboard tubes and PVC pipes.

The fact that they only come in blue is not arbitrary, but a design consideration. According to their website, limiting to blue was done in order to "facilitate more imaginative play, without any distraction or competition that might arise from having multi-colored toys."

Imagination Playgrounds were designed after consulting with play experts, educators and parents alike and, although a far cry from an Adventure Playground, they do a great job at providing children means to manipulate their environment.

Monstrum

Monstrum is a Danish playground design firm specialized in creating thematic playgrounds *(www.monstrum.dk)*. Their artistic approach and architectural eye has attracted much attention

given their high quality and signature imaginative storytelling approach. Their designs manage to escape childishness while providing motor-physical challenges and creating a landmark in the place they occupy, wether it is a gigantic sperm whale or a model of the Sputnik satellite.

Mostrum's storytelling focus is pretty strong leaving not much wiggle room to make of the space something other than what it was designed to be. Nonetheless, the structures are beautiful and thoughtful creating a wonderful landscape for imaginative play while exercising physical skills.

Fig.25 David Rockwell's Imagination Playground
Photo: Nickelle Orellana

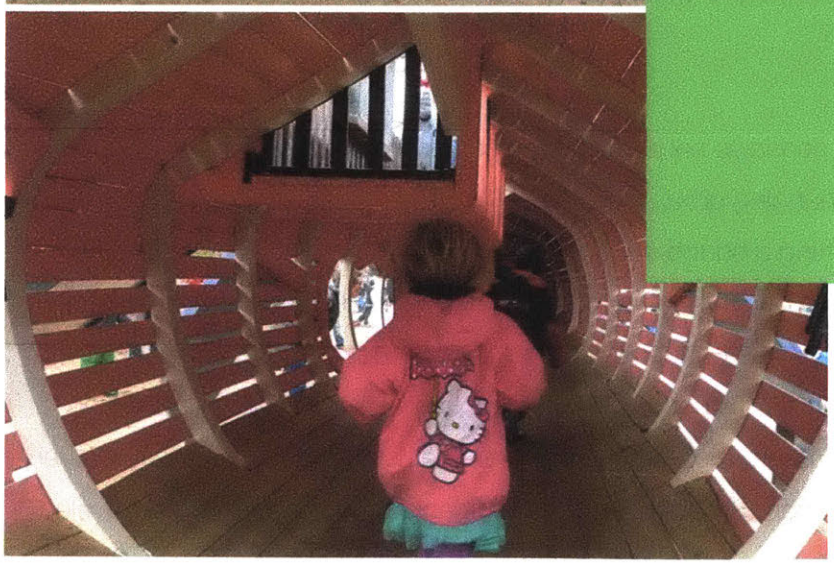


Fig.26 Monstrum's Sperm Whale Playground, Hirtshals, Denmark.
Photo: www.monstrum.dk

Hybrid Playgrounds: Integrating Digital and Analog Play

Taking advantage of digital technologies and putting them to the service of play is by no means a new practice. Some have taken regular play morphologies and enhanced them through interactive elements, while others have attempted to make a physical version of digital games. More notably, Augmented Reality has taken big strides at making of the world as we know it a playscape by adding elements to it which can only be accessed through our personal electronics. I present a few noteworthy examples that integrate digital technologies as a crucial interactive component.

Interactive Play(grounds)

Swing Time

Höweler + Yoon's Swing Time is an interactive installation composed of twenty ring-style light emitting swings in varying size *(www.howeleryoon.com)*. Installed at the Lawn on D in Boston's Design District in 2014 the installation connected a convention center, a design center and D-street; creating a space for conviviality in an otherwise mostly industrial area. The swings, outfitted with LEDs and a micro-controller, change color and vary their intensity from a soft white glow when not in use to an intense purple when in full swing, inviting people to interact with the system and with each other. Swing Time's design fitted quite well with the city's trademark geekiness and with Lawn on D's redevelopment scheme to attract technology companies to the area. The installation was very popular, bringing in plenty of people during its 18 month duration.

Impulse

Impulse by Lateral Office is a set of seesaws enhanced with light and sound *(www.lateraloffice.com)*. An "ever-changing urban instrument" Impulse seesaws are activated by users, intensifying the light and emitting a sound sequence. Impulse is a visually compelling installation of horizontal glowing white bars when not in use and creates dynamic sound and light wave when in motion. The installation was conceived for the Quartier des Spectacles in Montreal, which in spite of being the city's main art district, it is pretty desolate when no events are taking place. Impulse sought to bring people into the neighborhood all year round. Impulse has been very successful as a place making installation. Smartly designed to fit any space, Impulse has traveled to various cities around the globe.

Bringing electronic games outdoors

NEOS System

Aware of the large amount of time children spend playing video games, manufacturers of commercial playground equipment have sought ways to design playgrounds that emulate video game play. One of the most popular ones is Playworld Systems' NEOS Series— a product line that aims to incorporate *"the speed and fun of electronic games, with the explosive movement of aerobic exercise to deliver an electrifying experience to all ages"* (www.playworld.com).

Designed as outdoor equipment, the series is meant to cater to all ages through their three designs: NEOS Wall, NEOS 360 and NEOS Ring. Other than being used as meant to, the structures offer little room for appropriation, making play prescriptive. Although when "on" each structure offers a variety of sensorimotor games requiring eye-hand coordination, they are all very similar and based on competition: run around to press the blinking button faster than your opponent. They are also all designed at most for two players or teams. Offer any sense of perceived mastery the games are pre-programed with pre-established rules, offer little flexibility to modify, break or invent new ones, and focus on winning, making the potential for creative engagement very limited. Of all the games one is capable of playing, only a preprogrammed musical one offers a semblance of control of experience. NEOS is an example of how trying to literally transpose aspects of electronic games into larger physical engagement tends to subtract rather than add to the overall experience.

GPS Enabled Games: adding a layer

Geocaching

Geocaching is a scavenger hunt where people need to go find hidden items enabled by the GPS (Global Positioning System) functionality that is built into smartphones. It has many derived many variants such as geohashing, geodashing and waymarking.

Geohashing and geodashing generate random coordinates for players to meet at, varying in time and scale. It can either propose meeting close-by within the same day, visiting locations around the country in the span of a month or go as far as globe trotting. Waymarking, unlike geodashing and geohashing which are randomly generated, is community driven.

Augmented Reality Games

Augmented Reality devices overlay virtual aspects onto the real world. Paired with GPS functionality, Augmented Reality Games open up an alternative world grounded on the real one.

One of the most popular GPS enabled games of the last few years has been Pokémon-Go, launched in 2016 *(www.nianticlabs.com)*. Created by the same company who made Ingress, Niantic is creating platforms for global multiplayer games with millions of users playing simultaneously:

> *"Niantic's mission is to use emerging technology to enrich our experiences as human beings in the physical world. We seek to build products that inspire movement, exploration, and face-to-face social interaction. By turning the world itself into a game we hope to motivate our users to head outside, visit new places close to home and far away, to see the world with new perspective, and to play together with friends and family in games that span and unite the entire planet."*

Pokémon Go requires players to wonder around real-world locations looking for Pokémon characters in a quest to "catch 'em all!" Your Pokémons then need to be trained to battle other player's Pokémons. Catching Pokémons requires Poké-Balls which you can get at Poké-Stops.

Poké-Stops are physical locations derived from Ingress portals. These are suggested by users and need to meet certain criteria, such as pedestrian access and not interfering with the operation of hospitals, fire and police departments or being inside private property. These stops used to be chosen for their distinctive quality, be it artistic, historic or cultural value. Nowadays, Stops have become a venture — businesses can turn their stores into Stops by paying anywhere between 15 to 50 cents per customer visit to Niantic.

Praised for having incited millions of people to go outside, warnings have also been issued alerting people from anything from getting too much sun-exposure as in Israel and Turkey, to the risk of wandering into old land-mines in Bosnia. Some of the benefits that Pokémon Go has been built upon are only superficially explored. While people go outdoors, they are not there to engage with the surroundings themselves. The spaces they visit become secondary to finding the Pokémon. Unless there is an intrinsic interest, there is no need to mind the space's peculiarities from the users

nor is it suggested by the game except by the initial curation of stops, which, once monetized, loses its requirement of uniqueness.

Pókemon Go did mobilize people in ways no other game has and encouraged people who otherwise would have no reason to go outdoors to get out and walk. This alone has multiple potential benefits that range from better physical to better mental health.

Intersecting networked computing and social interaction: Area/Code

Area/Code, now Zynga, was a company that saw the opportunity brought about by new technologies and modes of interaction, be they GPS, camera phones, visual markers etc to make of them a playful experience *(*www.areacodeinc.com*)*. In their own words, Area/Code

> *"takes advantage of today's environment of pervasive technologies and overlapping media to create new kinds of gameplay. We are inspired by both the future potential of ubiquitous networked computing and the long historical tradition of games as social interaction."*

Area/Code created a series of delightful games at different scales and mindful of context. While many of their games were web based, either as Facebook games, multiplayer video games or iPhone games, these were mostly done in partnership with industry, grounding the content and experience in real life context.

Together/Everywhere, from 2008 for example, developed with Puma, was a game designed for the European Football Championship. The game connected fans around the world through their mobile phones by calling either friends or ten random people who root for the same team every time a goal is scored. Together Everywhere brought existing groups together as well as connected fans around the globe.

Sharkrunners, in partnership with Discovery Channel's Shark Week, was a web based game in which players control their ships, while the sharks that they are set to find are controlled by real white sharks with GPS units attached to their fins. This way, players who come upon a white shark on the game they know it corresponds to an actual shark in the real world.

One of their most popular games was Conqwest, designed for Qwest Wireless. The game made use of optic codes designed to be scanned by phonecams. The game was a city-wide scavenger

hunt, with messages hidden in plain sight legible only to whoever had a phone that could decipher them. Targeted for high school students, the game's online component would show players' location and progress, so rather than following instructions as most scavenger hunt based games do, this required tactics and decision making. The online component also turned the game into a spectator event, as anyone could tune in and see the state of the game.

Macon Money is a game designed specifically of the residents of Macon, GA. Residents are given a half a bond to cash for local Macon currency. To cash it, one has to find one's matching half. Residents could use any means they could come up with, from social media to organizing physical gatherings. Match in hand, residents could then cash in their bond for Macon Money and use it at any of the participating businesses.

Fig 27. NEOS Playworld System. Photo: www.playworld.com

Fig 28. Impulse by Lateral Office, Montreal, QC.
Photo: Ulysse Lemerise

Fig. 29 Pókemon Go 2016
Photo: Union Square, Justin Lane/EPA

Fig.30 AreaCode's Conqwest.
Photo: www.areacodeinc.com

Unintended Playscapes: Sculptures!

Paige Johnson is the author and editor of Playscapes, the world's most read blog on playgrounds. A wonderful blog, it presents a pretty exhaustive research of playgrounds, mostly from mid-century and until today *(www.play-scapes.com)*.

Rather than focusing on playgrounds, Johnson's provocation is to think about play sculpture instead. She argues that the nomenclature "ground" speaks of an appropriation of the ground, a designation of place that we have co-opted and taken to be play itself. Her statement is that play is more than real estate. Play came before grounds and will live beyond grounds, and we should instead think about what play is, and what play means within the city by considering how do we go about providing inviting spaces for play in the city.

Rather than being attached to a specific place, play sculpture could be placed anywhere, be both a path and destination, ephemeral or permanent and offer adventure while being mindful of artistry. By offering a commitment to a high level of design they integrate well into a variety of spaces while allowing play to happen in places it would not otherwise be.

Art has a power that other forms of engagement with society do not. Enlisting art in the cause of play has proved beneficial to all involved, as was seen in the 1950's when the Museum of Modern Art of New York, together with PlayThings, held a competition to generate new forms of play (Ogata 2004). The call enjoyed much attention nationally and internationally, and proved to be inspirational beyond the confines of New York and the playground world. It pushed new forms of play forward and enabled innovation all across the country. Municipalities commissioned local artisans to design custom made structures for their communities, engaging people who would otherwise not have joined in the conversation and rallying community support, ensuring preservation and turning the place into a beloved space that is truly part of the community.

By virtue of its flexibility, play sculpture offers a wider entry point, taking the conversation of play from the hands of equipment manufacturers and placing it on the hands of artists who are willing to operate within previously neglected spatial and temporal boundaries and expanding the spectrum of play by doing so. Its designation as art concedes it to surmount safety concerns that have become too attached to play. By being positioned in the art world rather than in the play world, play sculpture enjoys a different risk-benefit analysis where the benefits usually win.

Chicago's Picasso

In 1963, the architects of the Richard J. Daley Center in Chicago wrote a poem to Picasso trying to entice him to design a sculpture for the Center. After much insistence and a visit, Picasso accepted the commission and refused the payment offering the sculpture as a gift to the City of Chicago - a city he had never visited nor showed any interest in (Artner 2014).

What the sculpture depicts, nobody knows. Some claim it was inspired by the face of one of his models, others claim it depicts an Afghan dog. The day it opened, Mayor Richard Daley declared:

> *"We dedicate this celebrated work this morning with the belief that what is strange to us today will be familiar tomorrow."*

Previous sculptures in the public space in Chicago were important as objects of history, they celebrated civic engagement and usually depicted someone. This sculpture celebrated art in the public space. "The Picasso" as the untitled sculpture is commonly referred to, underwent a long process of familiarization before becoming the beloved landmark of the city it is now.

The sculpture, sitting 50 feet high and made of welded steel rarely sees a time of day when there is not someone climbing, sliding or skate boarding on it. That Picasso intended his sculpture to become a playground is unclear. That he knew that his gift would lead to the City of Chicago commissioning many more works of art for its public spaces given the love the city has for "The Picasso" is unlikely. But then again, it is Picasso. And gifting an uncommon enormous sculpture to a city in the United States of which he showed no particular interest at age 82 might have been all tongue in cheek — perhaps he knew the city would have to deal with an image of gigantic maybe woman, maybe dog, maybe baboon with an inviting slope to slide on.

The appropriation of "The Picasso" as a playground went from being forbidden by the city to being accepted and more so, it prompted reflection and even promotion. Skateboard parks have been created since, perhaps initially to divert skaters from skating on the sculpture itself, but nonetheless, it recognized skating as a non-criminal activity that had little acceptance, while sliding on "The Picasso" has become a common suggested way of interacting with the sculpture.

As far as we know, Picasso did not set out to design a playground, yet he designed a better playground than many.

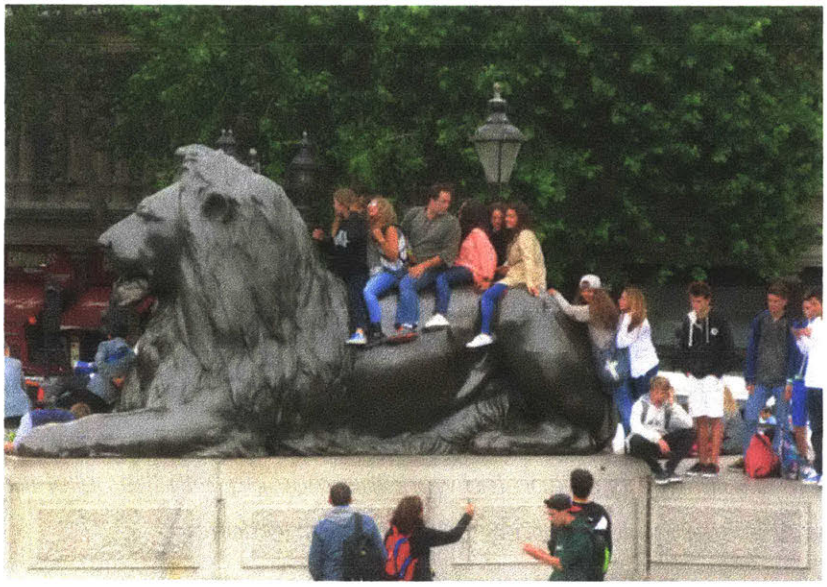


Fig. 31 Trafalgar Square Lions, London UK.
Photo: David Holt

Fig. 32 Chicago's "The Picasso" used by skaters.
Photo: www.hamtvisuals.blogspot.co.uk

5. Towards a Design of Networked Playscapes

> *"A call to playful arms, an invocation of play as a struggle against efficiency, seriousness and technical determinism."*
> - Miguel Sicart

We have learned that cities are becoming the home for most of humanity, that we need more than infrastructure to relate across differences, that cities are becoming "smarter" but that play is not a strong part of the planning agenda for many cities in spite of being a powerful tool for integration, and that play, instead of happening in the public space, is mostly happening behind a screen.

Aware that the way we play changes with the advent of new technologies, and that digital, virtual and networked play have much to offer, Networked Playscapes aims to bring the best of physical and analog play to reimagine and redesign what a playground might be. Play shape-shifts, adopting and adapting to its time and space, it takes place in both mind and body, and uses analog and digital means. We believe that this ability of play to take on any medium offers a wealth of design possibilities. Networked Playscapes advocates for shared play in the public space, and looks at locality as a way to ground play and make it relevant. We believe that digital and network technologies have much to offer in this regard, for rather than only designing physical equipment, it allows play to take over as prompts or by using the environment itself as the playscape.

As such, Networked Playscapes are better understood as guidelines for design rather than as a particular iteration. Our hope, is that Networked Playscapes will take many-a-one form that reflect the place, the time and the people they serve.

In order to arrive to these guidelines, we will resume the insights we gathered from the different approaches at playground design as well as the lessons we have learned through workshops conducted in different parts of the world. We also present reflections on what telepresence might mean when applied to play, as well as question the need for digital resolution and consistency when dwelling in the realm of the make believe.

Integrating Insights

In order to better formulate what a Networked Playscape might be, I will start by looking at what are the most valuable lessons to be drawn from the most salient stages of the history of playground design.

From Adventure Playgrounds

The biggest attribute of adventure playgrounds was putting the imagination of the child at the forefront. The biggest setback was that their helter-skelter aesthetic made it hard for cities to adopt. The need of a paid "play leader" to avoid accidents was also an expense that not many governments were willing to upfront. The constructivist nature of the playground—using loose parts rather than playing over a static set of structures imbued a sense of danger and challenge as well of ownership and agency. Another important design aspect was the employment of a "play facilitator" in that the child was far from parental supervision, but close to an ally who had its safety in mind and was there to support the child's intrinsic efforts. The strategy employed for their implementation, that of using derelict sites which were already "taken" by children as spaces for play and formalizing them rather than asking for a space to be given, was key to their success. The arguments had precedents, it was a matter of improving what already was happening rather than proposing something new and relying on the allocation of a space to realize it.

From Post-War Playgrounds

Aesthetically, Van Eyck's architectural eye gave him the smarts to design playgrounds that regardless of space allowance provided a variety in materials and forms while blending into their surroundings without much trouble, catering children and adults alike. While Van Eyck transformed any space, large or small into a playground by carefully and thoughtfully introducing a variety of materials and shapes into it, Noguchi saw playgrounds as cohesive sculptural landscapes, making his visions hard to scale and rendering them dependent of space, permits and budgets. One of the biggest takes when comparing these masters is that a public-space intervention that starts as an ad-hoc process, under good government has the potential of becoming policy. One that relies on government has the potential to never become a practice. Ultimately, playgrounds are public spaces that won't flourish without good government.

The PIP Principle

In the early 2000's, after studying Aldo Van Eyck's playgrounds and organizing and exhibit at the Stedelijk Museum in Amsterdam, Liane Lefaivre "discovered" what she coined the "PIP Principle".

The "PIP Principle" is a design tool that stands for Polycentric, Interstitial and Participatory and stems from the idea that a playground must be organically incorporated into the neighborhood to be successful, otherwise it will be neglected.

Polycentric means than rather than having one large playground, you create a densely packed network of smaller playgrounds placed at relative short distances.

Interstitial stands for creating playgrounds out of any space available, getting rid of the need to be clear space. A street corner, rooftop or underpass — any easily accessible and safe place that has no use could be used to create a playground, regardless of size and permanence.

Participatory playgrounds are created by engaging in a dialogue with the inhabitants of whichever particular site will be intervened.

According to Lefaivre, a play network needs to provide play opportunities to all ages and be integrated into its environment, deriving from it its play character and physical design.

From Modernist Playgrounds

Exemplifying though Dattner and Friedberg, Modernist Playgrounds helped us see play beyond the design of silo structures and mind the spaces in between. By landscaping a playground they made sure play was inclusive, continuous and ever-changing, creating spaces that were seldom used the same way twice. Sadly short lived, they were a lucky break in what has mostly been a story of playground design being constrained by bureaucracy, power dynamics and litigation, exposing how even when well intended, a playground won't flourish without the right culture around it.

From Playground Kits

As kits elaborated by an equipment manufacturing company, playground kits feel more like an easy-fix solution rather than a thoughtful approach towards making play safe. They offer little thrill or motivation, are mostly used by toddlers, and aesthetically, they do not offer much variety. In that regard, playground kits seem to not care much about play nor children themselves.

From New Takes on Playground Design

As of late, a few designers and architects have seen the potential there is to expand the vocabulary of playground design. We have seen how the Imagination Playgrounds took a few cues from the Adventure Playgrounds of the postwar and brought back the loose part elements, endowing children again with the power to construct their own playscapes, if in a very limited way. Monstrum on the other hand, has preserved the more traditional figurative playground design approach, but they do so with great care and consideration. Their delightful playgrounds have at their core storytelling and imagination, they masterfully make use of scale and make sure to provide a degree of risk and physical motor challenge. Their designs are also not premeditated, but come about in dialogue with the space and the people and usually consider local lore.

While these are only two examples, there have been plenty of designers that have taken upon themselves to design new play morphologies by making use of new materials and shapes — indeed there is a renewed interest that has mostly manifested itself in temporary installations, but that nonetheless illustrate the variety that can happen when we move away from a centralized approach and give artists, architects and designers the opportunity to design instead.

From Hybrid Playgrounds

The use of digital technology to enhance play in the public space has made what were usually regarded child-centered activities become more alluring to older generations. With their light, sound and other enhancements, the "playground" becomes something to be seen, heard and interacted with rather than just "played" on. Because they are so attractive, they tend to draw large crowds and attention from sources which would usually not pay much regard to a traditional playground, becoming more of an event than anything else — with the danger of being a gimmick rather than a real attempt to integrate play. Usually starting off as a private commission, they have the advantage of not abiding by the same safety standards than a public playground and given their need for maintenance, they are mostly conceived as stand alone installations that can relocate to any place that wants them.

GPS enabled games have been great at bringing people of all ages outdoors, but this does not translate into having the participants truly engage either with their surroundings or with each other. Additionally, having to use a personal electronic device to play presents and entry barrier for many that might not have the means, the age or the technical know-how to use them.

Play Sculpture

Sculptures that have been appropriated for play are a great example of how, as long as there is a thoughtful piece of art placed in the public space, people, especially children will try to play on it. Play sculpture also shows that integrating play and art in the public realm has worked even without intention, and as such might provide a foreseeable path over traditional playground design.

Integrating all these, we have arrived at the following conclusions:

Urban Planning:

- A playground is not only a space for play, they play a constructive role for integration and hold huge potential as the locus of a public, neighborhood-generating place in the city.
- Relegating the design of playgrounds to playground equipment companies compromises the diversity in playground design.
- Do not design exclusively for the child, design for the city.
- Do not design for a space that is not there yet.
- Do not regard the size of the space, every nook holds potential.
- Why centralize—create a network instead, you will inject life into the whole neighborhood and scaffolds a child's exploration of its surroundings.
- Involve artists, designers, parents, architects in the design of ludic spaces, you'll guarantee variety.
- Digital tools help make of any place a playscape, but unless the place is made relevant to the game, the location will mostly be ignored.

Design:

- Safe playgrounds might not be that safe: injuries may have actually risen due to the illusory perception of a danger-free zone.
- Molded composite playgrounds are hard to fix, usually requiring replacement making them not the most efficient option in the long run.

- Design for the creative integral being: for the five senses, for the body but also for the mind and soul.
- Do not underestimate the imaginative capacity of a child, feed it with variety.
- Make the user matter as individual, have them have an effect on their built environment.
- Designing for play is an opportunity to show that the man-made world does not have to be dull.
- Be mindful of the semiotics of the built form, childishness gets tiring.
- Design locally, be distinguishable but blend with the space.
- Appropriation facilitates maintenance.
- Leave parts unfinished, rearrangeable, loose: provide opportunities to co-create.
- Play happens between objects, people and places, design the entry, exit and transition between them in mind.

Integrating the Physical, Digital, Virtual and Networking

- Hybrid design does not mean emulating one realm on another one, it means creating something new out of the combination of both.
- Play mediated by a device will most likely exacerbate inequity between people with and without means and with and without skill.
- Regardless of being digital, context-aware design will have less risk of being gimmicky than something that works the same no matter where.
- Placed in the public space, a digitally enhanced playscape should also be able to function when not "on."

In addition to these observations, Edith Ackermann, giving spatial form to Winnicott's concept of "good enough mother" — psychologically present, emotionally connected, supportive, un-controlling — has developed a list of relational qualities for what she considers to be "holding environments"—spaces where while "securely attached," they leave ample room to build autonomy, breed intrinsic motivation and lay the grounds for self-directed learning (Ackermann 2013). to the outside world, Ackermann has These are:

- Open enough to let us be (welcoming, embracing)—Winnicott's potential space
- Intriguing enough to capture our imagination (inspiring, evocative, surprising)
- Generous enough to give us a second chance (forgiving, lenient)
- "True" enough to offer candid feedback (reliable, whole, even-handed)
- "Unreal" enough to let us play, pretend, imagine—Winnicott's transitional object
- Engaging enough to sustain our interest (stimulating)—Papert's "holding" power

Explorations: Workshops on Networked Play

While universal, play adapts to its environment and adopts the culture it happens at. Play is also a vehicle through which we pass on moral values and cultural norms. As such, I was interested in learning how is play enacted in different cities, in which places and by what means. I conducted three workshops to explore these themes. While similar, each had a particular focus.

Networked Play, Cali, Colombia

I was invited by the Universidad Autónoma de Occidente in Cali, Colombia to give a workshop to a group of ≤ 30 college students. Balancing their quest to acquire design and prototyping skills with my research we made use of design thinking techniques and physical computing to imagining and prototyping Networked Playscapes.

To do so, we broke the workshop into three different sections:

Telepresence and Long Distance Communication

We researched in which ways and through what means has humanity communicated over distance. We paid close attention to scale, reach, directionality, intentionality and the senses targeted: How far did messages carry and why? Was it one to one, one to many, many to one? Is there any kind of feedback as to by whom, when and how accurately was the "message" received? Is it sound or visual or tactile or olfactory? We also reflected on how the Internet and ubiquitous computing is affecting and shaping the way we relate.

Cognitive Development and Play

We reviewed play as a fundamental biological and cultural human activity and conducted ethnographical research by going out on the streets, observing and take notes, as well as plunging into ourselves and bringing out personal experiences and relevant memories as material to work with. Readings on knowledge acquisition and cognitive development were given as to inform design.

Materials and Fabrication Techniques

We looked at different examples of playgrounds all over the world and the materials they were built with. We also looked at local materials and handicraft for inspiration to design relevant, local Networked Playscapes.

After analyzing the way we played, the way we play now, the spaces we play at and looking at the available networking technologies at hand, the students decided to prototype two Networked Playscapes which they could make use of at their university. These were simple examples funded by the students and aimed at putting their physical computing and basic networking new found skills to practice.

Given that the stairs at their school all measured the same, they decided to build a slide which could be fitted onto any staircase in campus. The slide had light sensors embedded along it, so that when someone slid on it, these would work as switches. These light sensors would trigger cumbias, a typical Colombian rhythm elsewhere in campus. Another simple prototype was derived from the ball pits found in fast food restaurants. The students made a mock-up ball with a micro controller and LEDs inside and connected it to another ball in a different ball pit using X-Bee radios. Of all the balls in the ball pit, one had to find the one that was connected, and once shaken, it would light the ball in the other pit.

Play as Experience, Saltillo, Mexico

Co-taught with Daniel Rosenberg (Design and Computation alumni). This workshop was taught at the Tecnológico de Monterrey, in Saltillo, Mexico. Part of a larger conference, we counted an attendance of around 50 people with a wide age range. During this workshop, we focused on the experience of play. We started by reminiscing how we used to play and moved on to how play is enacted now, and the role of technology and of city growth on the evolution of play. We charted which values remain, which new ones have been created and which we we would like to keep and provided the students with an experience chart, in which they mapped both their emotional as well as physical experience of play.

City as Playground, Ahmedabad, India

Co-taught with Alisha Panjwani, this workshop took place in Ahmedabad, India, to a class of around 35 college students. India proved an ideal place to see how people engage in everyday

playful interactions within and without a designated place. We examined how space dictated the kind of play by generating maps that went from home to block to neighborhood to see what were the available options for which kind of play at each. We visited playgrounds as well as cricket grounds and temples and observed if, how, and when people from a wide range of religious believes and socio-economical backgrounds converged to play together. After the observations, students made use of rapid prototyping techniques and digital fabrication to test ideas for Networked Playscapes.

Examples included a game the students made inspired by their classroom chairs. Bolted to the floor, the chairs have are on a swivel. The students used the swivel as a video game controller for a web based car racing game. This way, the seat became the car wheel, letting them play inconspicuously.

Fig. 33 Networked Playscapes Workshop, Cali, Colombia .

Fig. 34 Networked Playscapes Workshop, Saltillo, Mexico.

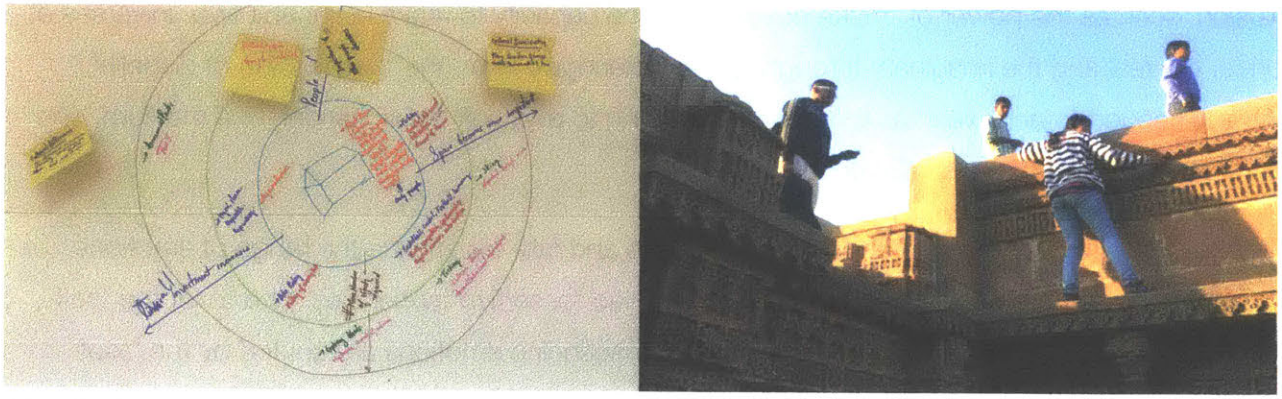


Fig. 35 Networked Playscapes Workshop, Ahmedabad, India.

Harnessing the Telepresent Nature of Play

Telepresence is described (and coined) by Marvin Minsky as "the experience of presence in an environment by means of a communication medium" or "mediated perception of a temporally or spatially distant real environment" (Minsky 1980).

Kac further defines telepresence as presenting sense-data that (1) claims to correspond to a remote physical reality and (2) allows the remote user to perform a physical action and see the results (Kac 1992).

Telepresence as is necessarily a "mediated" experience of a supposed reality to be perceived through a (technological) instrument.

What the instrument is and the scale at which it operates defines not only what we are capable of perceiving, but also how we perceive it. Each instrument of communication or measurement re-defines our definition of knowledge. Whether a telescope or Skype, telepresence technologies abnegate distance, bringing that what is far, near, and the there into the here.

However, does telepresence need to be mediated necessarily by a technological instrument? Doesn't our own imagination, memory, dreams and playtime seem to do a similar thing?

Koestler in "The Act of Creation" talks about illusion in terms that are not much different than the ones used for telepresence (Koestler 1964).

Illusion, seen as the power of "make believe" has the capacity to make us inhabit two universes at once: the real and the imaginary through, using Coleridge's term, the "suspension of disbelief." Little is needed to achieve it; as long as one is willing to overlook the limitations of a medium, one can create of a mop a bride (Coleridge 1984).

To participate, to be willing to let go of the rationale and fully experience the range of emotions prompted by the illusion, is to hold back the so-called "assertive-tendencies" and to let the "self-transcending" ones occur. To Koestler, the self-transcending emotions are guided by the "tout comprendre c'est tout pardonner" maxim (understand all is to forgive all), while the self-asserting tendencies are designed for assertion, not comprehension.

The outmost value of illusion, says Koestler, is its capacity to bring that which is distant in space and time to the here and now or, conversely, to "transfer of attention from the now and here, to the then and there," and to be able to inhabit this bisociated condition in the mind.

Illusion then is not here or there, it is here and there, then and now.

The idea of both planes co-existing simultaneously is not Koestler's discovery as he is ready to disclose: "The so-called law of contradiction in logic -- that a thing is either A or not-A but cannot be both -- is a late acquisition in the growth of the individual and cultures. The unconscious mind, the mind of the child and the primitive are indifferent to it. So are the Eastern philosophies which teach the unity of opposites, as well as Western theologians and quantum physicists.

Casey, in "Getting Back Into Place," also makes use of the here- there dyad, but also introduces near-far. He states that the here and there dyad retains an "all or nothing" quality in its spacial configuration, while the near-far experience is altered by emotional, cognitive and memorial elements and is thoroughly spatiotemporal (Casey 1993).

So what is far when that which was there, then can be here, now?

Far, says Casey, is not the distant, but that which is not within reach, and requires the experience of range. This range, does not need be physical, but can be perceptual (memory, imagination) -- far away so close! -- and as a perceptual one, it could be bridged by perception as well.

Casey also notes that: "things remote in space and time can enter our near sphere through technological intermediaries."

Telepresence technologies are perceived the most successful when they deal with the spatiotemporal and perceptual factors of near - far, and not only with the spatial qualities of here - there. Interactivity and consistency are two key factors in helping distinguish something as being "within reach" or near by making the interaction (seem) true through definite, enactable doings with their respective consequences and results. This though, still leaves the perceptual and imaginative out of the equation, limiting it only to the physical.

When talking about CMC (Computer-Mediated Communication), concerns of truthfulness and trust arise, especially as technologies become closer to simulating time and space in terms of presence.

> *"The relativity of psychological time has nothing to do with the relativity of time in physics."*
> - Koestler

So what about psychological time, what about the lessons learned through the power of illusion, of simulation, of performance?

What is true about a dream, what is true about play, what is true about a shaman in ritual? Why is truthfulness such a defining factor for successful telepresence technologies aimed at communication? And why are interactivity and consistency parameters of that truth?

Telepresence differs from teleoperation in that teleoperation allows us to operate and affect a distant environment, making telepresence more veritable. Meanwhile, telepistemiology is the study of knowledge acquired at a distance, but again, the focus seems to be in how reliable is the knowledge acquired or the action effected through a technology mediated experience of a plane that is otherwise out of reach. Being so that there are so many undertones of telepresence in the mythological, magical and religious realms, realms that have been sources of knowledge since times immemorial, I wonder telepresent technologies that do not take consistency and interactivity as factors of truth, for there exists other types of distance for instance, the much needed inner distance that allows reflection and self-discovery, achieved best when Koestler's "self-transcending tendencies" and Turner's "liminality" take place (Koestler 1964) (Turner 1982).

Networked Playscapes: Design Principles

After careful consideration of prior work regarding the integration of play into the city scape, we have come to the following guidelines for the design of Networked Playscapes. They are meant to be understood as a suggested direction, and as such, we hope they keep getting modified as we keep learning from this ongoing practice. Our first three iterations of Networked Playscapes, which took place in Mexico City and which we will detail in the following chapters, was based on these.

Networked Playscapes propose to make use of play as the means and the medium for engagement. Rather than centering on designing for the citizen or the child, Networked Playscapes focus on designing for *play*. By "play" we meant not just the ways children play, but also the way adults "play" through making art, or engaging in hobbies, humor, or meaningful conversation. Play is crucial to the development of authentic selfhood regardless of age, because when people play they feel real, spontaneous and alive, and keenly interested in what they're doing. Networked Playscapes hope to defy the "False Self" that complies with external expectations and fabricated wants by providing a place for communion, communication and engagement through the thoughtful implementation of ludic interactions.

Networked Playscapes considers the way "digital natives" play today and makes use of the affordances of the technologies at hand, but does not adopt a technocratic agenda. Rather, it considers the contributions and new ways of meaning making that are brought about by the "mobility" (physical, mental, digital) to which we are subjected.

Networked Playscapes happens in the public space since it holds central the idea of creating shared experience unmediated by a personal electronics. By virtue of living in the public space, Networked Playscapes become political. As such, they attempt to be democratic by closing bridging inequalities whenever found.

The design of Networked Playscapes is informed by local idiosyncrasies, both in form, material and type of interaction. The function of the network is informed by the social needs of the place it is at.

They are "Networked" for they interconnect people both locally — bringing people together by serving as a point of congregation, and also remotely — using analog and digital means, whether it is radio, wifi, or by virtue of being mobile.

They are "Playscapes" for they embrace a wider understanding of play both in form and function. At times an invisible intervention that needs no object, at times an appropriation of what already serves, at times creating modular, adaptable structures.

Networked Playscapes advocates for a variety of vehicles and levels of thought. They are not limited to physical-motor play, but address imaginative, creative play as well.

Networked Playscapes appropriate the space but leave room to be themselves appropriated. Never complete or defined, they present either the opportunity to intervene or modify them, sometimes their very existence requires engagement.

Built grounds-up, Networked Playscapes make use of local skill and manufacturing, incorporating trends and traditions whenever possible. They are unique, yet replicable and designed dialogically.

6. Deploy: Mexico City

The work realized in Mexico City is the culminating phase of my research, where I put to use all the learning obtained through the workshops, installations, systems and surveys realized to date. Mexico City served as the grounds where the implementation of networked, spatial solutions to social issues was tested offering an opportunity to put theory into practice by making use of the skills of citizens through creative engagement. This dissertation, as a first attempt to deploy "Networked Playscapes," was carried out in the spirit of enquiry and made a point to make practice reflect theory. Embracing a bottom-up approach by creating alliances with factories, metal workers, weavers, street vendors, students, academics and various offices within government as well as the private sector, Networked Playscapes is a joint effort that wishes to reflect the voices of all its participants and to make use of the infrastructure in place to make them clear. My investigations try to learn from the social to build the physical, and look to provoke social change through physical intervention.

Mexico City

Flying into Mexico City provides an impressive sight. If flying by night, an undulating rug of lights with no end in sight extends limitless, going over and beyond hills and valleys. During daytime, one can clearly see a layer of pollution floating above buildings and houses that spread far and wide, a few pockets of skyscrapers here and there. On a clear day, when the volcanoes surrounding show their face and the air is crisp, one can begin to imagine what a majestic sight Cortes must have encountered upon stumbling onto the capital of the Aztec Empire:

> *"In order, most potent Sire, to convey to your Majesty a just conception of the great extent of this noble city of Tenochtitlan, and of the many rare and wonderful objects it contains, of the government and dominions of Moctezuma, the sovereign; of the religious rites and customs that prevail, and the order that exists in this as well as other cities appertaining to his realm: it would require the labor of many accomplished writers, and much time for the completion of the task" (Cortés 1866).*

Day and night, an energy like no other emanates from what is over 20 million people trying to go about their lives in a densely populated, highly segregated cosmopolitan city where ordered chaos rules.

Mexico City has a complicated layered history marked by its colonial past. Prejudice towards indigenous Mexicans (mestizo) who make up most of the peasantry and working class is rampant, while lighter skinned Spanish decent Mexicans comprise the social elite. Bigotry and discrimination is so commonplace it hides in plain sight. For example in 2013 Aeroméxico's, Mexico's largest airline, made a casting call for a commercial in which they explicitly asked for "nobody dark skinned" which went viral, exemplifying the mostly white complexion that dominates media. Nonetheless, Mexicans take pride in their indigenous past to the point of fetishizing. It is a confusing scenario of white complexioned Mexicans negotiating the price of goods while shopping with bags dotting the face of communist Frida Kahlo printed on them at street markets on colonial plazas selling American grown vegetables for their maids to cook; of Mexican designers employing models with "native" features to sell their hand-made (by "indigenous hands") merchandise at prohibitive prices to the mostly white complexioned elite who can afford it. This situation is so pervasive in media representation, in employment rates and social outcomes it can become hard to see.

Added to this, the wealth inequality in Mexico is extreme. In 2015, Oxfam reported that:

> *"64.4 percent of wealth is held by just 10 percent of the population, with the top one percent commanding 21 percent of national income. At the top of Mexico's wealth pyramid four billionaires earn as much as nearly 20 million Mexicans at the bottom" (Esquivel 2015).*

Mexico City's large urban population and race and class social divisions are reflected in the spatial locations of these groups, which is not without major social and governance implications. Urban expansion in Mexico City responds to two interrelated processes:

> *"(the) sprawling decentralization of large cities towards adjacent towns (and the) interconnection of pre-existing towns, whose territories become integrated through new communication capabilities" (Castells 2010).*

As vast as it is, Mexico City is pretty centralized. Most of the economic activity happens at its core, and given that the city has grown by interconnection, social differences and segregation is seen everywhere. The city full of so called "city scars." By "city scars" we mean avenues that cut off or divide parts of the city, or city walls that segregate parts of the city. For example, Avenida Ejercito Nacional, which divides the very wealthy Polanco from the very poor Pensil, or Viaducto Miguel Alemán, between Buenos Aires from Narvarte, and most recently and noticeable, Santa Fe neighborhood at large.

But Mexico City is also vibrant, resilient, resourceful, progressive and friendly. It is blessed with perfect weather almost year round making for lively street life, its people remain warm and fun loving; friends, family and food sit at the heart of most and overall it manages to keep a degree of genuine character hard to find in many contemporary metropolis. Designing for such a complex place was not an easy task.

Arrival

I went to Mexico City invited by the director of Laboratorio para la Ciudad *(www.labcd.mx)*, an urban think-tank whose function is to serve as a bridge between citizens and government to think and create the city together. From the get-go, we were interested in applying Lefaivre's PIP Principle and see what would happen if we create ludic bonds between areas of the city which have a large index of marginalization and segregation. As mentioned, Mexico's social exclusion and marginalization is historically rooted and supported by the prejudicial colonial representation of "indigenous people" and perpetuated by biased media.

According to the 2015 report on marginalization in Mexico created by CONAPO (Consejo Nacional de Población) Mexico City is the city with the lowest rate of marginalization. This report though is taking the numbers based on how many people are registered in Mexico City census, which they have calculated to be just above 16 million, when the estimate of people living in the city surpasses 20 million (2010). There has been an acute increase of migration from rural areas into Mexico City during the last decade, yet the chances of integration for native immigrants is unlikely given the cultural resistance towards them. Hence a lot of the population is "informal," unaccounted and holding informal employment *(www.inegi.org.mx)*.

Mexico City's urban development has happened as a process of conurbation and accretion of villages ever since pre-hispanic times. Up until the 19th century, the upper class that once occupied the traditionally multi-class downtown area started moving into newly created wealthy

neighborhoods, and after the earthquake of 1985 which caused much damage in the central areas of the city which are built over water, a second wave of residents left their centric neighborhoods of Condesa and Roma for more solid ground south and east of the city and created gated communities. Lower classes and immigrants then occupied the crumbling dwellings left behind downtown and its surroundings, creating vecindades, multifamily dwellings with shared resources. Today there has been a huge investment by wealthy merchants and a new wave of American and European immigrants to rehabilitate downtown and fix up old mansions. This all has made the spatial marginality to be enmeshed and to resemble more a mosaic spatial composition of mixed social classes than the more common centralized wealth with surrounding ghettos and gated communities of other cities (Saporito 2011).

One of the first challenges was to analyze how Mexico City played. One of the goals of Networked Playscapes is to try and broaden the general understanding of what play is, and to move it from the commonplace conception of it as a child-centered physical activity onto a wider attitude undertaken by anyone and occupying much more than the body alone. In this regard, Mexico City has much play happening! Public activity has been central to its identity since the pre-hispanic era, and it is not less loud today. People commute for hours by public transport, street food stalls are found virtually anywhere, markets take the streets any given day and merchants try to overdo each other's playful attitudes to gain your favor. Communal dining is the norm and going out to spend time with loved ones, even if that means walking around is very common since until recently, cell phone and data remained prohibitively expensive for a large majority. People sit at cafes for hours, and parks and plazas serve as stages for public display of affection for teens who are not allowed to bring romantic interests home. Even elders hang out— there are danzón lessons in plazas and chess tournaments outside public libraries. Needless to say, designing for such a playful city already was no easy task!

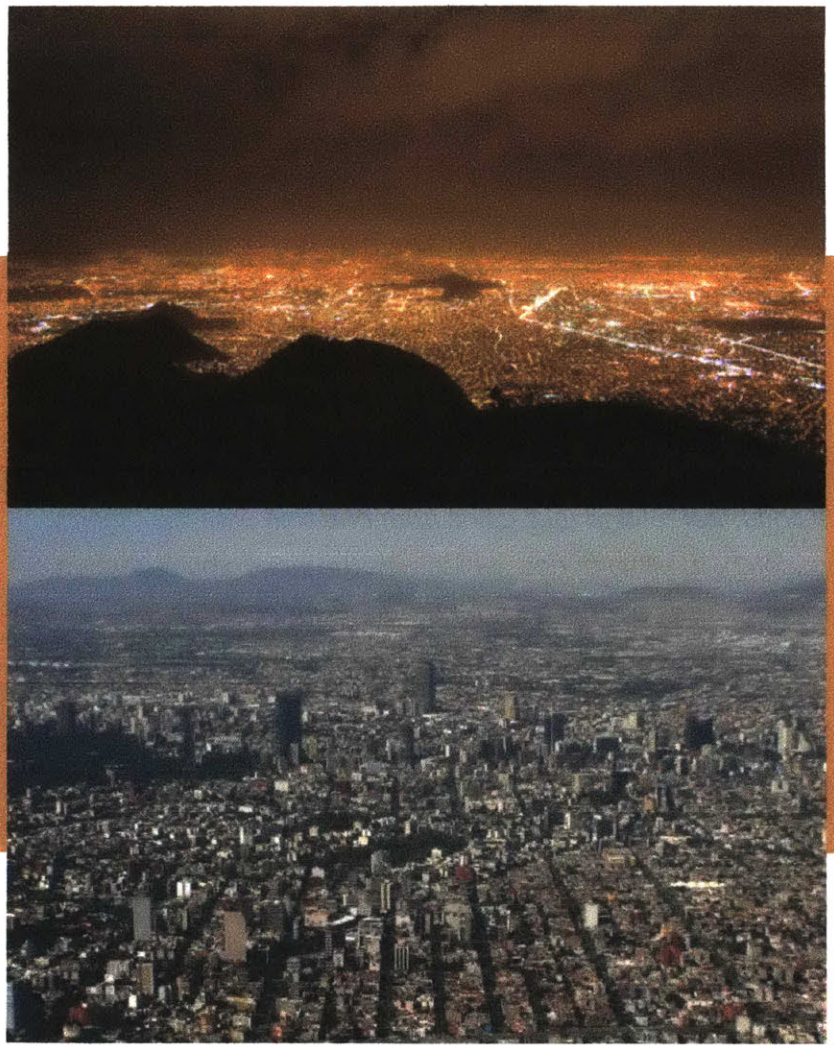


Fig.36 Mexico City from above.
Photo: Allamy

State of Play in Mexico City

Before venturing into design, we took advantage of how easy it is to ask anyone: How, where and with whom did you play and how do you play now? Below, we offer three transcripts of the answers offered by three cab drivers we interviewed. The videos can be found online (see addendum). While a transcript makes no justice to the video, I want to add that all drivers spoke wistfully, nostalgically, excitedly. One made the unasked for effort to explain to me the games he played through gestures, as if I was from a different place and time altogether and despite having arrived to my destination, others kept the conversation going, enjoying the trip down memory lane and reflecting on the ways them, as parents, regarded the way their children played.

Tell me, how did you play?

> *"In my days there was nothing of what there is to day, obviously. There was a yo-yo, the famous yo-yo, the spinning top, the 'tacon' of a shoe, (to) try and take coins from one side onto the other, hopscotch, the little bones, which was the jacks: you'd (thrown them and) turn your hand and they would fall over it, lottery, tourist.*
>
> *The ball.. you would play... throwing it onto the holes, depending on the number of players, depending on the hole it landed, it would correspond to the person that had to chase the rest...*
>
> *Soccer, the typical ball game. Go to the park, to the swings, there were some like... like... I don't know if you remember, they were like "Voladores de Papantla" ...volantines! You would hang on to them and when you could't anymore... well, down you go!*
>
> *The famous slides, you would throw yourself... experimenting! With plastics, on your knees, on your belly... well for sure there were scratches, some bad falls, but thank God there were never serious injuries.*
>
> *...and the famous bicycle, because then there were not as many as now you know? We would pass around the bike, a ride around the block each because no one had one back then, almost no one. And they were different to the ones there are now, I don't know if you*

remember, the Vagabond bikes, that were like Harley's (Davidson's) … yeah, I remember, from when we were kids."

Well now, the kids of today… it is the X-box, the Playstation, the tablet, the cellphone… they don't like sports anymore, the bicycle and that… no. Back then it was something like… like using the mind, right? You were always actively thinking, what would the strategy be like or how would you go about things… and now it is not. Games still need strategy but they don't move at all, they are just like this… (imitates someone using a video game controller) waiting to see where it will come from, the little robot or whatever figurine they have to fetch. Before you had to run, chase someone, think about how to make something fall into place… it is different. Having an active mind is better than being focused just in one thing, I think. But make them understand! That is the issue.

We used to go out, there was not so much evil on the streets. You could walk freely, at ease, people would know you because, well, we were from the neighborhood. We would, for example, at age 5 or 6, we would go walking by ourselves from 'Cerro de la Estrella' where they reenact 'The Passion of Christ'—because I am from there, from Iztapalapa—and there was no problem. Today, a child of 5 or 6 by itself… who knows if it would come back. That's the reality…"

———

"Back in my day it was different, when I was a kid, in the 70's more or less, you would go out to play with marbles, with the ball, kick the can, things like that.

Then it started changing, it evolved to the spinning top, yo-yo, you would play freeze. In junior high, it was different games, you would play 'burro entamalado' things like that. It was different games, they were… yeah, dangerous! It was 1,2,3,4, people, and the one over there would hold the weight, so the kids would jump and fall on your back. It was hard! So for me it was a different time to the one today…

Now everything is technology! Now its all computers... my grandchildren are growing with all that. Now its all different. I would go out on the street and there would be a group of kids, and we would play marbles. And we would have our pockets full of marbles! Don't even think it was money! And you would play by betting marbles 'I bet you ten marbles, five!' and so on. And it would be three or four of us playing like that. It was all different. All, all.

Yesterdays times are times which won't come back, in every aspect. Now kids play, well, play different games since today, well today they don't really play because they have more in computers, in chatting, on cell phones. Maybe games like hide-and-seek are played by girls, but boys games... there is none left. Maybe soccer. But it is not like before. You could ask any kid: 'I have a cell phone' — 'Órale! — 'And I play on the Internet and I go online.' And they go where the girls are naked, (laughs).

My children they did not get to play those games really, they started with technology. My grandchildren, their brains are crossed with technology.

There was no cellphones, no computers, nothing like that. We were like in Cuba, 40 years behind. Then technology started taking over... I remember in 1983, cellphones started to come out, and they were like this, like bricks! And they would be rented out. Kind of like they way you get a car today, they almost are giving them away, you get one with only 5k (Mexican pesos). Before you needed like ten signatures to get a car of the year. Now, 'you bring your 5k and I'll give it to you' ... everything has changed.

Girls don't even play anymore. They used to play 'comidita' (meal time) but not anymore. My granddaughters don't play that. They are always on the cellphone, or on the tablet."

"We would play 'ollitas,' 'cebollitas,' 'coleadas,' spin the top, yo-yo, 'burro castigado,' 'burro dieciseis,' 'tacón,' 'bolillo,' hopscotch, catch the thief, although now even the cops are thieves jajaja. (I

would play) with my neighbors, we would not come in until 1 or 2 am! From playing... There was not as much danger as today. They would only shout or whistle at you '(makes whistle sound) (come in) Already?—(yes) Now!' (laughs). You would do your homework and go out and play.

There was no Xbox or anything. The only game there was was PacMan. It would be five pesos. We would stand in line, there at the store's machine. We would go get tortillas and stay and play. Then Street Fighter came out. You would also play that, but PacMan was more fun back then. Then there was the one were you had to chase little space ships. It was fun. The games were way more fun than they are now. Now, now you don't play anymore! You play 'cantina.' Yeah, those games were a lot of fun miss.

With my kids? Well, we try to go out and... to... well, they don't play. You show them what you used to play and they laugh at you. They take it as... now its about the tablet, the Facebook, Whatsapp. They don't exercise like they did. Now it's a gym, even if you go to Karate its not the same... tournaments. (Even) playing soccer! Back then playing soccer was a lot of fun because you didn't have to pay! It was the opposite, they would pay you—it was much more fun! You would get your knees nicely scratched. Now, now its all much more aesthetic, now you pay for a soccer school, the fields are all different, they used to be dirt, more fun. You would get home full of dust, full of scratches. Now, now kid's can't be touched. Many things have changed..."

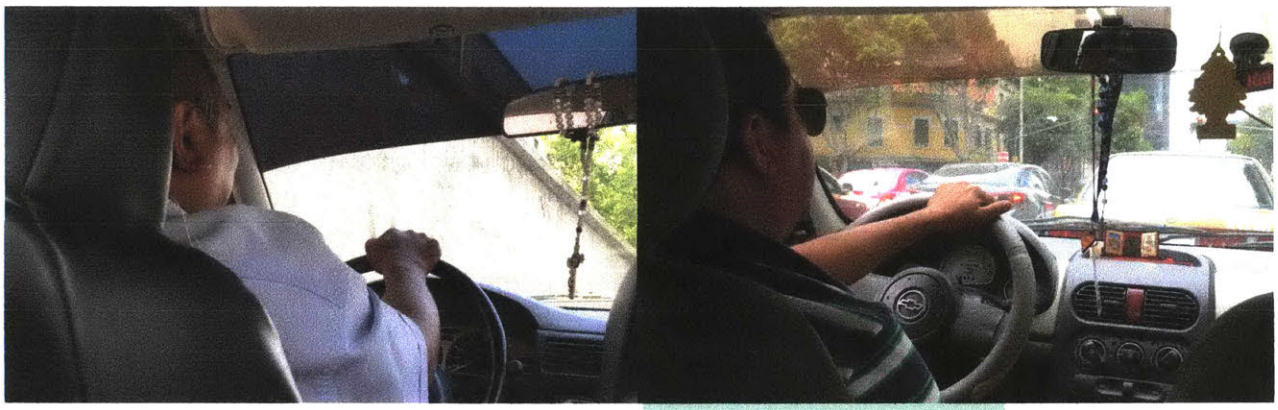


Fig.37 Cab drivers telling us how they used to play

Fig.38 Relaxing by the fountain at Alameda Central Park, Mexico City

Fig.39 Rehearsing a dance routine at a sidewalk, Colonia Roma, Mexico City

The Child in the City

Mexico City's government slogan is "The City for Everyone" yet this is far from true. The programs of urban development of Mexico City did not mention children until recently, and even so, it was done indirectly by addressing the interest in creating public spaces that are safe and where people can go exercise, given the undergoing obesity crisis. They did not consider the child's right to adequate spaces for play (Gülgönen and Corona 2015).

Children (0-18y.o.) are largely unconsidered when it comes to participation and urban planning, even when they compose 22% of the population. The spaces allocated for their play leave a lot to wish for. The reasons are multiple, but notably, the socioeconomic difference between middle and upper class and lower class children makes a clear difference in the way they engage and appropriate public space.

Tuline Gülgönen did an extensive research on Mexico City's children right to the city, starting by analyzing the child's image of the city (Gülgönen and Corona 2015). After research conducted with children living in three middle and upper class neighborhoods, neighborhoods with parks, plazas and green areas, her first results showed that, when asked to draw their neighborhood, children did not really understand the concept of neighborhood.This was due not to a lack of semantic apprehension, but to the fact that these children's perception of their neighborhood happens through their car seat. Usually driven around, their experience of their surroundings is limited to a car taking them from one familiar and mostly private place (friend's house, school, etc) to another and back. Secondly, their relationship to the city is very much focused on consumerism even while living in places with privileged easy access to agreeable green areas. They are ready to point out the stores they frequent, but not much more. Middle and upper class children are also not encouraged to use public transportation, since it is seen as belonging to the middle lower and lower class, and hence potentially dangerous. These makes them dependent on their parents' availability to drive them around. They also mostly do not have permission to walk alone either, not even to the corner store due to fear mostly of predators, and secondly of being run over. Their perception of the street is that the street is inherently dangerous, a discourse so prevalent they have equated to be true particularly in Mexico City, creating a distorted perception that in "other foreign places" that is not the case (riding in the subway of New York City is less dangerous than in the one of Mexico City, for example). Lastly, they perceive the street to be dirty, perhaps given that due to their short size, they are more affected by garbage on the street than a grown-up might be.

Spaces for Play

When it comes to playgrounds, children did perceive them as valuable spaces, yet not necessarily spaces for them, since to get there, they mostly depend on an adult taking them and supervising their play. They rarely engage with other children and limit themselves to playing on the structures provided and with the friends they went there with in the first place. They also express discontent at all the restrictions imposed by the place, such as not riding a bike in certain places or not being able to enter with their pets.

In contrast, the informal research Gülgönen conducted in Tepito, a neighborhood commonly associated with counterfeit commerce, poverty and crime, showed that children were free to walk around and could draw accurate maps of their surroundings and describe the specific activities that happened in the spaces described. They mostly agreed on the areas that were considered dangerous, but the conception of danger was less associated with crime and more with traffic.

The difference in the ways that children appropriate their neighborhoods is directly related to their socio-economical background, regardless of the quality of spaces they have access to — if any. An important distinction to make in that regard is which spaces are designed for children from an adult perspective and which are of children. Children might not appropriate a space made for them, while they might very well appropriate one not intended to be for them.

Aldo Rojas, a Mexican art historian has devoted his time to researching play spaces designed for children in Mexico City. He brings up to light an important mid-century movement of Mexican artists, architects and designers who applied their knowledge of plastic art and industrial design onto the public space, creating very many and very varied styles of play mobiliary. Having Mexico's most renowned architects and designers of their time, such as Barragán, Mathias Goeritz and Sebastian design for children, made playgrounds a reference point within the city. Sadly, these spaces and mobiliary has not been given the care they deserve as art pieces and as part of the city's urban and architectural history. In spite of presenting no danger, many have been destroyed or replaced by standardized plastic kits. This carelessness for the uniqueness of space has eroded the identity that once defined the neighborhood's parks, contributing to this tendency for homogeneity so prevailing in the globalized world.

When trying to analyze the current situation of playgrounds in Mexico City one uncovers just how disorganized and bureaucratic the system is. Playgrounds are unregulated, they fall in between the cracks since they are not considered part of the urban mobiliary nor part of the urban equipment,

consequently there is no one to hold accountable when it comes to their design and maintenance. To this is added a problem of coordination and clarity. It is not clear who is in charge of what—while the federal government takes care of certain instances, others are the responsibility of the boroughs they are installed at, but mostly, no one really knows or understands who is in charge of what nor why, making planning, access and maintenance of public spaces a challenge at every scale. Even within the boroughs, there is no common denominator—every borough self regulates and uses their budget distinctly.

Autoridad del Espacio Público, a government instance which is not specifically in charge of playgrounds of the inclusion of the child in the city, has launched a couple of projects to try and do so nonetheless *(www.aep.cdmx.gob.mx)*. Of these, "Parques de Bolsillo" for example, has focused on creating playgrounds out of remnant spaces all across the city, such as underpasses. While a worthwhile cause, they are very poorly thought through. Per usual, they result in the implementation of either exercise equipment or plastic playground kits in areas which are not attractive or easily accessible.

There is deep carelessness and ignorance, and discrimination is clearly reflected in spatial marginalization. The needs of children themselves are considered in relation to the level of wealth in the area they live. Children of the poorer neighborhoods are assumed to be less caring of their environment, therefore it is not a worthwhile investment to install anything worthy, for it is assumed it will be vandalized.

When looking at the playgrounds that have indeed been implemented, it is clear that they were made without real genuine consideration. Located in areas that no one cares to access, they are placed under the erroneous premise that by the merely placing play equipment, the area will suddenly become desirable for leisure and play. Some of these areas are downright dangerous. Under the call to "rescue public space" playgrounds have been installed in places where it is forbidden to build, such as underneath high voltage lines or at median strips between high speed avenues. In many, the layout is not thoroughly thought of, with no shade, no benches, no bathrooms, no water fountains. Fenced out, they are not integrated nor inviting. The equipment, expensive plastic kits, are impossible to repair.

Mexico City has no official record of the number or location of existing playgrounds. Playgrounds enter the generic category of "green areas" alongside church atriums and median strips. Even by this deceiving account, Mexico City has average of 5.2 square meters of green space per

inhabitant, when the World Health Organization recommends there should be around 10 to 15 square meters.

A quantitative rather than a qualitative way to assess green spaces, where anything that has a patch of grass counts, makes it really hard to be able to properly appraise even distribution and access to green spaces and playgrounds that actually serve as such. Additionally, each borough is in charge of its own record, and some don't have one. The latest inventory of green spaces in the city was made in 2010 *(www.paot.org.mx)*.

Fig. 40 Park under power lines and between avenues
Photo: Laboratorio para la Ciudad

Fig. 41 "Bajo puente" park under a bridge
Photo: Laboratorio para la Ciudad

Fig.42 Park in Cuauhtémoc District

Fig.43 “Networked Playscapes” Illustration by Gerardo Romero

7. Networked Playscapes

Collaborative Art or Playscape?

Usually taking form as social actions through direct engagement rather than material output, collaborative art embodies the modernist premise to blur art and life. De-materialized, the location where they take place is considered more for its social qualities rather than for its spatiality of phenomenological ones. Place is the space where a specific sociability is produced, or rather, sociability turns space into place.

A playscape — which claims to produce play as a form of engagement, aided by the built environment — would seem to be a space of collaborative art. But is it?

One of the cruxes of collaborative art is that, given its social character, it is assumed that it will produce a positive effect by default. To art critic Claire Bishop, it is of crucial importance to consider the aesthetic as well as the social to create a successful piece of collaborative art, for if the social aspect is considered alone, one falls into potential fallacies (Bishop 2005). First, it would mean that there is no unsuccessful work of collaborative art for the do-goodness alone would redeem it. Secondly, basing success on that premise alone, disqualifies work which might be offensive or uncomfortable—of pressing importance when governments (in her example, New Labor in Britain) use a very similar rhetoric in to "steer culture towards policies of social inclusion reducing art to statistical information about target audiences and 'performance indicators'... by prioritizing social effect over considerations of artistic quality" (Bishop 2005).

To Bishop, the anti-capitalist agenda paired with "good-soul" intention through self-sacrifice as a means to "channel" the voice of the "other" while dissing aesthetic as useless or dangerous, ignores that the aesthetic regime is predicated on a confusion between arts autonomy and heteronomy—self normative yet embodying the promise of a better world. To be successful, the work of collaborative art should encompass the aesthetic and the social / political together rather than subsuming both to the ethical. Quoting Rancière:

> "... the aesthetic does not need to be sacrificed in the altar of social change as it already inherently contains this ameliorative promise."

Art historian Harriet Siene's take on responsible criticism is not that differing, questioning if it is process or product that is to be judged, she offers insight to start with concept, not without prefacing that:

> *"Public art is not a substitute for urban renewal or social work, although projects may address or include such functions. Public art ideally creates better places and provides enjoyment, insight and maybe even hope to its participants, viewers and users. But it cannot correct deeper problems stemming from widespread unemployment and poverty, the neglect of public education and healthcare, and all the other social ills ignored" (Senie 2003).*

Her main three questions are to evaluate public art are:

Is this a good or viable idea? Did the process achieve the project goals? And finally: what was the intended role of the product and what implicit criteria does it suggest?

And suggests that the best time to evaluate is not right at installation, but rather when the piece has "settled in."

Evaluation is mostly done as fieldwork, observing interaction (or lack of thereof), eavesdropping and engaging participants/audience, asking for their observations, comments, opinion, memory. Albeit not "scientific," the evaluation is based on direct observation over time.

Siene considers important to view things as a non-expert.

Networked Playscapes is evaluated following her guidelines, asking the following set of questions in order:

1. Is it good work according to its type: art, urban design, or community project?

2. Does it improve or energize its site in some way – by providing an aesthetic experience or prompt conversation and perhaps social awareness?

3. Is there evidence of relevant or appropriate public engagement or use?

Networking Play

Working in Mexico City, alongside various cultural and institutional allies, we set out to design three locally driven play experiences to promote communication and co-creation though networked play among marginalized neighborhoods that sit "far away — so close," divided physically, culturally and socially by the so-called "city scars." These interventions hoped to debunk the current child-oriented, government implemented, litigation inspired design status-quo of analog, permanent and static playgrounds and instead, offer playscapes: networked experiences that go beyond a defined or permanent place, are designed with a broader understanding of play and cater "children of all ages."

The following prompts helped us refine our designs:

- Network people, network places, network spaces: network at scale.
- Use different vehicles and levels of play.
- Intervene a space, hack an existing network, hack infrastructure.
- Appropriate place, create space and transform a place into a space.
- Make it invisible, make it mobile, make it a point on convergence.

Carried out with the spirit of inquiry, attentive to the guidelines we had drafted for ourselves and observant of Mexico City's distinctive social, material, and aesthetic characteristics, Networked Playscapes in Mexico City is made up from three networked interventions: ListenTree, Andamio and Triciclo. These were designed to provide a sample of the range of desirable stimuli usually considered optimal when designing playgrounds: physical/motor, creative, social/emotional, sensorial/perceptual and peace and quiet, and extend it to playscapes: free of time and space constraints. In terms of networking, these installations were designed to sample three different levels of connectedness: awareness of other, awareness of consequence of action at a distance (teleoperation) and interpersonal engagement with other, in both synchronous and asynchonous modalities.

Through these installations, we set out to address the following questions:

- Will providing Networked play opportunities in the public space bring people who do not usually interact, to interact?
- Is networked ludic interaction a means to help alleviate prejudice and misunderstanding among segregated neighborhoods?
- What kind of materials and methods lead to both successful onsite connected play as well as networked public ludic experiences?
- How integral are resolution, accuracy and response for generating effective networked ludic experiences?

STIMULI

	PHYSICAL / MOTOR	CREATIVE	SOCIAL / EMOTIONAL	SENSORIAL / PERCEPTUAL	PEACE & QUIET
ANDAMIO	X	X	X	X	X
TRICICLO		X	X	X	

NETWORK

	AWARENESS	TELEOPERATION / TELEPRESENCE	INTERPERSONAL ENGAGEMENT
ANDAMIO		SYNC	SYNC
TRICICLO	ASYNC		ASYNC

MORPHOLOGY

	SMALL	BIG	PERMANENT	EPHEMERAL	APPROPRIATED	DESIGNATED	PATH	DESTINATION	ARTISTRY	ADVENTURE
ANDAMIO		X		X	X			X	X	X
TRICICLO	X			X	X		X			X

Triciclo

In Mexico City, a cacophony of sounds will come to your window from dusk till dawn. Merolicos—distinctive chants, recorded songs, and particular chimes—announce the commodities of roaming merchants or ambulantes. Locals recognize the whistle of the knife-sharpener, the triangle signaling gas delivery, the pre-recorded drone broadcasting tamales, and the terrifying shriek of steam indicating that sweet plantains are nearby.

These vendors carry their wares in retrofitted tricycles and ad hoc push-carts—weaving through traffic, lining sidewalks, and turning parks into impromptu marketplaces. They blanket the city with a vast, informal, mobile market that crisscrosses Mexico City's sharply segregated communities. Two of the city's biggest ailments, marginalization and segregation, are exemplified through neighborhoods "far away so close"—sitting just across the avenue from each other, yet living in drastically different worlds.

While the goods of these vendors might be more frequently bought by people with lesser purchasing power given their low price-point, the goods, timing and convenience of a quick bite makes them alluring to most and an intrinsic part of the culture. Outside of churches in the wealthiest of neighborhoods rest assured, a father will be rolling up his sleeves to tackle a "chicharron con salsa valentina" with singular happiness while trying to avoid a tell-tale stain.

Triciclo infiltrates these divided communities, doing so by appropriating the idiosyncratic cargo tricycle and hacking into the ambulantes' roaming sales network. Rather than selling tamales or drinking water, it turns this tool of commerce into a mobile stage, a public easel. Inspired by the surrealist parlor game of creating " exquisite corpses" the Triciclo endorses co-creation as a way to know thy neighbor.

Triciclo makes stops outside schools, cantinas, tortillerias, eateries and parks as well as locations unique to the area: tribunals, hospitals, universities— making no distinction between young or old, residents or passers-by. Its recorded merolico beckons all to come play and create.

Equipped for collaborative creation in a variety of media—written, spoken, sculpted, recorded—the Triciclo plays out the personal, social and cultural anxieties of the users it gathers by allowing uncensored and unguided communication. Like in the exquisite corpse game, the trace left by the

previous user merely serves as prompt, weaving together narratives without imposing theme or structure.

Besides its analog output, Triciclo is outfitted with GPS and a Go-Pro camera to register contrasting aesthetic differences between neighborhoods. Triciclo is powered by pedaling thanks to a generator installed on the rear wheel.

Methods of fabrication are meant to serve as an easily replicable model for the region—the tricycles of Mexico City are personal machines, pimped and decorated by their owners to attract attention. Triciclo reflects its spirit in its making: gathering the knowledge and input of a diverse group of designer, fabricators, and community members to create a ludic instrument, from creation through use.

> *"Vengan,vengan! Niños y señoras! Borrachitos y abogados! Policias y ladrones! Pachecos, cholos y chundos, niñas fresa, helados sorpresa!*
>
> *Acerquense acerquense a escribir en este su Triciclo.*
>
> *De la Doctores a la Roma, de la Roma a la Doctores, de Polanco a la Pensil, de Pensil a la Polanco! Que te dicen, que les dices? Vengan vengan, salgan a escribir, sin querer queriendo a decir questo y quelotro del tu y que yo y del yo y que tu. Vengan vengan!"*

Merolico translation:

> *"Come, come, boys and ladies, drunks and lawyers, cops and thieves! Stoners, gangsters and chundos, (taken from a song by Cafe Tacuba) preppy girls, surprise ice-cream! (taken from a cumbia by Banda Macho—Niña Fresa-).*
>
> *Come come, to write up in this your tricycle.*
>
> *From Doctores to Roma, from Roma to Doctores, from Polanco to Pensil, from Pensil to Polanco. What do they tell you what do you tell them back? Come come, come write, unwittingly wanting (popular*

saying from Chespirito, a Mexican icon), to say this and that 'bout me and you and you and me. Come come!"

Design Challenges

A cargo tricycle is both a vehicle and tool of informal commerce which according to the wares it sells, can be transformed into anything from an ice-cream parlor to a full on taqueria. As such, tricycle owners embed their own imprint, both intentionally to attract commerce and through constant use.

With Triciclo we wanted to achieve a sense of familiarity and not veer too far from its original shape. So rather than creating customized additions, we opted instead for using common materials to serve our purposes, giving it character while keeping it simple, functional and remaining familiar.

Triciclo needed to hold a roll of paper which could be unrolled over a writing surface and rolled again underneath it. It had to have a writing surface short enough for children and elders to reach and a roof to provide shade and protection. We also needed to store writing materials and a way to make them available.

Triciclo was powered by a generator on its back wheel. We needed space to keep the battery, large capacitors, charging station and control panel for the GPS, the GoPro Camera and the Smartphones that controlled them.

We initially thought about buying a used tricycle, but the ones we found were pretty far away, making it a challenge to ride it back to the neighborhood we were working from. The tricycle was bought at San Pablo street in downtown, the mecca of cargo tricycles and bicycle parts at Barrio de la Merced. We had made acquaintance with a welder who could put a roof on it and who had enough space at his shop to work on it in the premisses, which fitted our purposes perfectly since we had no place to store it at the time. His shop was just a block away from San Pablo making it easy to take it over and to get all the parts we needed.

Most roofs attach to the "cargo box" four corners, yet we needed to keep the line of sight clear and the space for writing unobstructed. We solved the roof design by making a "Y" shaped frame come from the center of the tricycle. This frame then would hold the roof itself. The roof had to be strong yet detachable in case we needed to pass the tricycle through a low ceiling. For the awning, we went to La Merced to look for materials and opted for the plastic sheets used as table covers in

street markets. Sold as rolls and coming in all sorts of colors and thicknesses, we decided to layer two very common patterns, a transparent floral over yellow and white stripes. The roof was then cut to emulate the scalloping found in the awnings of "fondas," Mexico City's prix-fixe eateries for the working class.

Cargo tricycles come in three standard colors: red, yellow and blue. We got a yellow tricycle under the understanding that we would paint it light pink. While we worked on Triciclo, the city went from being the "Distrito Federal" to "Ciudad de México" and employed an identity campaign choosing a deep bright pink as the color of the city. We decided to use pink for the tricycle as well, except tone it down so that it would relate to the city yet make it clear it was not linked to government.

At La Merced, we found solid plastic trays which came in different depths and colors and are commonly used to transport fruits and vegetables from market to market on cargo tricycles, hence they are sized to fit perfectly. We decided to use them to store our materials underneath and to prop them on the tricycle sides once we stopped and Triciclo was in use. To prop them, we had two hinges welded onto each side of the cargo box atop which we could rest a tray.

For the writing surface we used 1/2" pine plywood to which we routed an opening to guide the paper through. On the end closest to the rider, we made an opening flap with hinges to allow easy access to the electronic controllers stored underneath.

The paper roll started at the top of the writing surface, was held down by a screwed ruler, went through the routed opening on the further edge of the writing surface and rolled back into a roll held by the cargo box. Its upper side sat where the roof attached to the cargo box, held by a copper pipe with a handle and stop at its edges and sitting over the roof's frame, spanning its width. Below, we had to cut out one of the metal tubes in the cargo box to accommodate the roll which collected held by another copper pipe resting on the cargo box's edges.

The roll of paper we bought was larger than the cargo tricycle box and way too heavy to let us pedal Triciclo comfortably, thus we had to cut it to fit the width and unroll it onto separate, smaller rolls. Cutting the roll took three men and a chop saw's blade, unrolling took a whole afternoon between two people.

The roof, the generator, capacitors and battery, and the roll of paper made Triciclo pretty heavy. The tires were too thin and started to give in so we had to change them for motorcycle ones. This

meant changing not only the tire but the entire wheel, which had a different size and type of attachment.

The most challenging aspect of building Triciclo was the ongoing problem solving and coordination of people who were working on it. Many times the welder gave us wrong time estimates or simply did not do what he said he would. Because he was often drunk, we got stood up many more times than we wish to admit. Changing welders was complicated with half of the work done, besides moving the tricycle to a different shop which could accommodate it was not easy. We had set up everything around the materials we had at La Merced, and in spite of the welder's unreliability, it was less complicated to deal with that than to deal with a bigger change.

The roof was made at La Merced by an acquaintance of the welder. The first roof was sized wrong, delaying our deployment since he had to do it again. The electrician who was setting the generator on the back wheel used second hand parts which failed continuously, to the point that we gave up completely since it did not work properly and only made Triciclo heavier. To set it up, he had to take Triciclo to his own shop, located in the far south end of the city. He had to ride it all the way there and back, bumping into trees and trailer trucks along the way. By the time he brought it back, the roof was destroyed, hence we needed a third one.

At that time, we were being hosted by the Sala Educativa at Museo Tamayo which has a huge wood shop in its premises. Cutting the wood for the writing surface required the approval of at least three in a chain of command and the right timing. We were told we had to hold off for at least two weeks, given the shop was busy setting up an exhibit and too stressed out to mind anything else. We ended up going to Home Depot, 45 minutes away instead. When back from the welder, Triciclo was stored at the Sala Educativa. To enter one has to go up a ramp, which was just wide enough for Triciclo, but the entrance was just an inch too low. Hence, we had to take off the roof every time the tricycle came in and out, which required the effort of at least two people. Sala Educativa's space was being remodeled at the time, it also was rented out for events, for which we sometimes would be given warning, sometimes not. Many times we came to work to find the place taken and our material stored without our knowledge. Communication was an issue as well since to start with, Sala Educativa and its surroundings had no cellular reception.

Additionally, we worked on Triciclo during the summer, a season with unpredictable storms in the city, making commuting between Downtown and Chapultepec quite difficult at times, especially when carrying large or heavy parts, such as the wood or paper roll.

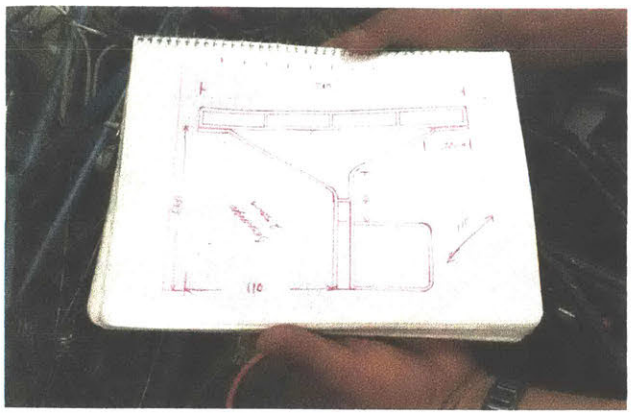
While these are not considerations one would take, or things that are visible in the design, they are what ultimately needs the most energy, resilience, attention and diplomacy. Forgetting something when working at a city scale without centralized resources might mean a whole afternoon lost, while a disagreement might cost the whole project.

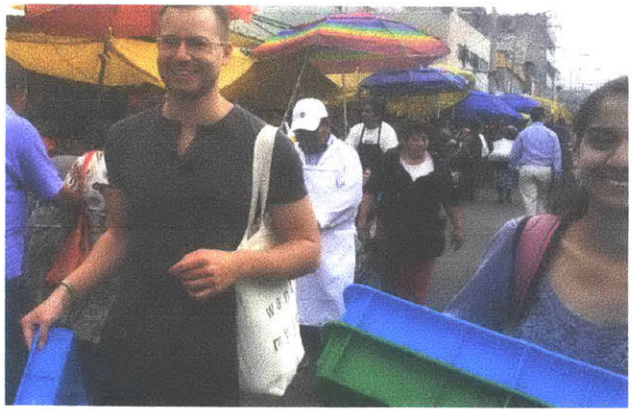
Triciclo's first outing happened between the Doctores and Roma neighborhoods. We started there since we had access to the parking spot at the garage of a friend's building a block away from Avenida Cuauhtémoc, the avenue dividing both "colonias." This was of great help, since we could navigate to both neighborhoods from one spot, and since it let us keep and charge our equipment at his apartment. Having a dedicated space also helped us fix and tune things easily during the first trial. Sadly, the neighbors complained about the presence of Triciclo at their parking garage, claiming it made the building look cheaper and more akin to a "vecindad" and voted to have it gone.

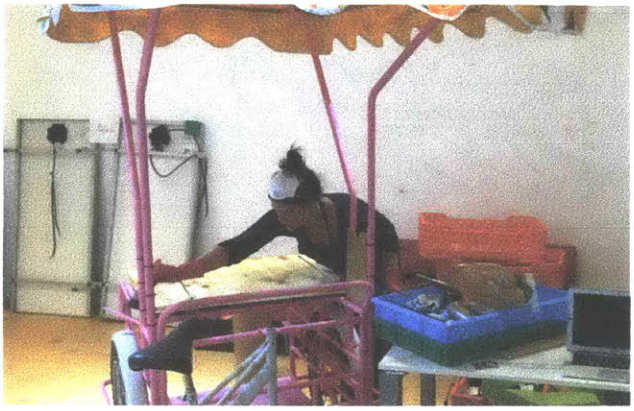
During the first rounds we did not have a merolico or a poster to help us spread the word, we simply set out and explained to anyone interested what was it that we were doing. At Roma we stopped outside plazas and schools, places which seamed easier to engage people at, yet approaching people was not as easy as imagined. Shyness on both parts paired with an unprepared pitch on the what and why's of Triciclo sent us back to the drawing board to look for ways in which we could make the experience more amenable for all involved.

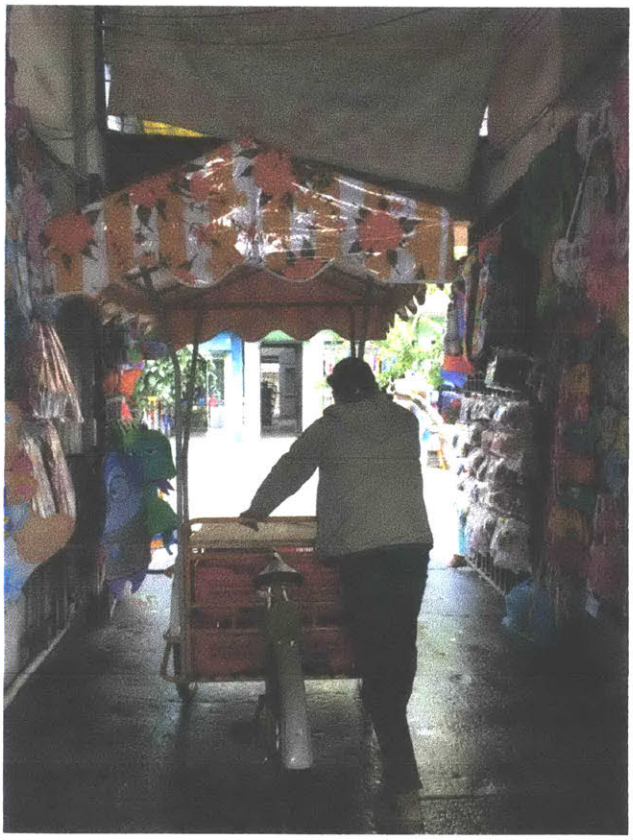
Fig.44 (pg. 117- 119)
Triciclos in Mexico City, render of Triciclo by Tyler Stevermer and making of Triciclo.

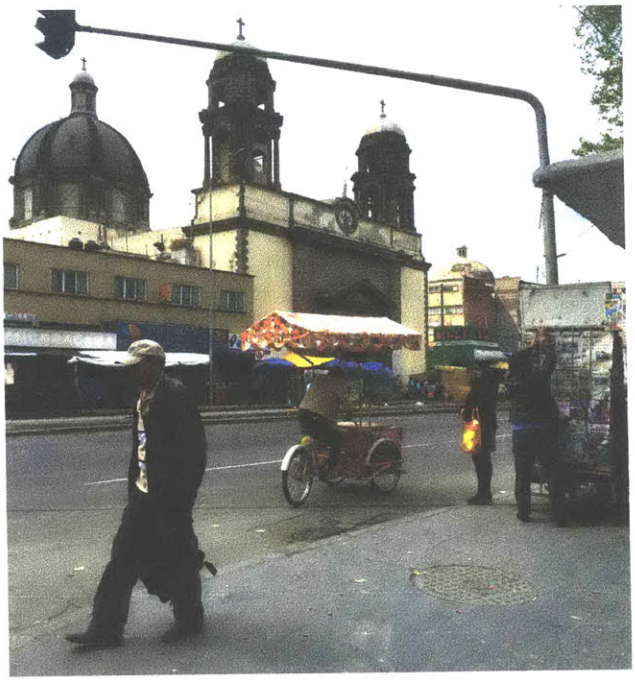
1. Sunshade
2. Megaphone (for merolico)
3. GPS Recording
4. Power Generator
5. GoPro camera(beneath canopy) recording activity surface
6. Activity surface (drawing, writing, recording, sculpting)
7. Activity supply bin (demountable)
8. Paper roll (demountable)
9. Large storage bin











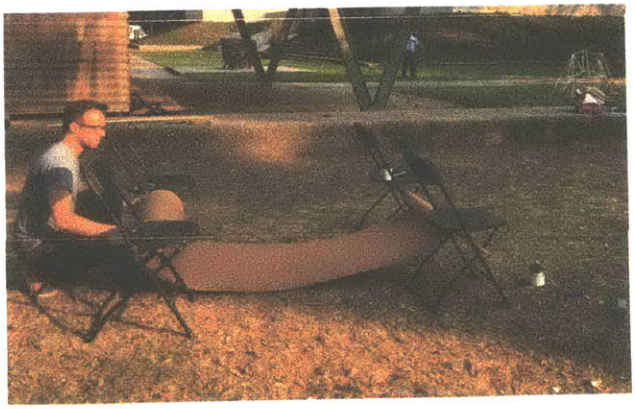


Fig.45 Triciclo poster by Orçun Göğüş and Edwina Portocarrero.

Merolico

After the first round out with Triciclo it was clear that it needed its own merolico. The first merolico was composed by Jaime, one of the guards of Museo Tamayo. He had been watching us work on the tricycle day in and day out and took the initiative to compose a merolico for it. His other profession was as a "sonidero" creating opening sounds for radio stations, lending his voice for jingles and playing music at parties. He recorded the merolico on his phone, an old Nokia with very basic capabilities. The merolico lyrics spoke to the specific neighborhoods, mixed in with snippets from classic songs and sayings derived from famous TV characters. The quality of the recording was just right for our purposes, we appreciated the low fidelity and crackling sound which together with his seasoned voice played out perfectly.

Soon after, a friend got inspired to create his own. With a different rhythm but similar prose based on the particularities of the neighborhoods, his was used for a different area. We decided to keep an open invitation to whomever wanted to contribute a merolico, since it reflected the original spirit of co-creation that Triciclo was based on.

Poster Design

While the merolico helped attract people and alert them of our proximity in real time, the posters were meant to help us explain the project and create anticipation in the neighborhoods we were yet to visit.

There is a particular graphic design aesthetic associated to street posters in Mexico City which has become emblematic. Traditionally used to advertise popular events such as concerts and lucha libre, the posters are made using offset printing with limited coloring and printed on newsprint.

Most presses are located at the Santo Domingo plaza downtown, as it has been since the 19th century. Santo Domingo established itself as the place for writing or imprinting, starting with the "escribanos" who would write letters for those who could not read or write using feathers, paper and ink. With time this switched to typewriters and today, it is the place where to go get stationery for social events, calendars, as well as a myriad of falsified documents of every sort, from birth certificates to university diplomas.

The design of the posters started with a visit to one of these printers and was guided by the constraints and ideas they gave us. We adopted the "lucha libre" aesthetic and lingo, setting neighborhoods "against" each other in the same vein that luchas do and created two mirroring

posters, intended to make clear through graphic design, that Triciclo was a project meant to connect two neighborhoods. We pasted the posters in all of the neighborhoods we visited a week before heading there, over trees, posts, fences and walls and checked in a few days before to see which survived, which were taken down and which appeared in social media.

The posters served us well, attracting attention to themselves as well as to Triciclo, paving our incursion into primed neighborhoods.

Neighborhood Profiles

The "colonias" we chose for Triciclo are located in two different boroughs, Delegación Cuauhtémoc and Delegación Miguel Hidalgo. These are two out of the sixteen territorial demarcations that compose the city, sitting next to each other in the central-northern part of the city.

Delegación Cuauhtémoc is considered to be the heart of Mexico City as it is home to the historical downtown, making it one of the most visited parts of the city with an estimated 1.5 million people coming by any given day. Considered the seventh national economy, it is composed of 33 "colonias" concentrating much of the commercial, cultural, financial and political activity of the city, although its size makes for less than 2.5% of the city's territory. As the establishment of the Aztec Empire and the city as we know it, Delegación Cuauhtémoc concentrates much of the historical, artistic and cultural patrimony.

Delegación Miguel Hidalgo sits just west of Cuauhtémoc and is divided into 81 "colonias". The second most visited by tourism, it is home to some of the most important landmarks of the city, such as the Museum of Anthropology and the Chapultepec Forest.

Although in the larger context of the city these boroughs are some of the ones with the lowest indexes of marginalization when taken as a whole, the "colonias" that compose these boroughs present extreme differences. For example, colonia Polanco and Nuevo Polanco in Miguel Hidalgo, have the densest concentration of upscale shopping, embassies and head-quarters for multinational companies. Lomas de Reforma, also in Miguel Hidalgo, ranked as the most expensive neighborhood to buy property at in a study done by real estate company Lamudi. Yet this borough is also considered to be home of some of the poorest "colonias" in the city, such as Pensil, Tlaxpana, and Daniel Garza.

Colonia Doctores

Planned in the late 19th century, Colonia Doctores was once the periphery of the city. Since its origins, the neighborhood has had an industry surrounding vehicles. In the 1880's Ramón Guzmán, established there a yard for the storage and maintenance of his mule pulled streetcars. Decades later, the Mexican Electric Transway took ownership, using a large part of the area as a train yard.

Many grand buildings were erected there, like Porfirio Diaz's mansion, the fantastic and mystery cladded Posada del Sol, which was never inhabited, and the Ex-Belen Prison.

Currently, many of Mexico's government offices find their home there. Human Rights Office, the State's General Attorney, the Center for Attention to Victims of Delinquency, the Institute for Forensic Sciences among them, as well as one of the country's biggest hospitals Centro Medico Siglo XXI.

More recently, in the 1980's and 1990's, the area, populated by car repair shops, became famous for car theft and chop shops. Cantinas, pulquerias, hourly rate hotels and cabarets are common, making the neighborhood rank as one of the most dangerous in the city, contributing a large percentage of the prisoners in jail. The 1985 earthquake was

especially brutal here and in its wake, a lot of "vecindades", low income multifamily housing, sprouted, contributing to the image of the neighborhood as one of high crime.

Given its central location and vicinity to Colonia Roma, and the recent high influx of tourism to Arena Mexico, the "cathedral" of Mexican wrestling, Colonia Doctores is undergoing a process of slow gentrification.

Colonia Roma

"Colonia Roma" was established in the late 19th century and early 20th as a neighborhood for the wealthy, mostly Jewish community, looking to leave a fast growing and deteriorating city center. Turned into an aristocratic and European neighborhood, "Colonia Roma" is one of the first housing neighborhoods in Mexico City that had all the needed services and infrastructure. Wide tree lined avenues with medians and fountain cladded plazas distinguished it from other contemporary neighborhoods. Its architecture, mostly French eclectic and art nouveau, was home to many personalities, politicians and intellectuals, amongst them Alvaro Obregón, Leonora Carrington, Jack Kerouac, Allen Ginsberg and William Burroughs. More than 1,500 buildings have been preserved, converted into historical artistic monuments.

During the 1940's many of its inhabitants started moving to newer neighborhoods, given the big influx of people coming in from the south of the country into the neighborhood. By the 1950's it started having urbanization problems, and it was slowly turning into a commercial neighborhood, with schools and offices taking over the older mansions, causing serious deterioration.

The 1985 devastating earthquake that hit Mexico City caused widespread destruction in the area, and since then, the neighborhood has been actively trying to rescue its architectural heritage and regain its former upscale prestige.

During the 1990's Colonia Roma saw a fast paced resurgence, becoming the hipster epicenter of the city. Many mansions have been restored and house galleries, restaurants and cultural centers. Currently, it is one of the city's culinary and night life centers, making it also one of the neighborhoods with the largest consumption of drugs in the city.

Colonia Polanco

Since its conception, in 1937 by the Aleman family, Polanco was meant to cater to the very wealthy. The land where it was founded was originally part of the Hacienda de los Morales, and when founded, Polanco was comprised of mansions and lovely gardens. During the 60's and 70's Polanco slowly took in commerce, the most exclusive and expensive boutiques and department stores found their home there.

The 1985 earthquake spared no one, and Polanco welcomed the upscale hotels, commerce and corporate business Zona Rosa once enjoyed. Old mansions gave way to luxurious buildings, surrounded by parks and flanked by Chapultepec Forest. To date some mansions remain under protection of the National Beaux Arts Institute, and, since the area is forbidden to host skyscrapers, the land has become extremely expensive.

Polanco has a very large jewish population, it enjoys parks and museums in its surroundings, is home to the most expensive street in the city and to some of the best restaurants in the world.

Colonia Pensil

Colonia Pensil is composed of six neighborhoods: Pensil Norte, Pensil Sur, Cuauhtémoc Pensil, Reforma Pensil, Modelo Pensil and Ahuehuetes Anáhuac. Its history dates to pre-hispanic times, when all around where lakes and rivers. After the Spanish conquest, a series of hydraulic works took place, and large haciendas, gardens and convents where built in what was known as Pueblo

de Tacuba, formerly Tlacopan. The Pensil Neighborhoods owe its name to the Pensil Mexicano, one of the largest and most beautiful gardens of the New Spain, built in the mid 18th century by Don Manuel Marco de Ibarra. Pensil means "beautiful garden" in old Spanish.

After the Mexican Revolution, which started in 1910 and lasted almost three decades, the land, once privately owned, started being occupied by people who came from other states who, in exchange of lack of services, did not have to pay for it. By the 1940's factories started establishing there, and all the old glory of the haciendas came undone.

Irregular housing took over, with little to no services. Tin houses with no sewage. The Río San Joaquín, was used for bathing, washing, defecating and disposing of corpses and factory waste until it was tubed in the 1940´s. The cinemas and pulquerias which served as community generating spaces, shut down in the 1980´s, and the street life which characterized this area went indoors. The Pensil neighborhoods remain a low income area, and the hard working past generation is fading. Without parks and public spaces, and with its historical buildings abandoned and in disrepair, the area is considered to be, if not one of high crime, the home of delinquents who do not necessarily operate there.

Colonia San Miguel Chapultepec

San Miguel Chapultepec emerged after the expansive lands of Barron, De Teresa and Escandón, wealthy Spanish families, where fractioned for commerce in the 19th century. The mid-twentieth century saw it emerge as a centrally located booming neighborhood, with eclectic architecture mixing neocolonial and art-deco amidst tree lined streets.

Currently it has a mixed income demographic; its vicinity to Colonia Condesa with its real estate boom has motivated the restoration and rescue of its architecture, and having Kurimanzuto, an art gallery that enjoys world wide prestige, motivated others to start looking at it as the hub for contemporary art and culture. Today it is a contrasting neighborhood, where typical markets and street fairs share the sidewalk with foreigners looking at what is considered the cutting edge in art and culture.

Colonia Ampliación Daniel Garza

This neighborhood has been a working class neighborhood since its beginnings, with workshops of every sorts serving the wealthier surrounding neighborhoods. Car shops, wood shops, metal shops, small convenience stores and fondas are common sight.

Daniel Garza is part of what used to be the "Village of Tacubaya" which in the 80's was known as "the lost city." Home of a highly marginalized population, gangs have originated there since the 1980's, most famously "Los Panchitos" which was composed of a large group of young men who living in poor conditions, took to the streets as a place to gather. Back then it was punk concerts, glue sniffing and petty crimes. They became so popular a movie was made after them, and some went on to become politicians. Nonetheless, today gangs have escalated the kind of crimes committed. Operating in the adjacent neighborhoods and avenues, they take advantage of the gridlock traffic happening every afternoon to rob drivers. Just last year, the kind of crimes has escalated to gruesome proportions, with shootings and a naked cadaver being thrown from a car in motion onto the avenue.

Nonetheless, the neighborhood has benefited lately from the real state boom of neighboring San Miguel Chapultepec, as well as from the "Ruta de Galerias" — a cultural corridor between both neighborhoods. Luis Barragan's house is located here and open to the public since it has been recognized by UNESCO as part of the cultural world heritage, as well as other cultural spaces and galleries such as Archivo and Labor.

Fig. 46 Colonia Polanco and Colonia Pensil Sur

Fig. 47 Colonia S.M.Chapultepec and Colonia Amp. Daniel Garza.

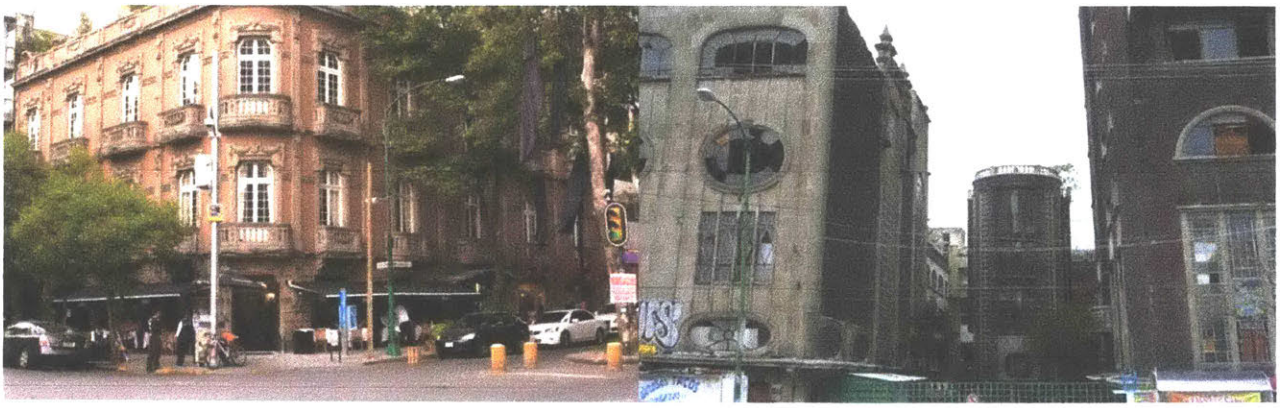


Fig. 48 Colonia Roma and Colonia Doctores.

Deployment

Triciclo navigated three different areas of the city visiting two adjacent neighborhoods each. Initially we had intended for six areas and twelve neighborhoods nonetheless, the complications of moving Triciclo around and finding a place to store it became too big a challenge. Hence we settled for three areas that took not more than an hour to get to from one to the other riding.

Deploying Triciclo required at least a week's time to prepare. For every location we visited, we needed to find a parking garage willing to take it. We also needed to scout the area, locate schools and plazas, hospitals, cantinas, government buildings and put up posters.

Poster pasting was challenging in its own. The wealthier the neighborhood the more attention we got from police. Since poster pasting is mostly associated to advertising popular events, it is not that common to see them among expensive residencies and department stores, which were much more policed than the allegedly more "dangerous" and poorer neighborhoods. Some officers did not know the law themselves or saw in stopping us an opportunity to get a bribe, which they tried in more than one occasion.

Taking Triciclo out required at least two people. The roof had to come on and off to fit through most garages, and we needed to bring with us all our equipment every time, since we were not allowed to keep our "valuables" on the tricycle itself.

Safety was a concern through out. While we kept its design pretty simple, we had a GoPro camera, a GPS tracker and two Smartphones. Some of the neighborhoods we were venturing into we were not acquainted with and we were afraid a pink tricycle might call for the wrong attention.

Mexico City is a valley that sits at 2,240 meters above sea level and is home to over 21 million people. Because there is less oxygen at this altitude, not only is it harder to do anything requiring physical exertion but cars are also less efficient since diesel emissions do not combust entirely, increasing the emissions of carbon monoxide, hydrocarbons and other pollutants. Ozone levels frequently reach and surpass the 150 percent acceptable level. Moreover, the altitude also increases the amount of ultraviolet radiation. Increase in UV radiation and increase in pollutants increase the amount of ozone pollution. While the rainy season usually helps bring the pollutants down, in our case the rainy season was another thing to be worried about. The best time to go out was usually between 1pm and 7pm, when the schools were out, people went out for lunch or left

work, when tortillerias were full, plazas were taken and government buildings saw the most activity which is also the time of most traffic.

Triciclo was unscripted. The only prompt users had, was to continue based on the sentence the last user left and the knowledge that their writing was contributing to a larger story.

The experiences we had in each area were overall similar, yet each had its own challenges and particularities.

Colonia Roma & Colonia Doctores

We set off at Colonia Roma and Colonia Doctores since they were the most familiar to us. Colonia Roma has been recently divided into two, Roma Norte and Roma Sur. We focused on Roma Norte, which is demarcated to the north by Agenda Chapultepec, to the east by Avenida Cuauhtémoc, to the west by Avenida Insurgentes and to the south by calle Coahuila. It is transversed from east to west by Avenida Álvaro Obregón, and from north to south by calle Orizaba, both promenades.

Known for the little plazas and parks, bars and cafes, our most popular stops were at Plaza Rio de Janeiro and Plaza Luis Cabrera, both on Orizaba street and on opposite sides of Álvaro Obregón. While we tried being outside of schools, the plazas proved to be a better space, as they are highly used by teenage students and transited by parents on their way home from picking up their children. They also were places where people were more willing to take the time and lend their attention.

In general, people from Colonia Roma were quite participative and seemed genuinely interested in the project. Given the large number of schools in the area, we had a diverse generational participation, with parents and children, teens, adults and elders who frequented the plazas.

Most of the wealth generated in Colonia Roma comes from the service industry (70% according to the Secretaria de Desarrolo Económico 2015 report), making the residential neighborhood one of the most visited.

With cafés, galleries, restaurants and plazas, Triciclo blended in better than it did at other neighborhoods, it seemed that people were more accustomed to participating than they did at Roma's counterpart, Colonia Doctores.

We started our route of Colonia Doctores outside of the subway station Metro Niños Héroes thinking we would get plenty of exposure. While we did, people walking by were transiting and did not have the time to stop and engage. Also, subway exits in Mexico City are usually hot spots for street vendors selling anything from phone chargers to socks or offering a quick bite. These establishments are pretty jealous of new comers, even if not selling anything. This offered an interesting change in dynamics, for rather than the attention of the passers-by, we instead engaged the local merchants'. In turn, they became informants, providing advice on the schedules of schools, hospitals and court houses.

Our most popular locations at Colonia Doctores were the elementary public school for children of low income families, "Escuela de Participación Social No.1" housed in what was once the country mansion of president Porfirio Díaz, where we would engage with the children as they came out of school; the Vertiz campus for the "Universidad de Londres" where we would engage with teens and young adults who attended college in the evening; the City's Courthouse, where we offered a respite to people waiting outside; the Jardín Dr. Ignacio Chávez, a park; and the cantina "La Número Uno" a popular cantina serving most of the bureaucrats working in the area.

Participation in Colonia Doctores in terms of amount of writing was greatest at the elementary school, but that was to be expected. Interestingly, unlike the schools at Colonia Roma, the children from Colonia Doctores were not as fast at getting home. They stuck around for a couple of hours playing on the street with their classmates and with the children from the street vendors outside their school, who did not attend school but instead helped run the business selling candy while the parents, mostly mothers, chattered outside for a couple of hours. These kids did not know how to read or write but instead asked the school children to write on Triciclo on their behalf and read back what had been written before.

The writing at the elementary school was very playful, from vampires and werewolves to Donald Trump and Dora the Explorer while at the courthouse the writing became existential and at times angry, praising solitude or questioning the significance of truth. At the college campus romantic notes came and went while at the park and the cantina, talk about life and how to live it were the most predominant themes.

Colonia Roma and Colonia Doctores where the most participative of the three areas, although that might be due to the nature of the locations and the overall spirit of the area with Colonia Roma

being a social and visited neighborhood and Colonia Doctores being a tight community with its fair number of visitors who are usually there for not the most pleasant reasons.

Colonia Pensil & Colonia Polanco

Colonia Pensil is a really large neighborhood divided into smaller regions, as is Colonia Polanco which is divided into sections. Rather than focusing on one region and one section, we decided to take Triciclo around, sampling both colonias.

Pensil is a tricky neighborhood. As a working class neighborhood and former villa, it retains much of the character and tightly knitted community spirit. However, it is also considered one of the most dangerous neighborhoods with a high rate of drug dealing and shootings becoming more and more commonplace. Therefore we did not want to make an incursion into its depths.

Pensil and Polanco are divided by Agenda Rio San Joaquin. However, the northern limit of Colonia Polanco, where it meets with said avenue, is the least residential. Large upscale shopping malls, super markets and the notorious Museo Jumex and Museo Soumaya are located there. It is a vast and odd expanse of land not planned for pedestrians. Therefore we stayed around the parts of Polanco that are better known and more transited by people on foot.

Polanco is one of the most exclusive and expensive neighborhoods in the city. There are plenty of restaurants and cafes, but the people who frequent them do so by car. Polanco is known to be one of the areas of the city with the worst traffic at peak hours, even cab drivers will refuse driving to Polanco any given afternoon. With a few parks around, the usual modus operandi when visiting Polanco is to leave your car at the valet parking of one of its establishments and perhaps walk around the park while having an ice-cream before getting back in your car. We had a hard time finding pedestrians in its more residential streets, so we settled with visiting its parks, Parque América and Parque Lincoln. The rate of engagement in Polanco was much lower than at any other neighbohood. People seemed uncomfortable when approached, and they did not show much interest in Triciclo either.

At Pensil it was not all that different. People did not want to be bothered. The most participation came from older women and teenage kids, with phrases being short and mostly non-sequiturs to what came before.

Colonia San Miguel Chapultepec & Colonia Ampliación Daniel Garza

Colonia San Miguel Chapultepec is divided into two sections, Colonia San Miguel Chapultepec I and Colonia San Miguel Chapultepec II. We focused on Colonia San Miguel Chapultepec I given it is the one that sits next to Ampliación Daniel Garza. Its triangular shape is made by the intersections of Agenda Constituyentes, Cirucito Interior and calle Governor Gregorio Villa Gelati. The neighborhood is mostly residential, making it a tricky place to engage people at since most of its residents are gone during the day. It also does not have as many public parks or plazas, since it sits right next to the Bosque de Chaputepec. The streets are pretty narrow, which made it a hard place to stop for longer than a few minutes. However, the neighborhood has a large concentration of galleries and is frequented by people who are easy to approach and willing to engage.

Rather than stoping at certain locations, Triciclo roamed around the neighborhood, approaching whomever came its way, outside the "El Chorrito" market and the church, the Hare Krishna temple, and the "Ventanita" coffee shop.

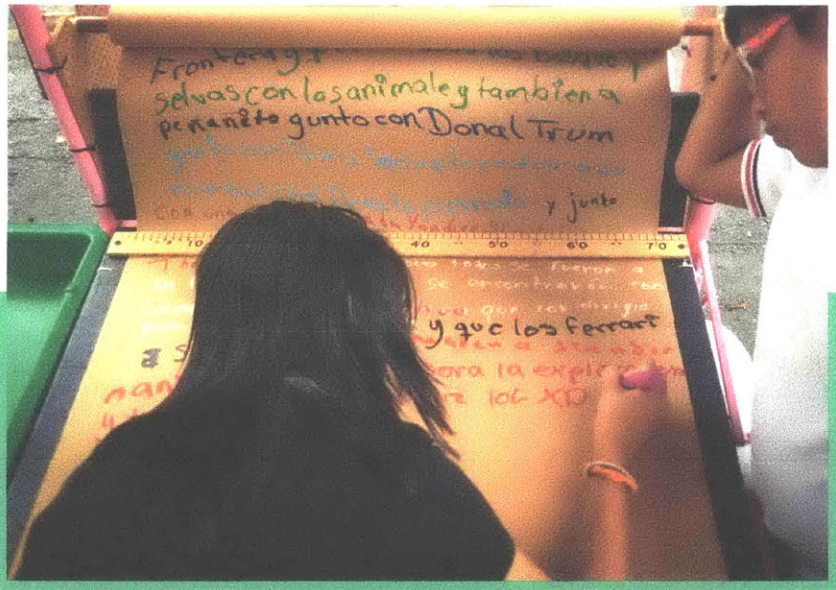
Although colonia Ampliación Daniel Garza extends beyond Avenida Constituyentes to the north, we stayed within the very small perimeter made by Parque Lira, Anillo Periferico, Avenida Constituyentes and General Sostenes Rocha. This neighborhood was especially difficult on Triciclo since it is full of small hills, making it hard to move around too much. Ampliación Daniel Garza is also flanked by the forest to its north east and north west, and by Parque Lira to the south, hence it does not have too many parks or plazas within it.

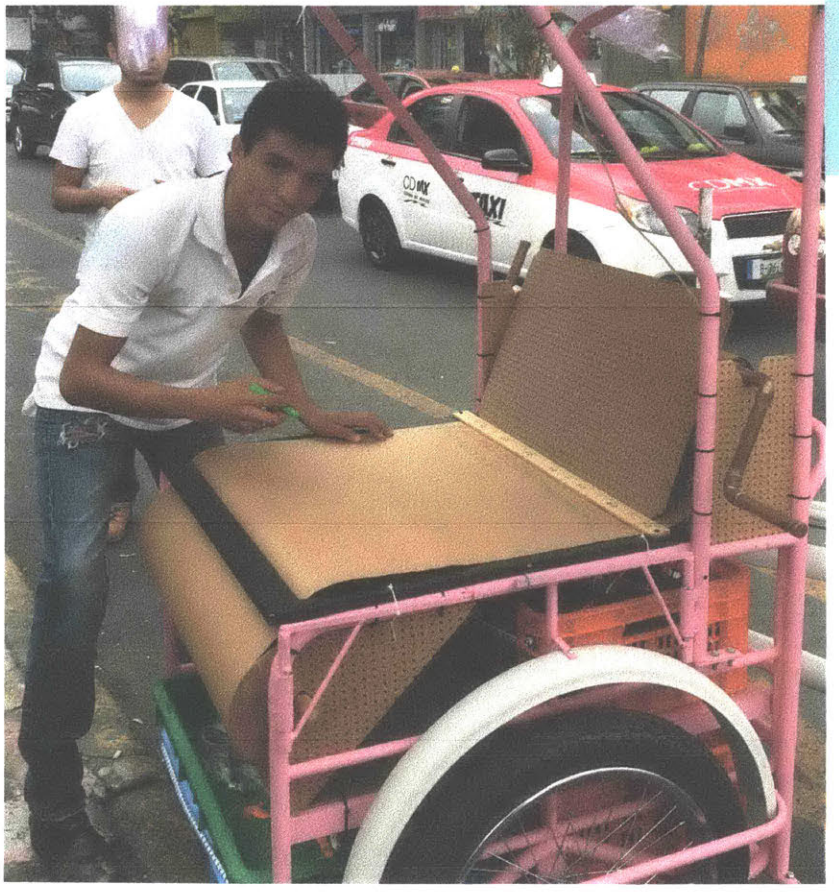
A working class neighborhood with some galleries interspersed within it, most people we met had been living there for all their lives. It is a pretty small area where everybody seems to know everybody, retaining some of the character of the small villa it once was.

One of the best places to engage with people was at Calle General Francisco Ramirez. This small dead end street is where the house of Luis Barragán is located, as well as Archivo Diseño y Arquitectura, a gallery specializing on Mexican design, and Labor, a contemporary art gallery. It is also the pathway towards the subway Metro Constituyentes and the only access to the pedestrian bridge that crosses over Avenida Constituyentes towards the other side of the colonia, where the public school "El Pípila" is at. The street sees a lot of traffic of people on foot given it is a dead end, either visiting these cultural spaces or making their way to and from school or the subway. Most of the galleries in the area self-marginalize, rarely do they engage with the people living int he very small neighborhood they are located at. The residents know about their presence, but scarcely ever visit.

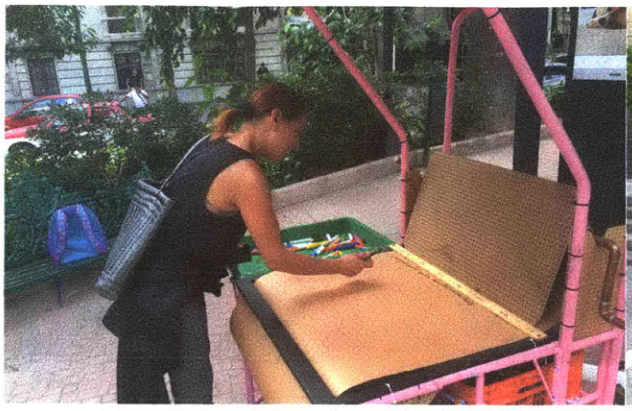
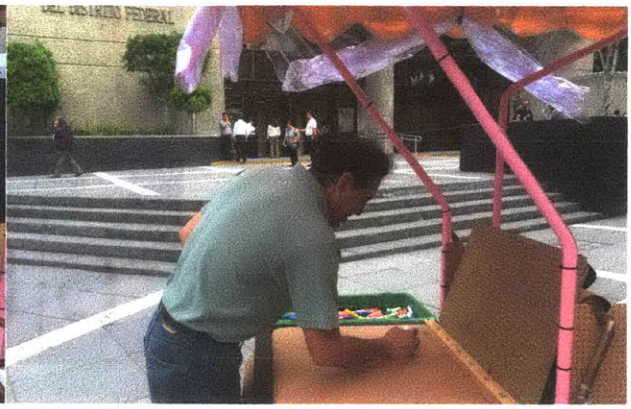
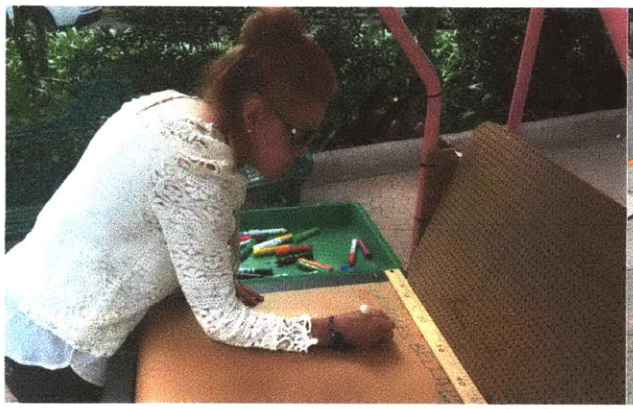
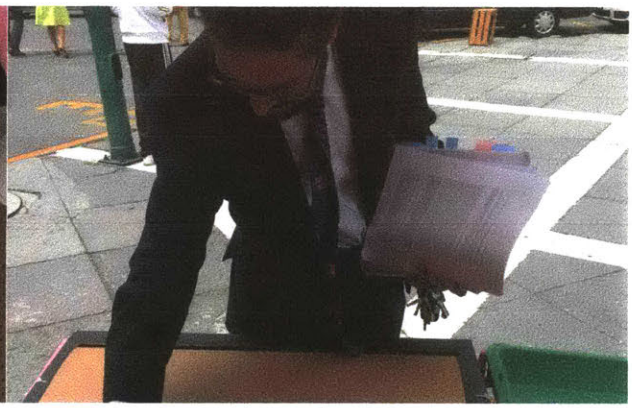
Triciclo was sponsored by Archivo Diseño y Arquitectura, and served as a bridge between what happened indoors and the neighborhood around. Being a constant presence, the children and their parents who passed by on a daily basis from school, became acquainted and engaged. Every day they would contribute a thing or two. Triciclo was a presence in this small area and was tangibly missed once gone.

Fig.49 (pg. 134 - 137) Deployment of Triciclo







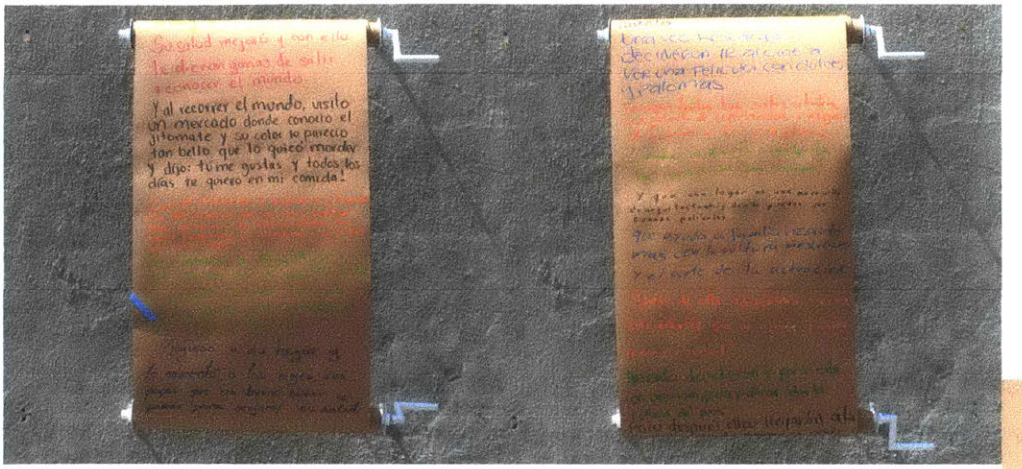



Fig.50 Text between Colonia Pensil and Polanco.

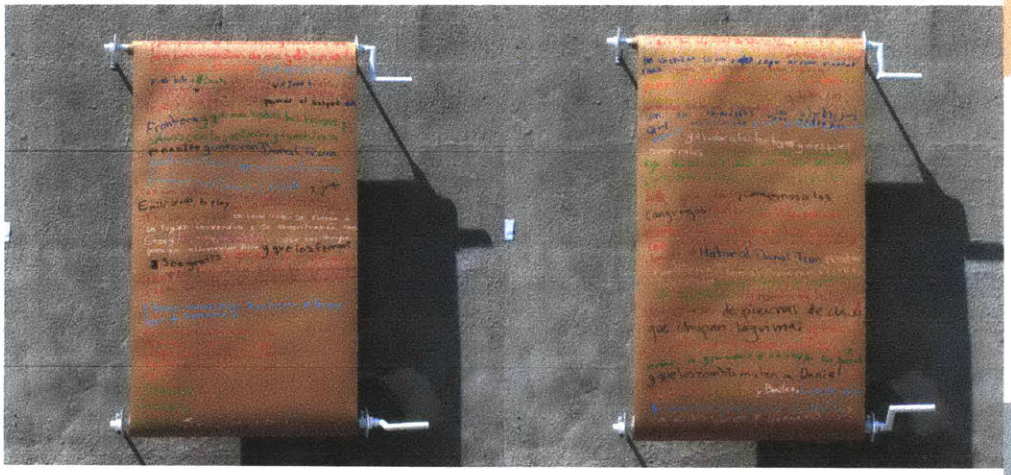


Fig. 51 Text between Colonia Roma and Doctores.

Fig. 52 Text between SM Chapultepec and D.Garza.

Andamio

Andamio is an experiment on networked structures for play to be built grounds-up and communally, to be adaptable and low-cost and defy the requirements of a particular space to be installed.

To achieve that, Andamio takes the ubiquitous scaffold: modular, configurable and expandable and uses the colorful plastic ropes used for the iconic 1950's "Sillas Acapulco" to weave elastic and resistant surfaces for lounging, climbing, or whatever one might fancy.

Conductive rubber for input and electroluminescent wire (EL wire) for output are seamlessly incorporated into the weave so that when off, Andamio is appealing on its own, but when on, it networks two distant structures extending play with a potential "other". For networking, it uses radio transmitters and receivers (X-Bee radios), allowing it to sit at a maximum distance from 2 to 65 miles depending on conditions, expanding the range from visible interaction to invisible telepresence.

Adjustable to big or small spaces, it can incorporate elements which usually would be seen as obstacles. Andamio could surround a tree, or be installed over a fountain. Unique yet replicable, Andamio's color palette, position, panel arrangement, weaving patterns and interactions can vary from space to space. For some Andamio was a house, complete with windows, surfaces for eating and reclining ones for sleeping, for others a spaceship with cabins and command centers, for lovers at night a place to relax, and for some little ones, a place with many "color spaces" to be explored. With light as the output, its use extends to the night, socially activating the space where it is located beyond usual hours. Andamio becomes a gathering beacon.

Design Challenges

Andamio was conceived after a call to create an object which in turn would activate space, turning it into place for ludic interaction. The final design came after many months of experimentation. Our initial aim was to design something which would have aesthetic relevance locally, making the choice of material our point of departure—the structure would be provided by the material qualities. Conceived for outdoor use, the material would have to be able to withstand exposure to

unpredictable weather and prolonged use by children. It also had to be compelling on its own while leaving enough room for the player's imagination to make of it at will.

Our first material of choice was a colorful plastic weave mostly used to make market bags and cots. Sold in rolls and offering an infinite range of color combinations, its tried-and-tested success at carrying weight made it very attractive. Its familiarity in the form of a market bag kept any potential of ostentatious display at bay while accentuating the beauty of the material when decoupled from the function it habitually served. The weave made it flexible, porous and see-through. It was also waterproof and the mesh made it easy us to weave our electronics into it.

The initial proposal was to make a series of colorful panels out of this mesh, which in turn could be assembled into any configuration.We encountered many problems along the way concerning not only the mesh, but the frames withholding them. Costly and its manufacture time consuming; they required a solution to safely anchor them to the ground. The corners, rounded for the sake of safety, made the intersection complicated and visually not very pleasing. Problems notwithstanding, the visual composition was not all that different from what could be accomplished with a scaffold.

The idea of using a scaffold as the structure had immediate appeal. The fact that it solved a structural issue was secondary to the social component it brought to the equation. Scaffold, ubiquitous and manufactured according to safety standards, was the same most everywhere. This meant we could design a system which could be adapted to any scaffold not in use anywhere. Adaptable and modular, using a scaffold meant we were freed from having to define a place.

Instead a scaffold could be parasitic, surrounding trees and monuments, installed over fountains. Everything fell into place! Even semiotically—scaffolds epitomize the labor behind the making of public infrastructure.

We were obviously not the first ones to find scaffold appealing for all the same reasons. In 2013, Icelandic artist Marcos Zotes turned remnant scaffold structures into Pixel Cloud—an immersive light installation by enveloping the scaffold in a white porous mesh and projecting onto it, for example.

Our first attempt at attaching the mesh was pretty straight forward: pass frame through a sewn fold on the edges. For this to be achieved, we had to consider designing the panels to have detachable corners, adding pieces and steps to the process—not ideal. The mesh succumbed to weight,

ripping open at the seam. We decided then to try adding grommets to the panels and weaving these to the scaffold directly. The cots were made this way, making it seem like a feasible solution except the cots have a much smaller surface area so, unlike our tests they withstand ripping. We had to look for a new material.

Keeping with the need for a low-cost, weatherproof, flexible and appealing material, we came upon the once overlooked PVC string, most commonly used to weave the emblematic "Sillas Acapulco." An icon of Mexican design, the "Sillas Acapulco" originated during the 50's in the then exclusive resort town of Acapulco, Guerrero. Its light and elegant design, popular character, hand-woven quality and economy of materials made it an object to revisit, having a wild resurgence in the Mexican design scene in the last decade, establishing itself as a true icon of design. Yet, the PVC string that has made it iconic has not seen much variety in use.

Known to withstand weight and outdoor exposure and made in any color imaginable at a factory within Mexico City, we looked no further. Making use of string allowed us to create our own mesh thus truly incorporating the components by weaving them in.To our fortune, the electroluminescent wire itself is nothing but this same PVC string with a fluorescent core meaning, when woven together, there is no telling which one is which. Lastly, this meant the scaffold itself was to the frame we were to weave upon, eliminating the need for further frame making.

A scaffold is designed of two frames interlocked with two cross-braces. Regularly, a platform to is then attached to the frames. We were interested in using the angles offered by the cross-braces as support structures instead, so took upon weaving PVC string from one cross-brace the the other. The weave we chose was the same used for the "Sillas Acapulco"—a pretty straightforward approach wrapping once on each side and going across from one side to the other. The tension generated by making a weave across was causing the tubes to bend towards the inside, and for the scaffold to lose its stability. To avoid that, we had to attach extra tubes to tense the structure back out, to counteract the tension created by the weave.

Fig. 53 Plásticos Raul and its colorful plastic mesh.

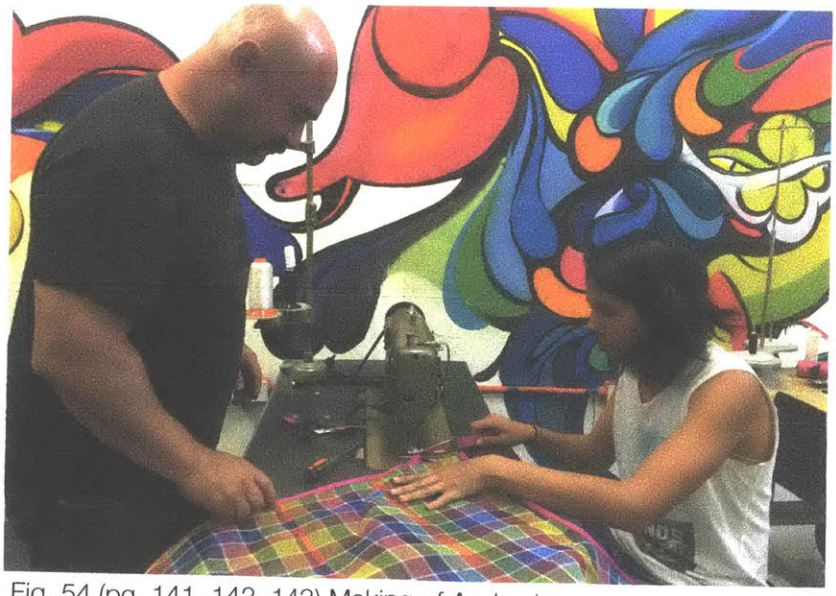
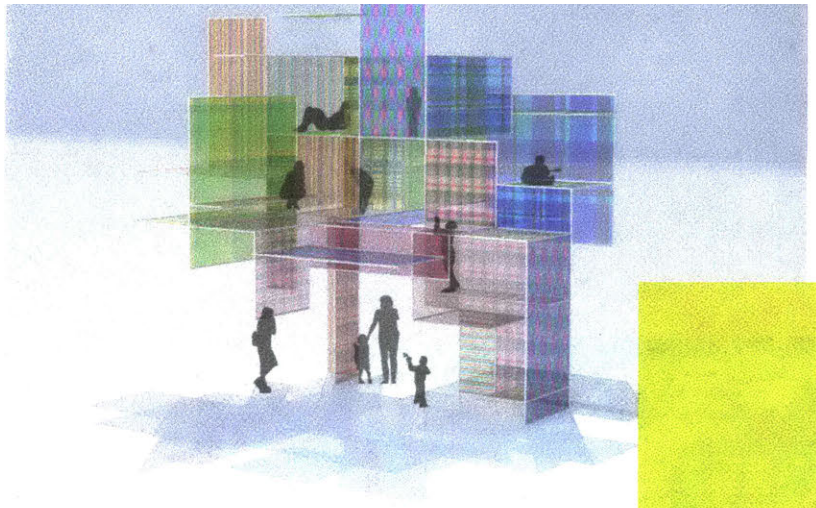
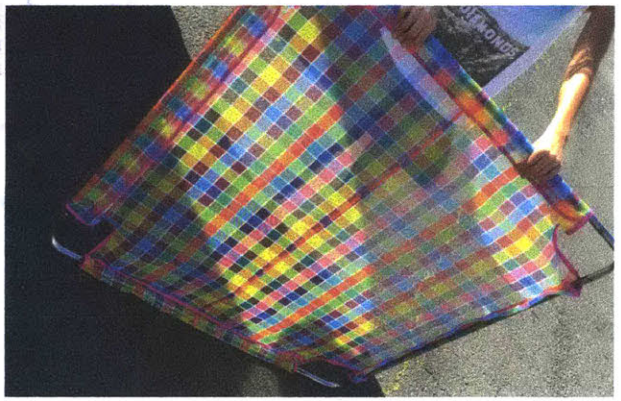
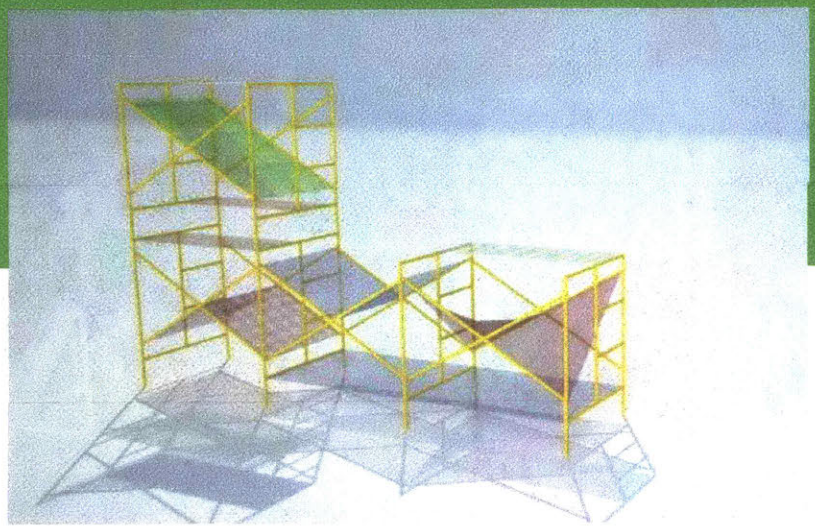
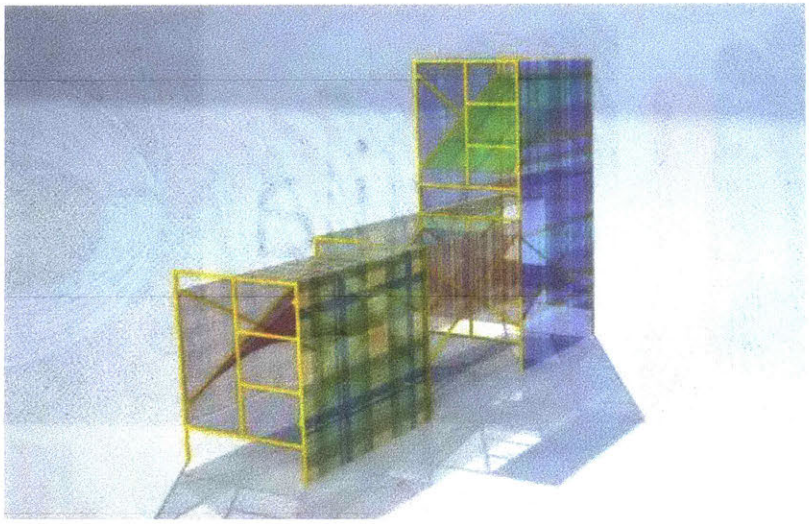


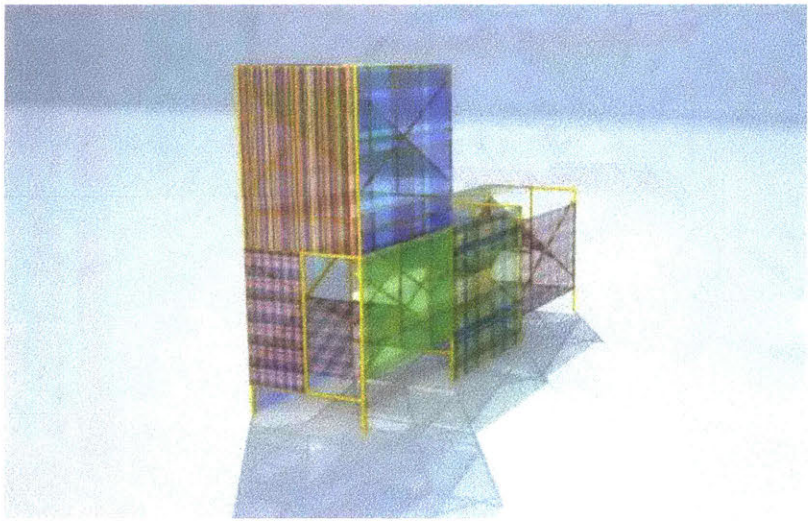
Fig. 54 (pg. 141, 142, 143) Making of Andamio.

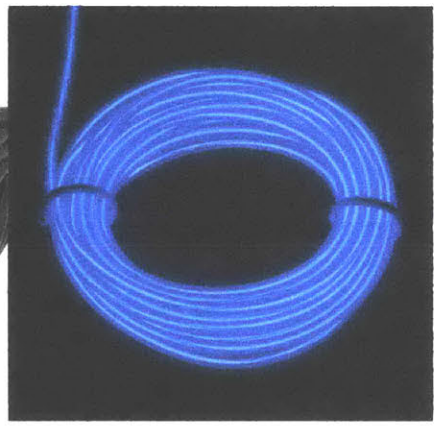


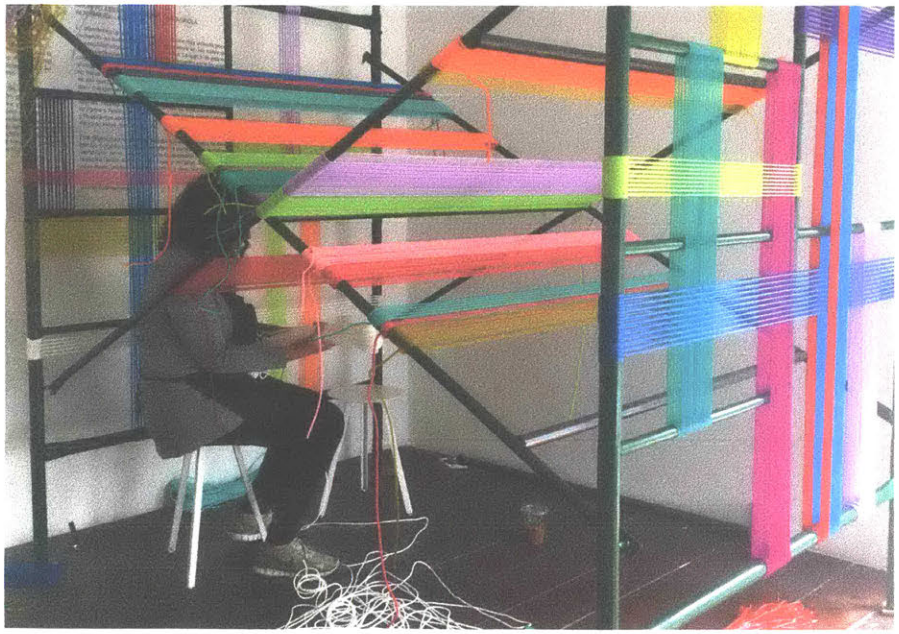












Interaction Design

As mentioned, working with PVC string was pretty fortuitous in terms of design—it fit the idiosyncrasy agenda by being a material with strong local reference, and it perfectly matched the design language of the materials used for input and output, namely, conductive rubber and electroluminescent wire.

Input: Conductive Rubber

Conductive rubber is manufactured specifically to conduct electricity by distributing carbon or other conductive particles throughout the raw material (in this case silicone) prior to setting it. When constructed as a cord, its conductivity varies with the amount of tension exerted on it, hence the material is commonly used to make stretch sensors. We opted for the solid core round extruded conductive rubber since it would visually match the PVC threads and the EL wire.

The first attempt was to weave the rubber directly onto the metal frame, the same way we had wrapped the PVC thread, creating enough of a surface so that when pressed, its resistance would change. There are a few reasons why this did not work.

We needed to create a flexible panel with a conductive rubber insert.

The PVC thread we used can come either with a solid core or hollow. The hollow one is less resistant, but since it would be placed vertically and carry no weight, it worked as feasible alternative. It allowed us to pass the wire attaching the rubber to the controller through it in a clean way while keeping it protected and visually coherent, keeping in line with the flexible requirements needed for pressure.

Output: El Wire

Electroluminescent wire (often abbreviated as EL wire) is a flexible plastic cord with a thin copper wire coated in a phosphor which glows brightly when an alternating current (AC) is applied to it. It requires very little current, does not heat up but requires high voltage. Widely available, it comes in a wide variety of colors and thicknesses. For our purposes, decided on the High Bright Standard—2.6mm wire, given it would be outdoors and that we could not predict the amount of light surrounding, and the thickness provided enough flexibility to be able to be manipulated, protection from tear and matched the one of the PVC string we used.

To attach it, we used the very same technique used for the PVC plastic. This way the PVC plastic and the EL wire were interspersed with no telling where one ended and the other began. We limited its placement on the scaffold to the frames since a vertical position seemed to be better conducive to interaction and given that most of the weight would be carried in the weave between cross-braces.

To control the EL wire, we used Sparkfun's EL sequencer. With an embedded Arduino-compatible micro-controller and headers for module radios it was a good choice for our wireless application. To generate the AC current, we used a 12 volt inverter to be able to drive the required length of EL wire.

Communication

Andamio was as two networked structures that mirrored each other. Each structure had three large panels at floor level with two half-sized panels on top. Each of the three large panels had a stretch sensor made of conductive rubber as input, and two strands of electroluminescent wire for output. The top panels had an output of wire each, and one input of rubber on one panel. When the stretch sensors were pressed in one structure (A) the electroluminescent wire in the mirroring structure (B) would light up.

We used X-Bee radios to network both structures, since they were not placed further than a block away and had a clear line of sight.

Integration

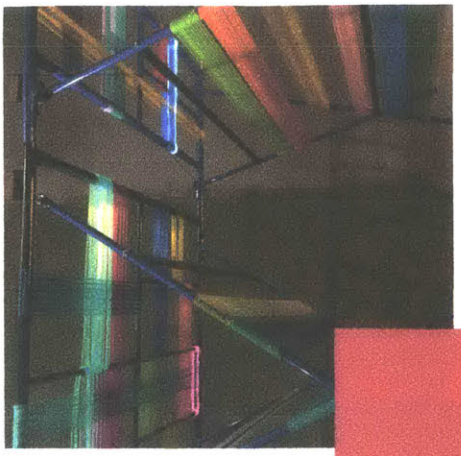
Each scaffold set was comprised of:

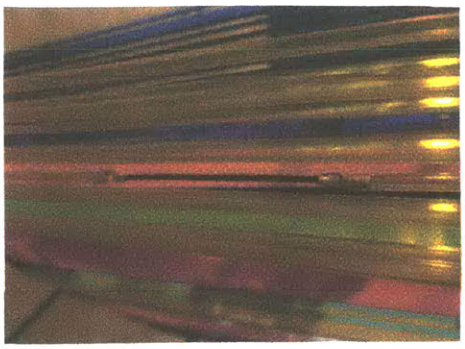
- Three panels of 2m height x 1.56m width
- Two sets of large cross-braces with a 2.20m length
- Two panels of 1m height x 1.56 width
- One set of short cross-braces with a 2.20m length
- Eight strands of electroluminescent wire of varied width (2.3mm and 3.2mm)

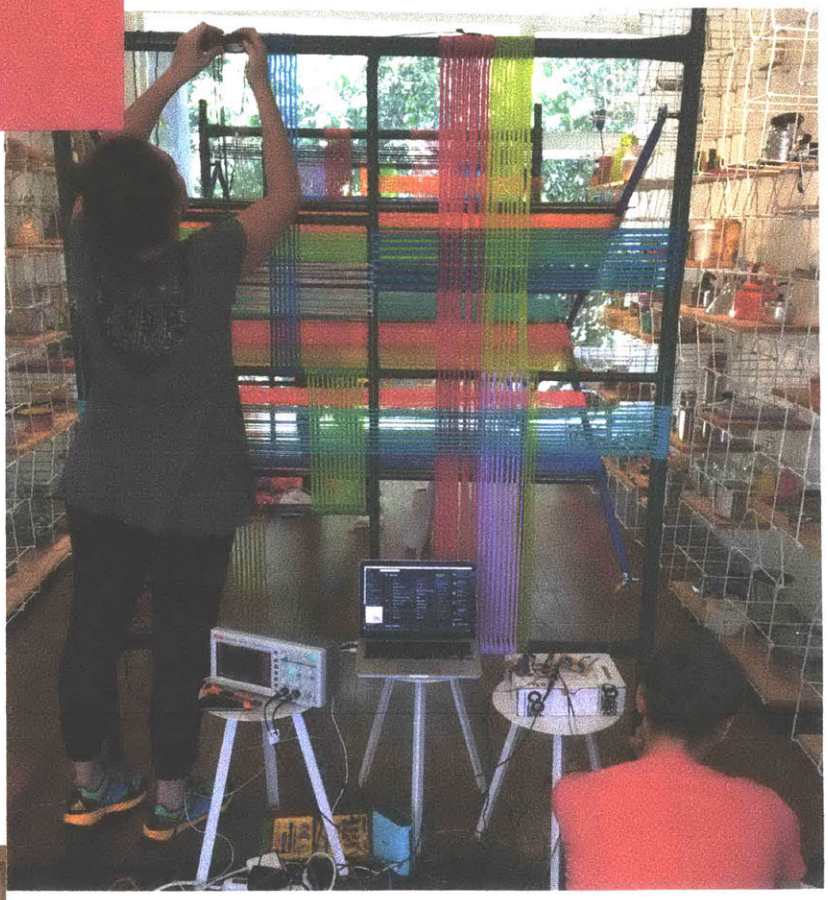
- Three conductive rubber pressure sensors made from .125" O.D "solid-O" carbon filled silicone
- One Sparkfun EL sequencer (with an ATmega 328p running at 8MHz, Arduino boot loader, eight opto-isolated, EL control channels and headers for X-Bee)
- One inverter capable of driving 20-100 feet of EL wire with a 12-14 volt input requirement.
- One X-Bee 1mW Trace Antenna - Series 1

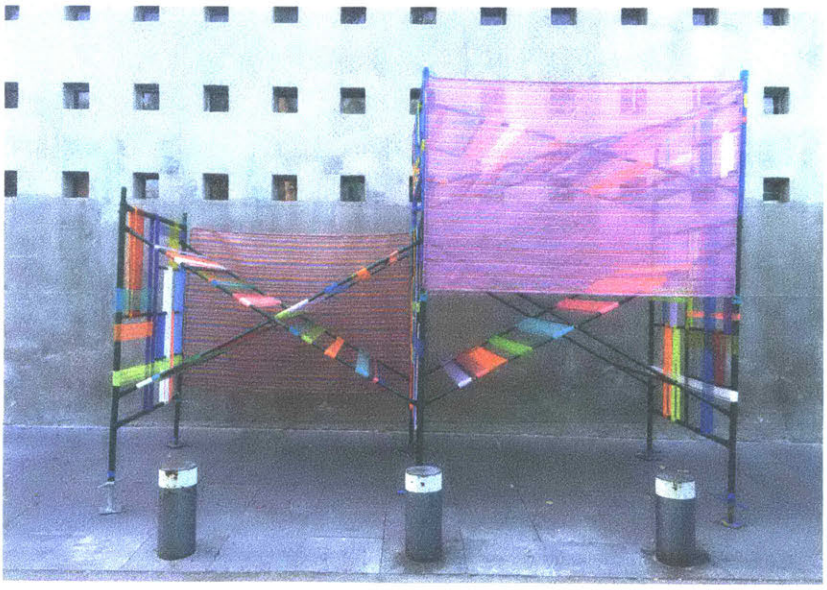
Additionally, we used the plastic mesh we initially intended to use as protective "walls" for the upper panels to which we wove 1.2mm "angel hair" EL wire with its own inverter, which was always on.

Fig. 55 (pg. 148 - 150) Weaving full Andamio set









Soft Deploy: Design Week Mexico 2016

We were invited to soft deploy what we had so far for 2016 Design Week México's "Territorio Urbano," a part of the event dedicated to reactivate public space. It was a perfect opportunity to try out what we had in a somewhat safe environment since it took place on a dead-end street and with traffic shut. We also had the help of a security guard and hired help for installing and safeguarding both users and the installation itself.

Andamio A and B were placed at a distance of approximately 50 meters from each other, flanking both ends of the street. Each set had a bottom cross brace which was not woven. The inputs and the outputs were in place and networked. Andamio A and B had a very limited interaction—when someone pressed either sensor on Andamio A or B, the EL wire would turn on on the other.

"Territorio Urbano" had activities in three galleries surrounding, hence we had a large influx of people. Yet, the people who visited were not the everyday pedestrians of the area. As part of Design Week, the audience comprised mostly people with an explicit interest in design, hence Andamio was seen as a gallery piece which happened outdoors rather than as a playscape. During the day, which was when the largest amount of visitors happened, Andamio was unplugged. We were interested in seeing how people reacted and interacted with it when it was unconnected. Hesitant to touch it at first, things quickly changed when people were told they could climb on it, becoming a challenge and a photo opportunity.

Extending Outdoor Play into the Nighttime

Andamio was left sitting outside Archivo without its electronic components for a month while we worked on securing an alternative location, finished weaving the missing parts and perfected the circuitry. Initially out of need, since moving the assembled structures required a significant effort and a considerable amount of space, leaving the scaffolds unattended and in the open became an insightful experiment of appropriation, place making and meaning making.

Archivo is located at Ampliación Daniel Garza, a neighborhood undergoing fast gentrification. Some of the most important art galleries in Mexico are not far—in that block alone Archivo, Labor and Casa Luis Barragan sit side by side, with Kurimanzuto a short walk. Many more galleries and cultural institutions have opened in the area during the last 5 years. Its closeness to the Bosque de Chapultepec, Constituyentes subway station and El Chorrito—one of the city's best markets, are drawing in residents who would have considered the neighborhood dangerous in years past.

Archivo itself has a particular location: it sits atop (pretty large) Constituyentes Avenue on the corner of a one way street, General Francisco Ramirez, and a small sidewalk flanking Constituyentes Ave and serving as a passage towards the "Constituyentes" subway station. General Francisco Ramirez leads to the only pedestrian bridge in the vicinity that allows pedestrians to cross Constituyentes and reach the adjacent neighborhood, where the Escuela Primaria "El Pípila" is located and which serves most of the children in the surrounding neighborhoods.

Located on the way to the subway, we had a predictable traffic of people passing by on a daily basis. Parents dropping off and picking up school children in the morning and again in the afternoon, neighbors who use the "Constituyentes" subway station for their daily commute, teenagers heading to school and art and design aficionados visiting the galleries witnessed Andamio in the makings. The times that we were outside working on it, we were able to answer questions to curious passers-by and grant children and teens permission to climb it. This in turn meant that they did not need us to be there to know they could make use of it which in turn turned into them authorizing others.

The window of the space we worked at gave directly to the street, giving us an unintentional prime spot to eavesdrop. Below I describe the type of interactions observed:

> *During one late evening a group of teenagers, boys and girls, took a little detour on their way to the subway lead by one of the boys who wanted to show Andamio to the rest of the group. He talks about it with ownership in his voice, explaining how there are parts that "glow-in-the-dark" and assuring them all it is OK to climb it. His friends tease him, for there is nothing glowing, he assures them he had seen it lit up at one point. They talk as they climb and make themselves comfortable atop, lying for a few minutes before making their way back to the subway.*
>
> *A mother and her toddler walk slowly by Andamio. The toddler, wants to touch and interact with it. Hesitant at first, the mother lets her baby pluck some strings when other children coming from the pedestrian bridge run towards the scaffold, climbing the frame where the toddler plucked away. The toddler's mother is now less*

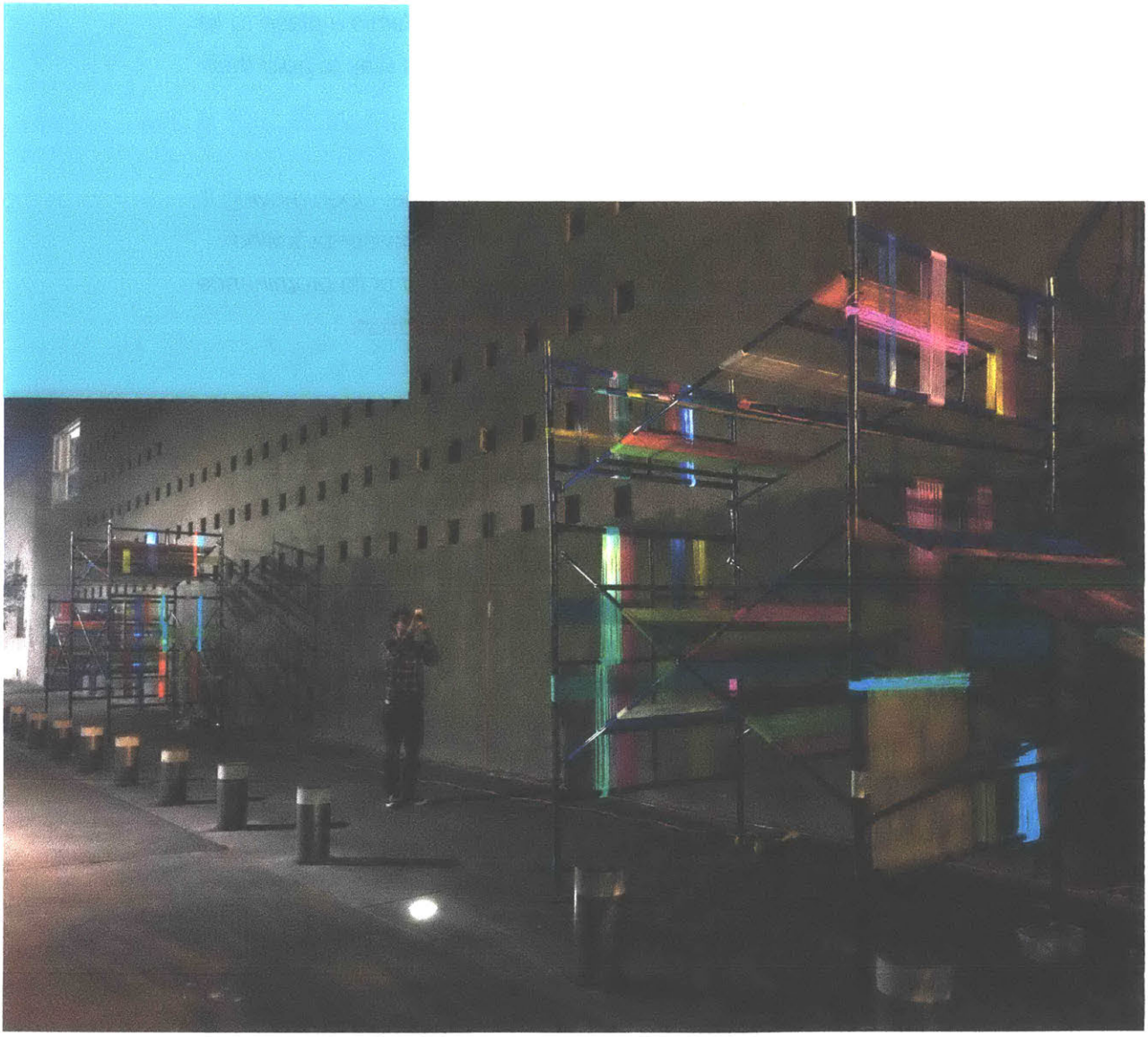
scared of letting her toddler approach Andamio and starts a conversation with the children's guardian, wondering about the provenance of Andamio while their children play on it.

During weekends, the neighbors across the street fire a grill and sell burgers at their door front, taking advantage of the people making their way to Papalote, Mexico City's children's museum. Taking shade from the sun, their daughter plays under Andamio, talking to her dolls and having them pop in and out from the tensed PVC strings on the frame.

Construction workers take a break and find in Andamio a place to lie down. The tension created by the strings a perfect way to hold their drink and chips in spite of the sloped surface.

Andamio's presence was as noticed as its absence. Upon moving it, inquiries on its whereabouts from neighbors and passer-by's who had gotten used to it abounded, and I was alerted of its prominence in Instagram, when searching either gallery by location.

Fig. 56 Installing Andamio for Design Week.



Deploy: Plaza de la Aguilita, Barrio de la Merced

That Plaza de la Aguilita ended up being the place where we installed Andamio was a fortuitous event. In the know that any permit to install anything in Mexico City would require a significant amount of bureaucracy, we started by mapping out areas where we thought it would be relevant to install a Networked Playscape and where we knew we could count with support, either because the infrastructure needed was in place, or because we had allies who would help us obtain it.

Originally, Andamio was designed to sit on two perfectly symmetrical plazas which serve as the entryway to Metro Constituyentes. They sit across each other flanking Parque Lira Avenue and are connected underground through a tunnel. The location was good on many fronts—there was an unobstructed view from one plaza to the next which facilitated our use of radio devices for networking, it was far enough it felt distant, but close enough to see activity from one to the other, each entrance served two distinct neighborhoods and the plazas are identical—making the implementation of two systems easier. But more importantly, we had initial interest from the municipality to implement it.

After many failed attempts at giving it continuity with the municipality and confusion over public space authority (Laboratorio para la Ciudad, Autoridad del Espacio Público, Delegación Miguel Hidalgo, Delegación Cuauhtémoc and Sistema de Transporte Colectivo Metro were all consulted with no definite answer as to who is in charge of the platforms at the entryways of the subway system) we opted to find a different space. I visited with a couple of cultural centers which I knew worked within specific neighborhoods and had made use of public space in prior occasions but their help came at a cost of further bureaucracy with no guarantee of a risk-free installation. We then thought about taking a truly grounds-up approach, install and deal with whatever risk and consequence it might carry. It was then that I was introduced to Joaquín Aguilar. Joaquín has been working at Casa Talavera, a cultural center located in Plaza de la Aguilita, Barrio de la Merced—coincidentally the same plaza where we worked alongside Jaime the welder to build Triciclo and which I knew pretty well by then—for long enough that he knows and is well known to the neighborhood at large. Joaquin ran a beloved community broadcasting radio, "Radio Aguilita," every Wednesday from the plaza.

When he started, the plaza was a different space altogether. Nestled in Downtown Mexico City, at the Barrio de la Merced, a commerce and prostitution neighborhood since pre-hispanic times and true to this day (it is said that over 3,000 prostitutes work on a daily basis, 24 hours a day along

Avenida San Pablo and surroundings) Plaza Juan Jose Baz, popularly known as "La Aguilita" was a hub for drug and human trafficking and prostitution, and a makeshift home for destitute up until the end of the past century. The stench alone was enough to keep any effort to intervene at bay. At one point, Mexico City's "Downtown Escrow" made an attempt to rehabilitate the plaza, but it was limited to cleaning up to perform a ribbon cutting ceremony and it was never followed up by adequate maintenance — a typical move of politicians wanting to gain the popular vote.

The plaza and its inhabitants, perhaps as a consequence of the very profitable illicit activities that have taken place there for decades, have kept a certain autonomy, controlling government intervention through bribes.

As such, there had been no real effort from the neighbors in recuperating what once was a beautiful plaza . "Radio Aguilita" started as an effort to let the community know of the activities happening in Casa Talavera, but its operation relied on the cooperation of the neighbors from the very beginning. Unable to deal with the smells, Joaquin decided to clean up his spot, and was followed suit by the neighboring shop, and then the next, becoming a Wednesday endeavor. The cacophony of sounds coming from the pirated CD sellers drowned the radio and were asked to cooperate by quieting down for 3 hours a week (not without a fight first, which turned into collaboration given the affinity of musical tastes) and the power was donated by one of the surrounding shops. "Radio Aguilita" brought a sense of pride and ownership long forgotten by reminding the neighbors through its broadcasts that it was there that the Aztec empire was founded, that they held some of the most important pre-hispanic monuments and colonial buildings, that their market had supplied the sustenance for the largest city in the continent and it was, despite all, a neighborhood comprised of hard-working families who were willing to cooperate and turn the plaza into that it is today, which, far from perfect, sees unsupervised children running around and elders playing domino at Cafe Bagdad.

I met Joaquin at Casa Talavera, and upon showing him Andamio, he made sure to let me know he had no authority to decide over anyone if it should be installed or not. He did though, told me he would be happy to door to door to every business in the plaza with me, and ask for their approval. The next day, I arrived at Cafe Bagdad with large color prints to meet him.

The first person he introduced me to was Xavier, who goes by Xavi. Xavi is the son of the new owners of Cafe Bagdad, one of the oldest cafes in the city and which to this days serves the large Lebanese community that runs much of the commerce in the area. Xavi's parents own a large craft

supply store next door and bought the cafe less than two years ago. Like most little doors surrounding La Aguilita, the stores are a front to the gigantic multi-family neighborships behind them. Their craft supply store is the front to their privately owned estate, which boasts its own 18th century chapel—a passer-by would never guess. Xavi is a young fashionable traveled man in his late twenties who runs a very popular bar across the street from a university downtown. Local to the area, he has made use of the wealth amassed by his parents to travel the world and is looking to make La Aguilita the next destination hub for the new wave of design conscious Mexicans. When I presented the project to Xavi, he did not only approve, but became a crucial supporter. Throughout the installation he offered his cafe as our operations center, feeding us, providing wireless and guarding our material throughout the day and letting us store large pieces at his home. The day we finished, he offered free beer to everyone that came by.

Joaquin then took me around the plaza to present the project to every shop owner around and see if anyone had any objections or was interested in helping out by providing power and/or storage space. I was not expecting that to be the procedure, but then again, I was did not know what to expect of how to proceed either. It was an intimidating experience, since most of the shop owners have been there for many years, and have evolved as the plaza has—or at least have tried. There clearly was a hierarchy among the neighbors. The ones that live and work in the area and have been there for longer and have family businesses were clearly the ones I needed approval from. One of the women we met was a clear example. Joaquin whispered in my ear she had ran the largest crack cocaine business in the area, with her children serving as dealers. I did not ask details. She greeted us sitting on a plastic chair outside a little door, interrupting her greeting by calling out for one of the girls to bring us hot ponche—a typical winter drink. After scanning me up and down, she looked at the pictures and gave me her blessing once I clarified this was not a government led initiative, that I was not campaigning and that I was not charging a fee. She then advised me to go to the store next door, and talk to Antonieta, and ask her to let me power from her store and make sure to tell her she had sent me. Antonieta, a good looking woman in her 50's, did not flinch, and after pointing at the outlet, told me she could close later in the evenings as to extend the running time to match that of Cafe Bagdad. I couldn't believe it.

Fig. 57 Plaza del Aguilita.

Fig. 58 Café Bagdad.

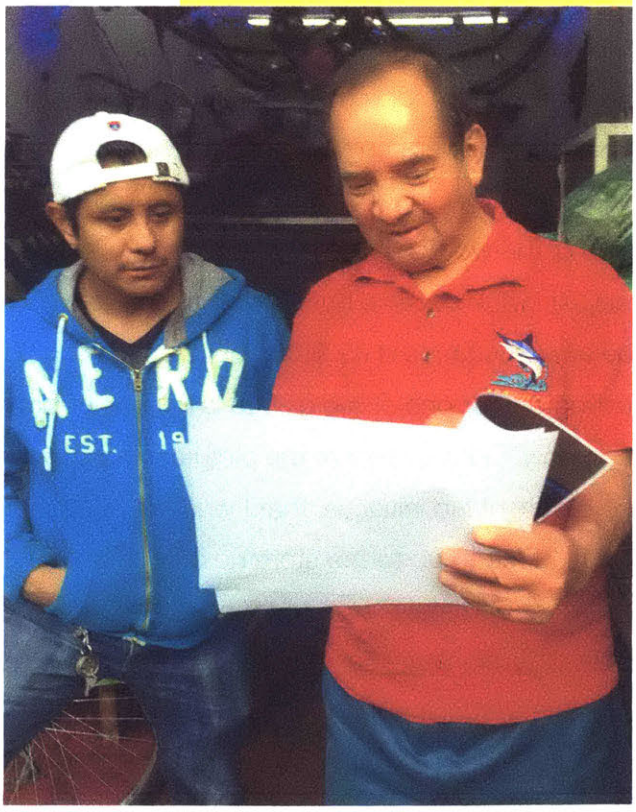


Fig. 59 Consulting with neighbors.

Installation

The movers arrived at Archivo in the early morning to avoid the daily traffic of the narrow one way streets around "Plaza de la Aguilita" and be able to stop and unload. Joaquin had left me an official looking letter which was to be taped to the window of the moving truck and avoid towing or ticketing, or so I was told. The movers brought the wrong truck size, requiring two trips and complicating the coordination, since now someone had to stay to look after what was delivered in the first instance. My core team was made up by David Cranor, dear friend and Media Lab alumni, Freddy (short for José Alfredo Jiménez—the namesake of one of Mexico's most famous ranchera singers, with whom he shares the exact same first, second and last name and as any teen would, hates it) and Orcun, my partner. Orcun and David do not speak Spanish, and Freddy does not speak english making me the only way they had to communicate to each other and the point of contact for any question from them or the neighbors. I was also the only authority over the project. Upon returning with the second half of Andamio, I was greeted with a lovely, yet scary surprise. We had not properly installed nor secured Andamio when children had already started making use of it.

Assembling Andamio takes considerable effort and coordination since it has a second level which has to be raised up assembled and that the tension of the woven cross-braces offer plenty of resistance when attaching them to the frames. While maybe not surprising, it was not less gratifying to have street sellers leave their merchandise and jump on the spot to help out.

Appropriation

Andamio was not even secured to the ground when dozens of children had already taken over it. Bikes and tricycles parked underneath, children were climbing it without hesitating. The plastic ropes used, were acquired at a one of the two main distributors, a store around the corner from the plaza well known to the neighbors. The material, while attractive and vibrant, was also very familiar. The technique we used to weave it very simple. In no time, children were repurposing it, and weaving handrails or extra panels where they saw a need for them.

Passerby's with children would stop and let them play for a little while. During the day, younger children were relegated to one structure while older ones took ownership of the other. At night, when the structures communicated, a whole new set of games took place. Younger and older children started sharing the same structures and assigning roles to each other. Kids from the neighboring and poorer neighborhood came by, something that does not happen often. To this

day, when I go by, children ask me when will it return. One of them, explicitly told me how "La Nave" had become their gathering spot and how now they do not gather anymore.

Observations

> *"The kids were having a lot of fun. They came from various places and played. They really played from the afternoon all the way into the late night. And it may seem trivial, but something some simple, gave them a lot of fun. And ti was a lot of kids that where playing there. They came from Santo Tomás, from the buildings around here, or even the people who came to shop, would stop and let them play for a little while."*
>
> *"Excuse me, do the children from Santo Tomás come here often?"*
>
> *"No, in reality the majority does not come here, I imagine that since they saw the installation... yes, yes they came. Most of the kids from Santo Tomás are very... very poor. They do not have much resources. So they came over, because they came to play. They would even ask if they had to pay to get on it, we would tell them 'oh no!'"*
>
> *"What I liked is that we would always gather there, and since they took it away we don't gather anymore."*

Fig. 60 Installing Andamio at Plaza del Aguilita.

Fig. 61 Poster for Andamio by Orçun Göğüş and Edwina Portocarrero.

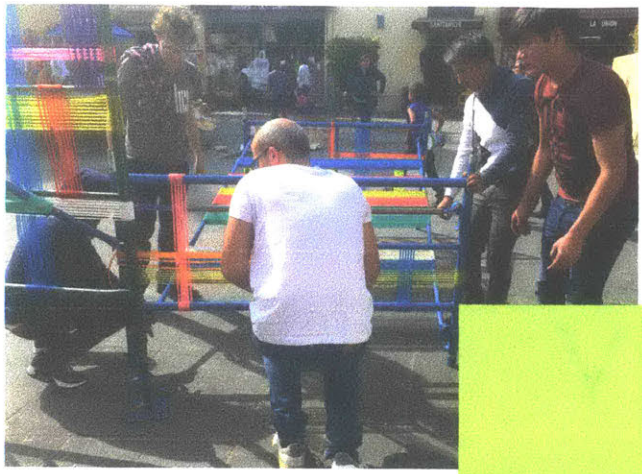
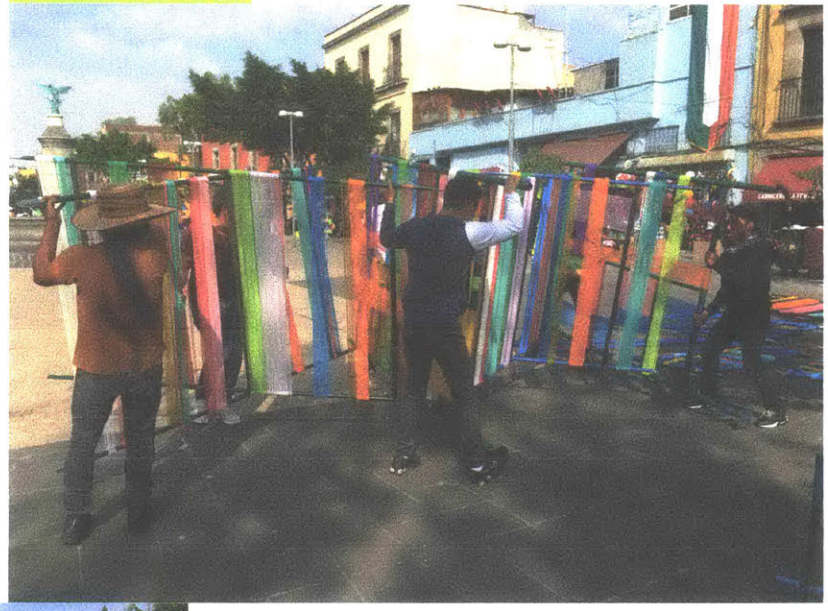
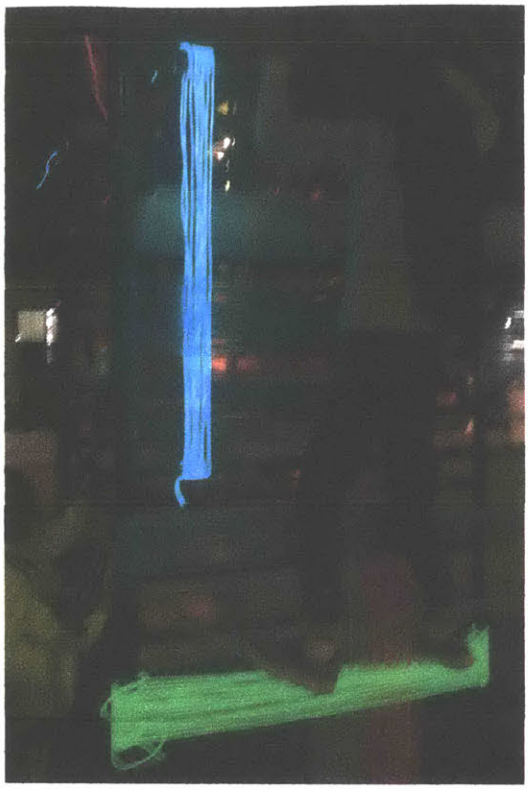
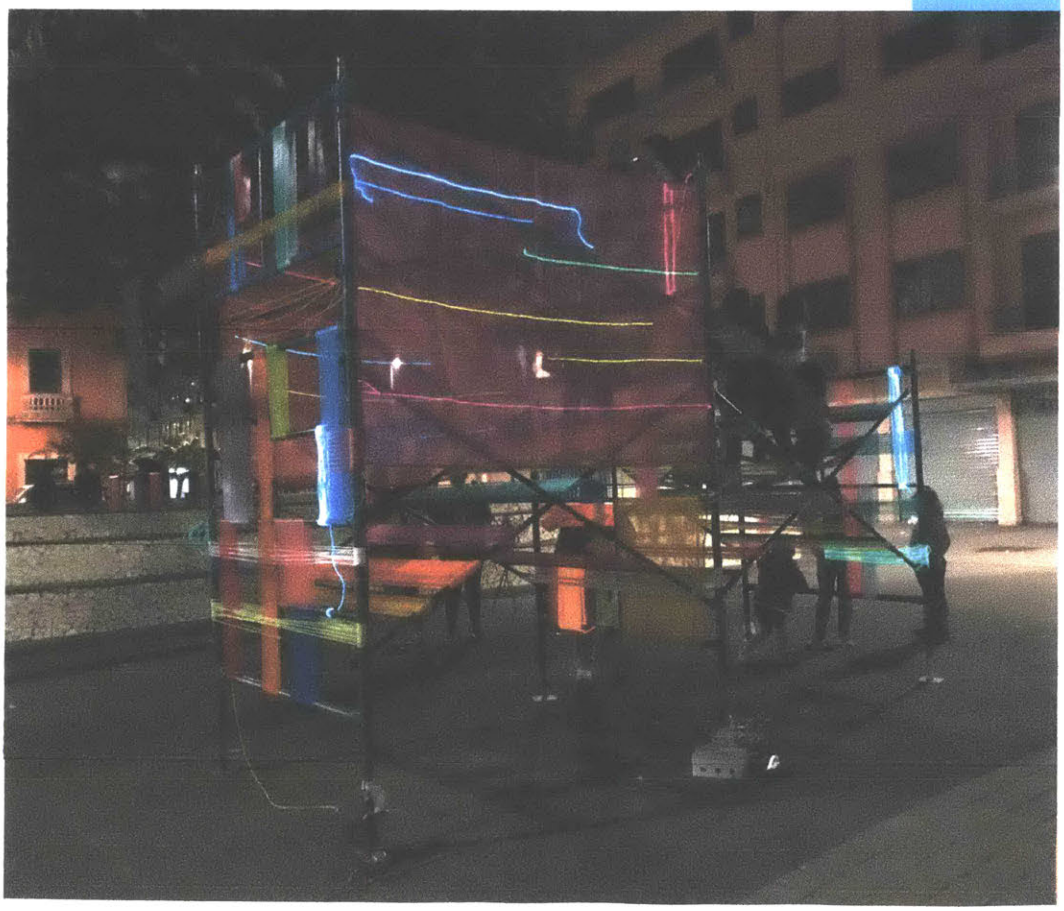
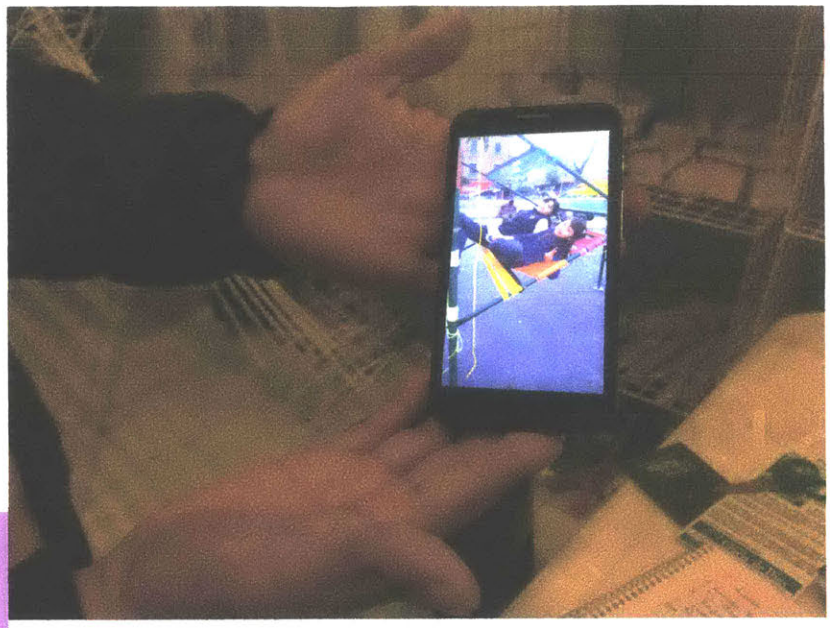


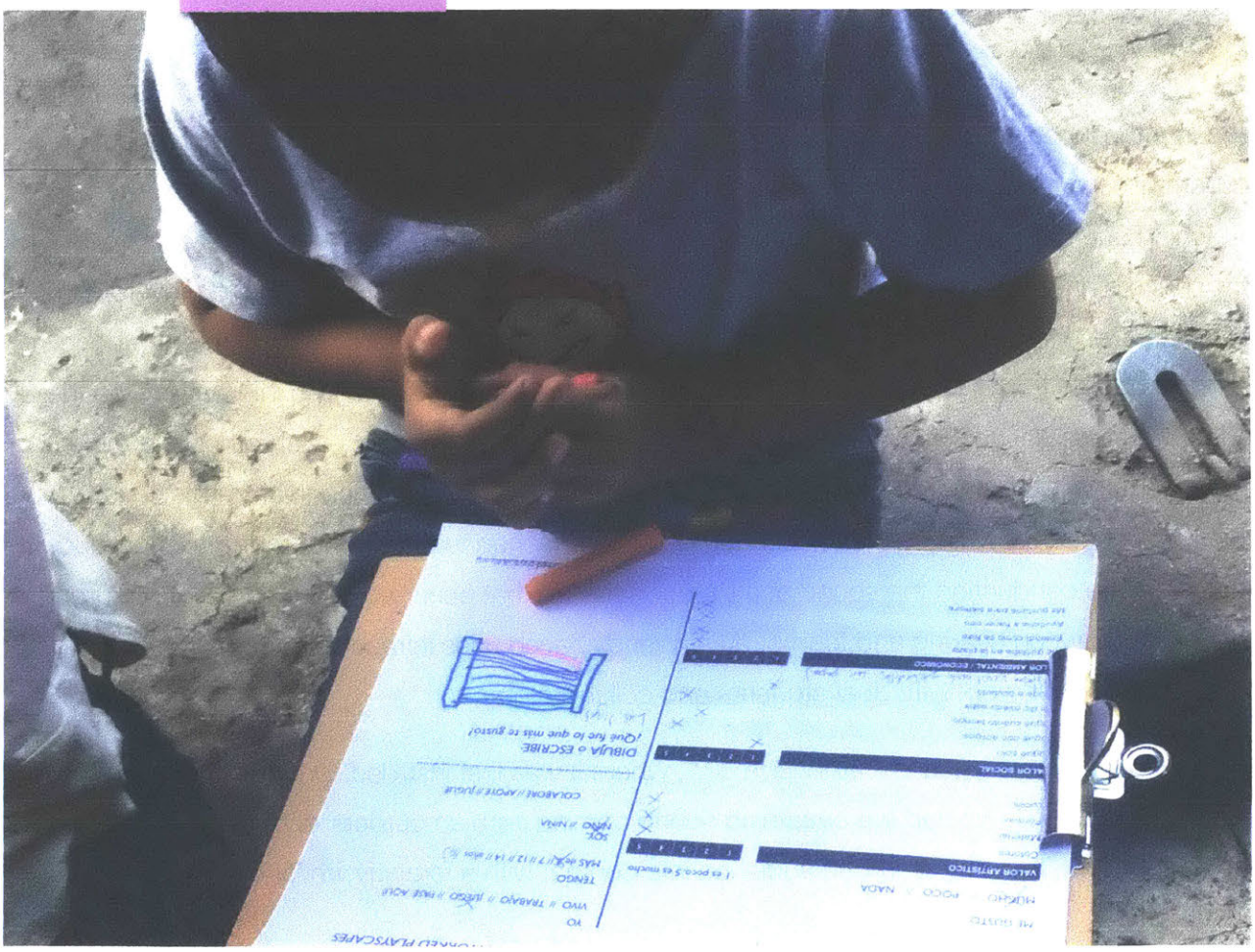
Fig. 62 (pg. 162-165) Installing Andamio at Plaza del Aguilita.










VALOR ARTÍSTICO
VALOR SOCIAL
DIBUJA o ESCRIBE
¿Que fue lo que más te gustó?

ListenTree

Inspired by ambient interfaces, and looking for new ways to embed information in the natural environment, Gershon Dublon and myself created ListenTree — an audio haptic display embedded in the natural environment (Portocarrero, Dublon et al. 2015) . A visitor notices a faint sound appearing to emerge from a tree, and might feel a slight vibration under their feet as they approach. By resting their head against the tree, they are able to hear sound through bone conduction.

To create this effect, an audio exciter transducer is weatherproofed and attached to the tree trunk underground, transforming the tree into a living speaker that channels audio through its branches. Any source of sound can be played through the tree, including live audio or pre-recorded tracks.

A nearby controller provides computation and wireless network connectivity, and drives multiple transducers independently using underground cables, allowing the whole system to be off-grid. Our approach lets the technology disappear from a user perspective, producing an almost magical effect of sound seeming to emerge from inside the tree itself.

Audition through bone conduction occurs when vibration is conducted through a listener's skull and into the inner ear, bypassing the eardrum. One of the earliest examples of bone conduction apparatuses is attributed to Beethoven, who is said to have compensated for his hearing loss by attaching one end of a metal rod to his piano while holding the other between his teeth. Exciter transducers have been used in art (as well as increasingly in consumer products) for several decades. Despite their widespread use, by seemingly magically producing sound through bone conduction and from inside objects, transducers continue to draw audiences in. Early on, Laurie Anderson's installation The Handphone Table allowed participants, facing each other at a table, to hear sound when they placed their elbows on the table and their hands on their heads. In his work touched echo, artist Marcus Kison used transducers attached to an outdoor railing to reproduce through bone conduction the sound of a Dresden air raid that occurred at the same site. Blurring the space between hearing and feeling, artist Wendy Jacob uses infrasonic and audible transducers in her work with deaf students and collaborators.

ListenTree was prototyped in Cambridge, MA, where it was first installed. During its first iteration at the Media Lab, MIT, we had live streaming sound coming from an outdoor ecological monitoring sensor network, bringing an urban audience into contact with a faraway wetland.

As part of the ecology of Networked Playscapes in Mexico City, ListenTree was planned as an open portal for networked communication through the trees of the city's two most important forests: Bosque de Chapultepec and Bosque de San Juan de Aragón. Socially distinct, the forests sit almost at the same latitude opposed to each other, flanking the city at both east and west extremes. Considered the most important "lungs" of the megalopolis, the population that frequents one rarely frequents the other, more so, a lot of the population in Mexico City actually ignore the existence of Aragón, given it does not enjoy the cultural attractions an centric location that Chapultepec does.

The similarities between both places in terms of infrastructure—both have a lake, a zoo, an amusement park to name a few—and their ecological importance was an attractive feature as places to intervene in terms of practical logistics. Socially, their stark contrast in terms of attention, care and investment, and the difference in the socioeconomic level of the people who frequent them made them ideal when looking for two forested areas to connect.

In Mexico, we were commissioned for a time specific piece happening during the Day of the Dead festivities taking place at the Centro Nacional de las Artes, a huge complex dedicated to the exhibition, teaching and research of artistic practices. During the occasion, ListenTree streamed pre-recoded death and life themed poetry by Mexico's most prominent poets. We received over 300,000 people over a weekend, extending the installation to a week long period.

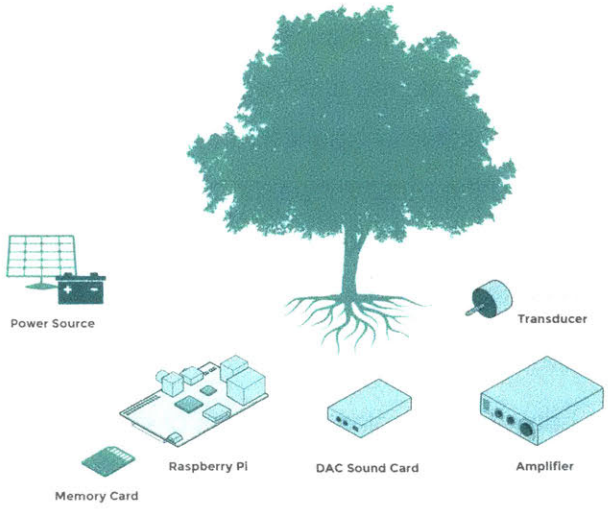
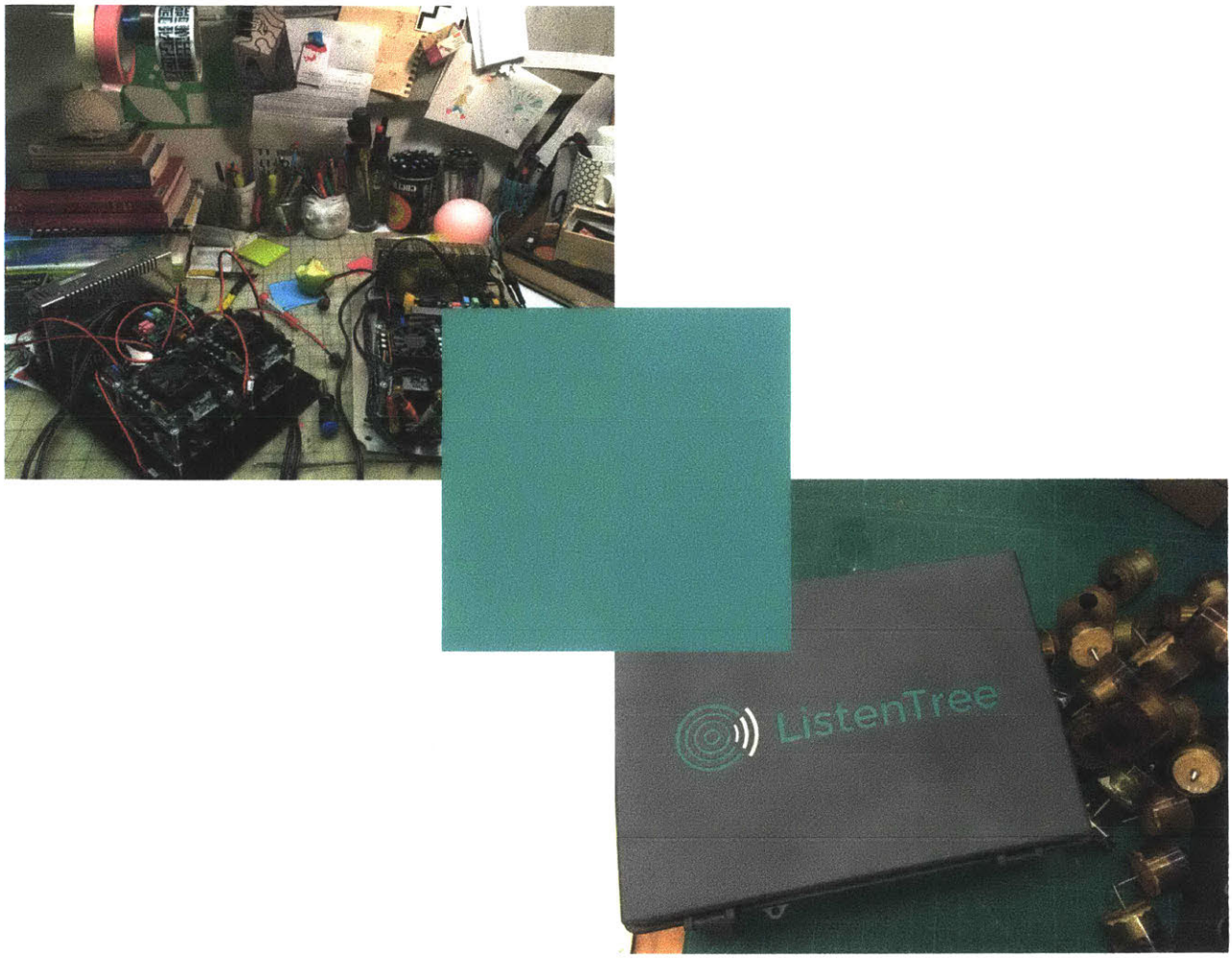


Fig. 63 Making of ListenTree.



Bosque de Chapultepec

With an extension of almost 700 acres, divided in 3 sections and over 55,000 trees, Chapultepec is Mexico City's most important "lung" but its significance to the city goes beyond its function as an ecological space in an otherwise heavily populated megalopolis and spans historical, archeological, cultural and recreational richness.

Chapultepec means "Grasshopper hill" in Nahuatl, and has been the stage for many of the most important episodes in Mexican history. Considered a strategic and sacred area ever since Pre-Columbian times, the forest's springs were the main source of fresh water for Tenochtitlán, the capital of the Aztec empire. The hill and its surroundings were the retreat for the ruling and religious elite, who built the city's first aqueducts and water reservoirs and maintained the grounds pristine.

During the Spanish conquest it retained its allure as a place for retreat, enjoyed by viceroys in turn. A castle was built atop of the hill which served as the residence for the heads of state once Mexico achieved independence. and until 1940, when it was moved to Los Pinos, nearby and still within the forest.

Chapultepec is an important cultural area in contemporary Mexico City as well, as it hosts seven of the most important museums in the country, including the National Museum of History and Anthropology and Tamayo Museum for Contemporary Art as well as the Papalote Children's Museums, the National Zoo and La Feria de Chapultepec, a huge amusement park.

Given its central location, extension and diverse entertainment and cultural offerings, Chapultepec is one of the most visited sites both by locals and tourists in Mexico City. The forest has gone under much restoration to try to alleviate many years of illegal commerce and pollution which depleted the fauna that used to call it home. Thankfully, many species have returned, while the forest continues being the heart of cultural and environmental programing in the city.

Bosque de San Juan de Aragón

A third of the size of Chapultepec, Bosque de San Juan the Aragon is located in the northeastern margin of the city, 1.5 km away from the international airport. Surrounded by main avenues with heavy traffic; it is an important urban lung in the area, absorbing pollutants as well as noise.

The forest of Aragón does not have the historical or cultural relevance that Chapultepec has, nor does it enjoy its centric location. It was inaugurated as a space for recreation until 1964 and since, it has enjoyed only a couple of decades of proper care.

Lack of investment and bad management has had the forest in a state of constant disrepair becoming a hub for delinquent activities given its desolation and shortage of security. Nonetheless, given it is one of the only areas were residents of the northern part of the city can go enjoy free outdoor activities, it receives over 3 million visitors a year. Most of the visitors to the forest come from the low-income housing units in the surrounding areas, known as some of the most dangerous of the city. During the past few years though, there has been much effort vested into rehabilitating the forest and reopening the facilities which have been abandoned for over a decade now.

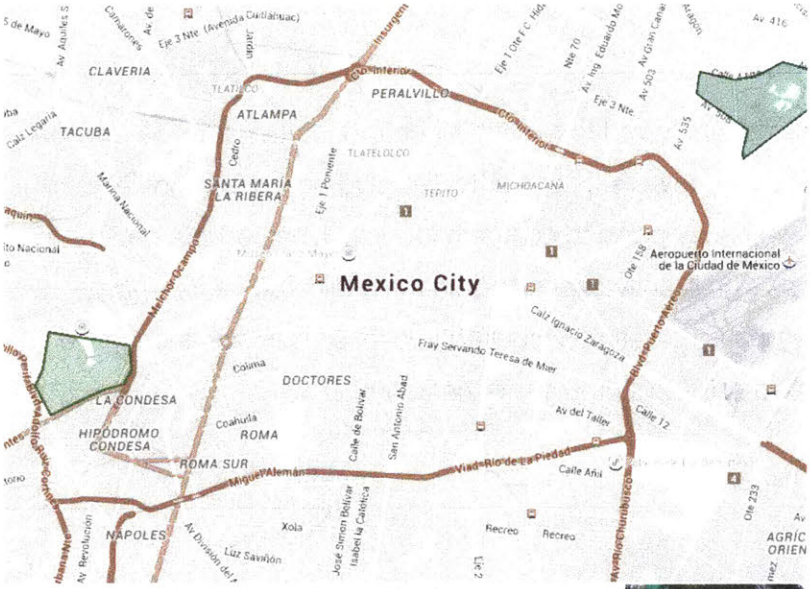


Fig. 64 Bosque de Chapultepec (left) and Bosque de Aragón (right)

Fig. 65 Bosque de Aragón.

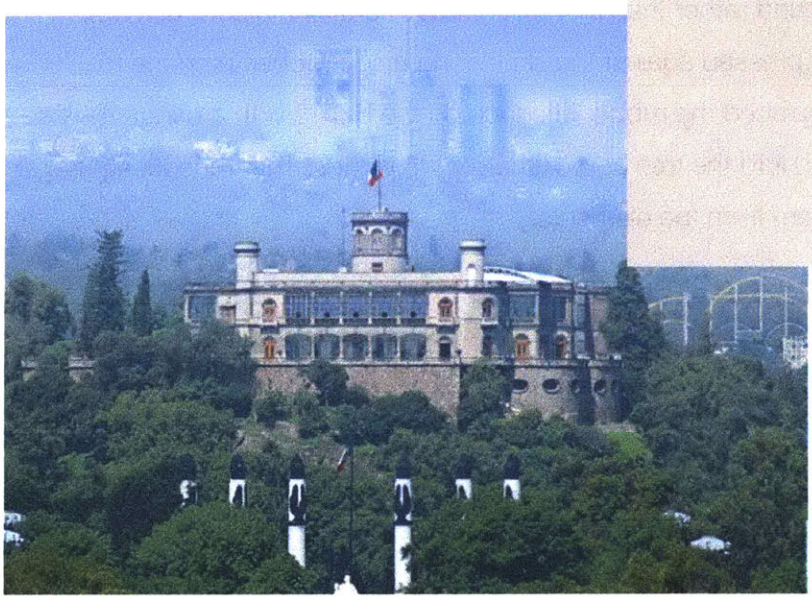


Fig. 66 Bosque de Chapultepec.

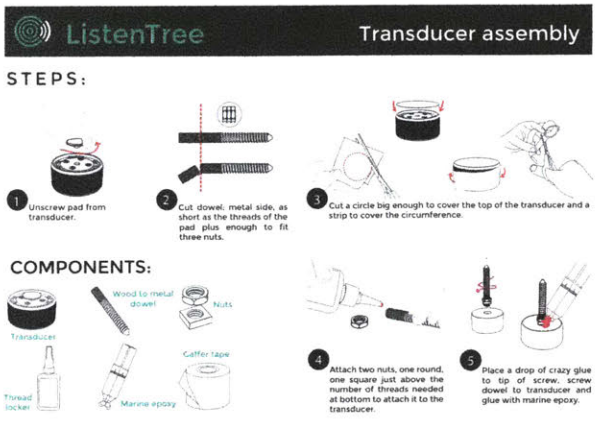
System Design

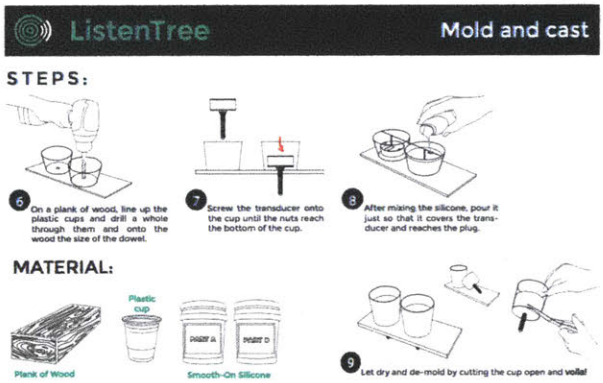
The system consists of a single controller unit wired to multiple underground transducers, one per tree. The controller is designed to be a self-powered, self-contained plug-and-play module, adaptable to any tree. We use a 30-watt solar panel to charge a 12-volt, 12-amp-hour battery. In our testing, power consumption varies significantly depending on the audio source, but rarely exceeds 20 watts. Currently, duty cycling is sometimes required to conserve power, though we intend to incorporate motion sensing to solve this problem in the future.

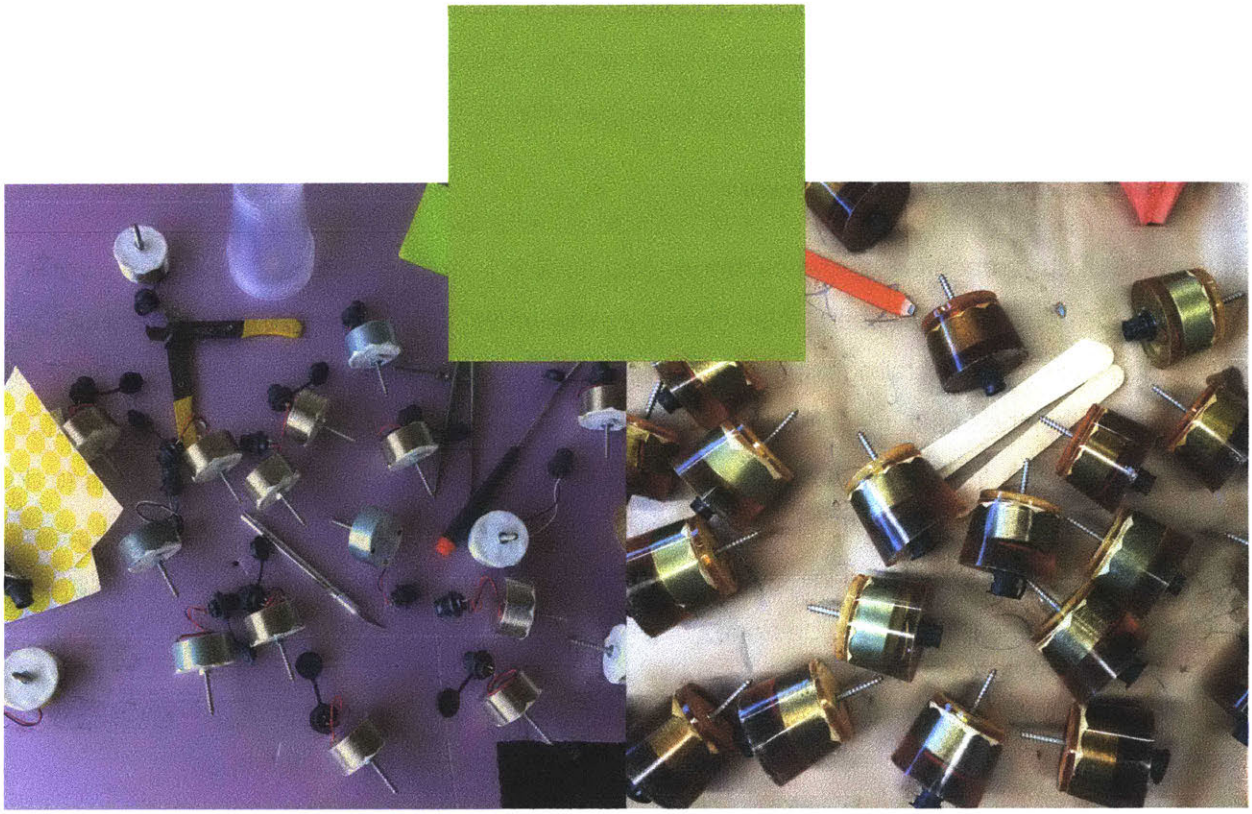
Fig. 67 Transducer assembly instructions.

Computation and wireless network connectivity is delivered by an embedded computer running Arch Linux and Python for web-based control. We have successfully used both Raspberry Pi and BeagleBone Black model computers, and have come to prefer the latter for its stability, more efficient power regulation and enhanced performance. Audio signals for each tree are generated on the computer and output through a USB sound card and a 20-watt stereo audio amplifier.

Weatherproof connectors (Switchcraft EN-3) on the control module lead to buried speaker cables, which run underground to the transducers. We chose the Dayton Audio BCT-2, a model designed for bone conduction, as it best balanced size, efficiency, and mechanical interface. In many applications besides bone conduction, transducers are affixed to objects using adhesive rings, and are designed to produce audible sound rather than silently conduct vibration. In contrast, bone conduction transducers are usually pressed against the skull using a soft rubber interface to dampen their audible sound. We replaced the rubber interface on the BCT-2 with a hanger bolt so that the assembly could be screwed into the tree approximately 1.5 inches. The transducers were cast in silicone rubber to protect them from the elements.


ListenTree
Transducer assembly
STEPS:
1 Unscrew pad from transducer.
2 Cut dowel: metal side, as short as the threads of the pad plus enough to fit three nuts.
3 Cut a circle big enough to cover the top of the transducer and a strip to cover the circumference.
COMPONENTS:
Transducer
Wood to metal dowel
Nuts
Thread locker
Marine epoxy
Gaffer tape
4 Attach two nuts, one round, one square just above the number of threads needed at bottom to attach it to the transducer.
5 Place a drop of crazy glue to tip of screw, screw dowel to transducer and glue with marine epoxy.


ListenTree
Mold and cast
STEPS:
6 On a plank of wood, line up the plastic cups and drill a whole through them and onto the wood the size of the dowel.
7 Screw the transducer onto the cup until the nuts reach the bottom of the cup.
8 After mixing the silicone, pour it just so that it covers the transducer and reaches the plug.
MATERIAL:
Plank of Wood
Plastic cup
Smooth-On Silicone
9 Let dry and de-mold by cutting the cup open and voilà!



Deployment

ListenTree was conceived and designed to be installed on eight trees in each forest. The network was to be provided by the Wifi publicly available at them provided by Telmex.

The distance between Bosque de Chapultepec and Bosque de Aragón is of over 15km. Each forest has its own directing body, but both are under the Dirección de Bosques Urbanos del Distrito Federal which in turn is a branch of SEDEMA (Secretaría del Medio Ambiente), the area of government in charge of the environment. Installing ListenTree required permission from each of these entities.

While both forests are part of the network of urban forests, they are diametrically different in the resources they have access to. Hence the installation was not symmetrical nor replicable. The requirements and challenges were particular to each forest and their available resources which in turn reflected in every aspect of deploying. From the speed at processing permits, to the hardness of the soil, security and help, types of trees and available power outlets, the differences were drastic, making a coordinated effort to deploy simultaneously quite challenging.

Installing ListenTree in each forest required following a series of bureaucratic procedures, from meetings and presentations to directors, assistants and arborists, to scouting trips to assess what was needed to install. The requirements we had from the forests was permission to dig trenches of not more than one foot deep to conceal the cabling and access to a power source.

Bosque de San Juan de Aragón

At the time of our proposal, Bosque de Aragón had no working public lighting. The fixtures were there, but the cabling had all been stolen throughout the years. They were moving on to solar panels and were slowly installing the system. This presented two issues. First, we had no power to connect to within the forest, meaning our installation had to be pretty close to the offices so that we could run power from there. Second, we were advised to not run power underground but to do it overhead instead, as to avoid it from being stolen. This incremented the amount of cable that we needed considerably and added infrastructure we were not accounting for. Nonetheless, it also reduced the amount of digging to be done.

Aragón had a very limited number of employees and guards working on its grounds, hence they could not provide any help to install nor guarantee ListenTree would be safe guarded.

In order to move on to building, the distances between the power source and the trees had to be asserted so that we could cut the cable to length and attach the corresponding connectors.

The first iteration had the control box stored at the security guard's cabin at the entrance of the main offices with the cable running above over the trees, crossing a the street that divided the offices from the main forest and dropping down on each of the trees to be intervened.

Authorization and measures obtained, we moved on to technical drawings and specifications to set a date to start working. Sadly, in the meantime, the team we had been working with changed director, and we had to start all over again.

This second time, the suggestion was to move it to one of the forest's entrances, since it had a security cabin there as well, and there was no street that had to be crossed. Also, they believed that because it was an entrance, stealing the cable would be less inconspicuous, hence less likely, letting us actually have it run underground.

The cabin though was far away from the first patch of trees that served our purposes, which meant we could either have the control box closer to the trees with the risk that that implied and save much of the need for long cabling or safeguard the box and run much longer strands of cable, increasing the cost considerably and the amount of digging to be done. We opted for bringing the control box to the trees and hiring a day guard to keep an eye.

With the measurements set and the permissions obtained, we started the building phase. The cable was bought locally while the transducers and the rest of the system was built at the Media Lab, given most of the parts were not available locally.

Simultaneously, we were working on obtaining the content. We visited the forest at different occasions, during the week, weekends, special events such as the night time bike ride to collect interviews from care takers and forest visitors. We recorded the soundscape of the forest at different occasions, from the mechanical games to its famous long slide. We recorded their zoo's animals and got recordings of the species of birds living in the forest as well as the ones that migrate to it every year from Cornell University's audio library. Lastly, we got historical recordings made at the forest from Mexico's sound library, the Fonoteca Nacional.

Bosque de Chapultepec

After an initial meeting with the then director of the forest, we were introduced to a team and pretty soon narrowed the location for ListenTree. The forest has a botanical garden within it, and there was a patch of trees sitting right next to a cabin with a power outlet. The area was used for picnics and overnight camping making it a perfect location.

Just as at the Bosque de Aragón, we needed to know the location and determine the distances before we could start building. Nonetheless, we had no headquarters were to build. Not long afterwards, Museo Tamayo offered its help to deploy Networked Playscapes and offered working space at their educational wing. Museo Tamayo is located within the forest, so they asked if ListenTree could be installed closer to them, so that they could incorporate it into their program. Around the same time, the director of the forest had quit, and the installation had to be stalled until they found a replacement. In the meantime, we decided to move forward with the slower Bosque de Aragón, and to start building that which was not dependent on location, such as the control box and the transducers.

After a few months went by, it was clear that it would be a long time before there was a new director, so we went ahead with authorization from the director of cultural affairs for the forest. Since we had changed location, we had to reassess if the trees close to Tamayo were suitable for ListenTree. The museum has access to a small pavilion within the forest which has been used to host workshops. With storage space on each side and power outlets, it seemed like the perfect place where to store the control box and drive ListenTree from.

We decided to make a soft opening for ListenTree exclusively with Museo Tamayo, as communication with Aragón had stalled due to a change of staff in their directive offices.

With the help from the staff of the educational department of the museum we installed ListenTree on eight trees surrounding the pavilion. The opening had been publicly advertised on the museums website and social networks. Sadly, the morning of the opening, we arrived to find all the cables had been ripped from underground and stolen. The pavilion had been broken into and most of the parts that make the control box had been taken. Allegedly the museum had security guards guarding overnight, but upon inquiring we learned they are required to go inside the Museum from 11pm and until 5am, time when the cable was stolen. We had to cancel and reassess how to move forward.

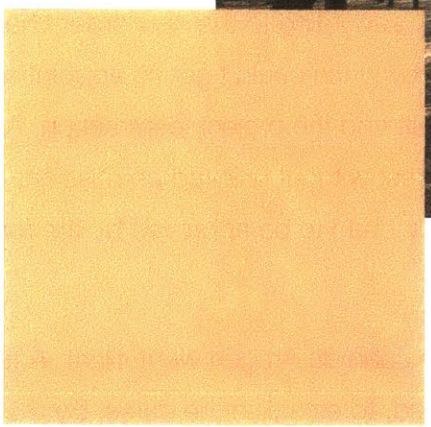
Although the pavilion belongs to the Museum and that is where the control box was kept, the grounds were the cable was concealed and the trees belong to the forest. Without a director, the forest was unable to do much. The museum decided to pay for the replacement of the material, yet the amount of time it had taken to secure permits and build ListenTree by far surpassed the financial cost of the materials alone. Nonetheless, we decided to move forward, build anew and install again, especially since the installation at Bosque de Aragón was built yet pending.

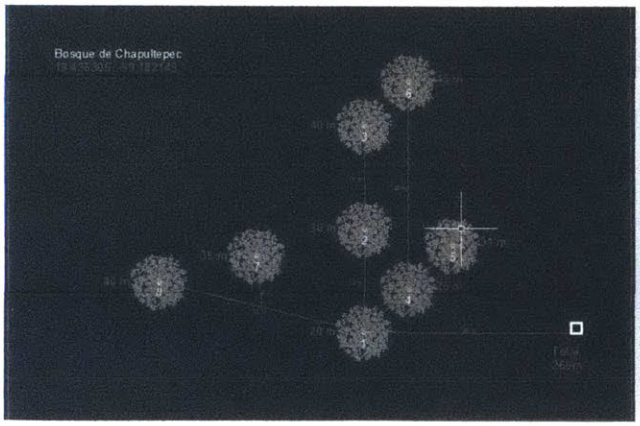
Rather than installing on the same trees, we decided to move the location to the trees that were directly in front of a large glass wall in the museum. That way at least, the guards could guard from the inside. We also discussed installing an alarm but it was dismissed since anything that was motion activated would not work in a forest with birds and squirrels running around. The only remaining solution was hiring overnight guards of our own.

By the time we had accounted for every possible problem, the forest got a new director. This meant we had to present the project in spite of it having been approved before. The process to obtain meetings and permits had changed as well, according to the new order I had to submit a proposal and wait two weeks before I would hear by when could I get an appointment. This made coordinating efforts with Aragón much more difficult and the project lost traction. Additionally, we could no longer interview the care takers of the forest without granted permission, and we were told that no content for ListenTree could be live, as it had to be approved by the forest's direction before being streamed.

Just as we had everything ready, the forest of San Juan de Aragón went silent. A few weeks later we managed to get a phone call through, we hoped, to establish the dates. By then everything was ready, from equipment and content to hired security and help. We had taken all cautions to not need anything from anybody external, except for the permission to install. Sadly, the Aragón forest had decided to go through renovations and were introducing heavy machinery and closing parts of the forest, while Chapultepec was dealing with a second cable robbery from the Museum of Anthropology. ListenTree became a concern and in spite of requiring nothing from them, of the effort put to date and the precautions taken for its installation, it got shut.

Fig. 68 Mapping ListenTree.





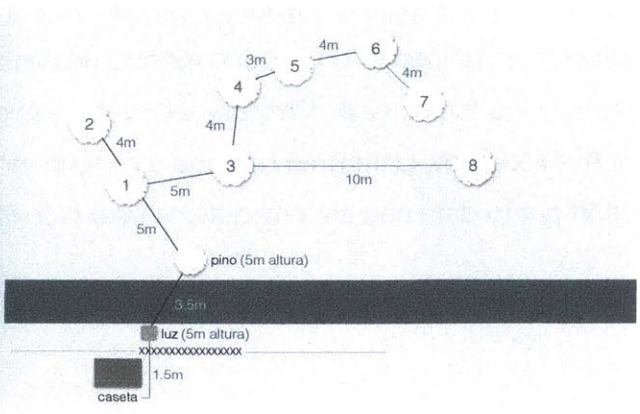


Fig. 69 ListenTree posters by Orçun Göğüş and Edwina Portocarrero.

Fig. 70 Installing ListenTree by Museo Tamayo, Bosque de Chapultepec.

Observations

As mentioned, this was not our first attempt at installing ListenTree, therefore I will recount what we observed in our largest outdoor installation to date which also happened in Mexico City. Although it did not aim to connect two different parts of the city nor did it span two locations, recounting what happened then might illustrate some of what might have happened had we been able to install it as part of Networked Playscapes.

ListenTree was installed as part of the "Day of the Dead" festivities organized by Alas y Raices, a branch of CONACULTA, Mexico's National Council for Art and Culture concerned with children. "La Feria de las Calacas" is the name of the festival they organize every year to celebrate the dead, offering concerts, puppet shows, lectures and workshops related to the theme to children and teens over the span of a weekend all under the same roof. In this occasion, the setting was the National Center for the Arts, a large complex for artistic practice with many buildings connected by large gardens. The curator who invited us had a clear idea of what he wanted and arranged permits and prepared content before our arrival, making our job less creatively involved but also much easier to execute. Since it was the first time we would deploy at a large scale and for what was expected to be quite a large audience me of curious minds, we were happy to be given the opportunity without having to deal with production details.

Day of the Dead is one of Mexico's most important holidays. A pre-hispanic tradition, it is a day to honor the dead and remember our loved ones. Through candles and prayers, music and poetry, anecdotes and stories, the souls of the departed are invited to partake on a feast displayed as an elaborate altar containing all their favorite foods and beverages. The content suggested for ListenTree was made up of poems about death written by Mexican poets throughout Mexico's history, from Nezahualcoyotl to Octavio Paz. Trees seemed to be the perfect medium to listen to this poems of the afterlife since trees, in the cosmogony of many pre-hispanic Mexican cultures, serve as the connecting backbone between the three planes that make up the universe: the underworld of the dead, the earth of the living, and the gods' heaven. It is believed that, if listened closely, trees would reveal messages coming from these worlds. It was a beautiful application for ListenTree.

While the installation of ListenTree was not free of challenges due to bad communication and planning, having to only limit ourselves to installing rather than acquiring permits and security meant we could do it in only a few days.

Since the context was already so festive, we decided to limit the signage to lights pointed at the trees that had been intervened and an announcement in the brochure's map as a location to visit. Once on location, we decided to not give any cues as of to what was supposed to happen except for the ones coming from the trees themselves. Upon arrival, you could feel a slight vibration and hear a whisper coming from certain trees, enough to make you come closer and lend an ear. Children and adults started congregating around trees, going around and seeing which trees where intervened and what they had to say. Given the limited attention span of most children and teens, we were surprised when we saw them sticking around long enough to hear the full length of a poem and to go around and doing the same on each of the trees. Strangers "shared" trees, even though the diameter of some was pretty small and sharing a tree implied being really close to each other and children would guide newcomers to the trees that they knew "talked."

It was not long before people, mostly children, started inquiring about how did this happen. Parents would either direct their questions to us, looking for a "real" explanation, or go along with the magic, telling children that trees simply talk and that it is up to them to listen. Some kids started going around to the trees that were not intervened to try and see if they could make them talk. At one point, I caught a kid kicking a tree, annoyed at its reluctance to talk. Another girl wondered how was it that some trees were male and some female after hearing their "voices" (the poems were narrated by narrators of both sexes) something I had not considered. The older kids were less naive, it didn't take long before they started digging around to see what was the source of vibration. Yet, even when given the explanation, they were not less interested. The idea of being able to vibrate tree and use it as a channel for sound was fascinating.

Amongst the adults, we had some interesting reactions. Most adults lent a good amount of time to each tree. A woman was expressed how happy she was to see an installation that invited people to hug trees as the main interaction. Another woman, after waving her hands around a tree, told us that the energy level of the tree had gone up due to people hugging it. She claimed trees liked to be hugged!

Given that ListenTree was visited by tens of thousands of people in the lapse of a weekend, the installation fared better than expected. By the end of the weekend a five out of eight trees were still working. Many of the trees roots were exposed, so the transducers were not all too deep making them much more vulnerable to being stepped on or easily tampered with by curious hands. In this version of ListenTree we were still using silicone to weatherproof the transducers. We learned that once unscrewed it was really hard to screw the transducer again, given that the silicone would not

adhere to the metal body of the transducer, so when turning, one would only be turning the silicone rather than the transducer itself. The screws would also have a tendency to remain screwed to the tree and unscrew from the transducer. Since then we have switched to a polymer that adheres but remains flexible, so that when screwing the transducer one is not merely turning the silicone over it. It also adheres to the base of the screw, so that it is not that easy for it to detach.

While we were sad to not have been able to see ListenTree happen as part of Networked Playscapes this time around, we nonetheless are pleased to know that it indeed provides a worthy experience!

ListenTree has been requested by many and for many different uses. From streaming a live concert onto a park, to serving as the mechanics for an installation concerned with the preservation of dead languages. The Casa Luis Barragán, considered World Heritage by UNESCO and home of the Pritzker Price architect in Mexico City is contemplating an intervention in its gardens, were the favorite music of musicophile Barragán would play through the trees. Mexico's children museum, "Papalote" has also expressed interest in installing ListenTree at their new location. Nonetheless, ListenTree is waiting for the right moment to make of itself a worthy large installation.

Fig. 71 ListenTree at Centro Nacional de las Artes with Gershon Dublon, 2014.

8. Conclusions

When we think about playgrounds, the ideas that come to the forefront are those of play and education, urban planning and architecture, public space and art. Playgrounds merge disciplines in their material forms and constitute an integral part of the modern urban landscape by providing safe spaces for children to play, learn, and relate with each other.

As by-products of the industrialized cities of the past century, however, playgrounds have also been criticized as restrictive. British anarchist and social historian Colin Ward calls them "fenced-in child ghettos" that sharpen the division between the worlds of adults and children, preventing the child from receiving a "true education"—one which can only be obtained by engaging with our surroundings, be they the city or the countryside [Colin Ward, The Child in the City, 1979].

Whether playgrounds are seen as eyesores or as coveted spaces, throughout their history, their design has gone through a series of paradigm shifts. These shifts reflect the social and cultural climates of their time and have had unintended consequences, both good and bad, many of which have been explored in this dissertation..

Networked Playscapes emerge from the idea that a new shift is due, one that addresses the issues that have led playgrounds to their current state and acknowledges the way digital natives play today.

Networked Playscapes: A Paradigm Shift

Playground design has reacted to social and cultural changes throughout modern urban history, adapting and adopting to different times and spaces.

The first shift happened at their inception—playgrounds were initially conceived as a way to keep children off car-ridden streets, which in turn divorced play from the streets and segregated into designated areas. Soon, playgrounds were recognized for their educational potential and their design was enhanced by adding a variety of natural materials to the original equipment.

Although the development of playgrounds stopped during the First World War, in the aftermath of the Second World War another important shift took place. Playgrounds bloomed as artists saw them as a perfect way to give art a social function and children a space in the city.

This spirit prevailed well into the 1960s and '70s, a period of growing interest in social, cultural and political utopias. In keeping with the do-it-yourself movements, parents and neighborhood associations took more interest in the design and construction of playgrounds. A crisis in playground design began in the 1980s, though, with the expanding influence of television and media outlets. Until then, playgrounds had been places to experiment socially and materially for both designers and users; afterwards, too many of them were given over to sterile, pre-fabricated plastic kits.

While artists, activists and young architects have expressed a growing interest in creating space for play in the city, yet there has also been a dramatic shift in the spaces and places, means and mediums and people we play with. Today, more play is happening in the virtual and digital worlds than in the streets of large cities. This change in the way we play has not been reflected in the design of playgrounds. However, it provides an opportunity to steer playground design into its next paradigm shift by informing new ways that play could be instantiated in the public space. Play appropriates—it will use any media that allows it to make itself present.

As digital technology becomes increasingly ubiquitous, there is no reason play should be segregated from city life or for playgrounds to require real estate, nor is there any reason for them to have a similar aesthetic or be mostly concerned with physical-motor activities. Since play happens between people, spaces, and objects, our current ability to incorporate largely invisible technological and networking underpinnings into these components widens the spectrum of design possibilities for ludic interaction, redefining and expanding what we understand a playground to be and the functions it might serve.

Features of Networked Playscapes

For the past few decades, the design of playgrounds has been mostly in the hands of equipment manufacturers, while their placement has been dictated by government agencies that tend to assess their merits quantitively rather than qualitatively. In some cases, these agencies also need to favor certain neighborhoods or sectors of society to win their approval.

Networked Playscapes propose a new paradigm shift in the conception and design of traditional playgrounds. They address the lack of diversity in the design of contemporary playgrounds, and expand their reach as community-building spaces. Embedding computational power onto the environment means we can turn the environment into the playground itself, liberating the playground from the need for dedicated grounds and enlarging the current catalogue of play in the public space. Additionally, by putting physical and digital materials and skills into the service of play, Networked Playscapes become spaces to experiment again, through both their design and their use.

In order to accomplish these goals, Networked Playscapes have the following features:

They are locally informed

One of the most salient downsides to the current state of play in the cities is the lack of thoughtful playground design. Rather than enriching the play scenography, many cities fulfill the need for spaces for play by ordering kits from the same playground catalogues used by other cities around the world.

Prompts for play can be found anywhere, though, and be made from anything. A wealth of materials and skills could be locally sourced, making for unique instantiations rather than cookie-cutter solutions.

Networked Playscapes are informed by the social, cultural and material idiosyncrasies of their locations. From these we derive their aesthetic and play affordances, and draw designs for corresponding ways to network people through ludic interaction. This provides new opportunities for Playscapes to be accepted, integrated and appropriated. It also shows care and appreciation for local culture, strengthening the identities of the places they occupies.

They are networked

While the design of a playground addresses its architectural, aesthetic and educational relevance, its location determines much of its potential as a tool for community building.

Playgrounds have traditionally been focal points that serve to bring people together by offering a shared experience grounded at a specific location. Digital and virtual play, by contrast, rely on a network created by a common space with no physical grounds, offering an individual experience in a shared, virtual place.

Networked Playscapes merge both worlds. Informed by local social and material affordances, they design prompts for play grounded in the public space, and also create a distributed network by connecting these physical locations. Rather than just bringing people to a common space, be it physical or virtual, Networked Playscapes bring locations and their people together. The shared experience happens locally as well as at a distance, but if the network fails, the local iteration is not affected.

Additionally, networking allows the possibility of creating digital links between places which might not allow or trust a physical connection, but which might benefit from a way to interact safely.

The network portion of Networked Playscapes has another important feature—it emphasizes that the network must be created by using the "other" as a mirror for reflective learning [Edwina Portocarrero, inside/out: tools for reflective learning, 2011]. This is a different goal than the one accomplished through live video feeds, many examples of which have been implemented in playful ways in the public space. Although a screen is an easy way to produces awareness of others, the interaction that emerges is usually limited to waving hands and making faces.Networked Playscapes provide a deeper, more meaningful connection between participants.

They are free

Digital play is for the most part mediated by a screen, be it attached to a computer, a smart phone, a console or a headset. These are costly electronics which serve merely as the medium to play with games and apps which have a per-item cost. The commoditization of play creates a divide between those who can afford it and those who cannot, creating an uncomfortable tension between parents' desire to provide their children with access to the same play opportunities as their more affluent peers and children who depend on their parents' acquisitive power. Networked Playscapes, which are designed to operate without the need for personal electronics, tries to solve these issues by grounding play in the public space and making use of the urban digital infrastructure whenever possible.

Networked Playscapes in Mexico: Locally Informed, Networked and Free

The three experiments deployed in Mexico City—Andamio, Triciclo and ListenTree—were inspired, conceived, and manufactured locally, and free to use. Besides networking places, they created a network around them through their construction and use.

Mexico City has a bustling public life, and its people could be described as fun-loving and playful. Merchants employ amusing techniques to attract commerce and make sales, communal eating is commonplace, and generally speaking, interpersonal engagement needs just a nudge. Nonetheless, it is a highly segregated city. Therefore, the intention of Networked Playscapes in Mexico City was to build ludic bridges between contrasting areas at three different scales: by connecting people from neighboring "colonias" through co-creation with Triciclo; by connecting plazas through the placement of play structures that react to one another with Andamio; and finally, by connecting two sides of the city by turning the trees of the forests located there into audio-haptic displays with ListenTree. These three installations were intentionally designed to be distinctly different in the kind of play they afford. Through each, we attempted to break away from the physical-motor play experience alone and explore the imaginative, creative and sensorial angles of play.

It was not hard to find inspiration in Mexico City. With abundant street food and informal commerce, the city is full of urban structures that are easy to set up and take down, and materials that are weather-proof, attractive and easy to clean, making it a feast of inventiveness and resourcefulness.

Mexico is also a major manufacturer of electronic components, not to mention that much of the population does not have the means to replace electronic goods and appliances when they fail. These factors support a market of electricians, cable makers and fixers who find what they need at República del Salvador, a street in downtown Mexico City that specializes in electronics shops, and also functions as a market where knowledge and best practices are informally exchanged. Having access to local know-how informed our design and implementation along the way.

Lessons Learned

> *"The real voyage of discovery consists not in seeking new landscapes but in having new eyes"*
> - Marcel Proust

Below I will summarize what we learned from designing, building and deploying Andamio, Triciclo and ListenTree in Mexico City. Networked Playscapes employ a bottom-up approach to design.

While I have tried to make these lessons helpful to anyone trying to deploy a networked ludic system in an urban setting, they should be understood as deriving from the particular case of Networked Playscapes in Mexico City. However, I have also provided general suggestions which should be useful to anyone building upon this work.

The lessons learned are divided into three domains: design, networking and implementation.

Design

Keep a fresh eye

Networked Playscapes are meant to offer a wider range of play possibilities grounded in local idiosyncrasies. To design these, it was important to keep a fresh eye since familiarity made it hard to discern what gave a place its character. Adopting a "tourist eye" and visiting parts of the city to which I was not habituated offered a good way take an ethnographic approach, and provided a way to recast our perception. Inviting people unfamiliar to places we had become overly acquainted with and asking for their observations was useful as well.

Inquire

Looking at materials was one of our strongest inspirations, but seeing how they were used in context and what was made out of them, and visiting the factories to learn how they are manufactured, gave me a deeper understanding of what it was possible to make out of them. I avoided what could have been timely and costly errors by digging a few feet deeper than a novice consumer.

Ask - people like to help

For the most part, people are curious and like to feel useful. Asking for help was beneficial in more ways than just obtaining said help. When I invited people to become personally invested in the project, I received advice, guidance, connections, and lower costs.

Working locally had the added advantage of letting us tap into a wealth of knowledge. Asking people how they make what they make and who their clients are, for example, was a quick way to discover applications, possibilities and sources of help that we might have not considered. At times it also helped us streamline our task and detect pitfalls we would have not anticipated otherwise.

Working outside, exposed to the inquiring eyes of the neighbors, also resulted in unrequested yet valuable advice.

Let it show

Working with local materials and manufacturing techniques gave the suppliers, makers and users a sense of authorship and ownership, something that industrially manufactured objects rarely provide. Working within familiar bounds engaged suppliers and sparked their curiosity, and encouraged users to explore in an uninhibited way, as they had seen everything in the Networked Playscapes presented before, if in a different configuration.

Appropriation

Appropriation can take many forms, including defacing and destroying. It was important to keep this in mind since setting something in the public space also means letting go of control and expectations, which might be underwhelmed or surprisingly exceeded in unintended ways. Designing locally was in itself an act of appropriation as we took the environment, its objects, and dynamics and transformed them only to release them again, engaging in a back-and-forth dialogue between what is and what could be.

Scaffolding rather than co-designing

Co-designing with users has emerged as a often-desirable way to involve them in the creation of their surroundings. With Networked Playscapes, we decided that leaving space for appropriation was perhaps a better way to engage.

As discussed earlier, Adventure Playgrounds leaned too far on the imaginations of children, resulting in helter-skelter landscapes that were difficult to integrate into the city. Modernist Playgrounds, on the other hand, while beautiful and well-intentioned, were too driven by the imagination of the author, in many cases leaving little room for the imagination of the child. Designing a middle ground meant making concrete and thoughtful design decisions that served as scaffolding, by integrating malleable materials, modular units and intentionally unfinished parts—thus inviting prompts to modify and appropriate while keeping the Playscape's integrity.

Keep it simple and easy to fix

One of the issues plastic kit playgrounds have is that they are designed to be replaced rather than repaired. Working with local materials and fabrication meant that should an issue arise, fixing it was always possible, easy and cheap.

Make it easy to install

Working in the public space means working far from a controlled setting. Working with a network means keeping tabs on at least two installations at once. It is an understatement to say one will need help, support, and in some cases permission. A persuasive argument for one or more of these things will be more effective if complications are minimized and thought through beforehand, so difficulties can be minimized and explained.

Delegate

There is always more to do than initially planned. Avoid getting overwhelmed and involve others in making, operating, and maintaining the Playscape.

It is not enough to make it merely free, make it clearly free

The commoditization of play is so commonplace that discovering something offered for free came as as a surprise to some—and an opportunity to collect money for others. It is important to make sure it is clear that Networked Playscapes are free, lest you find people trying to outsmart each other, or declining to participate because they assume they cannot afford the experience.

Network

The network of Networked Playscapes was originally meant to imply that they were digitally connected. The idea emerged from Aldo Van Eyck's Amsterdam's playgrounds, which, instead of placing play in a centralized playground, injected playful elements into any underutilized public space. This approach integrated play into the urban fabric rather than segregating it into a defined location. Networked Playscapes intend to enhance this feature by networking play while the location remains physically grounded.

Upon deploying Networked Playscapes, though, it became clear that the digital network we imagined was much narrower than the one we physically built, and that neither was more important than the other when the goal was to bring people together through ludic interaction.

What is a network?

A network is defined as "a group or system of interconnected people or things. A group of people who exchange information and contacts for professional or social purposes." In Mexico City, Networked Playscapes provided a common interest among people and sectors who had not come together before, redefining our understanding of what a network is by casting it under a qualitative light rather than a quantitative one.

Build a network from the get go

Designing and manufacturing locally meant scouting and searching for materials, vendors and skilled hands. Deploying meant making alliances with the private and public sector. From museums, galleries, and cultural centers to universities, maker spaces, and civic laboratories, I engaged a wide and varied set of skills. I was surprised to see that the greatest assistance ultimately came from the least self-interested, like the shop owner who kept her store open late to provide power for Andamio.

A common cause and a common ground

A network emerges when there is a common cause—whether that was co-creating a playscape or finding a way to instantiate it, as much as when there is a common ground—in this case a playscape.

A network can be small and does not need to span a large distance.

Near and far are mental constructions—a network could be created between two people sitting next to each other yet distant in every other way. Triciclo, Andamio and ListenTree tried to network at three different scales—person-to-person, neighborhood-to-neighborhood, and east-to-west across the city. That said, we could have created Networked Playscapes within one neighborhood or one forest alone.

Far but not too distant

Networking parts of the city that were aware of each other yet had little reason to interact made the network all the more powerful. Had we attempted to network entities completely foreign to each other, we would have had had a more difficult time engaging users. In our case, the network provided a safe ground where the physical environment did not.

Implementation

The making process of Networked Playscapes acknowledged and merged local skills, giving people ownership over the final product. This proved invaluable when it came to implementing our experiments in Mexico City.

Networked means more than one

A network requires a minimum of two points, which means that unless it is mobile, like Triciclo, the design will have to be built at least twice and implemented in two distinct places. While the locations might be similar in character, each place will likely have its own particularities if not its own rules. The effort required is not limited to deploying in each location but also requires coordinating between them successfully. While the situation will vary in a per case basis, it is not an understatement to say that one should consider everything from infrastructure, safety, available help, distance between locations, weather, time of day and political climate when timing deployment, as if any of these considerations interferes with any node, the rest will suffer.

Trust and Maintenance

One of the biggest issues with implementing anything in public space is maintenance. However, people tend to take better care of things they helped create and whose use they can witness. Building trust with your users from the start will encourage them to take ownership of the Networked Playscapes in their neighborhoods.

Familiarize and make yourself familiar

Maintenance also means safe keeping—of the installation as well as of yourself when treading new territory. Returning to the same spots routinely and engaging people who seemed suspicious of our presence eased initial tensions and in some cases sparked unexpected friendships.

From "it is for you" to "it is yours"

When told "This is yours to play with," people were happy. However, when told it would last as long as they wanted to keep it safe, children especially took the mission of protecting their playscapes quite seriously.

We hope that together with the design guidelines provided in this thesis, future makers will find inspiration to design, develop, and deploy their own locally informed, networked, free Networked Playscapes.

Contributions

There is an incredible opportunity to redesign what we understand play in the public space to be and what it can do. As Paige Johnson says, playgrounds are an under-recognized artistic medium, and just like art, play has evolved to incorporate digital media as part of its vocabulary (Johnson 2017).

With Networked Playscapes, I have tried to exemplify how varied play can be, and to illustrate its potential as a tool for integration when its design is mindful of the place it occupies and the people it engages. I have also investigated the potential of networking physical locations through play, be it analog or digital.

Creating is as much a playful act as play is an act of creation. Networked Playscapes have returned the focus on public space as a space for co-creation in the hopes of making play free again.

Main Contributions

1. This thesis describes the development of a new paradigm shift in playground design, termed Networked Playscapes. Networked Playscapes describe a practice of merging the flexibility of digital systems with the grounding affordances of the urban environment and networking these components, expanding the inherent community-building nature of playgrounds and widening the current palette used for outdoor play.

2. I researched the history of play in the public space, examining the paradigm shifts that have occurred throughout the design of playgrounds. We drew lessons from Adventure Playgrounds, Modernist Playgrounds, and the Amsterdam Playground's of Aldo Van Eyck, and created a set of guidelines and design principles to help others create locally informed Networked Playscapes.

3. I have led workshops on Networked Playscapes on three different continents, surveying the way people play in different cultures while teaching principles of physical computing, human-centered design, and networking technologies as applied to the creation of new play scenarios.

4. I designed, built, and implemented three examples of Networked Playscapes in Mexico City: Triciclo, Andamio and ListenTree. This dissertation presents the ideation process, as well as the observations and the challenges encountered when deploying in a real-life setting.

5. Along the way, Networked Playscapes have inspired an exhibition at the leading contemporary art museum in Mexico City (Noguchi's Playscapes at Museo Tamayo) and informed government-led efforts to bring play back onto the urban agenda.

Final thoughts

To Piaget, intelligence was defined as a balance between accommodation and assimilation, between stability and change [Ackermann, Perspective Taking and Object Construction: Two Keys to Learning,1996]. Play is resilient in its ability to drive technology and be driven by it, in adapting to the means of its time and adopting from the culture and space it occupies. There is as much to learn through play as there is to learn from play. This dissertation has attempted to focus on play as both the medium and the means, as situated knowledge and as the means that shape that knowledge and as a link between physical and mental activity.

Networked Playscapes represent an ongoing domain created with the understanding that every place has something unique to offer. Architectural constructs offer a common language which physical computing can enrich, giving us the opportunity to create spaces that allow people with different ways of thinking and doing to come together, regardless of their socioeconomic background or technological expertise, be they digital natives or digital immigrants.

It is our hope that designing enticing reasons to be outside might drive the design of even more enticing reasons to go outside. If the persuasive powers of children have been exploited by advertisers, they might also serve to drive the development of a richer scenario for play in the

public space. It should be of interest to the public and private sectors to join forces to promote, create and maintain a creative city concerned with the welfare of its people, and catering to play is a good way to bring about the resourcefulness and inventiveness of its citizens.

This dissertation offers guidelines for designing Networked Playscapes, but it is by no means conclusive. We provide with this work foundations for a continuing process of discovery, co-creation and renewed way of engagement with the environment and with one another.

Appendix

Appendix A

The following is a verbatim transcript of Triciclo's writing presented in the order of the neighborhoods we visited.

ROMA // DOCTORES

Todos tenemos una historia que debe ser contada y guardamos un secreto del que nadie sabe nada // Déjenme llorar por que estoy herido. Que dios los bendiga y que se siga adelante con mucho amor // Todos juntos sin importar diferencias // El futbol me gusta pero mas me gusta el tenis // Ya que el tenis se me hace muy aburrido // Tener que esperar para ver Game of Thrones el domingo // y comer tacos en pijama. // ☺ y un té bien calientito //suavecito jovencito te doy todo mi corazoncito // Para guardar en lugar que... // Me gusta divertirme mucho porque y en un acuario jugando en una puerta // Me gustan los barcos, ver los peces como nadan en el mar // Hay un mundo escondido // Lleno de amor y misterio, donde encontrar a alguien, y, este alguien eres tú. Tú mismo y si amas a alguien eres ¡amor! La unión de dos seres que se encuentran para formar uno solo, ser un solo amor!. Un amor tan grande que llega hasta el cielo. Papa integrante de Dios, y vivir felices amados hasta la eternidad de las eternidades. Oh Dios hermoso hogar del amor, continua siendo tu esencia de amor y yo tu suspiro! // Cada noche al pensar q´ volveré a ver // Los perros voladores del bosque de Papantla. Se están mudando a la ciudad para comerse a nuestros gatos! // Es malo para la salud espiritual cosmogonía // El ser humano es por naturaleza espiritual // Toda acción tiene una reacción. Todo acto tiene un efecto ya sea malo o bueno // Malo no es respetar a las personas que no tienen nuestros ideales, malo es discriminar por cosas absurdas, al final del día todos somos iguales

y vinimos a este mundo para amar // Amar no siempre es una marcha triunfal, en ocasiones es un frio y rojo HALLELUJAH // la cocina continua con todo d mi pasión . La cocina // Que tan sabroso comí en 2x3 // Una pizza de champiñones en compañía de mi mejor amiga // Me gusta compartir mis mejores momentos // Los momentos mas bonitos son con mi familia // Yo quiero mucho mi familia // Familia de doctores // Lo que integra la felicidad: armonía, respeto, una ciudad cosmopolita que siempre te recobra // El ejemplar de la novela que tanto tiempo buscara y que se había escrito en 1930 // Una familia que vivía en una colonia junto a un pequeño lago, la familia con bajos recursos por lo que aprovechaban el lago para pescar // y entonces se cayeron y se empezaron a ahogar hasta que // Llegamos al destino // Y al mas allá // Nos mantendremos con la frente en alto // Venciendo ala adversidad en la selva de asfalto // Hay muchos animales // Y casi todos pueden volar // Las personas casan tiburones y tigres para vender sus pieles // Y las utilizan para decorar // Los bosques son quemados por las personas // Hay ríos pantanos y cocodrilos // Que pueden llegar a las personas // Y que pueden llegar matar a las personas // Los casan con rifles y escopetas. También metralletas y pistolas // Y después resucitaron // Los ríos son contaminados por basura // Matar a los tigres // Los coepolilas sirven pieles ropa aroman muchas casas // Como sus casas otros lugares // Poner explosivos en sus cuerpos // Matar a los peces // Y a todos los animales acuáticos y terrestres // Los alebrijes son animales muy raros al mundo // Y los aztecas matan a los alebrijes // Ayudar a las tortugas y después comérnoslas // Los tigres son muy peligrosos hay matar con todas las dinamitas y golpear a los niños chicos // Hola que hace // Comernos a los cangrejos // Matar a los tiburones con explosivos // castigar a los ladrones con motosierras y acido // Matar a Donald Trump // Y matar a Donald Trump con flechas incendiadas // Y reproducir un apocalipsis zombi // Y hombres lobos y vampiros //De piernas de chivos que chupan lagrimas // y mucha sangre y te jalen los pies // Y matar a Drácula y sacarle los ojos // Y que los zombis maten a Daniel // Y a Emiliano // Y a Luis // Y brayan // Los de quinto A sean ricos y se bañen

con billetes // Y con muchos oros y diamantes // Y tener 1,000,000 de limousines y carros de oro, una mansión de oro y diamante // Y matar a la llorona //Y al payaso `eso¨ // Y a bili // Y a chuky // A Anabel // Y joker // Y luego a tzompa he (nos mata a todos).// Quemar el bosque de frontera.// Y que mar a todos los bosques y animales y también a peña nieto.// Junto con Donald Trump // Junto a dora la exploradora y su nombre real Dora la Perdorra.// Y junto a una chica llamada Yandere Similater // Y Emili wants to play.// Y los eliminar con los de The Kings Of Fighters.// Entonces todos se fueron a un lugar terrorífico y se encontraron con Georgina Torres Anahua que los dirigió para que estuvieran bien.// Y que los Ferrari sean Gratis.// Y que maten a scendir man // NO bag // Y dora la exploradora y botas se murieron feliz LOL XD // Difícil nos hacemos. La vida es tan solo un instante, es maravillosa // La luna de junio brillaba todas las noches con un buen resplandor // No tengo ni la mas remota idea //Es una palabra fundamental en la gneises y desarrollo de la prístina filosofía griega // Desde Aristóteles hasta los grandes pensadores // Lo mas importante es llegar a conocerse uno mismo // Pero siempre he buscado lo diferente, lo múltiple. Llegar a ser otro, ya saben encontrar otros que habitan en mi mismo.// Caminando por las calles oscuras iluminadas por la soledad degradada // Que alimentan a mi alma a ser mas deseada // No puede ser la luna, ya que es poco en relación al amor de tu mirada // Siempre quédate a mi lado // Esperare por ti como si esperase el final de la tormenta // Comenzó a cambiar de ideas, tomando en cuenta lo poco que sabia de el y lo que los demás decían // No era suficiente para calmar las dudas que tenia // Entonces, te das cuenta de que siempre caminas de frente al sol y dejas mas amor de ese rastro, en aquel camino que a veces avanzas volando // Mientras estés en el aire, distrae tu mente // Un lugar donde robare tu mente y te regalare mis sentimientos // A la persona que lo merezca // Ni el cielo será tu limite // Si tu lo crees así, todo lo que quieres y necesitas esta en ti // Para volar a donde tienes que ir // Pero antes tienes que aprender a caminar // Junto a las estrellas que danzan pero tu las convencerás de andar y con destino de ese lugar que solo tu y esa persona

especial conocen // A 7extranjeros que viajaban por Sudamérica rumbo sur. Siguen en la camioneta con ellos durante 3 días // La vida sigue su curso y en el camino a donde vayas mientras estés en la vida seas feliz por décadas // Aunque sea solo un decir, pues a estas alturas he aprendido que el rio que es la vida se compone de flujo de emociones siempre cambiantes. Y un momento puedes recostarte en las suaves praderas y de pronto te ves caminando en el bosque oscuro // Con los ojos de esperanza // Dame la mano, te espero, tuyo, eterno // Mano, que pasa por la calle? LA VIDA ES BELLA // Para todos nosotros la vida, es una maravilla que dios nos ha dado. Por eso mientras haya vida todo lo podremos lograr, con nuestros amigos, familiares, y con todos lo que lean estas lindas palabras que sean para el bien de la humanidad // La paz y el amor palabras trillas pero las mas y mejores del mundo // Los humanos y los animales debemos cuidar a los animales y al medio ambiente // Y vivir en armonía con los seres humanos // Sin importar nuestras preferencias como religión, sexualidad, nacionalidad, etc // Cada persona es libre de lo que quiera ser // Ser fiel a lo que cada persona cree que le llena el espíritu // En el corazón siempre llevan y en la mente los momentos continuaran hasta que uno parte // Del principio para hacerlo interesante todo sentido // Común, es lo que el alma mas crece // De cualquier cualidad que (q show) lo convertirá en un ser humano // Eres y serás hasta el fin de los tiempos // Los tiempos están cambiando, y esto con un "fin." ¨Este fin ¨ se llama comienzo. En este comienzo puedes elegir que hacer, si seguir adelante o si decides avanzar en otra dirección, porque de eso se trata la vida, de cometer errores y aprender de ello // Ser buena persona te trae buenas cosas en la SOFIA vida // Encierro en paz en soledad, quien no ama a la libertad, porque no es uno libre sino estando solo // Solo así encontraras el verdadero camino a la felicidad, Solo así serás tu mismo // Por eso sonríe, cree, piensa, lee, aporta, quiere...../// Camina al verdadero futuro // Todas las paginas del código tienen reverso // Y todas las paginas del reverso tienen un código // De procedimientos penales la modificación del día // Anterior a la caída del imperio yanqui que nos oprime aun mas en estos tiempos // En estos tiempos todos deben amarse y

valorarse // Hay que valorarse a la colonia Doctores y Roma.// Hay que respetar ya sean calles para que siga igual de bonito // -Como lo es el respeto a otras vidas y espacios.// Para una buena convivencia debemos ser tolerantes y buenas personas // Para estar en paz con el mundo // Estar en paz con nuestro prójimo y no contaminar // Cuidarnos unos a otros para sentirnos seguros y en paz // No tener miedo a salir a la calle // Que haya vigilancia p/nuestros niños // Hola niños como están // Hola mundo caótico // Todo es lindo y maravilloso // Un amor sin mentiras // Aunque se nos vaya la vida entera // Y que nos quede un cachito de sueño // De muchas personas que no piensen que todo depende del gobierno // Que Mexico progrese // Para un país mejor y triunfador, para que haya amor y paz // Y un mejor gobierno, y que no sea corrupto Gobierno // Para vivir en armonía, solo basta ser un ciudadano ejemplar, para ello es bueno ser una luz pensar, actuar y fatuo ciudadano. En ello saber y conocer, nada de lo humano me es ajeno // Y de lo ajeno es la humanidad, existe el momento perfecto para reflexionar // El placer de la vida, depende de la actitud que pongas en ella // La versión de uno mismo para poder amarla // Esencia de tu ser atrévete a saltar a tus adentros te sorprenderás de lo bueno y no tan bueno que hay pero que igual es tuyo, aprende a amar ambos igual son tuyos al hacerlo posiblemente llegues a descubrir que mereces amar y ser amado, pero tienes que empezar por ti amándote amaras a los demás no importando si son diferentes a ti son otros tal vez igual que tu buscan las mismas cosas, pero no lo sabes sino preguntas y sino lo expresas. ATREVETE A SATAR PARA ADENTRO Y SALDRAS AFUERA // Fui al parque y me dio asco porque vi a dos hombres besándose ¡huy que terrible! // Día porque llovió y me moje mis ojos de tanto extrañarte, te amo muchísimo, entonces se abrió el cielo y te vi // Y me dieron ganas de besarte, pero me dije a mi mismo que sea el que me bese // Una mujer oaxaqueña en la plaza Luis Cabrera // ¡Que¡ Yo soy la mujer oaxaqueña, no se que escribir. Que mal lo del registro de mascotas, hay mucha gente que aun ni se entera // La falta de información es un mal común, no solo el registro de nuestras mascotas si no hasta como vivir con ellas, como hacerlas

realmente felices y alegrar su vida de manera digna // Y con humildad ser honestos llevar una vida con espíritu de amor, tener amor ágape // Alcohol, bebe, alcohol agave.// Para que te alegre no solo el corazón sino la mismísima vida // Empieza cuando nacemos // Y prosigue cuando somos unos niños y a veces deseamos volver a serlo // Pero cuando somos grandes queremos ser niños no queda de otra y asumirlo // Asumirlo: Aceptar errores, enfrentarlos sin opción alguna... // Opciones, cosas que nos quitan al nacer, como el respeto y el saber // Saber: El conocimiento que obtienes mediante el estudio // Debes tener derecho al estudio y al saber// Nada es eterno estamos aquí de paso // Al mal paso dale prisa // Siempre se feliz XD // La paz y el respeto es lo mas importante // Es ser honesto y respetar a las personas que mas amas // acompañarla hasta su casa // En donde continua su destino // Simplemente hay que levantarse y sonreír // Es algo muy bonito. Es algo que te inspira // Y compartir en familia // Rescatando perros abandonados // Perdidos en las nubes y las estrellas. Perros que nos recuerdan que todos somos polvo de estrellas // Y así, de la misma manera a las estrellas hemos de regresar // Y en el universo de tus ojos me perdí, porque el haberte conocido me hace flotar // El tlacuache salió esa noche de parranda // Y quedo de verse con su cuinco en la esquina mas hermosa de parís // La ciudad del amor? Del mismo que me la trajo un día en medio del llanto y del dolor pero ahí lleno mi mundo de alegría // Se siente segura de caminar por la calles // Y esto la hace feliz ya que ama la tranquilidad // Estar en paz contigo y tu entornó // SI hay música en tu alma se escuchara en todo el universo // SU inmensidad repleto de cosas, personas y otros seres // Sin embargo cabe destacar que no hay Dios, ni destino, ni amor // Para saber si uno de los anteriores existe la única solución es preguntarle al hijo (o hija) de una puta. De una vez les respondo: quien sabe // El corazón alegre hermosea el rostro¡¡¡ //Destrozado en la cama de mi habitación recuerdo los momentos de nuestra hermosa relación y atreves de las lagrimas veo tu rostro alejarse de mi hasta desaparecer. Me preguntó si nos amábamos porque estábamos separados? Es amor correspondido para dos seres por siempre // Es

fácil hablar cuando lo que pasa no es a ti, pero el real conocimiento se adquiere cuando se vive de car propia la situación // A una persona con su actitud // Encuentra tu ser crea algo mejor // Se va lo bueno pero llegara algo mejor // We fill our thoughts with every day reminders.

Es un jardín, es un jardín, es un jardín // Grace & mercy you //Aquí todo es // Muy interactivo //Muchísimas gracias // Dos meses increíbles en Mexico // Catalina // Pez Laura //Pau // George. Isaac. Luis. José. Saúl // Camila es una Lol // Casa Luis Barragán // Luis Barragán // Love // Sálvese quien pueda // Mexico lo máximo // Mexico el mejor país // Lo mejor de vivir el día como venga la vida es una re // Vive la vida en Mexico // Hay que vivir la vida sin violencia // Una vida sin adicciones y un Mexico limpio de vandalismo // Incorregibles de gallardo // Vaya Vaya Tacubaya // Iztapalacra // Vez, Tortas, chicles, enano, Richi, Gordo, pollo, negro // Felicidades por la ciudad que este mas hermosa que nunca // Valeria Milo //Mía Ramirez // Nada sucede por casualidad, todo tiene un motivo // She lost control // Invitar a meditar a nuestros lideres por un Mexico mundo con rectitud y justicia: Satya // Se amable es gratis // Se Feliz //Un Mexico limpio // Un Mexico unido // Queremos a barragán de vuelta // Regresen el anillo // Esta chido // Del Mas Allá // Regresen el anillo // Ganando como siempre // Michel // Dilan // Suerte // Sacar 10 en la secundaria //Sacar 10 en la primaria // Haz Sonido // Vive Tu vida // San Miguel // La vida llega a ti // La felicidad es una decisión // La vida es cuesta arriba pero la vista es genial // Lo que no mata te hace mas fuerte //Para superar a los demás te tienes que superar a ti mismo // Que tengas buena suerte hoy. Buenas tarde que dios lo bendiga y mucha suerte se lo merece //Prehiegth // Vive tu dia al máximo // Paz y amor // Vive sin drogas // Vive feliz //Vive con amor // Las drogas no llevan a nada bueno. Vive en armonía y feliz //Keya // Se feliz // La felicidad es lo mas importante en la vida // Felicidad y amistad // La imaginación es un mundo nuevo // Se feliz. Nunca se triste //Familia Gomes first // Vamos con todo siempre // Queremos seguridad por todos // Montse // Plano de casa con ventana // Hay que vivir la vida // La mejor aventura es vivir tus sueños // Siempre con Fe y optimismo // Si la vida te da limones has limonada // Hello darknes my old friend // Se

Feliz // Amor //Armonía // Disfruta cada momento // Había una vez // Una princesa llamada Atena // Que siempre comía papas // Refrescos de todo tipo y no engordaba //Sus hijos los cuidaban bien // Pero un dia tomo la decisión de comer y comer y empezó el problema // Lo único bueno es que empezó a tocar el piano. Y, se dio cuenta de que la música la acompañaba en sus momentos de soledad y al menos comía alegre // Su Salud mejoro y con ello le dieron ganas de salir a conocer el mundo // Y al recorrer el mundo, visito un mercado donde conoció el jitomate y su color le pareció tan bello que lo quiso morder y dijo: TU me gustas y todos los días te quiero tener en mi comida // Cuando comenzó a comer el jitomate, se dio cuenta de su rico sabor y mas después de varios días su color comenzó a cambiar, su rostro era color rojo // Se comenzó a asustar, así que corrió con el doctor, quien, le receto comer brócoli y espinacas para recuperar su color normal // Regreso a su hogar y le comento a los reyes, sus papas que era bueno comer espinacas para mejorar su salud // Emprendió su tan esperado viaje. Llego al mundo morado donde todo era felicidad. La princesa mujercita esperaba con ansias ese viaje por el universo visitando varios planetas y galaxias, la idea era ya no regresar a la realidad. Meliacid And soul.4ever en todas las realidades // Nunca dejes que una persona te cambie // En la sabiduría del cosmos me di a la tarea del por que de la poesía // Después llego el príncipe a salvarla // En su castillo encantado, saltaron por la ventana, y el foso, y montaron en su corcel blanco, salieron a golpe y se perdieron en el bosque // No podían respirar de tanto lodo, todo se les metía en la nariz. Hasta que un tigre les lanzo una cuerda // Y de pronto un dragón los rescato // Y después de ser rescatados decidieron ir al cine a ver una película con dulces y palomas // Pero en todas las salas había una película de superhéroes y mejor se fueron a la cineteca // Donde se dieron cuenta de las maravillas del cine mexicano // Y que ese lugar es una maravilla de arquitectura y puedes ver buenas películas // Que ayuda a familiarizarte mas con la cultura mexicana y del arte de la actuación // Dentro de ellos encuentras antecedentes que no conocías y ahora podrás ir a verlas // Saliendo decidieron ir por un café a Coyoacán, para platicar sobre la cultura del

país // Pero después ellos decidieron llamar a mas gente para desarrollar un plan de acuerdo a su alrededor en su mejora // Y llegaron unos chakas y los asaltaron // Ellos corriendo se subieron al ecobus // Y el príncipe quería besarla, pero se dio cuenta de que la princesa estaba horrible // Y el ecobus fue abducido por aliens // Pero ellos cayeron por la ventana y fueron por una gordita de chicharrón // A la princesa le dio salmonelosis // Y se hecho muchos pedos // Y el príncipe se fue por el mal olor y la engaño con su mejor amiga // Lupe alias lupus // Resulto embarazada // Y su amiga dijo que abortara // Pero no lo hizo // (por su gran fe en el nazareno) // Y a Pesar de estar conforme con su decisión se sentía deprimida // Confundida, desesperada, no obstante // Ella no sabia como decirle a sus papas // Solo se le ocurrió la frase "ha de ser horrible tenerme y después perderme y se animo a contarles //Pero estaba decidida, sabia que su vida cambiaria por completo, pero era para estar siempre mejor // Había una vez // Te quiero como a nadie // Eres lo mejor que me ah pasado // Te sigo amando aunque tu no lo creas // somos dos en medio del color de la luz y el espacio // El silencio entre material, nos cobija y nos invita a vivir // Fin // Había una vez, un día soleado, en frente a un lugar mas extraño que hubiera visto // No se como llegue ni que hago aquí pero si se que es tan solo el principio de una gran aventura // Una aventura llena de misterio, romance, drama, pasión.. y algo que aun hoy no sabría describir... //Tendré que seguir mi camino, aprendiendo y viviendo, si llega algo lo escribiré y sabrán la experiencia // La grata experiencia de amar sin esperar algo, solamente viviendo como si fuera el ultimo día // El amor no es un juego fácil // Fácil es rendirse y no luchar por lo que quieres // Fácil es tener una amistad, lo difícil es mantenerla // Sonríe aunque te encuentres en momentos difíciles // La vida es una fiesta no dejes de bailar en ella // Había una vez un chavo que se distrajo con dos hermosas chicas // Solo el arte nos saca de lo cotidiano // Las chicas siguieron su camino // El chico no vio inconveniente en eso las comenzó a seguir sigilosamente // Una de las chicas se dio cuenta de que el chico las seguía // Y como el era muy guapo, ella decidió por preguntar su nombre // Se retracto solo

por que le gustaba slipknot // Mejor la invito al bosque a caminar pero no le gusta // Ella mejor decidió ir a su casa, descansar y ver tv // vieron muchas películas y comieron palomitas hasta que se quedaron dormidos //Después despertaron y encontraron un juego y se murieron por que el juego era maldito // Y luego se dieron cuenta que era la película de saw // Todo eso surgió a raíz de tremenda pedota que traían Isaac dijo que el mezcal no era buena idea. Y nadie le tiro un pedo // Prefirieron tomar pulque por que las penas se curar mejor de esa manera // Después de estar un rato en casa de Karime fueron a casa de Sandra, ya que ella tiene alberca // Y de ahí siguió la peda con algo mas que pulque, hasta que salio el sol // La carretera de Uruapan a Apatzingán estaba llena de sol, apenas se distinguía el camino por la forma que se reflejaba la luz sobre el asfalto, solo una mancha de sangre se alcanzaba a ver sobre la línea amarilla que separaba los dos carriles. Solo un cuerpo envuelto en su propia sobra // Y día siguiente se dio cuenta que había despertado de un coma y todo había sido un sueño // Pero despertó sin piernas y eso mermo su sueño //Pero supo salir adelante // Y pudo lograr todo lo que siempre había querido // Y decidió ayudar a personas discapacitadas como el // Dos personas chocan en medio de la calle entonces.. // Se mueren, pero llegan al cielo.

Vive feliz // La vida es maravillosa // Un Día Soleado // caminando por la calle // Go ape te pone happy // En la vida no se pierden amigos, solo se descubre quien vale la pena // Vengo de taxqueña y en el camino // Recuerdas nuestro primer beso o nuestra primera mirada. Nunca lo olvidare // Perro que ladra no muerde // En la vida dos cosas que te mueven el agua y tus sueños // Todo se paga con la misma moneda // Lo fácil aburre y lo difícil obsesiona // Un gran poder conlleva una gran responsabilidad // Que es la vida sin ni un poco de riesgo // Las cosas no duran para siempre // La amistad no es fácil pero vale la pena luchar por ella // EL que tiene paciencia obtiene lo que desea // Hola // Siempre hay que respetar a las personas // Me siento alegre // Me siento enamorada // Me siento enamorado // Me siento confundida // Hay veces que no confiamos en lo que pensamos, deberíamos de confiar en nosotros y no dejar que muchos decidan por nosotros // Hay que amar a las personas.// Mi novio Uriel // Me siento enamorada // I love nepe // Te extraño jonh // De trayectorias distintas; dos vidas colisionan y dan vida a una nueva... así empieza esta historia // Las cosas pasan por algo. Pero la pregunta seria por que? // La vida tal vez no sea la fiesta que pensamos, pero ya que estemos aquí bailemos // El que ya no sabe elegir a perdido la condición humana atte.: memo // Haz lo que amas sin pensar que // Nos perdemos como personas y nos rescatamos como sensaciones // Ya es tarde y tengo que correr... // Todos pertenecemos a lo mismo. Al final vamos a la misma dirección // Hay que vivir la vida // Lucha por tus sueños // Pobre tu burgués que nunca florece en ti la flor de la humildad // Había una ves una rodada, 10 de septiembre por la mañana // Cuando las bicicletas desaparecieron // Excelente combinación cultura, ejercicio y convivencia // Como estala chaparrita y la güera // Exclamaron los caballeros lion // En el camino Se quedaron las tortugas y en archivo los pro // Pidiendo mil coronas por la hija del rey // Para ello, los caballeros hicieron una vaca para juntar 1000 coronas // ya que las vieron que eran chaparras y gueras // Se

fueron de fiesta con la vaca y las mil coronas //Lo borrachos se las bebieron, vive sin drogas // Vive con metas y se feliz // Y si existe un cielo me escapare del infierno y te hare el amor en una nube en honor a nuestro recuerdo.// El que ama a primera vista traiciona con cada mirada // He encontrado el lugar correcto para esconderse // El que quiera azul celeste que le cueste // Entre mas difícil mas grande es el triunfo // Si nada nos salva de la muerte nada nos salva de la vida // Vale la pena luchar por lo que vale la pena tener // Hay que disfrutar a nuestros seres queridos // La vida o El Hombre se vive una ves o hasta que hay que disfrutar que tenemos del recuerdo.//Existen políticos corruptos y especies en peligro de extinción // Así que hay que echar mas ojo a cuantos like tiene nuestra foto de perfil // Hoy será un gran día, alcanza tus metas y logra tus objetivos // Nunca te rindas // Ten cuidado a quien hieres, no todo el mundo es responsable // La puntualidad es la educación de los reyes // Todos tenemos un diego.- Frida Kahlo // Eres mi persona favorita //Hola //Te amo Omar // Brayan Ricon Miranda M.A Te amo // Karla y Carlos // Billey Y Selene mejores amigas // Hola mundo soy yo // Hola grupo // Izkatzinrifa // TKM Selene, Chayo // Te quiero BIlley, Selene e Ingrid //Lizbet, Noemi, Regina, Paola, Diana y Carlitos //Mafer, Anna; Abigail, Cavidad, Ariathna, Salma y Jenny // Saul. Luis. Marcos y yo // Porque no hay decoraciones de otoño aquí? // Viva Mexico // Este día de la independencia quiero dormir pero aun así... Viva Mexico // Que Maravilloso es ser mexicano // Deja de quejarte de tu vida, mejor ocupa ese tiempo en hacer algo para cambiarla // El respeto es como el dinero, puedes pedirlo pero es mejor ganarlo // 15 de sep. Haz algo diferente genera cosas chingonas, no chingaderas, cero alcohol, celebra como Juan Escutia, con puro valor mexicano cero drogas // Siente, no te escondas tras ello // Que chingados importa hazlo de todos modos // 15 de sep. Pasa la bien con tu familia // No solo este día, sino, todos los días del año // Y que no haya tanta violencia // cero drogas y narco // Queremos un Mexico sin desigualdad, incluyente y seguro y que todos gocen las mismas oportunidades.

Appendix B

Networked Playscapes

Edwina Portocarrero

Zine created for the Schnitzer Prize exhibition, designed by Orçun Göğüş.

Making play free again.

Play has changed with the advent of new technologies. Where streets were the playground and neighbors our playmates, now we also play-mediated, across distance, with people we might never meet. Yet, physicality, materiality and commonality, strengthen our experience of the real in the realms of perception, experience, cultural and social interaction.

Playgrounds, once made by architects, artists and designers, are now almost all plastic kits made with litigation rather than play in mind and mostly used by toddlers rather than by everyone.

Digital games have taken quantum leaps at blending digital and physical play through AR, Wii controllers and motion trackers to name a few; play in the public space remains analog, confined, and mostly designed by others. Augmented reality adds a layer of information to the built environment, usually perceived through a portable device and accessible just to its owner, turning the world into a virtual personal playground.

Instead, Networked Playscapes advocates for the shared experience of networked play happening in a dedicated and designed built physical, public space, fomenting interaction onsite as well as at a distance across populations that would otherwise not interact.

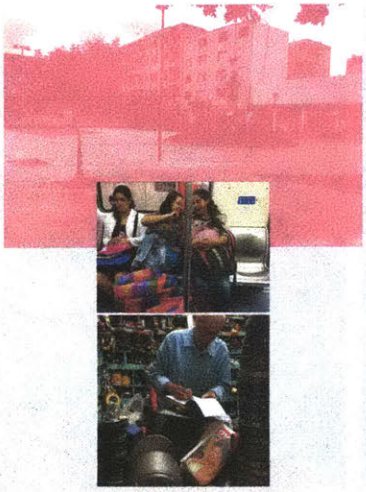
Deploying in Mexico

When designing for Mexico City, we focused on creating ludic bridges to connect marginalized zones.

Called home by over 20 million people, Mexico City is deeply divided. City scars mark social exclusion and ethnic segregation hides in plain view.

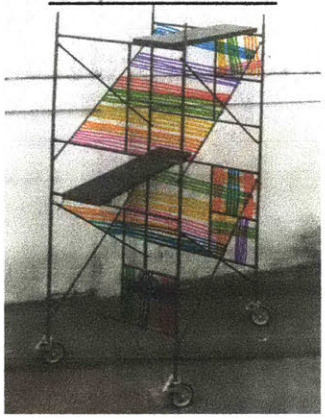
Networked Playscapes had many homes, many hosts, sisters and brothers. Café Bagdad, Laboratorio para la Ciudad, La Merced, Museo Tamayo, Casa Talavera, UNAM's Industrial Design Department (CIDI), Archivo Diseño y Arquitectura, Chapultepec and Aragon Forests, Cocolab, Conacyt and MIT's Media Lab – all played part at making it happen.

Talk about bridges!



Creating ludic bridges to connect marginalized zones

01. Andamio



Andamio takes the ubiquitous scaffold and turns it into a networked, modular, playable structure, defying the need for a designated space for play. Andamio adjusts and adapts to where it is placed, it is built grounds-up (weave is simple enough for any skill level), uses light as a gathering beacon and extends the hours of social communion into the night. Networked, it introduces the "other" as a play variable. Its flexible design taps into imaginative as well as motor play, appealing all generations.

a networked, modular, playable structure

02. Triciclo

Triciclo infiltrates divided communities by appropriating the idiosyncratic cargo tricycle and hacking into the ambulantes' roaming sales network. Rather than selling tamales or gas tanks, it turns this tool of commerce into an artifact to transport and exchange ideas, testimonies, memories and experiences rather than merchandise.

Triciclo endorses co-creation as a way to know thy neighbor.

Triciclo wove Colonia Pensil with Polanco, Colonia Doctores with Roma, and San Miguel Chapultepec with Ampliación Daniel Garza. You could find it outside schools and cantinas, punk venues and plazas, boutique ice cream parlors and penitentiaries, metro stations and hospitals. Lots of love and life advice intermingled with politics and personal credos not without hand-written emojis.

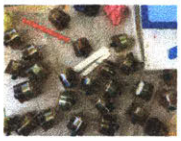
Triciclo endorses co-creation as a way to know thy neighbor.

03. ListenTree

Trees connecting people. People connecting forests. Aural landscapes configured through tactile and aural vibrations that invite to an intimate relationship with the environment.

A visitor to the installation notices a faint sound appearing to emerge from a tree (or several), and might feel a slight vibration under their feet as they approach. By resting their head against the tree, they are able to both feel and hear crystal clear sound through bone conduction.

ListenTree was meant to connect Mexico City's most important forests, Chapultepec and Aragón. The equipment was installed just to be stolen... Still, we built it all over! The second round died at the hands of bureaucracy – a slow death that took two years of meetings and emails, forms and letters, scoldings and changes. Sad, but a lesson learnt!



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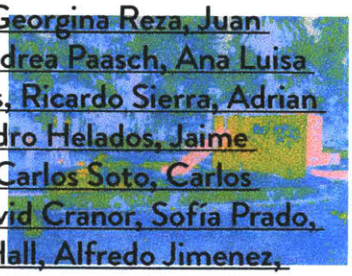

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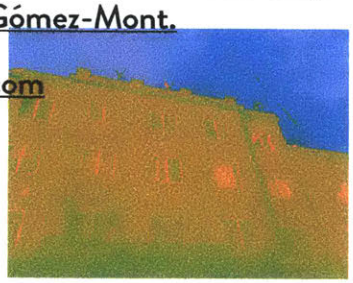

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CONAPO Consejo Nacional de Población www.conapo.gob.mx.

Höweler Eric, Y. M. "Höweler + Yoon www.howeleryoon.com/projects/swing-time

Imagination Playground www.imaginationplayground.com/

INEGI Instituto Nacional de Estadística y Geografía www.inegi.org.mx

Laboratorio para la Ciudad www.labcd.mx

Lateral Office www.lateraloffice.com/IMPULSE-2015-16

MONSTRUM www.monstrum.dk

NIANTIC "Pokémon Go" www.pokemongolive.com

PAOT Procuraduría Ambiental y del Ordenamiento Territorial www.paot.org.mx

Playscapes www.play-scapes.com